

Culture in Development Research: Food Security, Environment, Gender and Biotechnology

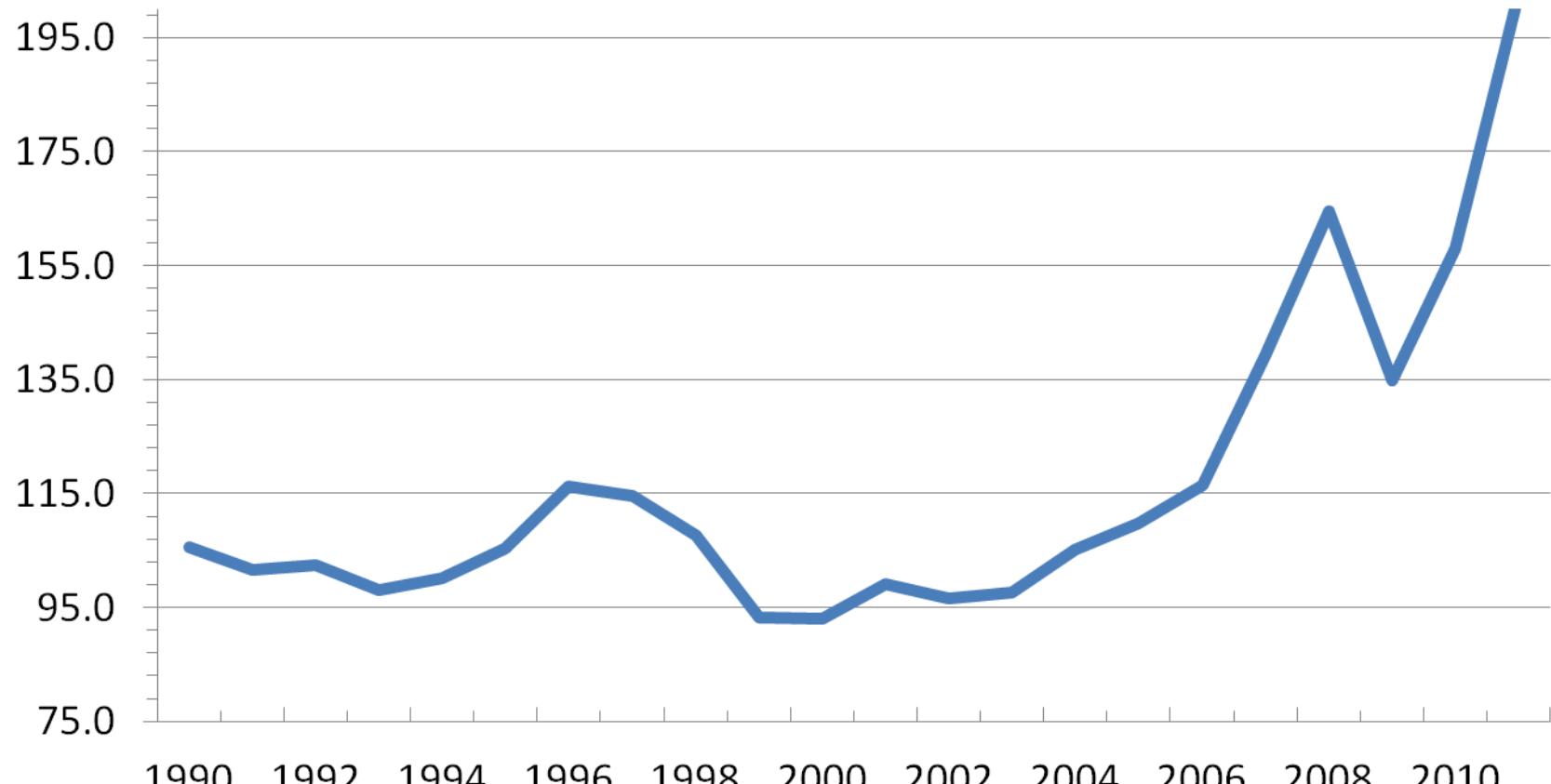


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GUIRR, NAS

The Global Challenge

- ✓ Almost **one billion** people suffer from chronic hunger
- ✓ More than **3.5 million** children die from undernutrition each year
- ✓ The world's population will increase to more than **9 billion by 2050**
- ✓ Food production will have to **increase by 70%** to feed the world

Global Food Prices

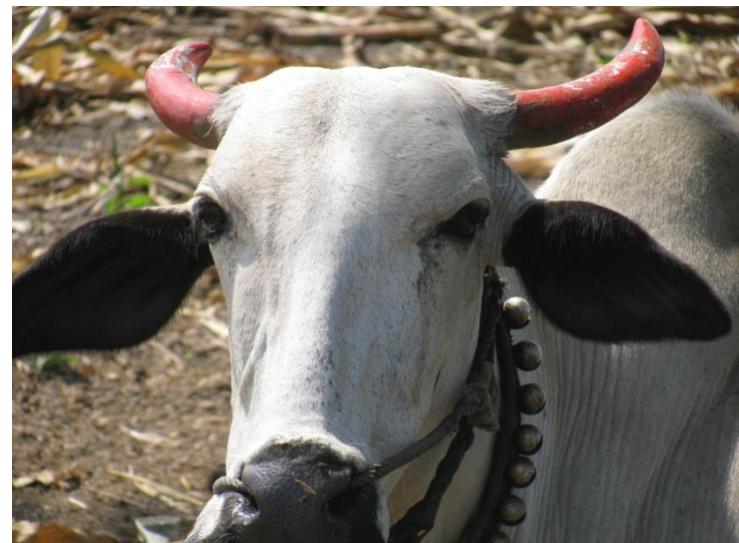


Source: FAO

Background

- ✓ Presidential initiative
- ✓ \$3.5 billion investment
- ✓ Addresses root causes of hunger and undernutrition
- ✓ Long-term effort to sustainably feed people

- 1. Help farmers produce more**
- 2. Help farmers get more food to market**
- 3. Support Research & Development to improve smallholder agriculture in a changing climate**
- 4. Strengthen Regional Trade**
- 5. Create a better Policy Environment**
- 6. Improve Access to Nutritious Food and Nutrition Services**



- *Country-led*
- *Focus on Women and Gender*
- *Integrate Nutrition and Agriculture*
- *Address Climate Change*
- *Increase Economic Resilience*
- *Strengthen Capacity of Local Institutions*
- *M&E to support real-time learning*
- *Impact analysis to build a strong evidence base*



Value Chain Anchor link concept - Ethiopia

Applied research recommendations for optimized profit and sustainability of the small holder integrated system with advisory services – an input of knowledge and skills

Input supply system link for multiple value chains:
Must provide for all the small holders input needs across the multiple value chains.

Small holder farming system – integrates multiple value chains
Wheat, malt barley, chick peas, forage, vegetables

Wheat value chain – post producer links - markets, processing, and other links in the chain.

Livestock value chain – post producer links - markets, processing, other links in the chain.

Chick pea value chain – post producer links - markets, processing, other links in the chain.

Malt barley value chain – post producer links - markets, processing, other links in the chain.

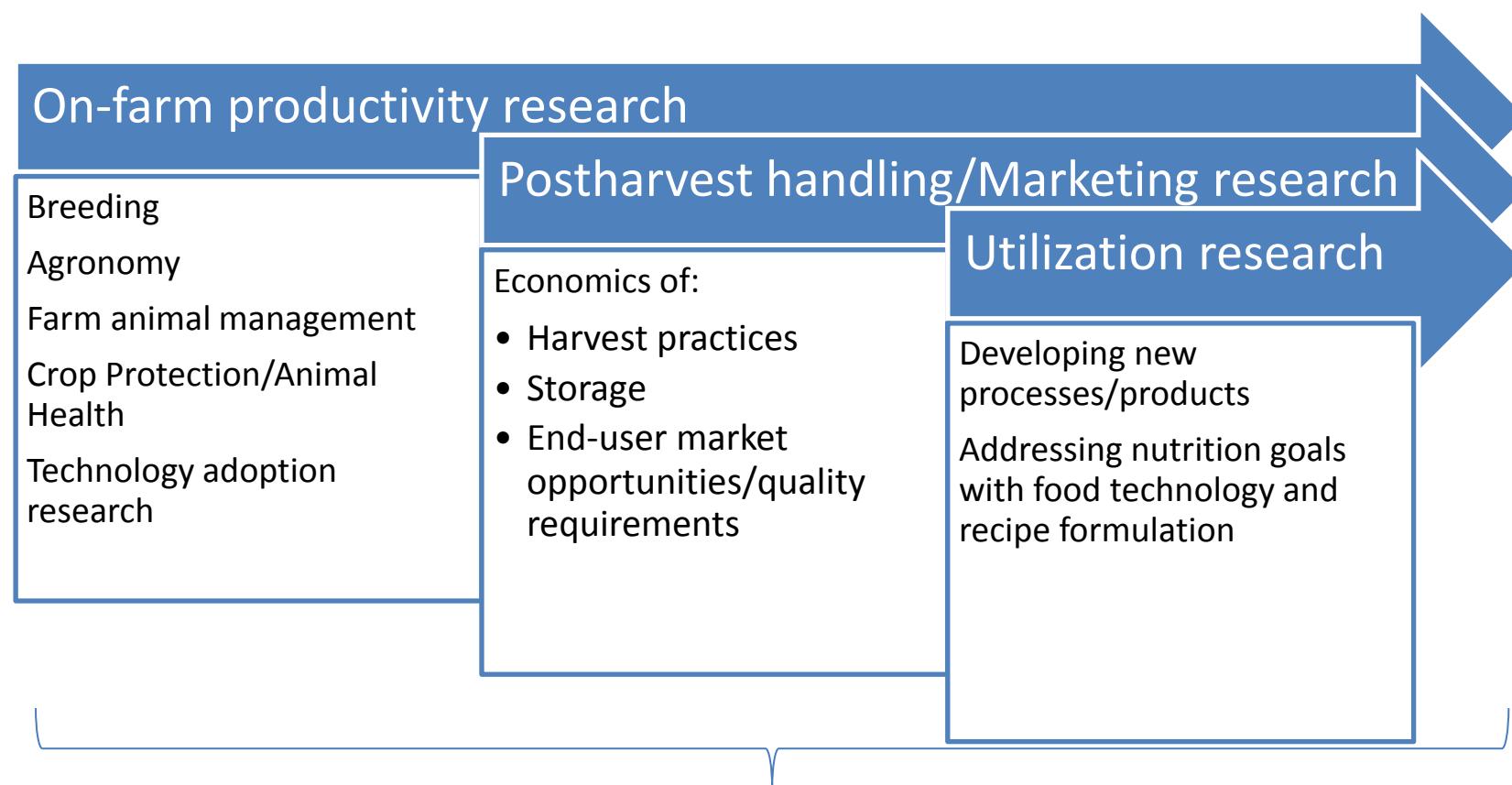
Vegetable value chain – post producer links - markets, processing, other links in the chain.

Forage value chain – post producer links - markets, processing, other links in the chain.

ANCHOR LINK

Small holder system is not treated as a link in each of the multiple separate value chains but as one big link that integrates the multiple and diversified value chains.

Research along the value chain



Partner outreach in each area facilitates technology uptake

- Research
 - Farms, firms and markets
 - Policy issues, clients, advocacy
 - Implementation
- Capacity Building
 - Data, analysis
 - Formulation, Advocacy
- Research on Support to Policy Process/Capacity
- Global Policy Debates
- Analytical Agenda in support of Donor Policy/Strategy

AgriCULTURAL Norms?



- Beauty in the Eye of the Beholder!
- Monoculture
- Rotations
- Mechanized
 - Pest
 - Diseases
 - Weeds



Increasing productivity while reducing risk:

Improve water productivity and water use efficiency

Increase nutrient use efficiency through biology and mgmt. practices

Minimize negative environmental impacts, enhance resource base

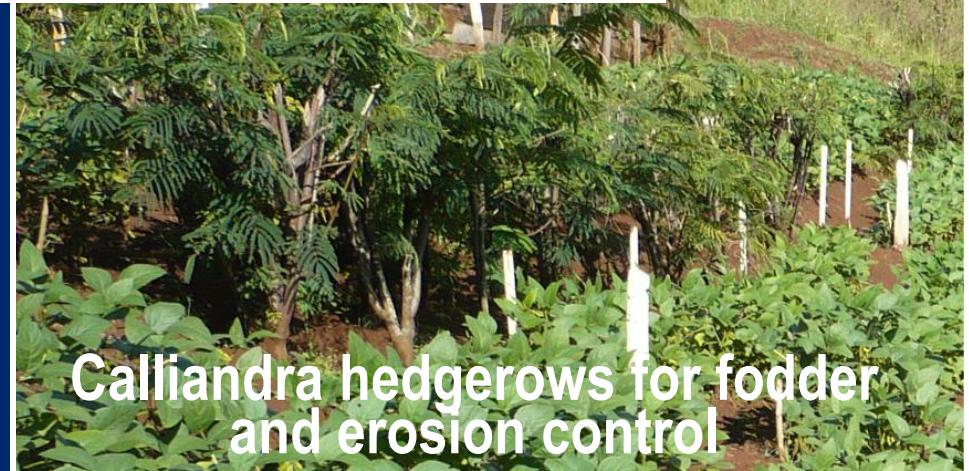
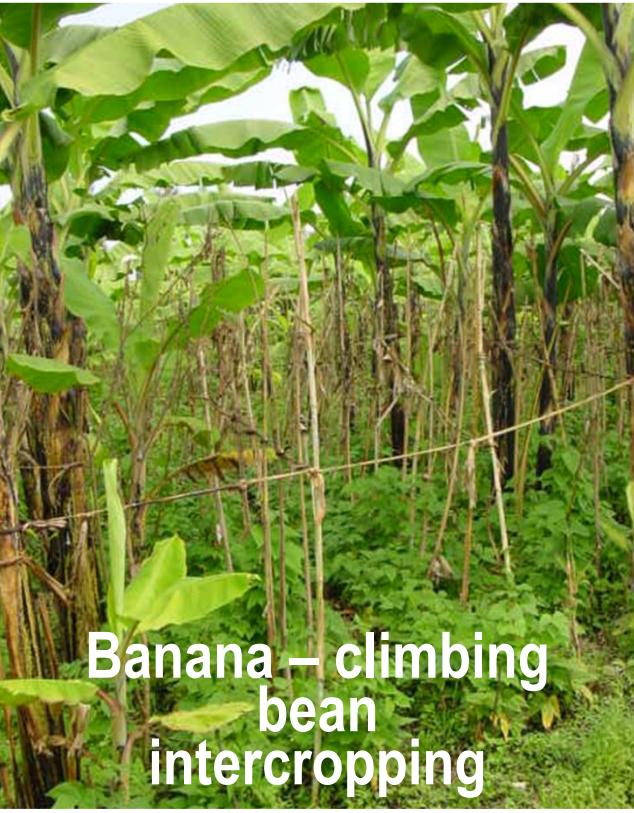
Increase adaptation and reduce GHG emissions per unit productivity

Integrate best component technologies for system productivity

Work in farmer context, integrating local knowledge/perspectives



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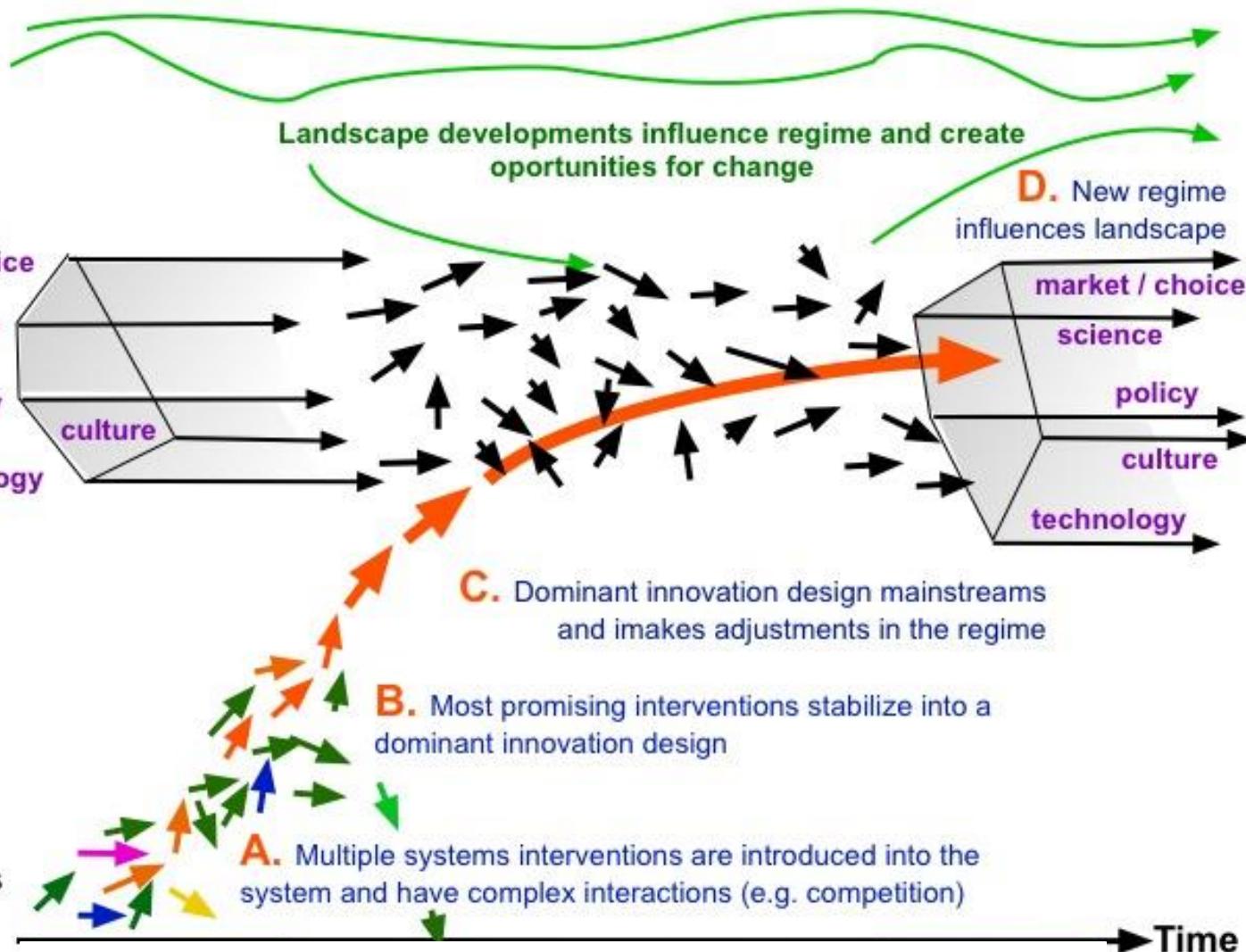


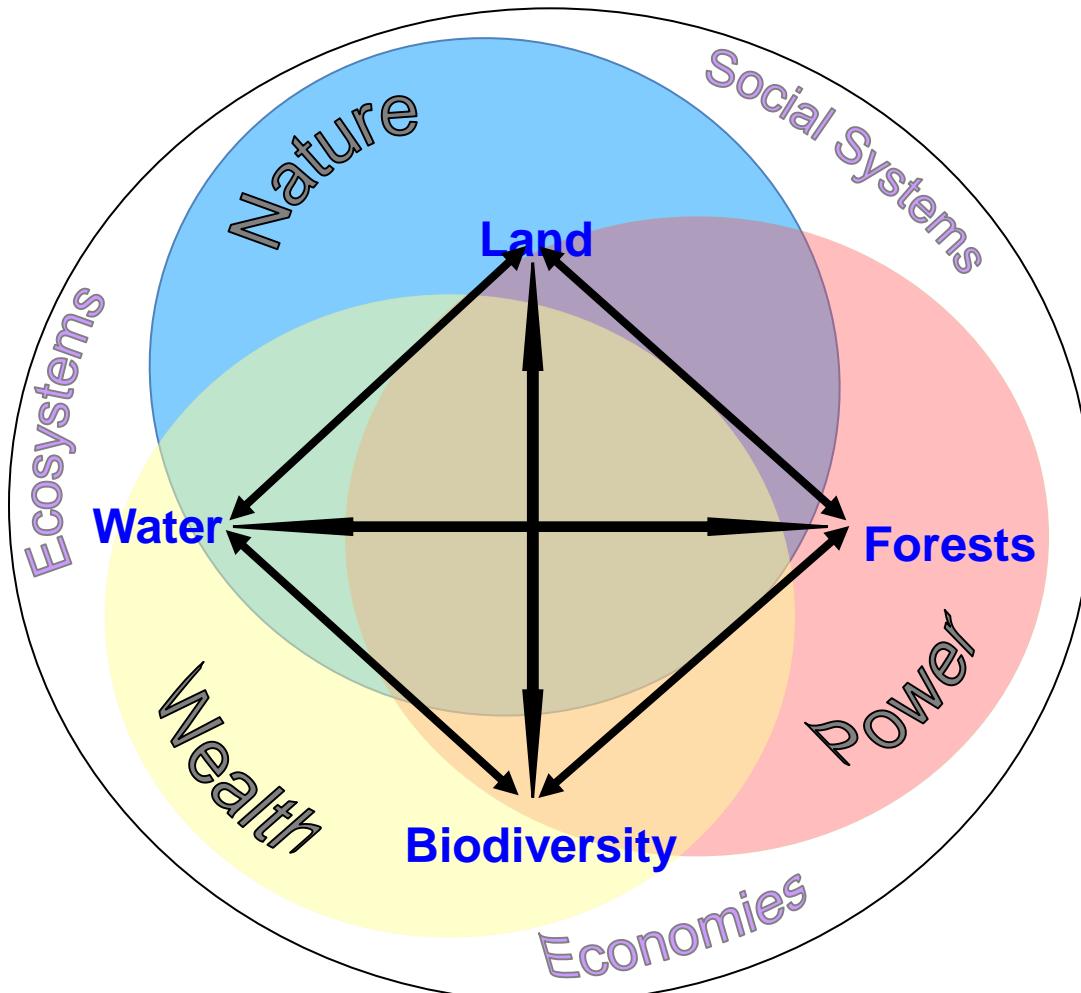
Mainstreaming Systems Innovations--from IITA/CGIAR Humid Tropics Program

Landscape Developments

Mainstream Socio-technical regime

Innovations / Niches spawned by incubators







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Niger

Southern Niger in the 1980s





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Example of a Mature *Faidherbia albida* Parkland





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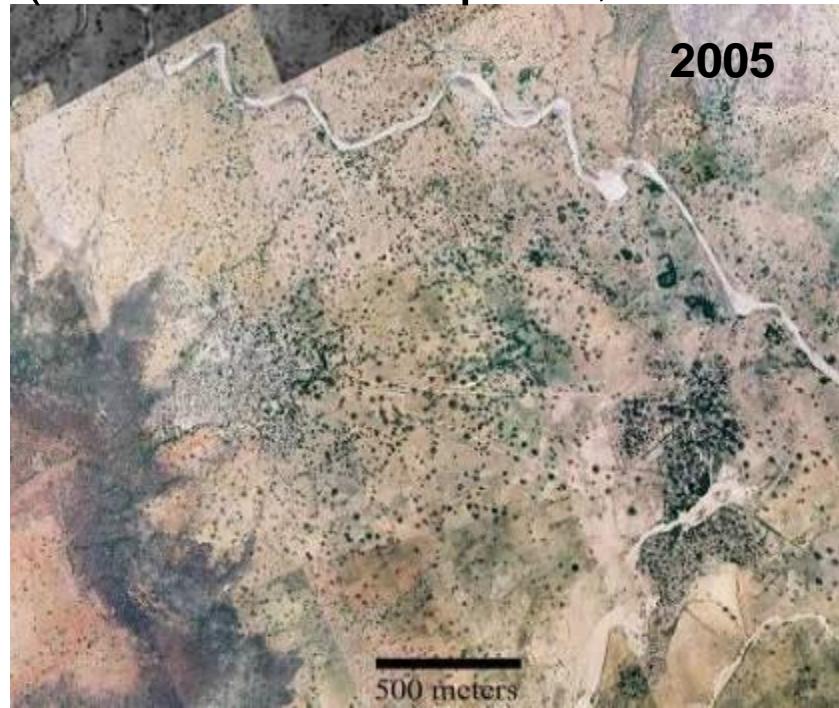
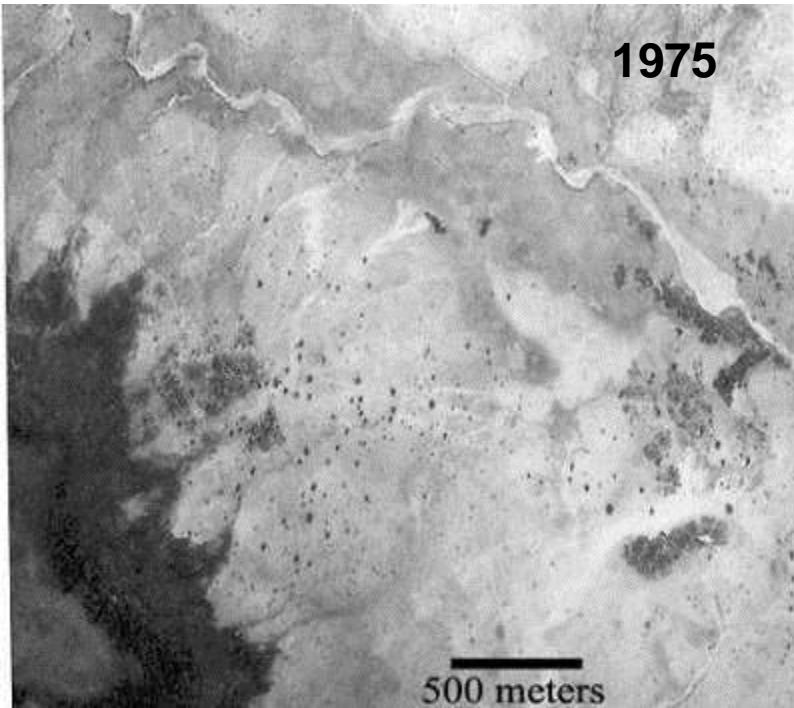
USGS

Niger

Quantifying Tree Cover Trends at Galma, Niger

- 4 Trees/ha
- 2.9 tons woody biomass/ha
- 1.4 tons C in woody biomass/ha
- 3 tree species/ha
- 22 Trees/ha
- 16 tons woody biomass/ha
- 7.2 tons C in woody biomass/ha
- 6 tree species/ha

(based on field plots, March 2007)





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IP **USGS**

Niger

What induced farmers to protect and manage on-farm natural regeneration?

- The environmental (drought) and economic crisis of the 1970s and 80s
- The increasing population pressure on natural resources
- A perceived change in ownership of trees since the mid-1980s
- The multiple benefits generated by on-farm trees

Five domains to be measured:

1. Women's role in household decision-making related to agricultural production
2. Women's access to productive capital, such as credit or land
3. The adequacy of a woman's income to feed her family a nutritious diet
4. Women's access to leadership roles within the community
5. Women's and men's labor time allocations

- Gender equity enhances competitiveness
 - Social context important
 - Changes affect gender roles
 - Diagnose gender-based constraints
 - Include men in decision-making
 - Enhance women's roles from production through to marketing

WOMEN IN RESEARCH

- Support women scientists in scholarship and fellowship programs (AWARD, Borlaug, Cochran)
- Competitive grants program with technical points for gender considerations
- Include women in research trials
- Target research on crops where women are likely to benefit



Complexity—Science, Partnership, Public-Private, Consumers

1. Science-Innovation-Use value/linkage chain
2. Risk Management/Regulatory
3. Stakeholder analysis
4. Credibility
5. Constancy—Need to be there → Trust
6. Approach to engagement
7. Govt-Civil Society Interactions