Solution:

Integrated Climate Risk Assessment and Prioritization Framework for Scaling and Mainstreaming Climate-Smart Agriculture (CSA)

Submitter: (ICRISAT)

Solution Overview

What is it, and what problem does it solve? Brief 2–3 sentence description.

This is a decision-support framework that integrates climate risk assessment, CSA technology bundling, participatory prioritization, and ex-ante impact evaluation to enable data-driven investment planning. It addresses the need for site-specific, scalable adaptation pathways to strengthen climate resilience in agriculture.

Key Features & Benefits

Main components and why it is useful? Bullet points summarizing methods, tools, and value added.

- Integrates climate vulnerability mapping, socio-economic assessments, and agroecological characterization.
- Applies multi-criteria assessment for prioritizing CSA interventions.
- Enables bundling of CSA solutions tailored to specific contexts.
- Supports ex-ante impact and cost-benefit assessments for scaling CSA.
- Provides actionable evidence for public and private sector investment planning.
- Where It Works and Where It Can Work: Existing and potential target regions, agroecologies, or farming systems. Include examples if available.
- Piloted in Telangana, India, with potential across South Asia and Africa.
- It is suitable for vulnerable rainfed regions, semi-arid agroecologies, and areas facing climate variability and resource constraints.
- Evidence & Impact What results has it shown? Stats, pilot outcomes, or testimonials.
- The framework was successfully applied in the Telangana State Climate-Smart Village initiative, covering three districts with varying agroecologies. Using multi-criteria analysis enabled the prioritization of 14 CSA interventions across 24 villages.
- Bundling interventions, such as crop diversification, farm ponds, composting, biofertilizers, and micro irrigation, enhanced farm productivity, resource-use efficiency, and income stability in climate-vulnerable communities.
- Ex-ante impact assessment in Mahbubnagar showed potential income gains of up to 30–40% from prioritized CSA packages compared to business-as-usual practices, demonstrating strong economic viability of climate investments (source: Brief)
- Participatory implementation and integration with local planning processes (e.g., MGNREGA) improved the convergence of programs and resource allocation, setting an example for institutional mainstreaming (source: ICRISAT Info Note)
- The framework informed state-level policy dialogues and investment strategies, supporting the Government of Telangana's CSA roadmap for scaling adaptation practices through a cluster-based approach (Source: Brief)

Scalability & Adoption Support

Why it can be scaled and what's needed to adopt it? Low-cost, adaptable, partner-ready, etc.

The framework integrates a systems perspective and is low-cost, modular, and adaptable to diverse agroecological and institutional contexts. It utilizes publicly available data and case studies, participatory methods, and open-source tools, thereby minimizing the need for extensive infrastructure or proprietary systems. Designed for integration into existing planning processes (e.g., national-level and state-level action plans), it is partner-ready for governments, NGOs, and donors. Scaling requires minimal investment in training, local facilitation, and data mapping, all of which ICRISAT supports through operational toolkits, digital templates, and capacity-building modules.

Contact Info

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