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PATHWAYS TO THE ADOPTION OF CLIMATE-SMART AGRICULTURE

Presentation by Dr. Edward Carr, Professor and Director of International Development, Community, and Environment (IDCE) at Clark University

Woodrow Wilson Center, September 13th, 2016

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CLARK UNIVERSITY

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Introduction to CSA

CSA is a conceptual framework that seeks to:

1. Sustainably increases agricultural productivity and incomes,
2. Build resilience to/foster adaptation to climate change, and
3. Reduce and/or remove greenhouse gas emissions from agricultural production, where appropriate.

CSA should be viewed as an approach and not a set of practices

Despite clear benefits, adoption of CSA by smallholder farmers has been slow, piecemeal, and largely unsustained.

The Conventional Understanding of CSA Adoption

The present understanding and framing of CSA adoption is largely technical and dependent on:

- The accessibility of new technology
- The promotion of technology to farmers
- The provision of technical assistance to smallholders in utilizing the technology
- The facilitation of increased access to markets

The ~~Conventional~~ Problematic Understanding of CSA Adoption

However, this narrative presumes a lot:

- Adoption is an issue of technology and training
- Technologies work the same way everywhere
- People are motivated by the same things everywhere
- People in the same place share the same motivations

Lots of empirical evidence to suggest that none of these assumptions is true

Understanding CSA Adoption

In other words, technology matters, but adoption is at least as much about…

- Wider ***social, political, and institutional environment*** in which agriculture plays a part, including:
  - Broader livelihoods activities
  - Identity roles and responsibilities (including gender)
  - Decision-making timeframes
  - Farmers' risks, etc.

} Livelihoods

Purpose and Evidence

Purpose: Explore the wide range of factors that shape CSA adoption to identify lessons for practice and knowledge gaps

By triangulating the results of the three data sources, we were able to:

- Identify important factors shaping CSA uptake identified in all datasets
- Analyze differences between datasets

Factors broadly influencing CSA Adoption: Literature Review

Economic and Production Characteristics

- Long-term cost
- Initial cost
- Transaction costs
- Multiple objectives
- Impact on yield

Social and Cultural Context

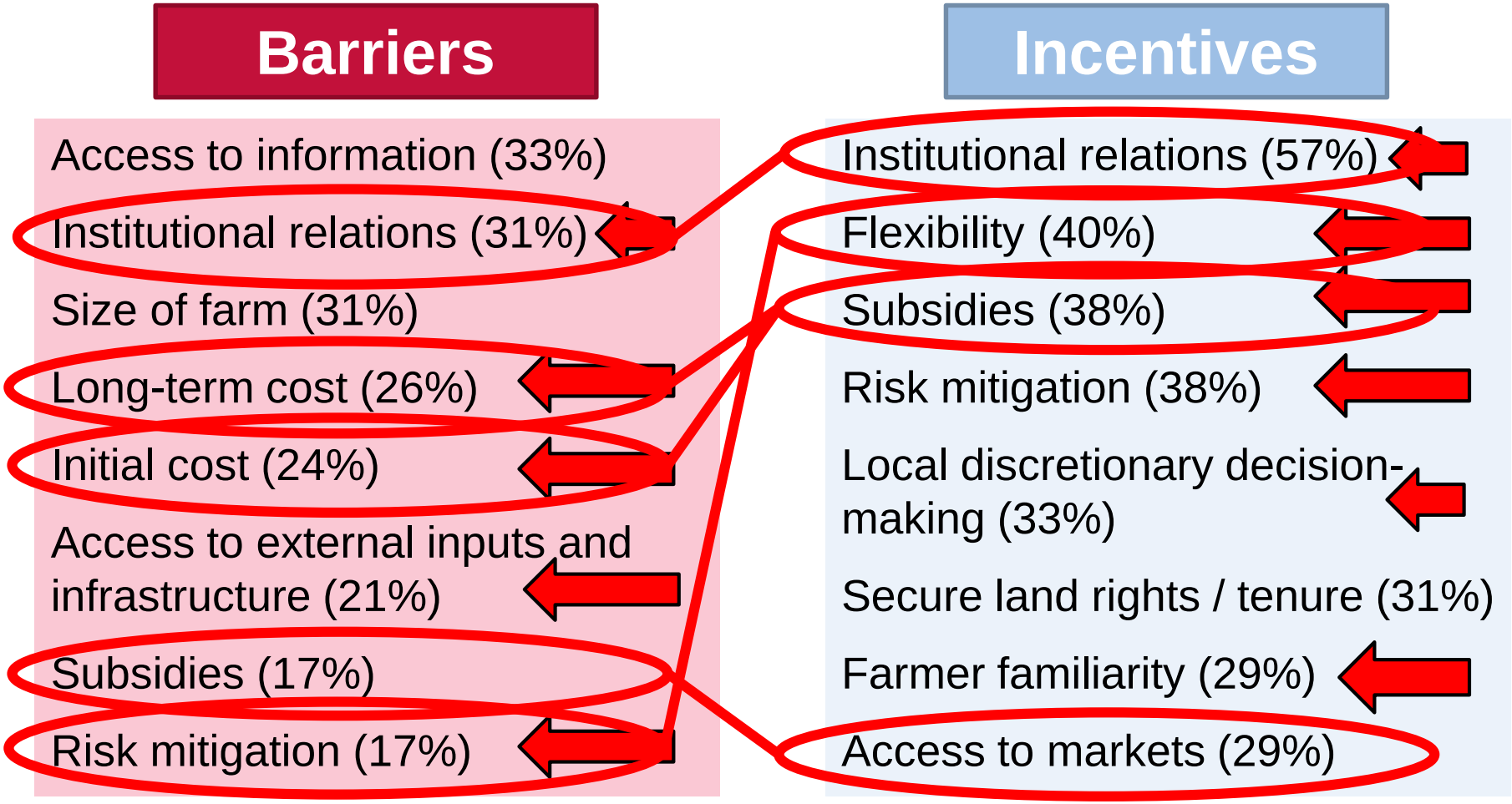
- Values local knowledge
- Compatibility with existing livelihood decisions
- Local discretionary decision-making
- Risk mitigation

Enabling Environment

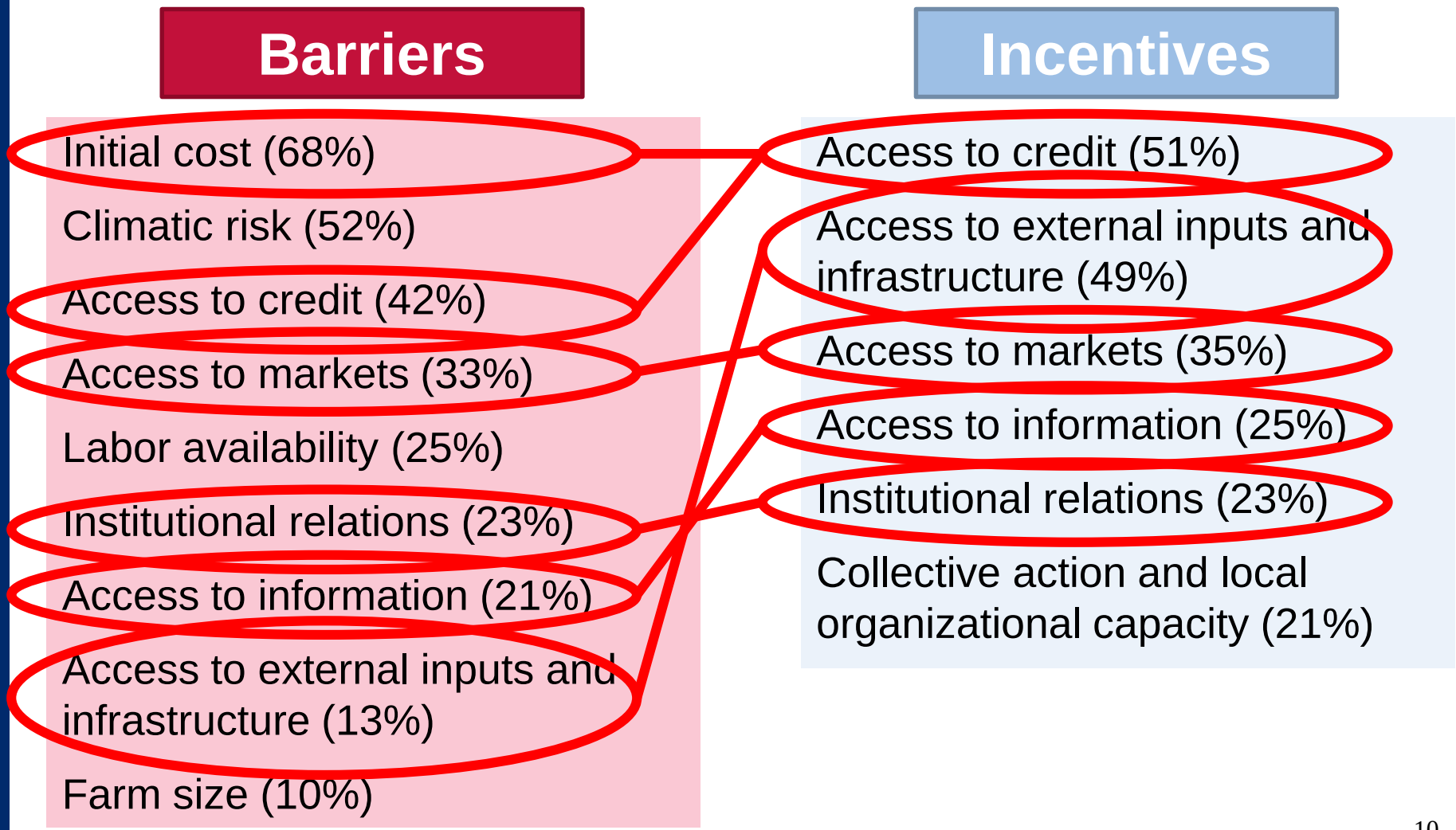
- Institutional relations
- Conflict

Categories of factors influencing adoption	Factors	Farmer Manager Natural Regeneration	Conservation Agriculture	Climate Smart Rice Production	Crop-livestock Integration	Integrated Water Resource Management	Index (weather) Based Crop Insurance	Payment for Ecosystem Services	Safety Net Programs	Property & Procedural Rights Frameworks	Agriculture and Climate Services	Climate Smart Villages and Landscapes	Collective Action	EFFECT ON ADOPTION
Economic and Production Characteristics	Long term cost	+++	+	+	+++	+	+++	++	+++	++	++	+	++	High
	Initial cost	+++	+++	++	+++	++	+++	++	+++	+	++	++	++	High
	Transaction costs	++	+	+++	++	+++	+++	+++	+	+	+	+++	+	High
	Opportunity costs		++	+	++	++	+		+	+	+	++	+	Med
	Flexibility	+++	++	+	++	++		++	+	++		++	++	Med
	Multi-objective	+++	+	+	++	++	+	+	+	+++	+	++	++	High
	Perishability	+	+	+	+									Low
	Impact on yield	+	+	+++	+	++	++	+	++	+++	+	+	++	High
	Impact on farmer income	+	+	+++	+	+	+	+	++	++	+	+	+	Med
	Size of farm	+	++	+	++	+	+	+++	+		+	+++		Med
	Access to external inputs	++	++	++	++	+++	+	+	+		+	+	+	Med
	Labor availability	+	++	++	++	++	+				+			Med
	Access to credit		++	+	+++	++	++	+		+	+	+		Med
	Land availability	+		++	+	+	+		+	+		+	+	Med
	Private sector		+	+	+	+	++	+				+		Low
	Asset protection and insurance			+	+	+	+		+++	+++		+	++	Med
	Market availability		+	++	+	+	++	+	+		+	+		Med
	Asset value	+	+	+	+	++		+	++	+++		+	+	Med
	Population density		+	+	++	+				+	+	+	+	Low
	Intensification/ extensification	+	+	++	+	+	+		+	+		+		Med

Barriers and Incentives to Adoption of CSA by Expert Stakeholders



Barriers and Incentives to Adoption from Farmers



Factors influencing CSA Adoption Relevant to Field Sites

Economic and Production Characteristics

- Long-term cost
- Initial cost
- Transaction costs
- Multiple objectives
- Access to external inputs

Social and Cultural Context

- Values local knowledge
- Compatibility with existing livelihood decisions
- Farmer familiarity with practice
- Risk mitigation

Enabling Environment

- Institutional relations
- Conflict

Barriers and Incentives to Adoption from Farmers

Barriers

- Initial cost (68%)
- Climatic risk (52%)
- Access to credit (42%)
- Access to markets (33%)
- Labor availability (25%)
- Institutional relations (23%)
- Access to information (21%)
- Access to external inputs and infrastructure (13%)
- Farm size (10%)

Incentives

- Access to credit (51%)
- Access to external inputs and infrastructure (49%)
- Access to markets (35%)
- Access to information (25%)
- Institutional relations (23%)
- Collective action and local organizational capacity (21%)

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Summary of Key Findings

1. Economics matter to adoption, but in complex ways.
2. To be adopted, CSA needs to align with social and cultural values and norms.
3. Markets and institutions are critical to CSA adoption.
4. Mismatched understandings across literature, experts, and farmers likely shapes poor adoption outcomes

Economics do matter to adoption but in complex ways

Cost is one of the top adoption factors across all data sources.

- However, there are differences between farmer perspectives and the conventional wisdom of practitioners.
  - **Farmers cite initial costs over twice as often as a barrier to adoption than technical experts**,
  - **Despite technical experts' views, long-term costs are not a significant factor in farmers' decision-making around CSA adoption.**
- Practitioners of CSA need better understandings of:
  - **Farmer decision timescales.**
  - **Farmer understandings of costs and benefits.**

CSA approaches and practices that promote multiple objectives and diversification are likely to see greater adoption by smallholder farmers.

CSA needs to align with social and cultural values and norms

Social and cultural factors create often-unseen opportunities and risks for farmers that shape their CSA adoption, but are often overlooked by the CSA literature and expert interviews.

- Farmer familiarity with the practice and access to information are key factors shaping farmer adoption.
  - Fit with lives and livelihoods
- The issue of short-term climate-related risk *created by new interventions* was the **second highest cited barrier** by farmers, but completely overlooked by practitioners.
  - CSA is not inherently do-no-harm
- Farmers **will not adopt** any CSA practice that:
  - Presents major challenges to existing livelihoods and their associated social orders
  - Lowers their capacity to address immediate risks of climate variability, even if that practice might be well-targeted at future climate change.

Markets and institutions are critical to CSA adoption

In many African countries, structural constraints within markets and supporting institutions severely constrain the adoption of CSA approaches. They include:

- Poorly functioning markets, dysfunctional government institutions, and weak land tenure systems.
- Market situations where additional production does not result in additional income or security

In order for CSA to be adopted in a sustained and collective way at a national scale, there are basic foundational conditions and practices that are required within the agricultural sector

- These transcend any specific farm technology.

Conclusion

- CSA presents a unique and urgent opportunity for a larger and more systematic view of the constraints in agriculture in Africa.
- There are key disconnects between farmers and practitioners in terms of factors of adoption.
- There are key differences between perceived barriers and incentives, indicating that practitioners do not seem to have traced the value of such incentives back to particular barriers they might address.

Thank you

More information on the report can be obtained from Ed Carr:

edcarr@clarku.edu

www.edwardrcarr.com

hurdl.org

@edwardrcarr

@hurdltweet