Special Information Seminar

Biodiversity for food and agriculture: take stock for the future

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State of the World's Plant Genetic Resources for Food and Agriculture

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Outline of the presentation

- About PGRFA and SoW-2
- Key findings
- Drivers of erosion
- Information gaps

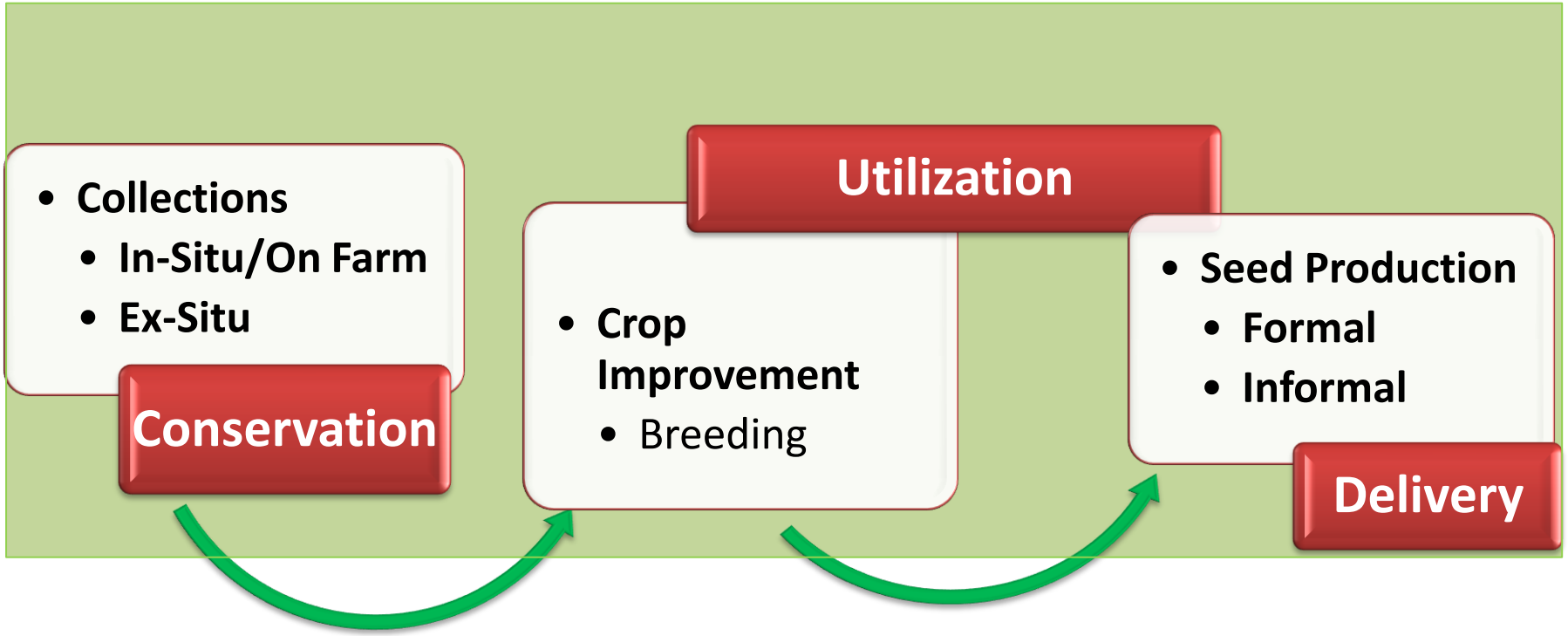
PGRFA and food security

- Plant Genetic Resources for Food and Agriculture (PGRFA) are all types of cereals, fruits, nuts and vegetables we eat, drink and use
- There are 30.000 edible plants species of which 700 are cultivated
- Plants account for more than 80 % of the human diet
- PGRFA is the raw material for fighting pests, adapting to climate change and more
- 50% of the food production is a direct result from crop improvement

The PGRFA continuum

The PGRFA continuum encompasses three key components:

Conservation of crop germplasm, **utilization/plant breeding** and the **seed production and distribution**



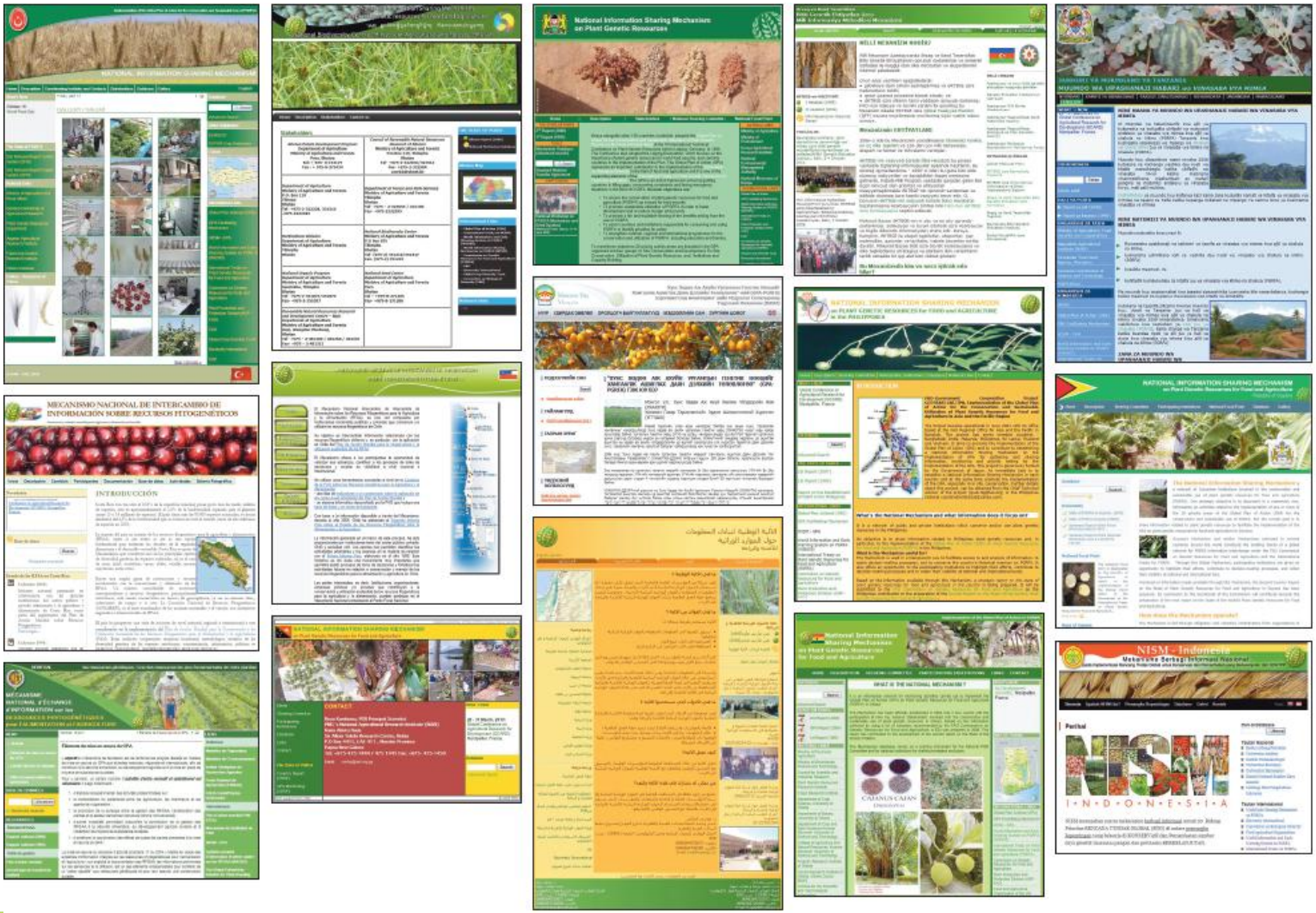
The Second Report on SoW-PGRFA

In-depth PGRFA assessment focused on <u>status, trends, policy issues and technology</u>

- **Target audience**: Decision makers of Ministries of Agriculture and Environment; National Programmes on PGRFA; NARIs and IARCs; NGOs and Networks
- **Basis for updating the Global Plan of Action for PGRFA**
- Based on:
  - 111 country reports
  - 1200 national stakeholders
- With the participation of the Treaty Sec., CGIAR and GCDT

SoW2-PGRFA	
Region	**Country Reports**
Africa	**23**
Americas	**22**
Asia & Pacific	**19**
Europe	**30**
Near East	**17**
Total	**111**

PGRFA National Information Sharing Mechanisms



KEY FINDINGS

Ex situ conservation

Global total:

- 1750 individual gene banks worldwide
- 7.4 M accessions, almost 90% held in National gene banks
- 1.4 M accessions added in the last 12 years of which 240,000 are new collections

… worth noting:

- About 30% of germplasm conserved is unique
- 45% of collections held in just 7 countries (12 in 1996)
- Brazil, China, India have more than doubled their collections in the last decade
- Global long term seed safety repository established in 2008

In situ conservation and management

- A huge reservoir of PGRFA diversity is represented in nature and in farmer's fields., but for how long?
- Countries' ratification of the CBD and the International Treaty have led to an increased focus on conservation of cultivated plants and their wild relatives
  - Protected Areas worldwide has increased by 30%
  - Increase in CWR collecting, conservation and base broadening
  - Enhanced coordination between agriculture and environment agencies
- Traditional cultivars and landraces are continuously subject to genetic erosion largely due to replacement by modern varieties
- Climate change poses a serious risk, especially to CWR survival: 16-22% of species of *Vigna*, *Solanum*, *Arachis* could disappear by 2055
- 105 countries have warned about genetic erosion in key food security crops, e.g. minor cereals, fruits, nuts and vegetables

Sustainable use of PGRFA

Key issues:

- Plant breeding is focused largely on major crops and yield gains
- Low use of germplasm by breeding programmes
- There is a decrease or no change in national capacities but increase of private sector role
- Biotechnology & informatics advances, though poorly integrated in national breeding programs

Plant breeding needs a boost to increase use of diversity!

- New capacities and funds needed to reorient breeding programs
- Increase use diversity, develop crops to tackle climate, pests, malnutrition
- Need public – private partnerships, access to technologies

Seed production and delivery

Market oriented agriculture

- Huge growth of private sector with routine use of quality seeds
- Increased seed trade and enabling environments

Subsistence agriculture

- Weak or no infrastructure with few improved varieties and insufficient quality seeds, markets
- Limited public, private sector role

DRIVERS OF EROSION

Drivers of erosion

- Variety Displacement
- Urban Pressures
- Climate Change
- Land degradation
- Over-exploitation
- Change in consumer choice
- …

GAPS IN INFORMATION

PGRFA as providers of ecosystem regulating and supporting services

PGRFA contributes a range of ecosystem services, including:

- Water regulation and purification
- Climate regulation and pest/disease control
- Soil formation and prevention of erosion
- Nutrient cycling

This was discussed in the SOW-2 but <u>not quantified!</u>

Other information gaps:

- Degree of diversity and geographical distribution of local, adapted varieties
- Accurate and applicable methodologies for diversity evenness and richness estimation
- Reliable measures and baseline data for monitoring goods and services provided to maintain ecosystems healthy as well as for assessments for sustainability and food security
- Quantification of PGRFA trade offs for sustainable production systems
- Effective early warning mechanisms to provide adequate responses to threats