Prioritizing and evaluating climate-smart practices and services

B Campbell, C Corner-Dolloff, E Girvetz, T Rosenstock and many others (CGIAR)
Outline

• Introduction – tradeoffs & context specificity
• “CSA-Plan” - 4-step set of planning and implementation tools
  – CSA Country Profiles
  – Prioritization in Guatemala, Mali, Viet Nam
  – Implementation in Africa
• Conclusions
Compendium of CSA practices
65 practices/22 indicators

Key word search
144,567 papers

Abstract/title review
16,254 papers

Full text review
6,100 papers

Data extraction
~120,000 data points
Synergies and tradeoffs between food security and adaptation with CSA

Mean effect from random sample of 130 studies (55 comparisons)
Alternate-Wetting-and-Drying (AWD)

- Keep flooded for 1st 15 days and at flowering
- Irrigate when water drops to 15 cm below the surface

Without compromising yield

Hilly mid-slopes

-20%

Summer-Autumn

4.9 3.9

Conventional AWD

Delta low-lying

15.0 8.7

-42%

Winter-Spring

-28%

6.4 4.6

-22%

30% water

20-50% GHG

Sander et al. in press IRRI
Agroforestry: Integrating trees on farms

Diversified livelihoods, as much as 5 additional uses

Carbon

Reppin in prep

<table>
<thead>
<tr>
<th></th>
<th>Unadj</th>
<th>Freehold</th>
<th>Tenure Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net returns to land ($ ha(^{-1}) y(^{-1}))</td>
<td>$126</td>
<td>$288</td>
<td>2.28</td>
</tr>
<tr>
<td>Woody crops, woodlots etc (ha km(^{-2}))</td>
<td>5.4</td>
<td>25.6</td>
<td>4.7</td>
</tr>
</tbody>
</table>

Norton-Griffiths 2012
No blanket recommendations

Many practices/programs/policies can be CSA *somewhere*

But none are likely CSA everywhere

Rosenstock et al. unpublished
Global Alliance CSA: 500 million smallholders
AU-NEPAD: 25 million smallholders
CSA-Plan:
A multi-step planning and implementation guide to scaling CSA

Flexible
Simple
Stakeholder Driven
Linkable
CSA-Plan

Engagement

Situation Analysis
Risks and Enabling Conditions
Vulnerability & Impacts + Readiness

Targeting & Prioritizing
Practices, Programs and Policies
Trade-offs & Value for Money

Programming Design
Guidelines & Implementation
Knowledge into Action

Monitoring and Evaluation
Across Scales and Systems
Evidence Based Results Framework

Capacity development

Stocktaking for CSA Action
CSA Investment Portfolios
Taking CSA to Scale
Learning from Experience
• Indicators & targets to achieve
• Agricultural snapshot
• Future climate impacts
• Ongoing & promising CSA practices
• Institutions & policy entry points
• Finance mechanism

CSA-Plan

Situation Analysis
Risks and Enabling Conditions
Vulnerability & Impacts + Readiness

Stocktaking for CSA Action

Climate-Smart Agriculture (CSA) considerations

The climate-smart agriculture (CSA) concept reflects an evolution to improve the integration of agricultural development and climate responsiveness. It aims to address food security and climate change as two of the grand challenges, by harnessing the potential of agricultural systems to respond to current and future climate conditions. It involves a range of strategies, including enhancements in productivity, resilience, and carbon sequestration, to achieve sustainable development goals.

Risks and Enabling Conditions

Vulnerability & Impacts + Readiness

Situation Analysis

Selected Practices for Production System with High Climate Smarts (not to scale)

Climate-smart agriculture (CSA) is a multi-faceted framework that integrates climate change adaptation and mitigation through agricultural practices that benefit farmers, the environment, and the economy.

Table 8. Economic assessment of key mitigation and adaptation practices in Colombia.

<table>
<thead>
<tr>
<th>Practice</th>
<th>Economic Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conservation agriculture (CA)</td>
<td>Increased crop yields and reduced input costs.</td>
</tr>
<tr>
<td>Agroforestry systems</td>
<td>Enhanced carbon sequestration and increased productivity.</td>
</tr>
<tr>
<td>Improved seeds and technologies</td>
<td>Reduced input costs and increased yields.</td>
</tr>
<tr>
<td>Irrigation systems</td>
<td>Improved water use efficiency and agricultural productivity.</td>
</tr>
<tr>
<td>Organic waste management</td>
<td>Reduced input costs and increased soil fertility.</td>
</tr>
</tbody>
</table>

Climate-smart agriculture practices can be categorized into several key strategies, including conservation agriculture, agroforestry, improved seeds and technologies, irrigation systems, and organic waste management.
CSA-Plan

Situation Analysis
Risks and Enabling Conditions
Vulnerability & Impacts + Readiness

Stocktaking for CSA Action

Targeting & Prioritizing
Practices, Programs and Policies
Trade-offs & Value for Money

CSA Investment Portfolios
Prioritization
Action Research Methodology

Ranked short list based on economic analysis

- CSA investment portfolios
- Identified opportunities and constraints
## Prioritization in action

### Guatemala
**Ministry of Agriculture, Livestock, and Food**
- ‘Dry corridor’ - severe drought in 2014
- **Objectives**
  - Assess and validate the previously incentivized practices from food for work program
  - Prioritize practices for promotion by government extension.

### Mali
**National Science Policy Dialogue Platform**
- Three zones prioritised – cc impact, production systems
- **Objectives**:
  - Create technical info for farmers
  - Cross-ministerial CSA programs to incentivize adoption & investment

### Colombia
**Local organization: Foundation Rio Las Piedras**
- **Objectives**:
  - Evaluate ongoing CSA practices
  - Improve existing practices
  - Create programs to scale up high outcome practices

*Photos: Neil Palmer (CIAT)*
Multiple prioritization tools

- Spatially explicit
- Integrated modeling framework
- Climatic and socio-economic scenarios
- Supports multi-objective trade-off analyses
CSA-Plan

Situation Analysis
Risks and Enabling Conditions
Vulnerability & Impacts + Readiness

Targeting & Prioritizing
Practices, Programs and Policies
Trade-offs & Value for Money

Programming Design
Guidelines & Implementation
Knowledge into Action

Stocktaking for CSA Action
CSA Investment Portfolios
Taking CSA to Scale

- CSA Toolbox
- Decision trees
- Business models
CSA-Plan

**Situation Analysis**
Risks and Enabling Conditions
- Vulnerability & Impacts + Readiness
- Stocktaking for CSA Action

**Targeting & Prioritizing**
Practices, Programs and Policies
- Trade-offs & Value for Money
- CSA Investment Portfolios

**Programming Design**
Guidelines & Implementation
- Knowledge into Action
- Taking CSA to Scale

**Monitoring and Evaluation**
Across Scales and Systems
- Evidence Based Results Framework
- Learning from Experience
Indicators and metrics

A Monitoring Instrument for Resilience

Working Paper No. 96

CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS)

Terry Hills
Emilia Pramova
Henry Neufeldt
Polly Ericksen
Philip Thornton
Andrew Noble
Elizabeth Weight
Bruce Campbell
Matthew McCartney
CSA-Plan

**Situation Analysis**
Risks and Enabling Conditions
- Vulnerability & Impacts + Readiness

**Targeting & Prioritizing**
Practices, Programs and Policies
- Trade-offs & Value for Money

**Programing Design**
Guidelines & Implementation
- Knowledge into Action

**Monitoring and Evaluation**
Across Scales and Systems
- Evidence Based Results Framework

**Stocktaking for CSA Action**
- CSA Investment Portfolios

**Taking CSA to Scale**
- Learning from Experience

**Engagement**

**Capacity development**
CSA Integration Across Scales in Africa

African Union – New Partnership for African Development

Regional Economic Communities (RECs)

National Agricultural Investment Plans (NAIPs)
Other National Level Policies (NAPAs/NAPs/NAMAs, etc.)

Programmatic Investments and Policies
Staple Crops, Cash Crops, Livestock/Dairy, etc.

CSA Adoption by farmers
Through development partner implementation
CSA Integration Across Scales in Africa

**Situation Analysis**
Risks and Enabling Conditions
- Vulnerability & Impacts + Readiness
- Stocktaking for CSA Action

**Targeting & Prioritizing**
Practices, Programs and Policies
- Trade-offs & Value for Money
- CSA Investment Portfolios

**Designing Programming**
Guidelines & Implementation
- Knowledge into Action
- Taking CSA to Scale

**Monitoring and Evaluation**
Across Scales and Systems
- Evidence Based Results Framework
- Learning from Experience

AU-NEPAD
RECs
Countries
Farming Systems/Value Chains
Program Implementation
Alliance for CSA in Africa

Empowering 6 million smallholder farmers in Sub-Saharan African by 2021
Thanks!

For more information check out our posters

Tuesday: 38, 42, 59

Wednesday: 59, 126
Overarching Issues

• Operational Minimum Criteria for being CSA
  ▪ Modified within bounds by RECs & Countries
  ▪ Indicators & criteria chosen at REC/County level
  ▪ MRV or other similar approach

• Links directly to the engagement pathways, strategy, and country engagement plan

• Tools and analyses incorporated from Technical Support Workstream
Conclusions

• Major investments in CSA coming
• Key challenge: What is CSA for a particular context
• Now testing a set of planning tools in multiple situations
• We can support CSA through deep engagement with non-research stakeholders