

Identification and Assessment of **Agricultural Practices** and Technologies to Enhance Productivity in a Sustainable Manner, **Food Security** and Resilience, Considering the Differences in **Agro-Ecological Zones** and Farming Systems



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- 1) What experience does your country have with the identification and assessment of agricultural practices and technologies to enhance productivity in a sustainable manner, food security and resilience?
- 2) How do various processes under the Convention facilitate the identification and assessment of agricultural practices and technologies to enhance productivity in a sustainable manner, food security and resilience observed in your country?
- 3) **What are the potential areas for synergies among various processes under the Convention to facilitate the identification and assessment of agricultural practices and technologies to enhance productivity in a sustainable manner, food security and resilience in your country.**

India

1.3 Billion + Indians

Marginal Lands

**Declining Per Capita
Land Availability**

Socio-economic structure

Markets & Price

*** 270 million tons +
* Imports of food
legumes and edible
oils**

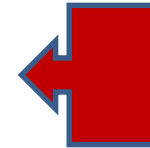


**India
Food Security**



**Hunger
Malnutrition**

Climate Variability



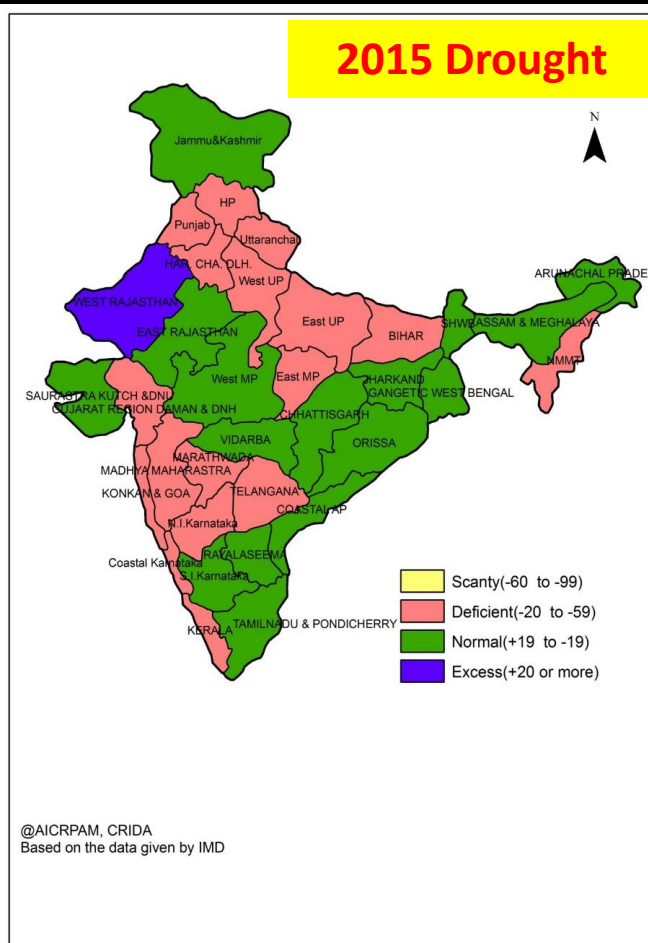
**Productivity vs
Food Security**

Climate Change

**@ Droughts
@ Cyclones/Floods
@ Heat wave
@ Hail storms
@ Frost**

Droughts and Extreme Climatic Events in India

Year	Rainfall Departure (%)
2000	-8
2001	-15
2002	-19
2003	+2
2004	-13
2005	-1
2006	-1
2007	+5
2008	-2
2009	-23
2010	+2
2011	+1
2012	-8
2014	-12
2015	-14



Rainfed Agriculture in India: High Vulnerable to CC

- Net rainfed area in India - 74 mha (53% of net sown area)
- 40% to national food basket
- Practiced by 80% of small and marginal farmers
- Nearly 40% of the net sown area in India will remain rainfed after full irrigation potential
- Average productivity – 1.2 t/ha

Major Challenges:

- **Edaphic constraints (poor soil quality, low organic carbon)**
- **Bridging yield gaps**
- **Climate change & multiple climate risks**
- **Poor socio economic background**
- **Weak infrastructure**

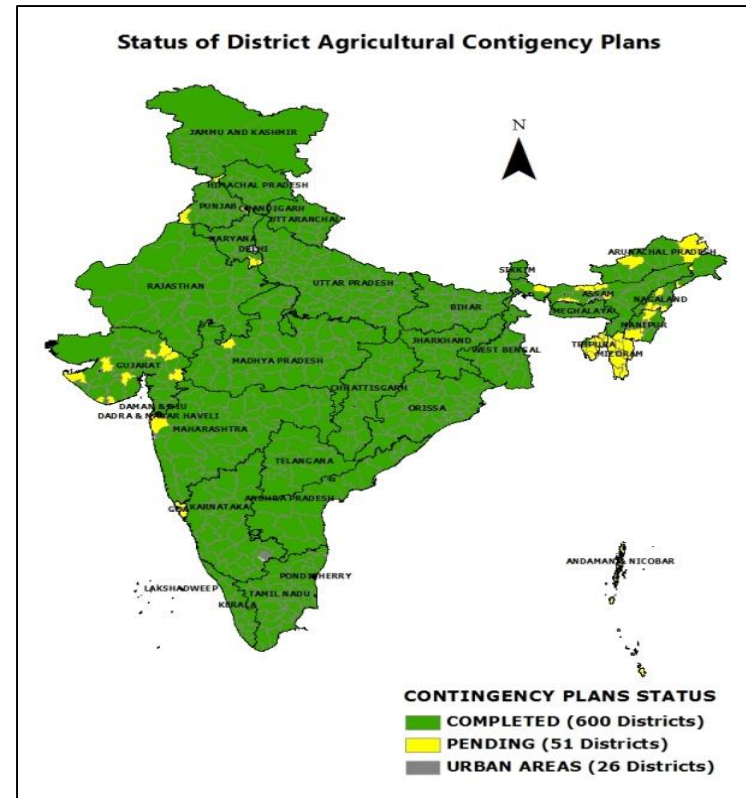
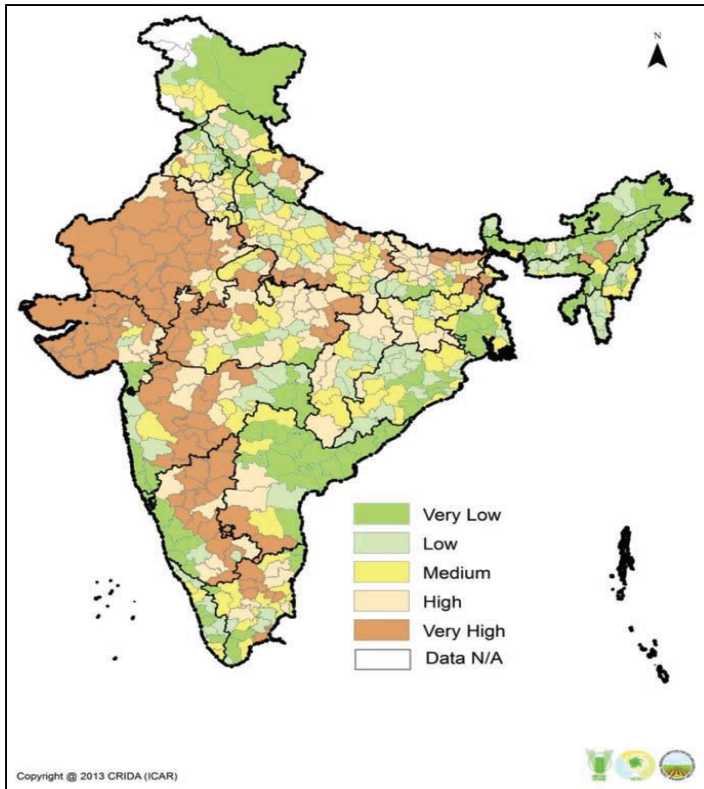
Practices/Technologies

- Efficient rain water management
- Promotion of stress tolerant crop cultivars and systems
- Conservation agriculture and integration of resource conservation technologies
- Location specific and farm pond based IFS systems
- Managing weather aberrations – both preparedness and real time contingency plan implementation
- Use of geospatial and ICTs for drought monitoring and coping, agro-advisories, weather insurance
- Innovations in technology transfer



India

SBSTA Convention



@ Vulnerability of Agriculture systems to drought, flood, cyclone
Heat wave, hails, sea water intrusion

@ Programs on agriculture sectors are linked with vulnerability agro eco zones

@ 614/651 districts targeted are ready with District Agriculture Contingency Plans.

@ Implementation in accordance with monsoon forecast

@ SAARC countries –Contingency Template

Successful Demonstration of Contingency Crop to Manage Mid Season Drought in RR Dist

Regular kharif crops in drought-2015



Maize



Cotton



Rice



Tomato

Severe wilting and poor yields
(Sowing: 6-15 June, 2015)

Contingency crop, Horsegram (CRHG-4 & CRHG-18R), 90-95 days



Actions under various Processes under Convention

- PMKSY (More crop per drop; Efficient water systems)
- NMSA (Sustainable Rainfed Ecosystems)
- Dryland Missions of States (Sub National: Programs)
- District Agriculture Contingency Plans - 614 (Adaptation)
- Expanding climate adaptive villages (Village to Clusters)
- NHM (Micro/pressurized irrigation systems)
- MGNREGA (Soil erosion, water harvesting, resource conservation)
- RKVY (Contingency crops and seed supply, NRM interventions)
- PM Crop Insurance Plan (Crop insurance)
- Soil Health Program (Soil carbon improvement)
- NICRA Program: Adaptive Agriculture R and D
- 700 KVKs: Agriculture Knowledge Centers
- National Disaster Management/State level units

India



In-situ
rainwater
harvest



Runoff
water in
Farm
Ponds



Legumes
in
Intercrops



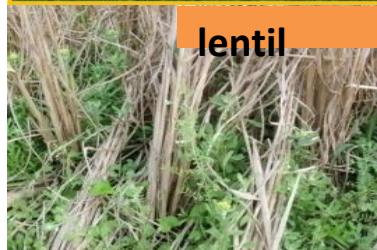
Cover
crops with
off season
rainfall



Agro-
advisories



Tolerant
breed



Fodder
security



Poultry
systems



Synergies among Various Processes

- 1) Implementation of Contingency Plans as adaptation mechanism – under National adaptation fund and GCF opportunities.**
- 2) Contingency Template developed for SAARC countries (Convergence)**
- 3) Strengthening monsoon forecasting, establishing automatic weather stations, down sizing agro advisories (Technology needs)**
- 4) Agriculture Insurance expansion (Financial support needs)**
- 5) ITKs and Tribal regions and Integrated farming systems**
- 6) National Agro-forestry policy**
- 7) SBI-SBSTA-NAP-National Programs, Regional Action Plans**
- 8) Strategic research in climate change (multiple stress tolerant cultivars, breeds)**
- 9) Local germplasm utilization (under convention)**
- 10) Local/village level institutions like village climate adaptation committee and communication**
- 11) Capacity building for Agriculture Adaptation**

Climate Research Infrastructure-Established



**High Throughput
Phenomics Facility**



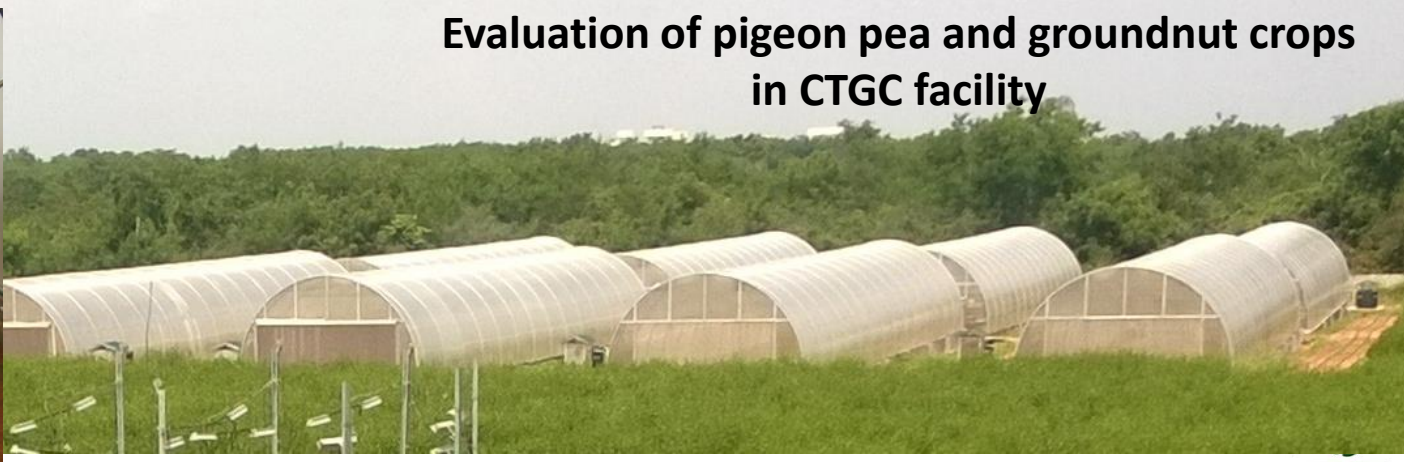
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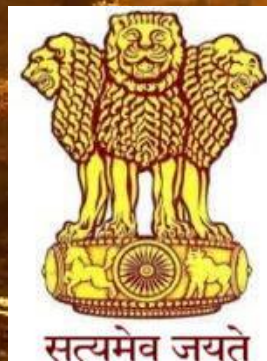


FATE Facility- Evaluation of Pigeon pea



**Evaluation of pigeon pea and groundnut crops
in CTGC facility**





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Thank You

