Project Objectives

Stefano Padulosi

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Bioversity International

IFAD
Investing in rural people

CGIAR

RESEARCH PROGRAM ON
Climate Change, Agriculture and Food Security

CCAFS

ASA
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UVG
DEL VALLE
DELVALLE

INDIGENOUS PARTNERSHIP
FOR AGROBIODIVERSITY AND FOOD SOVEREIGNTY

The new IFAD-EU-CCAFS Project

Title: '*Linking agrobiodiversity value chains, climate adaptation and nutrition: Empowering the poor to manage risk'*
Focus: Guatemala, Mali and India (+ others)
Implementation: 3 years (2015-2017)
Budget: IFAD (1 mil USD/year), EU (1.5 Mil EUR/3 years), CCAFS staff costs.
Partners: The Indigenous Partnership (Rome), ASA (India), IER (Mali), University of Guatemala (Guatemala).

Rational and scope of work

1. **Rational:** Diversification strategies addressing multiple goals, including income generation, climate change adaptation and food and nutrition security have been limited so far, largely because researchers and the networks they engage-in tend to be disconnected. There is no coherent methodology to analyze diversification options in a systematic and integrated way, linking equitable value chain development with climate change adaptation and gender-sensitive food security and nutrition considerations.
2. **Scope:** Research how climate change adaptation and value chain development can be fostered in an integrated approach that includes gender-sensitive, pro-poor and nutrition considerations.

Goal

To strengthen the capacities of women and men farmers and other value-chain actors, including indigenous communities, to manage risks associated with climate change, poor nutrition status and economic disempowerment.

Specific Objectives: 1-2

1. **Strengthen capacities** of indigenous and local women and men farmers and development practitioners to assess, document, monitor, conserve and manage stress-tolerant varieties of traditional crops for their effective deployment in value chains and resilient livelihood strategies

2. **Strengthen CBOs, mechanisms and processes** managed by local communities (including indigenous people) to share with peers and partners (including researchers) best practices for the sustainable conservation and use of agrobiodiversity

Specific Objectives: 3-4

3. Strengthen capacities of NARS to deal with climate risks within a holistic value-chain approach and promote scaling up of successful approaches through collaborative linkages with local communities, and major national and international agendas. Part of the capacity-building process will be to promote an enabling environment for NARS

4. Enhance the scientific understanding of the role played by agricultural biodiversity in resilient and nutrition-sensitive production and food systems and advocate a policy change for its sustainable use

Novelty of approach

1. Address resilience from a **livelihood-system perspective**, combining 3 dimensions of resilience (production systems, nutrition and markets)
2. Focus on **NUS** as model crops (stress-tolerant, untapped nutrition opportunities, leverage these through an integrated value chain approach)
3. Special focus on **women** and **indigenous people**
4. Resilience at both **household and community level**

Why NUS?

- **Adaptation**: NUS resistance to abiotic stresses yet to be duly exploited; economic competiveness, marginalization from mainstream agriculture is depriving communities of strategic assets for their future;
- **Conservation:** NUS largest portfolio of crops conserved NOT in *ex situ* gene banks but *in situ*/on farm – hence the focus of the project; importance of approach in support of "Evolutionary Agriculture' favoring continuous adaptation;
- **Nutrition:** grains, pulses, vegetables, fruits- a diverse set of nutritious-dense species whose role is increasingly appreciated also by science;
- **Market:** emerging opportunities leveraging nutrition/ health conscious consumers at all latitudes;
- **Culture:** reservoir of immense gastronomic diversity, identity of people, territory;
- **Empowerment:** vehicle for emp. for women /vulnerable groups incl. IP.

Science 5 July 2013:
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DOI: 10.1126/science.1234485

Sustainable Intensification in Agriculture: Premises and Policies

T. Garnett[1], M. C. Appleby[2], A. Balmford[3], I. J. Bateman[4], T. G. Benton[5], P. Bloomer[6], B. Burlingame[7], M. Dawkins[1], L. Dolan[1], D. Fraser[8], M. Herrero[9], I. Hoffmann[7], P. Smith[10], P. K. Thornton[11], C. Toulmin[12], S. J. Vermeulen[11], H. C. J. Godfray[1,*]

[..] Human nutrition. [..] Good human nutrition requires a diverse diet. It is important that SI does not result in narrowed dietary options, especially for poor consumers. [..] **SI farming strategies thus need to take nutrition into account. This requires us to (a) assess impacts of current production approaches on the spectrum and adequacy of food available to local communities, (b) better understand the dietary importance for many poor people of wild foods and often-neglected indigenous crops** and livestock and take this into account in land-use policy, and (c) apply traditional and modern breeding techniques to improve yields of neglected crop and livestock species.

PNAS | March 18, 2014 | vol. 111 | no. 11 | 4001–4006

Increasing homogeneity in global food supplies and the implications for food security

Colin K. Khoury[a,b,1], Anne D. Bjorkman[c,d], Hannes Dempewolf[d,e,f], Julian Ramirez-Villegas[a,g,h], Luigi Guarino[f], Andy Jarvis[a,g], Loren H. Rieseberg[d,e,i], and Paul C. Struik[b]

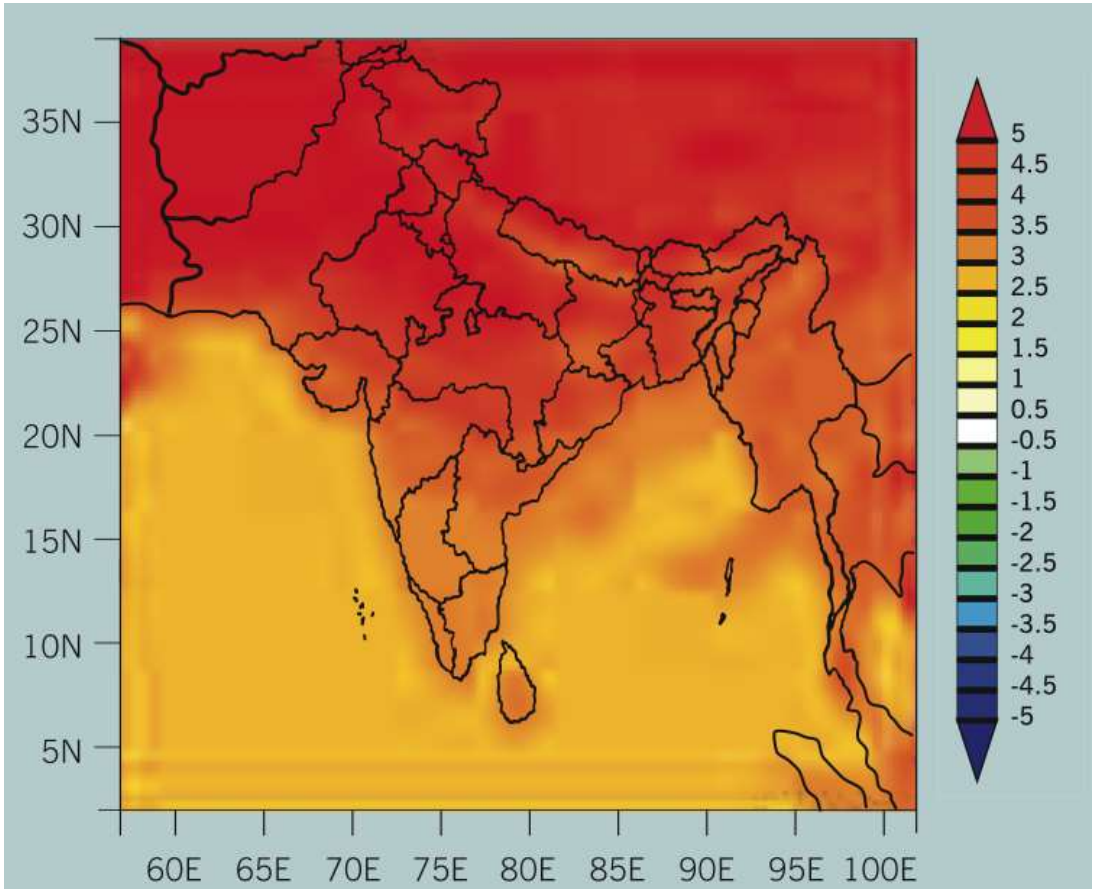
[a]International Center for Tropical Agriculture, Apartado Aéreo 6713, Cali, Colombia; [b]Centre for Crop Systems Analysis, Wageningen University, 6708 PB, Wageningen, The Netherlands; Departments of [c]Geography and [e]Botany, [d]The Biodiversity Research Centre, University of British Columbia, Vancouver, BC, Canada V6T 1Z4; [f]Global Crop Diversity Trust, 53115 Bonn, Germany; [g]CGIAR Research Program on Climate Change, Agriculture, and Food Security, Cali, Colombia; [h]Institute for Climate and Atmospheric Science, School of Earth and Environment, University of Leeds, Leeds LS2 9JT, United Kingdom; and [i]Department of Biology, Indiana University, Bloomington, IN 47405

[..] The modernization and globalization of agriculture through the replacement of human labor with machinery, investments in the breeding and distribution of high yielding major crops as a development strategy, and subsidies dedicated to a narrow range of crop commodities, among other factors, have further contributed to the increasing global availability of a limited number of major crop plants, **with lesser priority given to nutritional diversity [..].**

Climate smart crops: the case of cañihua

- Around lake Titicaca severe genetic erosion: surveys recorded only 20 landraces remaining of 200 once used in the past;
- 85 % farmers growing only 1 variety;
- Restitutions of lost varieties to local Communities instrumental to strengthen resilience of production systems in the face of climate changes (see photo).

Supportive NUS policy: the case of India



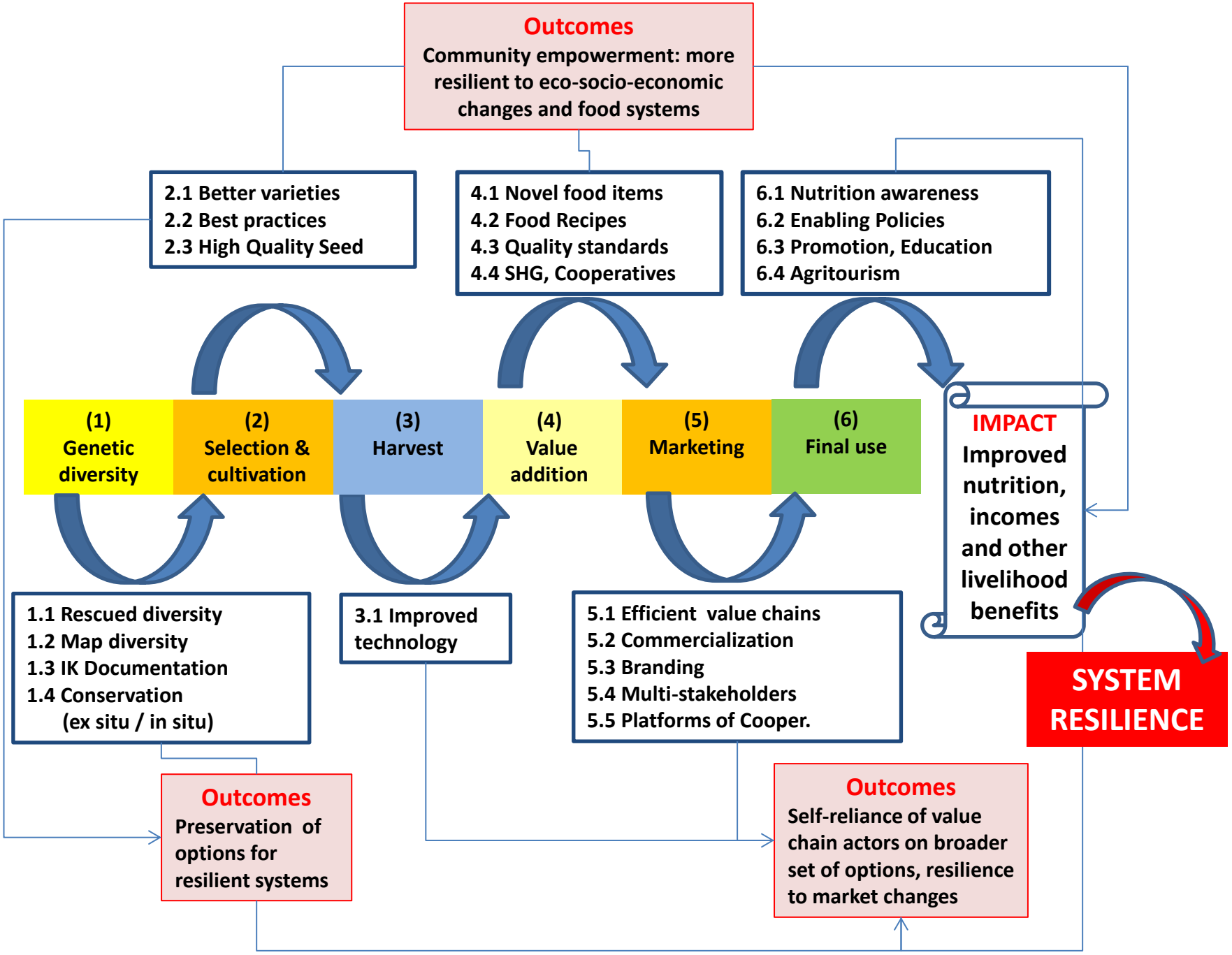
DEFRA (India) 2005 study: by end of the Century "*overall, temperature increases are predicted to reduce rice yields in India*" and that adaptive measures are urgently needed "*to cope with changing agricultural patterns.*

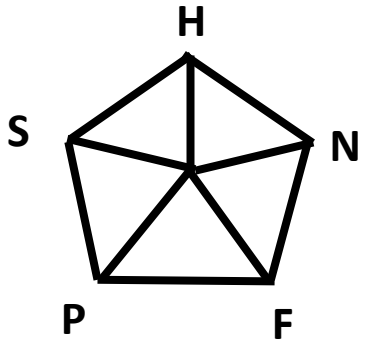
2013 major breakthrough with inclusion of minor millets in Indian Food Security Bill –PDS

Bioversity-led Project provided support to policy maker (Prof. MS Swaminathan frm MP) to advocate change in the PDS.. ***New Project to promote similar approaches in other coutries..***

NUS & resilience
Key aspects to address

1. Production system (incl. adaptation, seed availability)
2. Food system (incl. quantity & quality, sustainability, shocks buffering)
3. Market system (incl. diversity, technology, shocks buffering)
4. Others (incl. culture, empowerment of vulnerable groups)


Outcomes
Community empowerment: more resilient to eco-socio-economic changes and food systems
2.1 Better varieties
2.2 Best practices
2.3 High Quality Seed
4.1 Novel food items
4.2 Food Recipes
4.3 Quality standards
4.4 SHG, Cooperatives
6.1 Nutrition awareness
6.2 Enabling Policies
6.3 Promotion, Education
6.4 Agritourism
(1) Genetic diversity
(2) Selection & cultivation
(3) Harvest
(4) Value addition
(5) Marketing
(6) Final use
IMPACT
Improved nutrition, incomes and other livelihood benefits
SYSTEM RESILIENCE
1.1 Rescued diversity
1.2 Map diversity
1.3 IK Documentation
1.4 Conservation (ex situ / in situ)
3.1 Improved technology
5.1 Efficient value chains
5.2 Commercialization
5.3 Branding
5.4 Multi-stakeholders
5.5 Platforms of Cooper.
Outcomes
Preservation of options for resilient systems
Outcomes
Self-reliance of value chain actors on broader set of options, resilience to market changes



ASSESS LIVELIHOOD ASSETS FOR RESILIENCE

gender sensitive

focus on household and community levels

TESTING METHODS & INTERVENTIONS

Holistic value chain

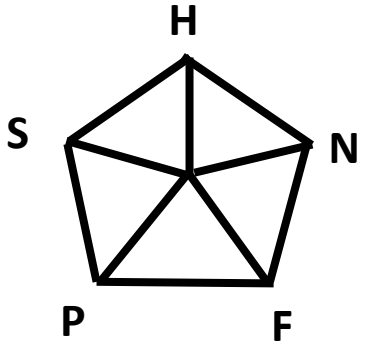
Participatory

Inter-disciplinary

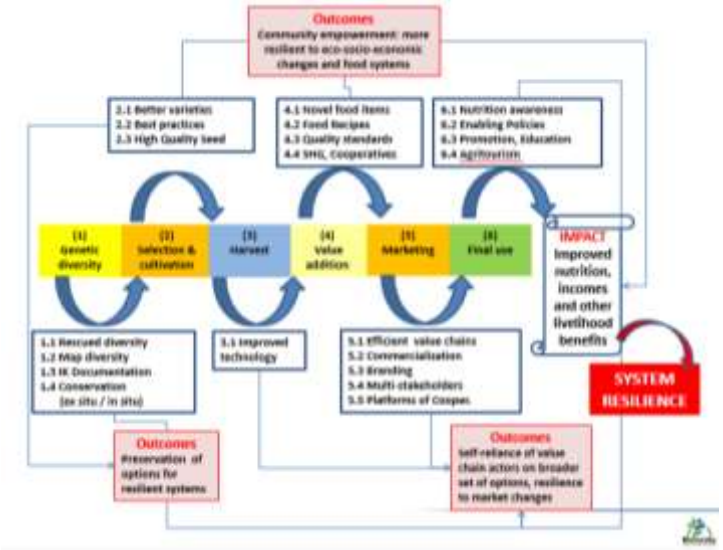
Inter-sector

Gender-sensitive

Multi-stakeholder



ASSESS VALIDITY OF METHODS & OUTCOME OF PROJECT RE RESILIENCE OF LIVELIHOOD SYSTEM



Key actions and expected benefits

- **Build capacities** of women and men farmers, CBO and Self Help Groups (SHG) to collect information, share experiences and make self-directed decisions to foster knowledge building and local innovation regarding weather, cultivation & performance of varieties of crops, nutritional benefits and market information.

- Enhance the **preparedness** of farmers and other value-chain actors for climate variability and associated risks.

- Strengthen **networks** to help local communities to better document, monitor, exchange and manage their traditional crops.

- Mobilize national and international **platforms** and fora to voice the concerns and aspirations of local communities for more sustainable, inclusive and nutrition-sensitive food and agricultural systems to benefit the poor and the marginalized.

Innovative work

1. Develop/test minimum set of indicators to capture resilience across its multiple dimensions
2. Develop/test weather info system for local communities
3. Develop/test market intelligence systems for local crops
4. Carry out modeling studies re NUS in food/nutrition security
5. Further work on participatory documentation/monitoring on farm incl. red listing of cultivated species
6. Foster cooperation between scientists and Indigenous people
7. Foster innovative ways to promote ex situ and in situ synergy

Output 1

Improved crops, methods, approaches and tools for coping with climate change	• **3-5 improved, stress-tolerant crops per country with market potential identified and used by women and men farmers and other value-chain actors in target communities** • **Amount of high quality seed of stress-tolerant varieties (in kilos, target to be established during inception) managed and produced by women and men farmers in target sites** • **At least 3-5 farmer-led intelligence systems to support local producers** • **At least 3-5 weather information forecast systems used by local communities in target areas**

Output 2

Strengthened market access for stress-tolerant and nutritious crops	• **Level of production of stress-tolerant traditional crops and varieties (increased yield to be established at inception based on the target crops selected)** • **At least 30% increase in demand, over baseline, for nutritious crops/products of stress-tolerant crops in local markets linked to target sites**

Output 3

Enhanced capacities of farmers and other value chain actors in conserving and using agrobiodiversity sustainably	• 5-10 farmers' networks (including indigenous ones) strengthened per country • 3000-5000 farmers per country, of which at least 40% women, enabled to access information on climate change for better management of their agricultural production • 300-500 farmers per country, of which at least 40% women, from target communities enabled to document stress tolerant crops for their better use in their production systems • 40-50 practitioners/ researchers in NARS per country (with gender proportion to be established) trained by the Programme in holistic value chain approaches • Amount of high quality seed of stress tolerant crops produced by women and men farmers in target communities (in kilos, to be established at project inception based on crops selected) • Three participating countries, plus an additional three to five countries, are using agrobiodiversity documentation and monitoring tools promoted by the Programme

Output 4

Proof of evidence of role of agrobiodiversity in nutrition, income and adaptation to climate change provided along with recommendations for supportive policies for its enhanced use	• **5-10 highly-visible scientific papers that provide further evidence of how agrobiodiversity strengthens people's livelihoods** • **10-20 policy recommendations to decision makers promoting the greater use of local diversity, at national and international levels** • **Collaboration with ASAP and CCAFS established and operational for promoting linkages between local producers and national and international agendas dealing with adaptation to climate change**

Empowerment of the vulnerable groups

Women

- They play a vital role in supporting global food security
- They constitute 40% of the labor force of the agricultural sector in developing countries
- Women account for 2/3 of the poorest small holder farmers. They actively participate in the conservation and use of food. Understanding levels of participation is essential to ensure effectiveness to any policies directed to supporting them
- Although women reach an average production levels 20-30 % lower than those of men, it is estimated that if they had equal access to resources, agricultural production in the world would grow by 2.5-4 %. This would help saving from starvation an estimated 100 to 150 million people.
- Project to help leveraging and enhancing women skills esp. those related to agrobiodiversity conservation and use.

Indigenous People

- Hold knowledge important for sustainably managing resources and responding to ever-evolving opportunities and threats that may affect their nutritious crops.
- To be fully beneficial, this knowledge needs to be supported by innovative methods and approaches developed by other communities and by researchers.
- Project to work on these linkages, filling the knowledge gaps and finding affordable solutions for and with resource-poor indigenous communities.

Moving towards an ex situ-in situ synergic approach

Networking, documentation, monitoring, seed exchange, seed fairs, incentives, linkages between custodians and ex situ gene banks & value chain actors, add value to IK, IPR, strengthening collective actions..

These activities have a particular significance in our efforts aiming at strengthening adaptation and climate risk management..

Thank you!