Benefit-Sharing in Forest Carbon Projects

Lessons from Private Sector-Led Afforestation and Reforestation Projects in Laos

NUS National University of Singapore | Centre for Nature-based Climate Solutions Faculty of Science

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Increased scrutiny on the social integrity of forest carbon projects

1. **Social dimensions remain secondary to carbon accounting** despite existing safeguards in the voluntary carbon market

2. **Social integrity issues are highly inter-linked:** governance, land tenure, carbon rights, benefit-sharing etc

3. **Existing research has mostly focused on REDD+ projects** due to its longer history and close interaction with communities

   - **Gap: Afforestation, Reforestation and Revegetation (ARR)** projects understudied despite growing demand



Don't lock Indigenous peoples into bad carbon deals: experts

Indigenous peoples are critical for saving forests, but receive less than one per cent of conservation finance. Carbon trades should give them a bigger share — and enable them to back out of deals they feel are unfair, say experts.

Research article

Effect of REDD+ projects on local livelihood assets in Keo Seima and Oddar Meanchey, Cambodia

Sereyrotha Ken [a,b,*], Tomoe Entani [a], Takuji W. Tsusaka [c], Nophea Sasaki [c]

Environmental justice and REDD+ safeguards in Laos: Lessons from an authoritarian political regime

Sabaheta Ramcilovic-Suominen, Sophia Carodenuto, Constance McDermott, Juha Hiedanpää

Melo et al, 2014; Angel et al, 2026; Lau et al, 2025; Agarwal et al, 2025



What are benefit-sharing mechanisms and why are they important?

Benefit-sharing mechanisms (BSMs)
Intentional transfer of monetary and non-monetary incentives to stakeholders for the generation of environmental results funded by revenues derived from those results

Key principles of benefit-sharing (3Es)

Guided by principles and safeguards found in certification schemes, but lessons from REDD+ highlight complexity and negative impacts if not well-designed (e.g. elite capture, conflicts)



Effectiveness



Efficiency



Equity

Importance of benefit-sharing

Incentives necessary to avoid deforestation or reduce emissions

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Builds legitimacy and ensures effective local participation

↓

Contributes to project durability and lasting impacts

Durbin et al, 2020; Wong et al, 2019



Key Research Questions



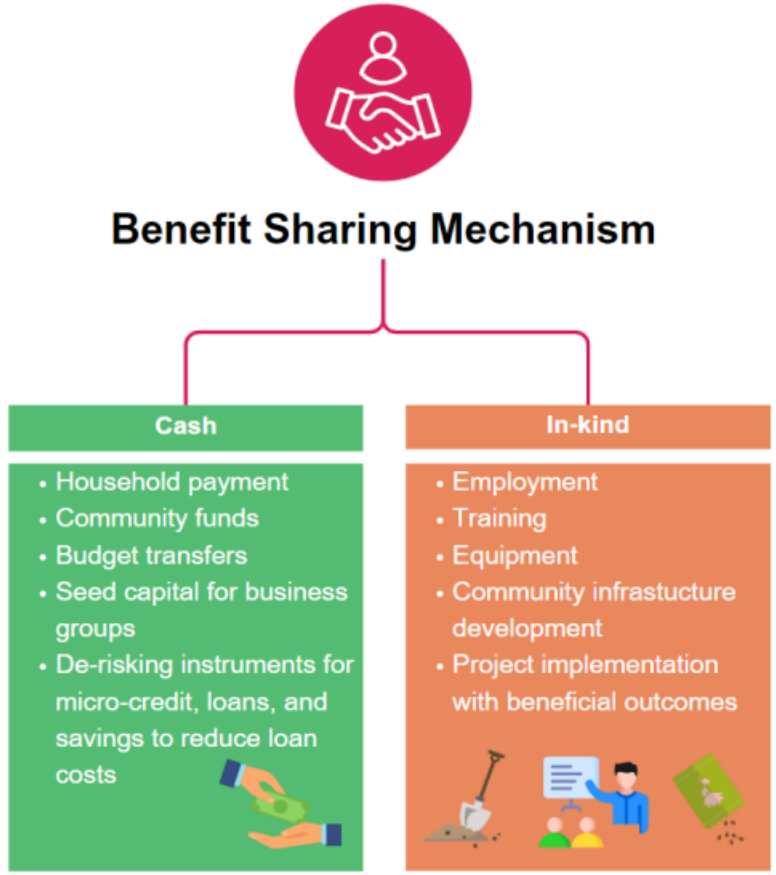
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How **effective, efficient and equitable** are the design and delivery of benefit-sharing mechanisms (BSMs) in **afforestation / reforestation carbon projects**?



2

How can BSMs be **strengthened** to better **engage and empower local communities** over the project's lifetime?





Laos as a Case Study & Fieldwork Sites

- **Second highest forest coverage in Southeast Asia** at ~ 62% with a national target of 70% by 2035
- **History of donor-funded REDD+ projects** and market-based projects by private investors
- **Recent updates on legal frameworks** (Decision on Forest Carbon Management & Carbon Markets Decree) to support market-based mechanisms



Fieldwork Sites

1 Project A

- Established in **2008** (30-year period)
- Reforestation of **rubber** plantations
- **3** partner villages through land-leasing model from local community

2 Project B

- Established in **2016** (20-year period)
- Afforestation of **eucalyptus** and **acacia** on degraded areas
- To-date, **40** partner villages through various land use acquisition models



Theoretical Framework and Data Collection

3E Assessment +
Environmental Justice Framework

Effectiveness **Efficiency** **Equity**

Empirical data collection during fieldwork

- *Quantitative:* **117 household surveys** on background / livelihood impacts of forest carbon projects
- *Qualitative:* **33 semi-structured interviews** with key informants and **4 focus group discussions**
  - Village leaders
  - Participating & non-participating households
  - Women representatives
  - Project developers
  - Government officials (Provincial & District Levels)

+

Document analysis of academic and grey literature

- Benefit-sharing requirements listed in **carbon standards and Government decrees**
- Benefit-sharing disclosures in **annual project reports**
- Journal articles on **forest carbon policy** and **governance** in Laos
- Industry best-practice guidelines (e.g. World Bank, WWF)

Wong et al, 2017; Schlosberg, 2007; Bowen, 2009



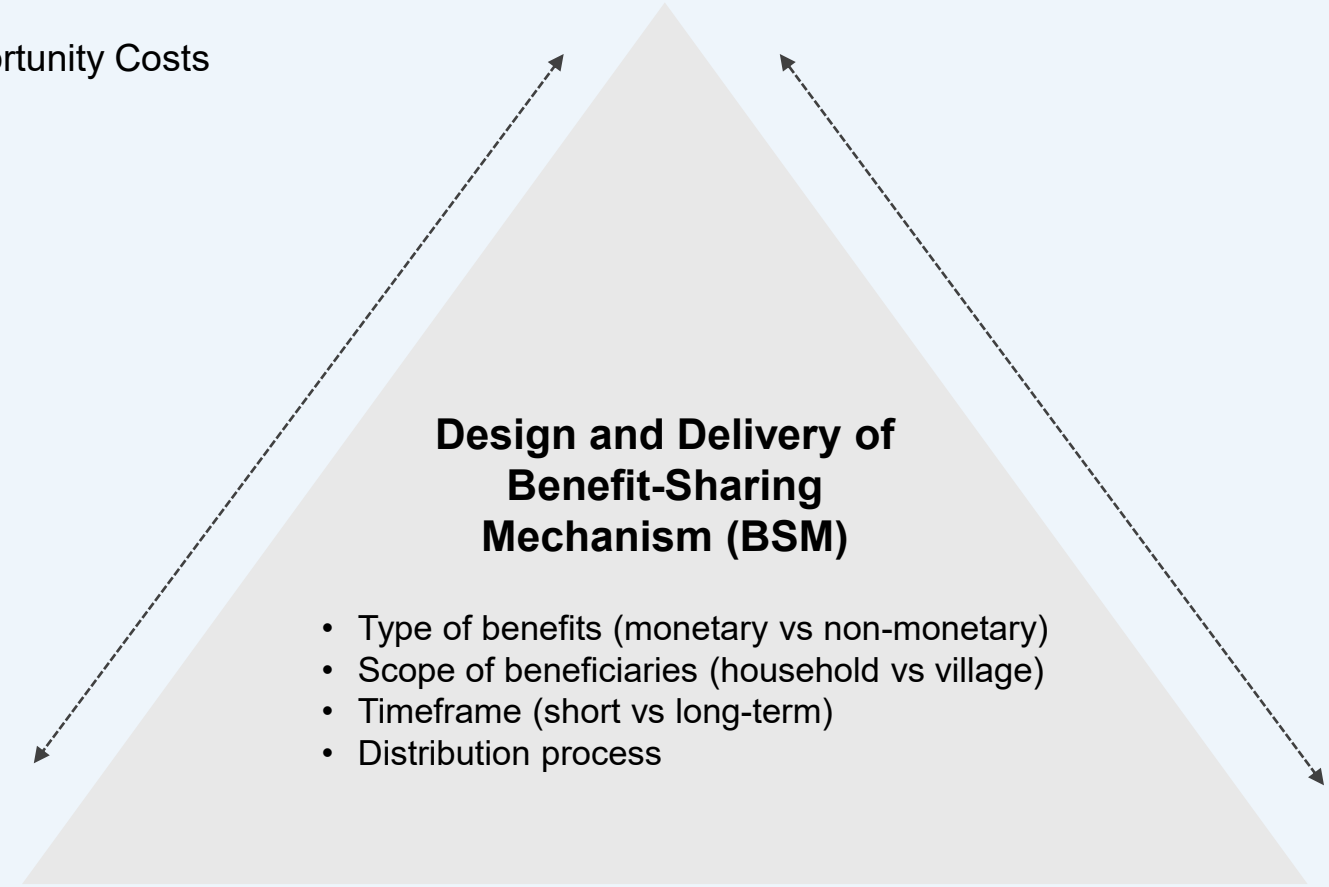
CONTEXTUAL FACTORS

- Culture and Livelihood Characteristics
- Land Tenure and Security
- Governance and Policy
- Market Dynamics and Opportunity Costs

EFFECTIVENESS

How has the BSM impacted its beneficiaries and enabled the project to achieve its intended outcomes?

Synergies and Trade-offs



EFFICIENCY

How efficient is the delivery of the BSM – does it meet the expectations of its beneficiaries?

EQUITY

How equitable is the BSM in terms of its distribution (distributive), participation (procedural) and acknowledgement of the rights/needs of beneficiaries (recognitional)?

Theoretical Framework and Data Collection

Characterising BSM used in project(s)

Household Survey / Interview / FGD Responses + Document Analysis

Objective, Proposed Allocation of Benefits, Types of Payments or Benefits, Conditions and Timings of Payments, Decision-making Process, Safeguards and Monitoring etc

Framework / Thematic Analysis

3E & Env Justice Framework

3E Criteria	Definition	Example Survey Questions
Effectiveness	Benefits have a positive impact on beneficiaries and enable the project to achieve its outcomes	• In what ways did your household benefit and how satisfied are you with the various benefits from the project? Did the benefits meet your expectations? • How do you evaluate the project outcomes based on its intended objectives? • What is your general attitude towards the project and will you be willing to participate in similar projects in future?
Efficiency	Benefits reach its beneficiaries in a timely and cost-efficient manner in line with their expectations	• How satisfied is your household with the timing/frequency and payment method of the benefits received?
Equity (Procedural, Distributive, Recognition)	Benefits are distributed fairly and beneficiaries are engaged throughout the process	• How does your household view the distribution of benefits within the village? • To what extent were your household's views and feedback included in meetings?

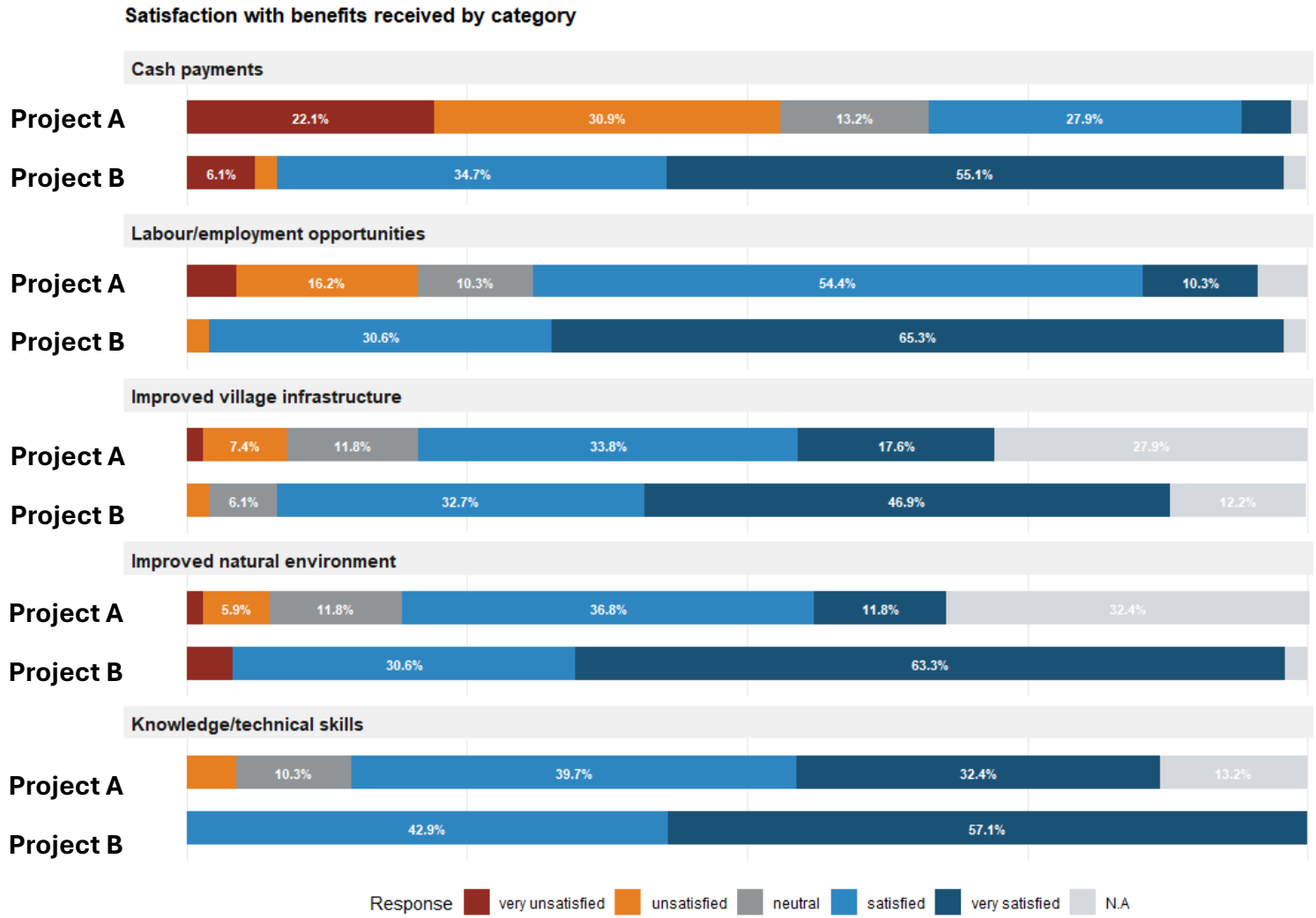
Adapted from Wong et al, 2017 & 2019





Survey Results - Effectiveness

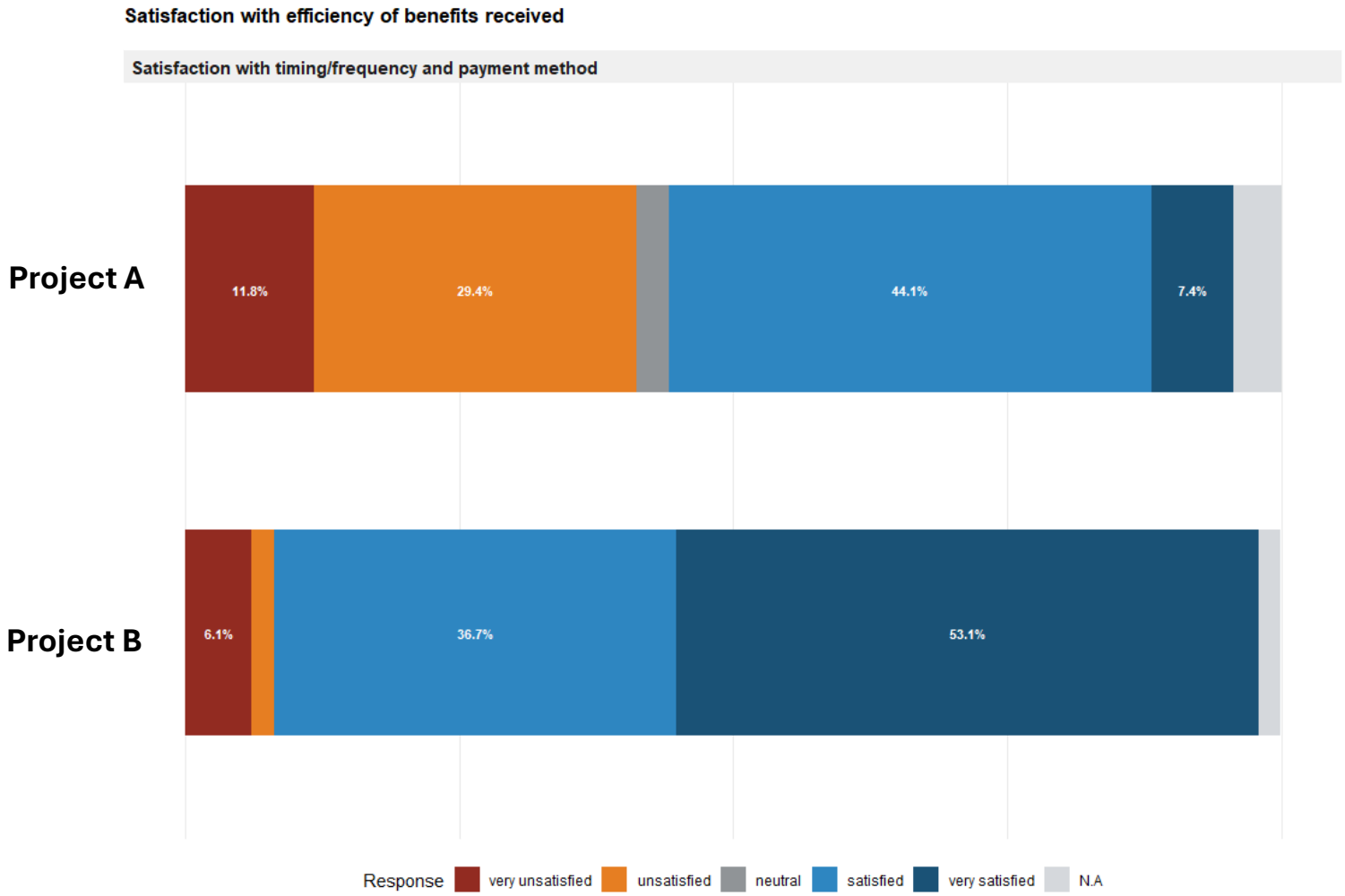
Participants in Project B reported greater satisfaction across all benefit categories compared to those in Project A who were particularly unsatisfied with cash payments.





Survey Results - Efficiency

In terms of efficiency, the majority of Project B participants were satisfied with the timing and method of payment compared to only 50% of Project A participants.

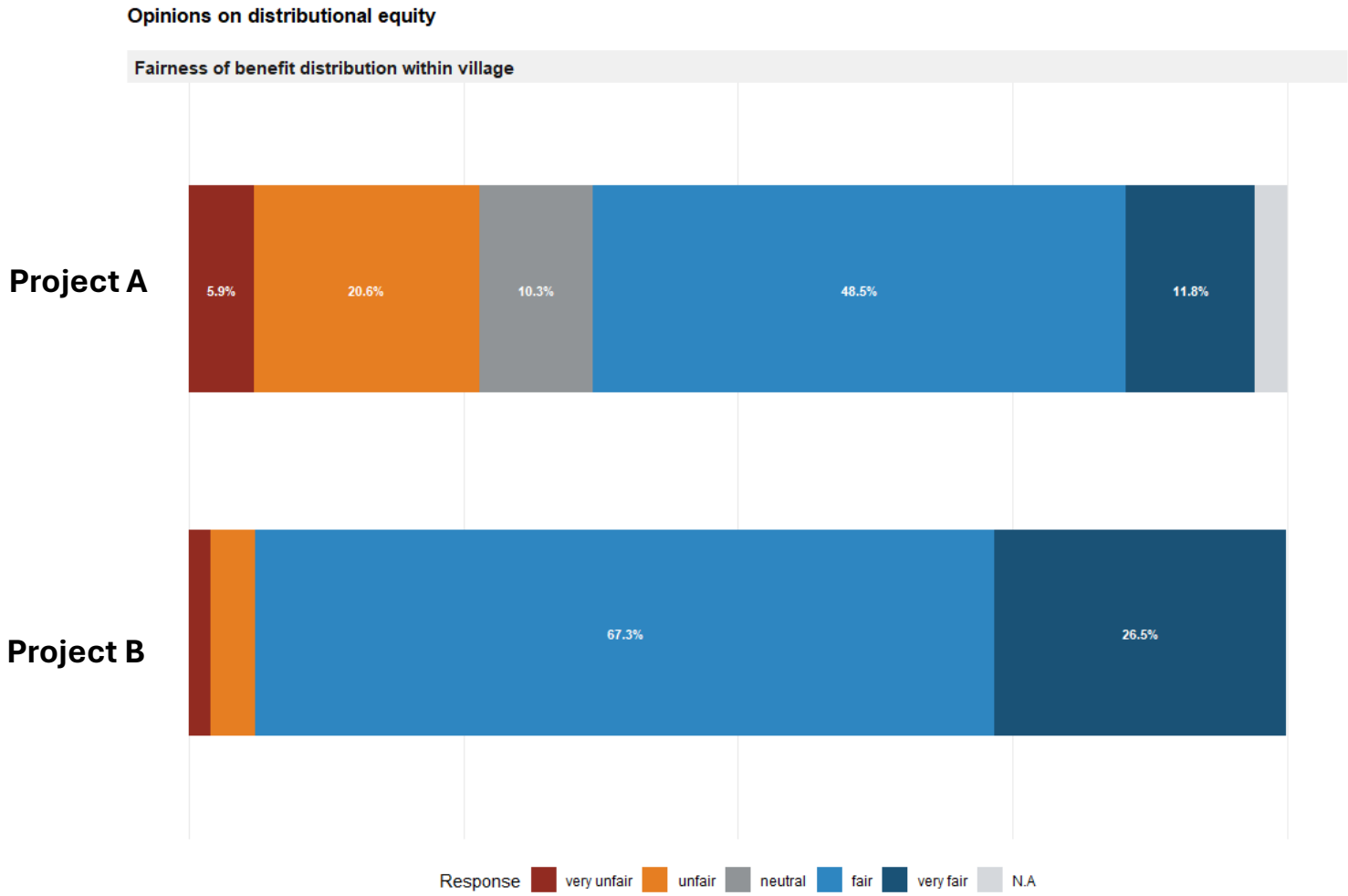




Survey Results - Equity

Similarly, about 90% of Project B participants felt that benefits were fairly distributed while there were mixed opinions for Project A.

However, based on qualitative responses, Project A participants' views on fairness were closely associated with pricing and their grievances around them.

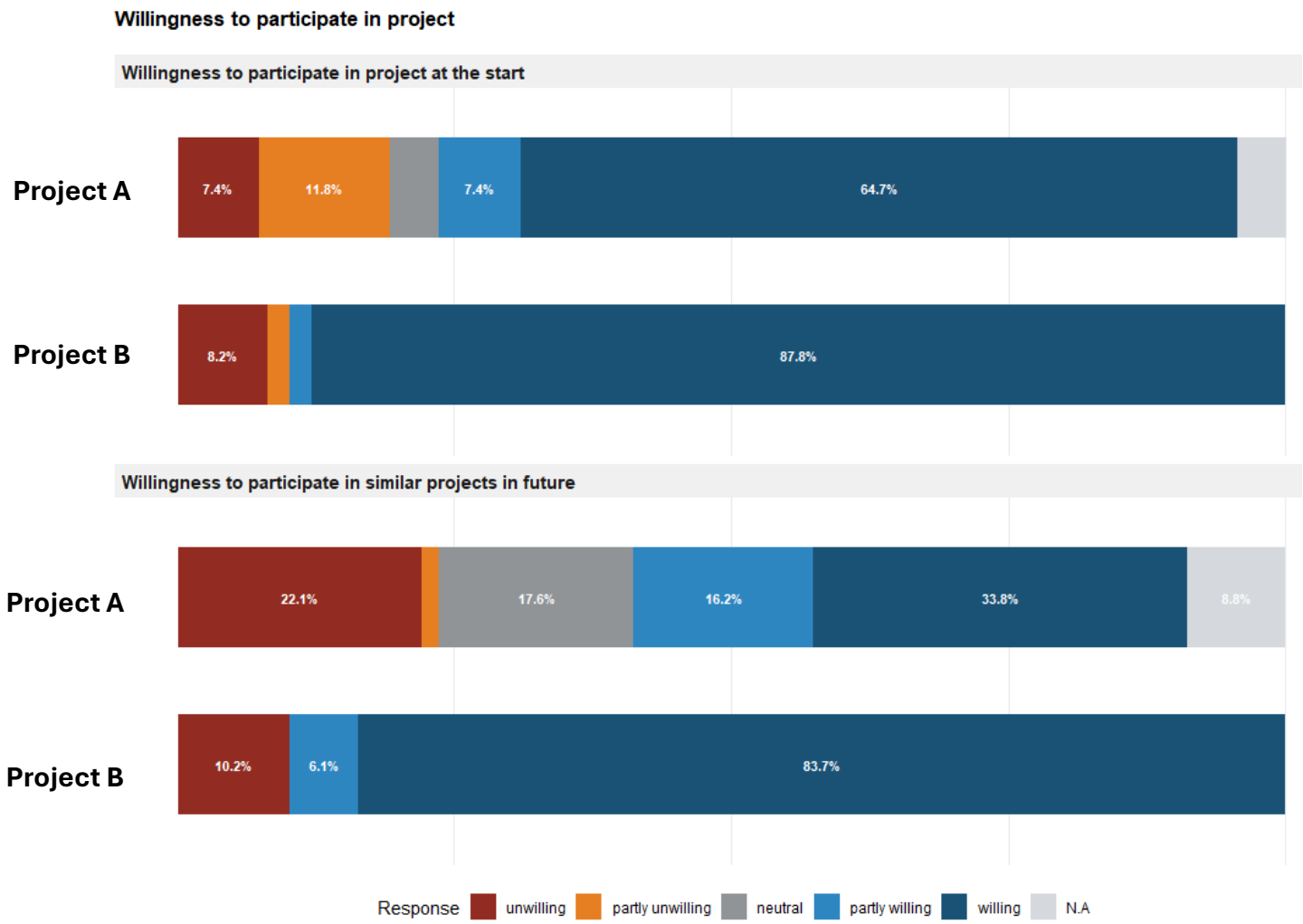




Survey Results – Overall

Overall, Project B participants were also more willing to join the project at the start and in future projects (informed by their experience and benefits received).

There was a marked decline in the number of those willing to participate in future projects after being involved in Project A (72% to 40%).





Summary of Findings



1 How **effective, efficient and equitable (3Es)** are the design and delivery of benefit-sharing mechanisms (BSMs) in **afforestation / reforestation carbon projects**?

1. **Perceptions of the 3Es are highly dependent on contextual factors,** particularly livelihood characteristics and market dynamics.
   - Project A: Rubber as primary livelihood source – grievances related to low, fixed price compared to rising market prices
   - Project B: More diverse income sources - hired mainly as labourers with fixed income for assigned tasks
2. **Effectiveness and equity scores were higher** compared to efficiency due to delayed and irregular payments
3. **Participants appreciated the technical skills** developed, **stable employment** and **improvements to village** infrastructure

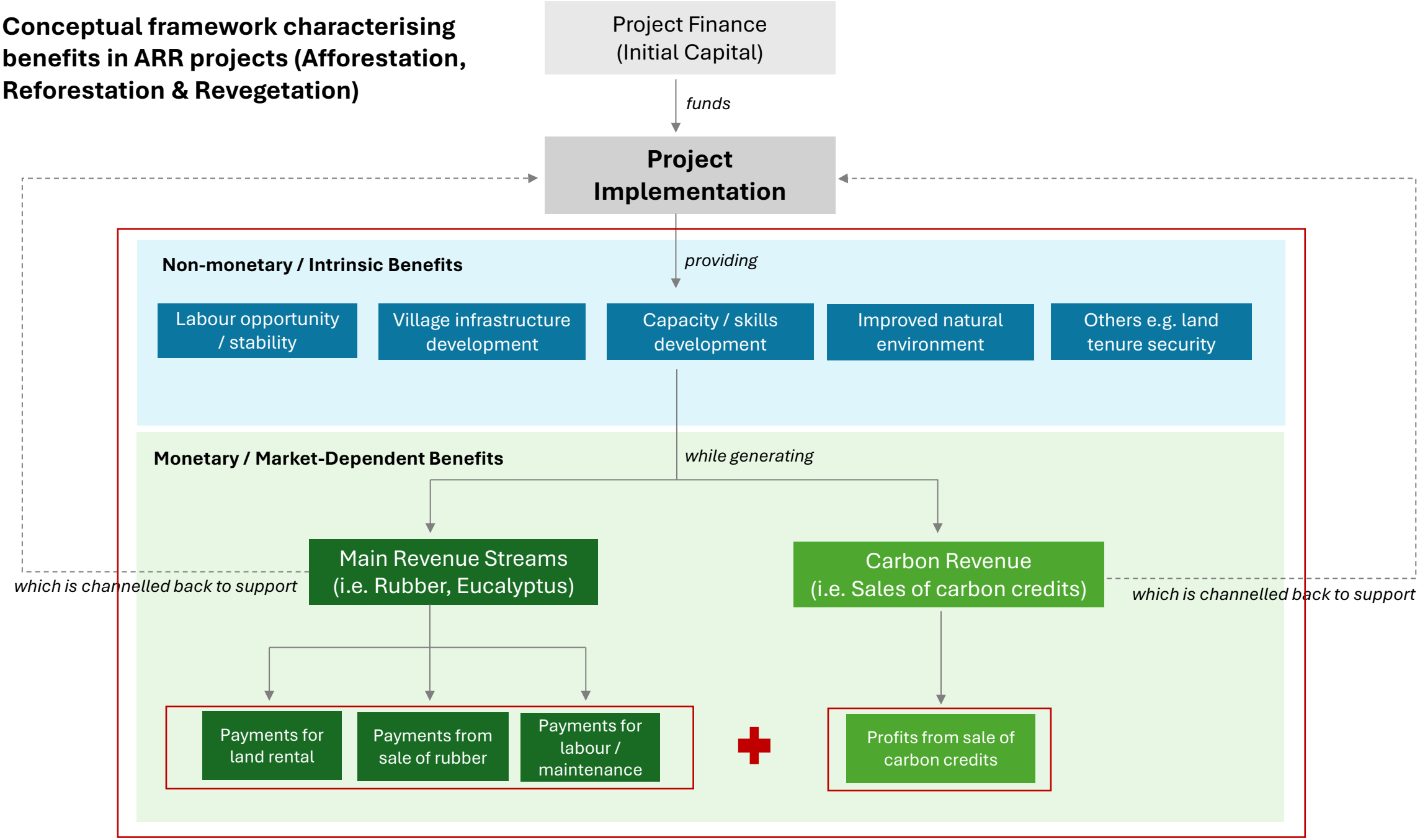


2 How can BSMs be **strengthened** to better **engage and empower local communities** over the project's lifetime?

1. **Move beyond a checkbox approach to FPIC** (Free, Prior and Informed Consent) with regular, inclusive engagements every few years for adaptive management
   - Respond to changing prices and needs
   - Engage women's unions separately before and during project implementation
2. **Ensure net positive benefits** are maintained over the carbon project's lifetime (~ 20 - 30 years) by addressing opportunity costs
3. **Consider inter-generational equity** with options to terminate or re-negotiate contractual terms



Conceptual framework characterising benefits in ARR projects (Afforestation, Reforestation & Revegetation)



Key Take-Aways

Benefits from afforestation and reforestation projects should be assessed and quantified holistically given the varied dimensions and definitions across stakeholders.

Governance, community engagement and market dynamics are key contextual factors influencing the perception of benefits.

Limited understanding of carbon markets may hinder the full and effective participation of local communities, especially in decision-making related to distribution of benefits.

Benefits are dependent on the long-term success and financial sustainability of projects which can be tenuous and dependent on markets. Diversifying revenue streams and sources of finance will be important.



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Contact: shakura.bashir@u.nus.edu

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ARI ASIA RESEARCH INSTITUTE National University of Singapore

National University of Laos (Faculty of Forest Science)

