Modeling and Decision Support Tools for Climate-Smart Agriculture

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Climate Smart Agriculture

CSA is an approach for transforming and reorienting agricultural systems to support food security under the new realities of climate change.

CSA comprises 3 major pillars

1) Sustainably increasing agricultural productivity to support equitable increases in incomes, food security and development;

2) Adapting and building resilience to climate change from the farm to national levels; and

3) Reducing or capturing GHG emissions where possible
Climate Smart Agriculture: What do we need

Agriculture

Multiple stressors including climate change

Opportunity space

CSA pathways
- Coordinated policymaking
- Strengthened institutions
- Evidence-based planning
- Stable dedicated financing

Possible futures

High resilience → Low risk
Low resilience → High risk

Business as usual
Emerging opportunities

WB current commitments to agriculture $8.3 billion, and are likely to grow

Mandatory requirements

1) Screen IDA projects for climate and disaster risks and where risks exist, incorporate resilience measures

2) GHG appraisals of agriculture projects to determine carbon footprints of investment lending
CSA knowledge priorities (GACSA Survey, 2014)

1. Technical interventions and practices in CSA
2. Evidence base of CSA AND
3. Support, services and extension for CSA (joint 2nd)
4. Inclusive knowledge systems for CSA
5. Integrated planning and monitoring for CSA
Why CSA Indicators (1)

1. Provide evidence base for identifying viable climate-smart options and the necessary enabling activities;

2. Select contextually relevant technologies/practices for different locales;

3. Guide CSA investments;

4. Assess policy and institutional support for CSA; and

5. Monitor CSA results

WB recently developed indicators for Policy, Technology, and Results
Why CSA DSS Tools (2)

1. Spatial and temporal scales appropriate for national and local level planning

2. Problem oriented approaches to adaptation planning

3. Evaluate adaptation and mitigation potentials of different policies and technologies

4. Identify barriers to the adoption of climate-smart practices

5. Big Data Analytics to improve farmers access to timely, cost-effective and personally relevant information on agronomic practices, markets, prices, inputs, weather