DEVELOPING INDICATORS FOR CLIMATE-SMART AGRICULTURE (CSA)

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RATIONALE: CSA INDICATOR AND INDEXES

Indices	Rationale
Policy support and institutional readiness indicators (CSA-Pol)	The level of adoption of CSA practices depends on the enabling environment which is a function of policy and institutional context in the country. Responding to climate change requires national food security, adaptation and mitigation strategies.
Technology indicators (CSA-Tec)	The applied CSA technologies need to be context-specific and prioritized in different landscapes/farming systems. Indicators should be able to capture changes in Productivity (P), Resilience (R) and Mitigation (M) due to changes in technologies.
Results indicators (CSA-Res)	The relative benefits (success) of CSA adoption needs to be measured. A set of indicators appropriate for the particular intervention is needed.

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RATIONALE: CSA INDICATOR AND INDEXES

What is the aim of the indexes?

- The CSA Technology index (CSA-Tech) is aligned to the CSA thematic areas productivity, resilience and mitigation, the CSA Policy index (CSA-Pol) and the CSA Results index (CSA-Res) indicators includes a range of subthemes and behavioral changes that support the achievement of the triple wins.

- The CSA-Pol reflects the most significant aspects of the enabling environment for implementing CSA at the national level. The CSA-Res indicators provide an understanding about the short-term to medium-term results of a CSA intervention which may relate to food security, poverty reduction and environmental sustainability.

- The CSA-Tech and CSA-Pol indicators support the decision making about the choice of adequate CSA interventions. They are assessed before the project is implemented.

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RATIONALE: CSA INDICATOR AND INDEXES

Who is the target group?

- Project teams, stakeholders involved in CSA interventions on local to national scale

Which other indicator initiatives are there on which the CSA-indicators build on:

- World Bank Core Sector Indicators
- Global Donor Platform for Rural Development
- Montpellier Group ("Assessing CSA: Practices, Systems & The triple win")
- Enabling the Business for Agriculture (EBA)
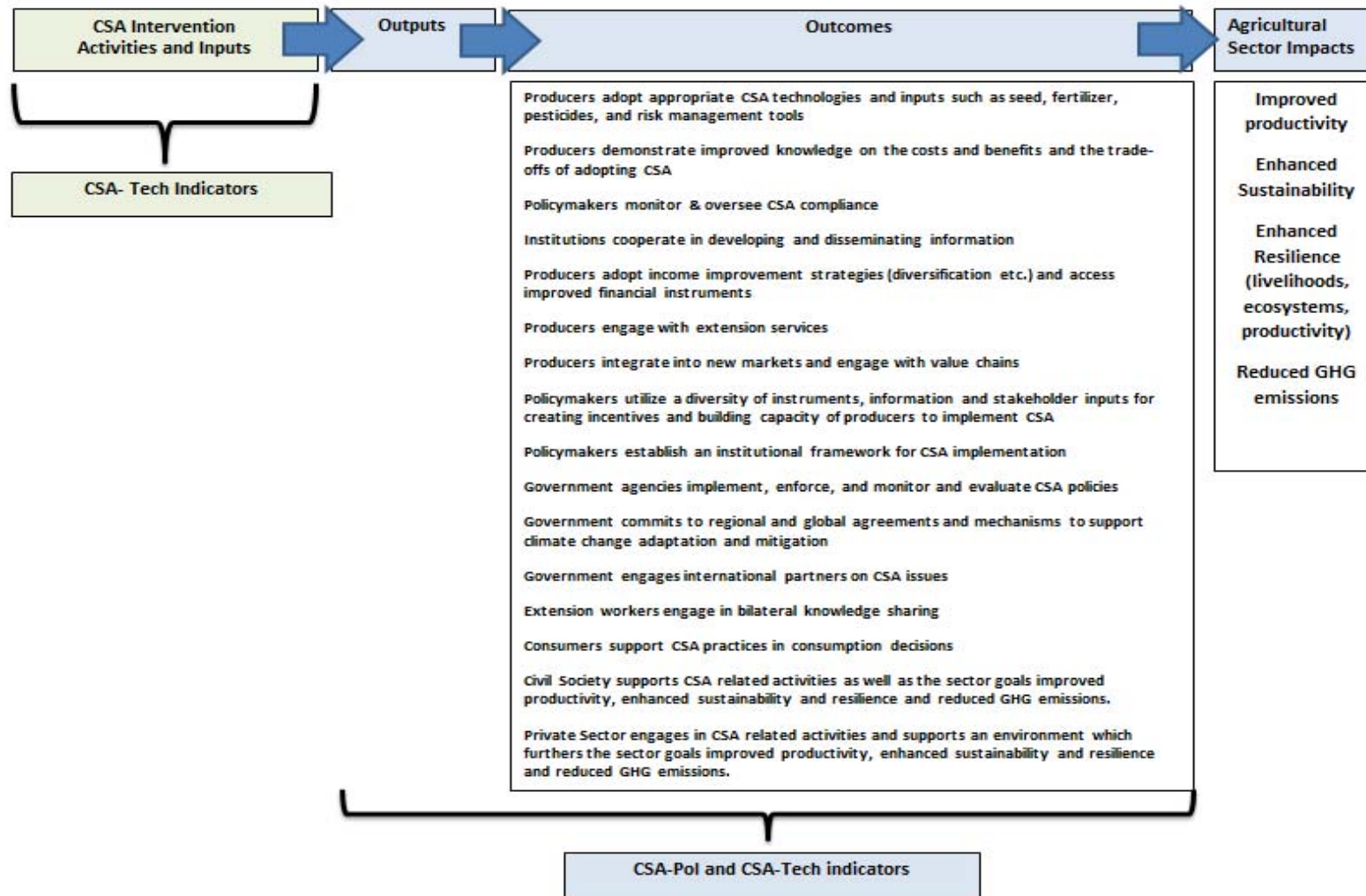- WRI Indicators of Sustainable Agriculture

How do the indicators add value to previous initiatives:

- Inclusion of rural development goals and Environmental, Climate Change goals

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METHODOLOGY

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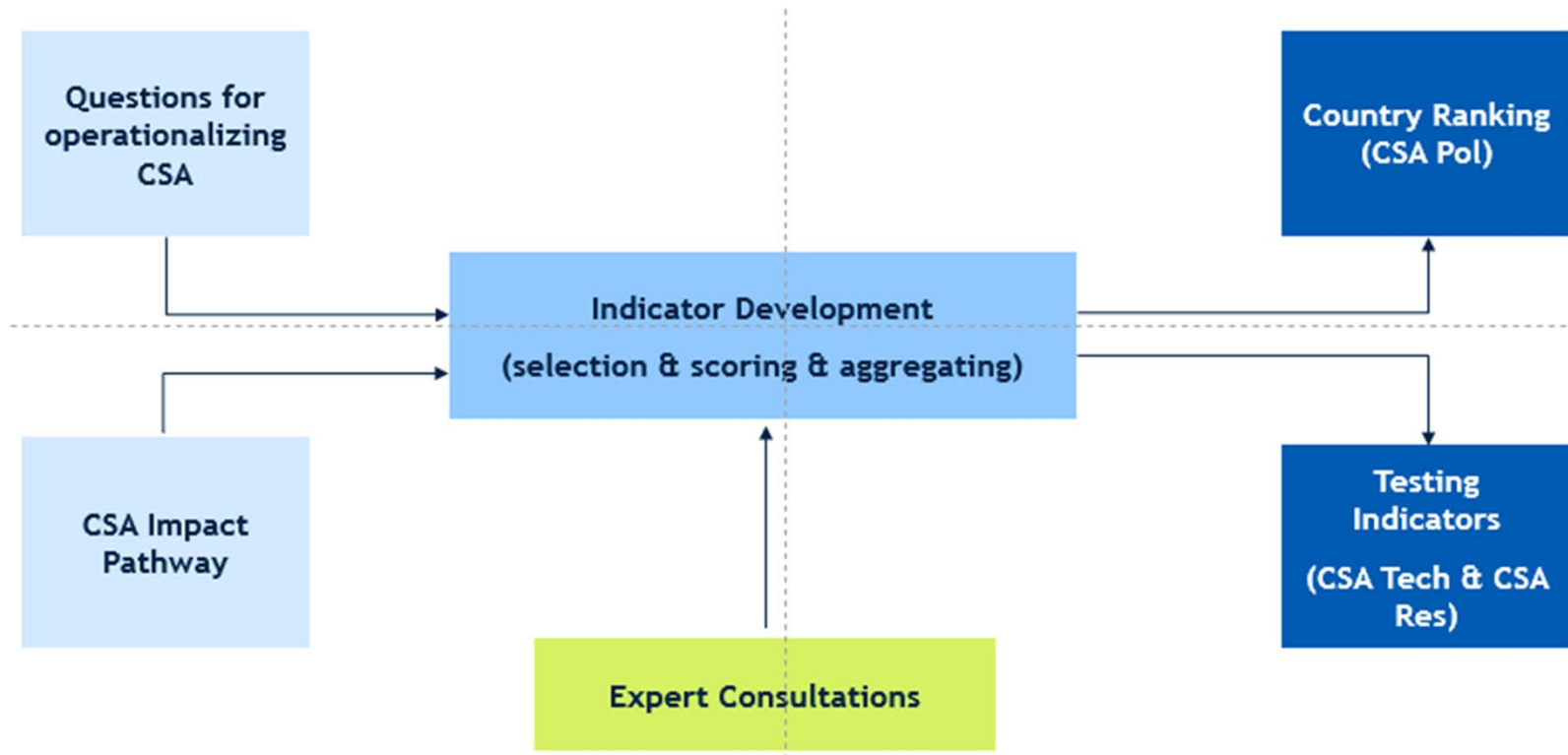
IMPACT PATHWAY

CSA TECH- GUIDING PRINCIPLES

- The index focuses on resilience metrics rather than adaptation techniques.

- It measures the relative resilience of the farmer, the farming system, and the proposed technology.

- It looks at the broad productivity and mitigation benefits of the proposed technology in the farming system context.

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CSA-TECH INDICATORS

- 27 indicators (from an original list of 42 indicators)

- Themes include: Resilience (Self-organization, Robustness); Productivity (Crop system and livestock system) etc.

- Sub-themes include: Resilience- intellectual property rights, human capital and power differentials; Productivity- soil fertility, pet management; Mitigation-emissions intensity and carbon seq.

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CSA-TECH INDICATORS (EXAMPLES)

Productivity	#	Theme	Indicator (% change from baseline)
Crop System	14	Crop yield (% increase)	The technology leads to an increase in yields of the producers (%)
	15	Soil erosion	The technology reduces the share of agricultural land classified as having moderate to severe water erosion risk (%) The technology reduces the share of agricultural land classified as having moderate to severe water wind risk (%)
	16	Soil fertility	The technology enhances soil fertility (%)

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CSA-POLICY INDEX

Objective: Assess the enabling environment of a country for implementing CSA

Composite index of 13 indicators with a final score between 0 and 1

Applied on a national scale and countries ranked by Index score

Thematic areas:

- Policies to support CSA

- Services and infrastructure to support CSA

- CSA Coordination and Implementation

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CSA-POLICY INDEX

Theme: Policies to support CSA

1. Policy support for agricultural systems adapted for climate change
1a. Ag. policy (or the country's climate change adaptation policy for example the NAPA) explicitly states an intention to address adaptation to climate change

1b. [If yes to 1a.] Is there a strategy to support implementation of this aspect of the policy?

1c. [If yes to 1a.] Does the country's budget/ expenditure reflect implementation of CC adaptation in the Ag sector as expressed in the Ag policy (or other selected policy?

1d. [If yes to 1a.] Is there a system in place to implement and monitor programs and activities to address adaptation to climate change in the Ag. Sector?

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CSA-POLICY INDEX

Theme: Services and infrastructure to support CSA

6. Agricultural research in support of CSA

6a. Does the Ag. R&D policy expresses a commitment to CC and Ag research?

6b. Is there evidence of allocation within the Ag research budget (or expenditure) to climate change research?

6c. Is there a system [in place and being implemented] that promotes collaborative research, among multiple stakeholders?

6d. Agriculture Research Intensity (ARI) ratio

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CSA-POLICY INDEX

Theme: CSA Coordination and Implementation

12. Coordination mechanism between the different agencies responsible for agriculture, water management, forestry, environment and sustainable development

12 a. Does the agriculture policy express commitment to coordination among sectors involved in CSA (e.g. climate, environment, water, forestry)

12b. Is there an existing multi-sectoral committee for climate change that includes representation from the agricultural sector

12c. [If yes to 12b.] Does the committee include civil society representation?

12d. Does the major CC Strategy (including NAPA and NAMA) express commitment to promote coordination among sectors including agriculture

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CSA-RESULTS INDICATORS: INTRODUCTION

CSA-Res indicators can be used for **M&E**

➤ Indicators are aligned to an Impact pathway and Theory of Change.

CSA-Res indicators are the basis to calculate the **CSA-Results Index:**

➤ How the respective project has performed in jointly reaching the CSA triple-win?

Target group: stakeholders involved in CSA projects, M&E-teams

Indicators have been informed by **literature**. Amongst others:

WB Core Sector Indicators

Global Donor Platform for Rural Development (2008)

UN-Water Task force on Indicators, Monitoring and Reporting

FAO CSA-Sourcebook.

MDGs and WDIs

Results frameworks of recent CSA projects.

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CSA-RESULTS INDICATORS

Categories: The CSA-Results indicators are categorized as follows:

I. Indicators measuring the direct outputs of a CSA intervention

- ➢ Beneficiaries
- ➢ Land area
- ➢ Livestock

II. Indicators measuring the CSA enabling environment (which may be a consequence of an intervention or not)

III. Indicators measuring the medium to long-term consequences CSA intervention

- ➢ Resources
- ➢ Emission
- ➢ Yield
- ➢ Benefits

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CSA-RESULTS INDICATORS

I. Indicators measuring the direct outputs of a CSA intervention:

Beneficiaries

1. Number of agricultural actors who adopted CSA practices promoted by the project (Gender disaggregated)

Land area

2. Land area where CSA practices have been adopted as a result of the project

3. Land area provided with (i) new, (ii) improved irrigation and drainage system

4. Area restored, or re/afforested as result of the project

5. Land area under land uses/cover xy (users defined land cover/land use relevant for their project)

Livestock

6. Number of livestock units subject to CSA practices as result of the project.

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CSA-RESULTS INDICATORS

II. Indicators measuring the CSA enabling environment (which may be a consequence of an intervention or not):

7. Client days of training provided (gender disaggregated)

8. Number of agricultural actors who use information and communication technology (ICT) services for obtaining information on weather and climate (gender disaggregated)

9. Number of agricultural actors who use information and communication technology (ICT) services for obtaining information on CSA practices (gender disaggregated)

10. Number of agricultural actors use information and communication technology (ICT) services for obtaining information on market (price) information (gender disaggregated)

11. Number of agricultural actors who are members of an association (gender disaggregated)

12. Number of agricultural actors using financial services of formal/informal baking institutes. (gender disaggregated)

13. Number of agricultural actors employed in agriculture in the project area (gender-disaggr.)

14. Target population with use or ownership rights recorded in the project area. (gender-disaggr.)

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CSA-RESULTS INDICATORS

III. Indicators measuring the medium to long-term consequences CSA intervention

Resources

15. Annual total volume of groundwater and surface water withdrawal for agricultural use, expressed as a percentage of the total actual renewable water resources (in the project area)

16. Land area affected by medium to very strong/severe soil erosion in the project area

Emission

17. Net carbon balance (GHG emission in tonnes of CO_2-equivalent emission/ha/year) of project compared to a without project scenario.

Yield

18. Crop yield in kg per hectare and year as result of the project's CSA intervention

19. Yield per livestock unit and year as result of project

Benefits and welfare

20. Annual household income from agricultural activity

21. Number of beneficiaries who consider themselves better off now than before the intervention

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CSA-RESULTS INDEX

Using above indicators, the CSA-Res Index should illustrate:

- ➤ Has the project met the targets set in results framework *jointly* for the CSA-triple win areas?
- ➤ Has the project performed better in one over the other triple-win area?

This requires following steps:

- ➤ Results framework: establishment of target values for each indicator in the last year of the project.
- ➤ Alignment of indicators to Productivity, Resilience and Mitigation theme.
- ➤ If value of indicator has reached or exceeded the target value, it receives a value of 1. If not, value of 0.
- ➤ How many indicators in the P, R and M, have reached/exceeded the target? What is the share of indicators that have reached/exceeded the target in the P,R or M theme? Has the project performed better in one these areas?
- ➤ The final CSA-Res index is the average of the share of indicators in the P, R and M scheme that have reached/exceeded the target.

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CSA-RESULTS INDEX

Advantages:

- ➢ By avoiding to scare the indicators against an universal threshold, this approach is not prescriptive.
- ➢ It respects the project context by using target values set in the results framework as values which should/can be reached.
- ➢ Flexible and Easy to implement.
- ➢ Dynamic: Can be used to monitor the advancement of project.

Issues:

- ➢ Only applicable when project chooses indicators for each area
- ➢ What is the minimum of indicators needed in each area? The fewer indicators in a triple-win category, the more it contributes to the category
- ➢ One indicator may belong to P as well as R as well as M: contributes more to the overall score.
- ➢ Comparison across project may be difficult, unless the same number of indicators is used.

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Thank you!

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