

## Conserving traditional seeds through Community seed banks – A Tool to Address Climate Change in farming regions of India

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## About Sustainet

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### A cooperation project to combat world hunger through sustainable agriculture



- Three out of four poor in developing countries are rural
- 2.1 billion individuals in rural areas live below a \$2-a-day poverty line
- Most depend directly or indirectly on agriculture for their livelihoods
- Therefore agriculture plays a key role in poverty reduction.

There are numerous examples of locally successful projects in sustainable agriculture, but they do not spread on a large scale

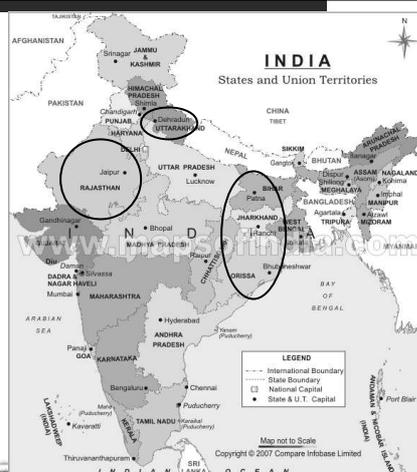
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## Sustainet's intervention in addressing the issue -

- Formation of alliance of German GOs and NGOs working in development cooperation sector
- Formation of 3 networks comprising 36 regional NGOs in the Pilot regions of India, Latin America and Africa
- Documentation and analysis of "good agricultural practices" for sustainable land use
- Systematic analysis of factors relevant to dissemination/ scaling-up and to cope with climate change



## Area of case study



## Examples from India



- Recently heavy floods were experienced in the arid zones of Thar desert (50 villages affected).
- Cherrapunji, a high rainfall area has received half of its total rainfall in 2006.



## INDIA AND AGRICULTURE

- Population : 1 billion +
- GDP from Agriculture : 34 % (1994), 42 % (1980)
- Area under Agriculture : 50 % (160 mha)
- Population dependent on agriculture : 65%
- Average farm size : 1 to 5 ha

Most of India's poorest people live in rural areas, fully dependent on natural resources for agriculture. The impacts of climate change would result in increases in their miseries.



## Why do we need to worry, because:

- Farmers are increasingly using chemical fertilizers and pesticides
- Farmers are using hybrid seed varieties and adopting monocrop
- Focus is on cash crop and water intensive crops
- Farmers are losing their traditional knowledge of conserving seeds as seeds are easily available in the market
- STILL POLICY MAKERS AND SCIENTIST DO NOT HAVE A SOLUTION TO REVERSE THE PROCESS



Loss of Pearl Millet in Jaisalmer (Thar Region)

## **Project Activities undertaken by Navdanya to develop adaptation strategies**

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- Monitoring and impact of flood and drought due to climate change
- Impact of climate change vis-à-vis carbon stock, sequestration, organic carbon dynamics and moisture regimes under organic versus chemical farming in different agro-ecosystems
- Programme on traditional seed saving, seed collection and seed exchange on sites prone to climate change
- Creation of seed banks for conservation drought, flood and saline resistant for distribution in disaster areas



## **Climate Change adaptation through Biodiversity based Organic Farming**

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- Rejuvenation of agrobiodiversity can be an important strategy to adapt to adverse climate change impact
- Biodiversity based production systems encourages organic farming and therefore reduce dependence on agrochemicals (fossil fuel based) thus reducing green house emissions
- Agrobiodiversity provides resilience to the ecosystem against impact of climate change



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## Devising Strategies

### Community Seed Banks



### Building insurance to address climate change issues through community seed banks:

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- Establishment of three community seed banks in
  - Rajasthan for conserving drought resistant varieties
  - Orissa to conserving saline resistant varieties and
  - Bihar/Bengal for flood resistant varieties.



## **Need to conserve seeds because:**

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- Decline of usage of indigenous and traditional varieties after Green Revolution. Commercialization of agriculture further eroded this practice
- Study mentions more than 10,000 varieties of paddy in India. A study records 3000 varieties of wheat were cultivated in Garhwal region of Uttarakhand before the Green Revolution which has now dwindled down to 320.
- In India, 80% of seed supply is usually met by farmers themselves
- A majority of the farmers are using high-yielding varieties, how does one ensure propagation of traditional diverse seeds?



## **What is Community Seed Bank**

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**Community seed bank is a concept wherein the farmer being the custodian of the agrarian society.**

**The community seed bank is run by the farmers with traditional knowledge of conserving seeds.**

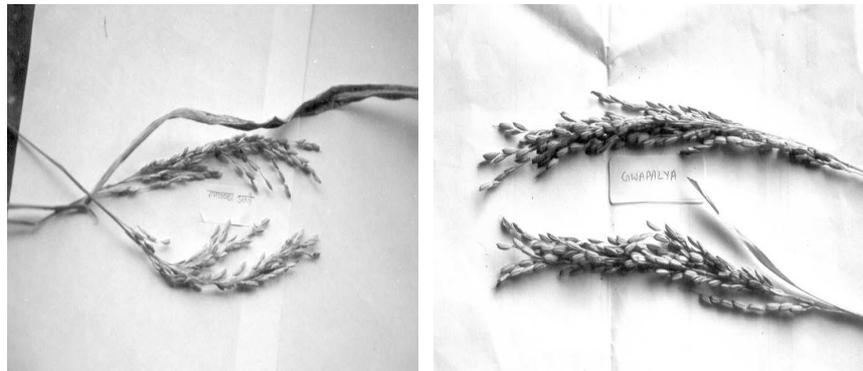


## **Some of the Flood and Salt Tolerant Rice indigenous varieties of Orissa**

- Kalambank: Yield 10 q/ha (Flood and saline resistant)
- Kartick patini: Yield 10 q/ha (Flood and saline resistant)
- Dhala Patini : Yield 13 q/ha (Saline resistant)
- Luna: patini: Yield 10 q/ha (In high saline conditions)
- Sola: Yield 10 q./ha (Saline resistant)



### **Drought Resistant Rice Varieties of Uttaranchal**



## Importance of Traditional seed varieties

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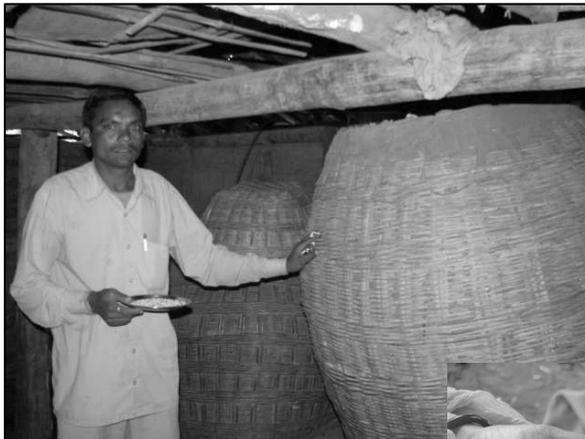
- ❑ Native seeds embody indigenous knowledge. A farmer who uses native seeds uses his traditional knowledge, skills and wisdom to grow them. He does not depend on an “expert”. It therefore promotes self- reliance
- ❑ Native seeds are hardy, as they have, over the years, developed resistance to the pests and disease-causing organisms in the system in their locale
- ❑ Traditional seeds have high levels of tolerance to condition of stress and are adapted to local agro climatic conditions
- ❑ Native seeds are center to a subsistence economy as farmer grows food for his sustenance; markets only ‘surplus’



**A women farmer from arid zone of Rajasthan  
with traditional seed storage system**



## Community Seed bank in Deshma Village, Rajasthan



Traditional Seed storage system in Bihar and Bundelkhand



## Strengthening Community Seed Supply Through Community seed banks

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## Survey for the identification of seeds

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Women respondents from a village of Rajasthan



Survey conducted to collect the information on the availability of traditional seeds

## Awareness meetings with the farmers on climate change and community seed banks

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## Selection of seeds

Seed selection is done by keeping the following in mind:

- Yield potential
- Qualities like colour, palatability, texture and flavour etc.
- Adaptations to climatic oscillations
- Pest and disease resistance
- Fodder value



## Multiplication of seeds in the farmer's field



## Project impacts

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- At the completion of the project the result will interpreted for
  - Identifying areas prone to climate change
  - Extent of conservation, multiplication and distribution of seeds in disaster prone regions
  - Effectiveness of seed bank
  - Documentation of performance of seeds conserved
  - Dissemination of information of the seeds to the communities that are under the risk of adversities of climate change

## Seeds for Life: Save to secure our future

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For more details.....

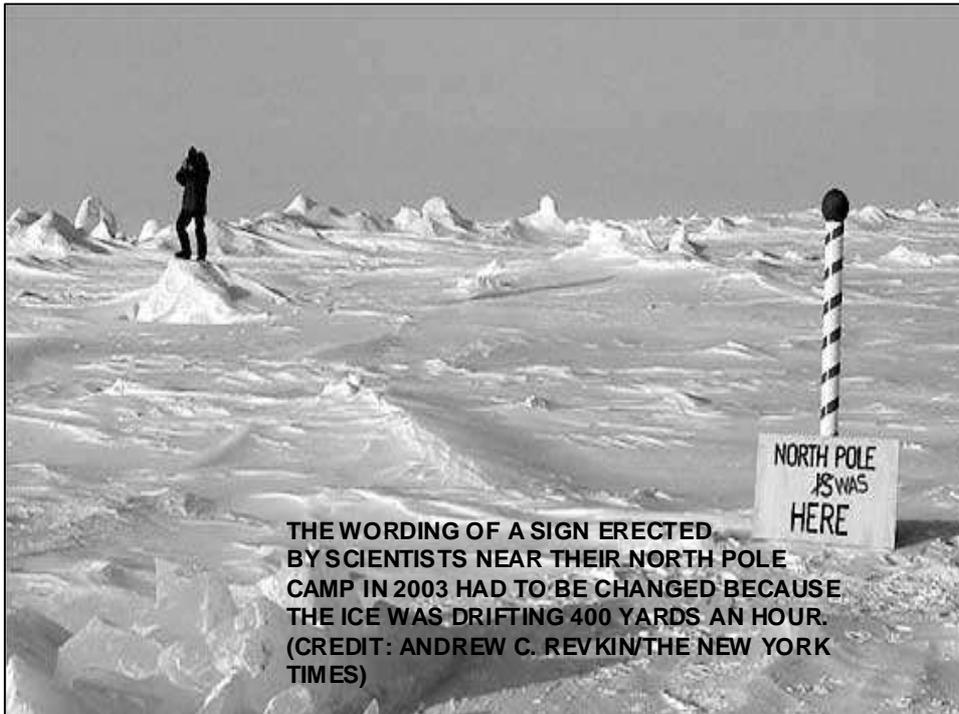
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**THE WORDING OF A SIGN ERECTED BY SCIENTISTS NEAR THEIR NORTH POLE CAMP IN 2003 HAD TO BE CHANGED BECAUSE THE ICE WAS DRIFTING 400 YARDS AN HOUR. (CREDIT: ANDREW C. REVKIN/THE NEW YORK TIMES)**