All you need to know about COMPREHENSIVE PILOTS

An RRA Network Initiative
Revitalising Rainfed Agriculture Network (RRA Network) is a growing network of civil society organisations, research institutions, policy makers, donors and individuals engaged in evolving a differentiated agricultural policy with enhanced public investments and support system for rainfed areas in India.

Based on the vast experience on the ground and analysis of issues, RRA Network is evolving specific propositions on various aspects of rainfed agriculture such as seeds, soils, water, crop systems, millets, livestock, fisheries, credit, markets and institutions.

The Comprehensive Pilots are part of the RRA Network’s action research programme that seeks to establish evidence and experience on the ground, in support of the various propositions that the Network has developed.

The Working Group on NRM and Rainfed Farming constituted by the Planning Commission has proposed a pilot on National Rainfed Farming Systems Programme (NRFP) to be initiated during the 12th Five Year Plan in 1,000 blocks across the country. The Working Group has set out a framework for the development of rainfed areas, arrived at after intense deliberations with research institutions, various government officials and practitioners.

While discussions are under way in the Planning Commission on how to how to roll out the proposed programme, the RRA Network initiated the Comprehensive Pilot Programme to generate evidence and field experience on the NRFP framework.
What are Comprehensive Pilots?

The Comprehensive Pilots are the core of the action research programme initiated by the Revitalising Rainfed Agriculture Network (RRA Network) to evolve support systems conducive to integrated rainfed agriculture in India.

The RRA Network aims to build a case for relevant support to rainfed agriculture by way of higher public investment. Comprehensive Pilots are expected to integrate actions with mainstream government programmes and departments to articulate the nature of such support and the institutional mechanisms by which it might be delivered. Comprehensive Pilots help link reforms in policy and agricultural investments with efforts and evidence on the ground.

The series of pilots test the nature and feasibility of support systems across different agro-ecologies of the country through generating integrated field experiences in soil, seeds, water, millet-based crop systems, fisheries, livestock and credit, markets and institutions.

Why do we need Comprehensive Pilots?

RAINFED

PROBLEM

Rainfed areas comprise 56 per cent of agriculture in India. Three key factors define the physical context of rainfed farming:

(i) Dependence on erratic rains in the absence of assured water supply makes rainfed agriculture inherently risky.

(ii) Typically undulating topography and marginal geographies ensure that most rainfed regions have large areas as common lands that support extensive animal husbandry.

(iii) Rainfed farmers tend to diversify risks by extending their livelihood to returns from grazing in the commons, and by integrated agriculture, forest, fisheries and livestock systems. Such integration requires specific attention to be paid to the conjointive management of soil-moisture, water resources, soil-health, crop systems, livestock and use of commons. Such integration has historically provided strength and resilience to rainfed areas.

The Green Revolution packages, on the other hand, are focused on single crops and single production systems. Such packages, which aim to quickly raise single crop yields with intensive application of hybrid seeds, fertilisers and other inputs, together with assured irrigation, are not totally appropriate for sustainable development of rainfed lands.

In the absence of the targeted support of the kind enjoyed by irrigated agriculture, rainfed agriculture – which includes livestock and fisheries – is relatively stagnant at low levels of productivity and is showing signs of distress.

NEED

In the present times of increasing mono-cropping, resource degradation and ever escalating vulnerabilities, the need is to bring about a 'multi-disciplinary perspective' to rainfed agriculture. This will integrate actions on the management of natural resources and agriculture, livestock, fisheries and other production systems.

The Comprehensive Pilots will generate location-specific solutions for the most pressing problems from a first-hand assessment of the ground situation. The results are expected to help develop solutions to improve rural livelihoods and nutrition and to help farmers better mitigate risk.
How will the Comprehensive Pilots help?

Comprehensive Pilots anchored by experienced organisations will be rolled out across selected locations covering many of the rainfed agro-ecologies of the country.

The Comprehensive Pilots will generate evidence around three axes:

(i) A scaled integration of thematic or sectoral measures should lead to demonstrable gains in productivity and household incomes over three to five years.

(ii) The pilots will provide an understanding of the factors that lead farmers to adopt a package of appropriate measures or practices, and tipping points for mass adoption of such practices by farmers. This will provide insights into the key drivers for mainstreaming relevant best practices.

(iii) The pilots will work with governments to identify institutional mechanisms within government programmes and re-frame them to develop appropriate support systems for rainfed agriculture. This will ensure that interesting programmes do not remain isolated and experimental.

The Comprehensive Pilots aim to lay out a proof-of-concept for a new architecture for the development of rainfed agriculture in India.

What is the basic structure of a Comprehensive Pilot?

The Comprehensive Pilots have been developed on these basic tenets:

1. Layered intervention
   The pilots will roll out an integrated, layered package of various measures encompassing seeds, soils, fisheries, water, crop systems, livestock, credit, markets and institutions, to demonstrate enhanced system productivity and improved livelihood returns. Conservation of land, water and biomass resources, which are a part of the watershed projects, will be a basic layer here.

2. Location specific
   The locations for each pilot have been chosen according to the ecological and cultural variability found across the country’s rainfed areas. The pilots will also evolve generic principles, processes and systems for evolving and supporting location specific solutions.

3. Scale
   Scale is a defining feature of government programmes, offering both challenge and opportunity. The pilots too will operate at a scale of 15,000 to 20,000 ha to create visible demonstrations of potential value in policy discussions and of system requirements or institutional design elements for implementing programmes.

4. Mainstream programme linkage
   The pilots will engage with mainstream programmes, policies and institutions to ensure targeted support for rainfed areas through public policy.
Consequently, core programme funds are expected to be raised through linkages with mainstream programmes like RKVY (Rashtriya Krishi Vikas Yojana), MGNREGS (Mahatma Gandhi National Rural Employment Guarantee Scheme), NRLM (National Rural Livelihoods Mission), NFSM (National Food Security Mission), IWM (Integrated Watershed Management Programme), etc., with RRA Network funds used primarily to facilitate such integration.

5. Community level institutional involvement
   Given an understanding that rainfed areas have low levels of formal institutional penetration, the development of community level institutions will be a focus. Such local institutions will ensure that control and management lie with primary producer groups. They can also play an important role in rolling out the integrated programmes.

6. Market linkage
   Wherever appropriate, the pilots will identify opportunities for tapping the power of markets and private investments as a means of enhancing returns on agriculture and animal husbandry.

7. Collaboration with RRA nodes
   The pilots will be anchored by experienced organisations in collaboration with the RRA Network’s thematic, communication and research nodes to ensure a synergy in programme design and learning, to enable the use of such learning in collective advocacy with multiple stakeholders.

What are the components of the comprehensive pilots?

1. Enhancing soil productivity with focus on soil organic matter.
2. Expanding protective irrigation to secure rainfed crops against rainfall failures through a combination of ground and surface water sources and moisture management.
3. Developing seed systems to ensure timely availability of quality seeds for diverse cropping systems and to meet contingency requirements.
4. Taking up NRM-integrated productivity enhancement measures and value chain support systems to realise growth potential in pulses, millets and other locally relevant crops including development of infrastructure and processing facilities.
5. Strengthening rainfed agriculture and commons-integrated livestock support systems to ensure improved access to healthcare, breeding services, drinking water and forage in the commons.
6. Realising the potential of fisheries in rainfed seasonal and perennial water bodies.
7. Promoting agro-ecological innovations such as LEISA (low external input and sustainable agriculture), NPM (non-pesticide management of insect pests) and SRI (System of Rice Intensification).
8. Promoting appropriate farm mechanisation that enhances labour productivity.
9. Developing and strengthening producers’ organisations for improved resource management, credit access, input supply, value addition and market linkages.
How will the Comprehensive Pilots be rolled out?

The pilots will be rolled out in phases, in view of the variability among different pilot locations.

**PHASE 1 - PREPARATORY**
**Time: Six months**

In this phase, partners will:

- Understand and map the physical resource, various production systems and their institutional base (community institutions, government programmes, markets, etc.) at the location.
- Understand the production potential of natural resources-based livelihood systems in the area (fisheries, animal husbandry, poultry, agriculture, commons and others), and analyse bottlenecks to realise it.
- Evolve strategic investment, programmatic and institutional options to strengthen the support systems and work out mechanisms to generate evidence on these in a pilot area.
- Interact with governments, from holding initial conversations to submitting full-fledged proposals to mobilise resources and integrate with mainstream programmes.
- Put in place human resources for the five-year pilot.
- Expand the comprehension of the RRA policy dialogue and enrich it.
- Interact with thematic anchors to develop strategies, roll out plans, research methodologies and protocols for subsequent adoption within the pilot.
- Start measures to put into operation the package of measures arrived at in at least two to three thematic areas in a cluster of gram panchayats.

**PHASE 2 – IMPLEMENTATION**
**Time: Up to two years**

In this experimental phase, partners will:

- Roll out, at relatively small scale, a range of measures to strengthen production support systems across several livelihood options. The design of such rolling-out plans must be scalable/applicable to the entire pilot area.
- Consolidate the building of local institutional base (including involvement of government programmes and agencies) for scaling up in the entire comprehensive pilot area.

**PHASE 3 – SCALING**
**Time: Three years or more**

In this phase, partners will:

Design and implement government programmes that will enable the experimental work of the earlier phases to go to scale, covering entire households within the 15,000 to 20,000 ha target area.

The phases are not straight-jackets; maturity period of an initiative varies considerably across sectors and initiatives. There is enough flexibility within the pilots to chart out these scaling up/scaling out trajectories.

OUTPUTS:
Implementing the action plan and setting up support systems. Evidence created on support systems and other strategic options tested in this phase will be evaluated for their robustness of processes, effectiveness and scalability. The evidence and wider ownership lays a foundation for mainstreaming.

OUTPUTS:
Expanding the systemic support to the entire comprehensive pilot area through mainstream programmes and institutions.
To sum up, what will the Comprehensive Pilots achieve?

a. A clear analysis of multiple constraints and opportunities for realising the inclusive growth potential of various NRM-integrated production systems at the pilot location.

b. Location-specific processes and institutional mechanisms integrated with the mainstream (programmes, institutions, etc.) at the pilot site will be set up, so as to help realise the inclusive growth potential of various sectors.

c. Generation of experience and capture of the potential (and realised) impacts of implementing a package of multi-sectoral and NRM-integrated measures in a comprehensive manner.

d. Analysis and quantification of the prime movers of the systemic processes – tipping points in farmers’ uptake of sustainable technologies, investment requirements and institutional prerequisites.

e. Evolving and/or strengthening relevant institutional mechanisms, community managed organisations and their apex platforms with capacities for effective delivery of various services.

What is the framework for the Comprehensive Pilots research?

**RESEARCH AGENDA**

1. **How do we assess productivity gains, theme-wise, over a three to five year period?**

   The pilot locations will be long-term demonstration sites that would allow for tracking a set of bio-physical, system productivity and income related variables. Measuring these variables over a five-year period will help assess the responses of the variable (for e.g. water or soil) to a measure of physical or financial investments, but also responses to the integration of two or more variables. An understanding of the chains of causality, the magnitude of responses, the inter-relationships of responses and the time required to generate a response of a certain magnitude, provides critical insights for policy development.

2. **What is the aim of the pilots’ experiments?**

   The pilots’ experiments will aim to understand specific issues, for example, constraints, related to diffusion (farmer adoption) of a set of relevant practices and the point beyond which such uptake increases exponentially – the ‘tipping point’.

   For example:

   1. **Practice:** farmer usage of biomass-based compost.

   **Constraints in adoption of practice:** limitations posed by labour shortages or availability of raw material or absence of a financial incentive, etc.
ii. **Practice:** Low input pest control.

**Constraints in adoption of practice:** limitations in availability of alternative non-synthetic pesticides and limitations in knowledge diffusion. The experiment can study the model of knowledge diffusion and if local NPM input enterprises can be promoted that can be tested out at various locations.

iii. **Practice:** part allocation of a millet product within the PDS (Public Distribution System), in lieu or in addition to rice or wheat.

**Constraints:** a variable price incentive at which millets can be made available.

These experiments will require fine-tuned methodologies that will be worked out over the course of the first year. Since this is an experimental work, each experiment will choose a location conducive to the proposed experiment; some locations may not have any experiments. For example, there would be little point in undertaking a millet-related experiment in an area that does not produce millets.

3. **How will mainstream government programmes in support of rainfed farming be developed through the pilots?**

The pilots can help develop mainstream government programmes and policies in support of rainfed agriculture in two distinct ways:

i. By quantifying the investments (financial or otherwise) required for the implementation of the programmes and effectiveness of such investments.

ii. By designing appropriate institutional mechanisms for the delivery of the services and the programmes.

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To facilitate the first, the partners will integrate these actions with government programmes – MGNREGS, RKVY, NRLM, IWMP, NFPM, animal husbandry programmes, etc. – to undertake pilots’ activities. For the second, a process of learning through iteration and feedback is expected for both government and the partner, which can eventually lead to the development of appropriate institutional and financial mechanisms needed to implement such programmes.

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**What will be the research indicators?**

- **Socio-economic indicators:** Baseline and annual surveys of a sample of the population to capture indicators like food insecurity, migration levels, household indebtedness.
- **Physical variables:** Climatic vulnerability, water levels and quality, soil quality, livestock morbidity and mortality.
  - **input variables** aimed at describing and quantifying current levels of input use – fertilisers, seeds, water, magnitude and sources of credit, animal health services, etc., and
  - **output variables** including some measure of system productivity, resilience to climatic vulnerability, food insecurity, and household incomes. Sampling will be tailored to factor in variability within any given location.
- **Identification of tipping points** in farmer adoption of particular technologies and processes.
- **Magnitude of leverage of government funds.**
- **Quantification of financial and other inputs** as critical inputs into the design of mainstream programmes.
- **System design** with regard to the implementation of programmes in support of rainfed agriculture.

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**INVITATION**

The RRA Network invites research partnerships and collaborations in this exercise of evolving a new policy architecture for the development of rainfed agriculture in India. As a small measure, the Research Group of the RRA Network is opening up internships, fellowships and research grants partly to encourage such wider research engagement with the Comprehensive Pilots.