Mainstreaming Biodiversity in Development

Managing Agro-Biodiversity for Better Livelihoods in Morocco

Bioversity international
INRA Morocco
Ministry of Agriculture
(IAV Hassan II)

Bioversity International

Content

- Biodiversity (plant)
  - Uniqueness and extent
  - Importance in development (Agriculture)
  - Threat/ Opportunities
- Mainstreaming strategy
  - Process
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- Strategy implementation
  - Use of biodiversity in developmental projects
    - Olive sector, horticultural sector, oases ecosystems
  - Unlocking biodiversity for development (techniques)
    - Marginal areas (water limited environment)

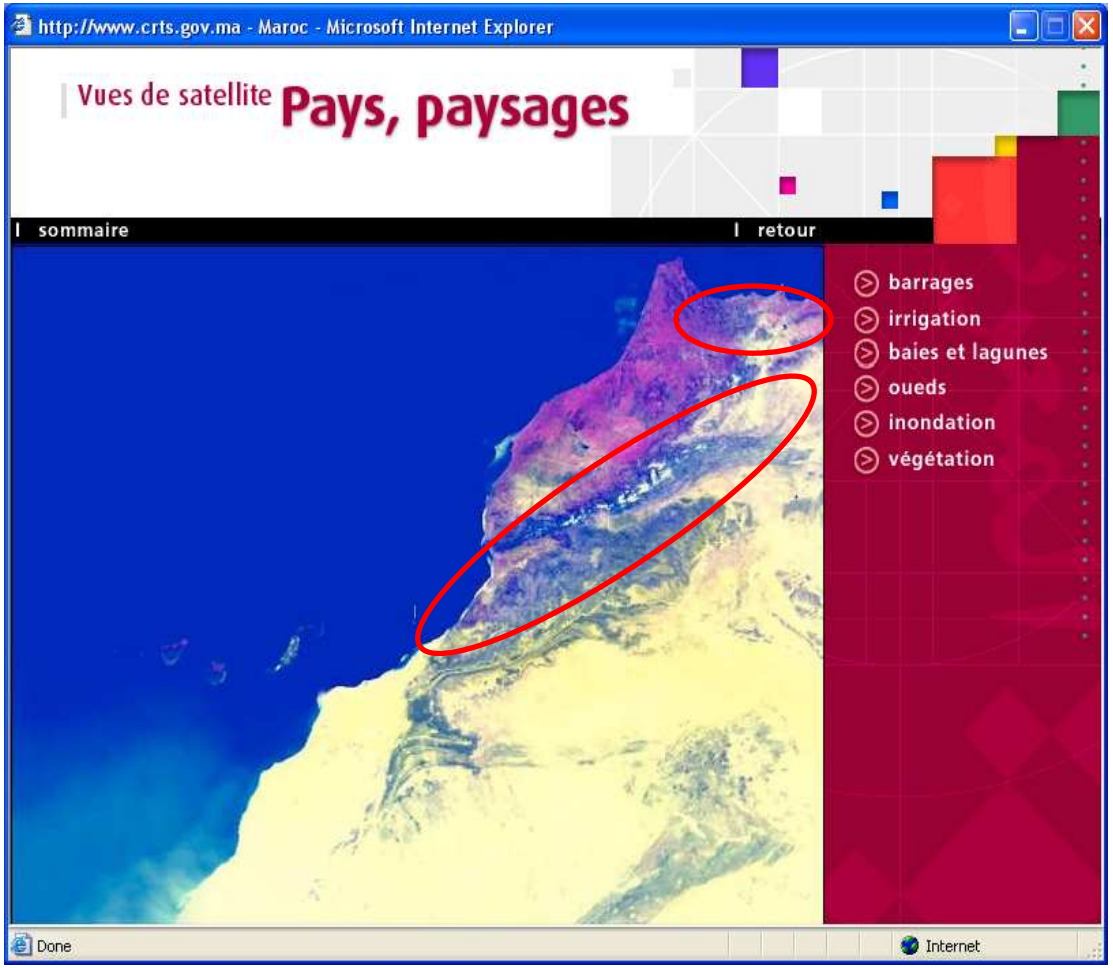
Biodiversity uniqueness

Morocco has a unique biological diversity and harbours two of the ten internationally recognized biodiversity 'hotspots' in the Mediterranean region (Ojeda *et al.* 2000)

More than 40 ecosystems identified as being rich in biodiversity; 75% of them are forest ecosystems

Morocco's biological diversity include also a large number of varieties and strains of field crops and livestock breeds[1].

http://www.crts.gov.ma/



Role of Biodiversity in Morocco

- 35% of the population works in the agriculture sector,
  20% of agricultural products are exported, contributing to 25% of PIB (GDP).
- Pastoral areas cover approximately 21 million ha and 18% of farmers in Morocco rely exclusively on livestock for their income.
- Forest ecosystems contribute to both employment and as source of income for families.
- **Challenges:**
  - Land degradation coupled with climate change
  - Development pressures
  - Decrease in farmer's income/poverty

Thus the importance of biodiversity in development

Need of a strategy
Actions plan for its conservation and use for development

Threats / Modifications

Forest degradation as a result of population pressures is one of the major causes of diversity loss[2]. These pressures are reflected in the structure and composition of Moroccan forests (Ajbilou *et al.* 2006).

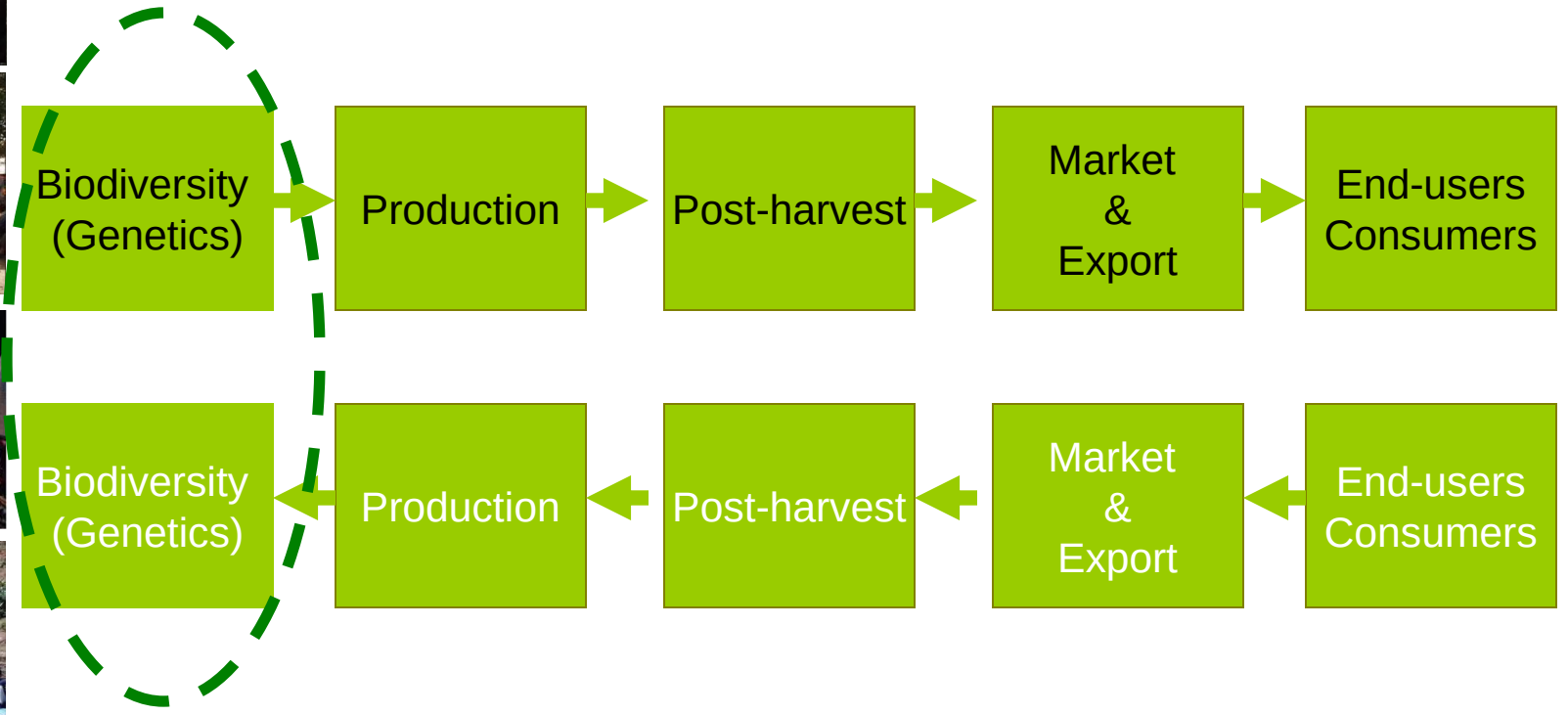
- **In total 2277 wild species are considered threatened (CBD Morocco) ~ 25%**
- **75 plant species/taxa are being lost due to the new trend to harvest from the wild.**
- **about 200 endemic species considered as rare or on the verge of extinction.**

Pests and diseases are also taking their toll in Moroccan biodiversity (e.g. Bayoud, Verticillium, Capnode).

[2] http://www.aujourdhui.ma/magazine-details405192.html

Opportunities

Supply-driven to market-driven



Strategy: Process

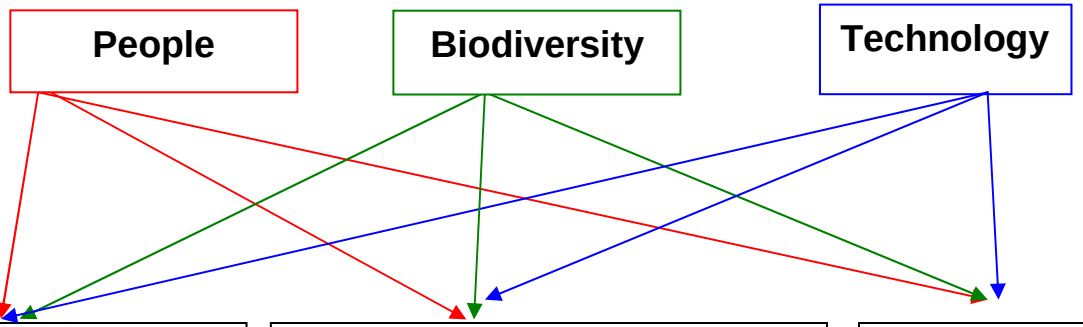
- **Workshop I**
  - Outline
  - Logframe
- **Inputs experts**
  - Market chain
  - Policy
  - Livelihoods
  - Domestication
  - Conservation
  - Use
  - Fund raising...
- **Workshop II**
  - Participation of other stakeholders / Donors
  - Implementation/Endorsement

- **Field activities**
  - Surveys
- **Literature review**
  - CBD
  - Government publication (50 years)
  - National publications
  - UNEP
  - WWF
  - Bioversity Int.
  - Articles/proceedings
- **Visit/Training**
  - Use
  - Conservation

Strategy: Summary

Goal

The goal of biodiversity strategy is to eradicate poverty and improve the livelihoods of people through the enhanced use of biodiversity.



Mitigate climate change (Production system) → Increase productivity (managing water scarcity due to climate change)

Natural ecosystem (forest and coastal ecosystems) → Manage natural diversity at the ecosystem level that include people (to curb the loss of diversity)

Alternative crops → Develop new products in response to new market demand banking on agro-biodiversity opportunities

Strategy: Refocus towards development

- **Shift in scope from production to <u>income</u> and rural employment**
- **Shift in scope from food security to <u>nutrition</u>, health and environment**
- **Shift in scope from plant focused to <u>people</u> focused strategy**

Implementation
Presentation of some concept notes



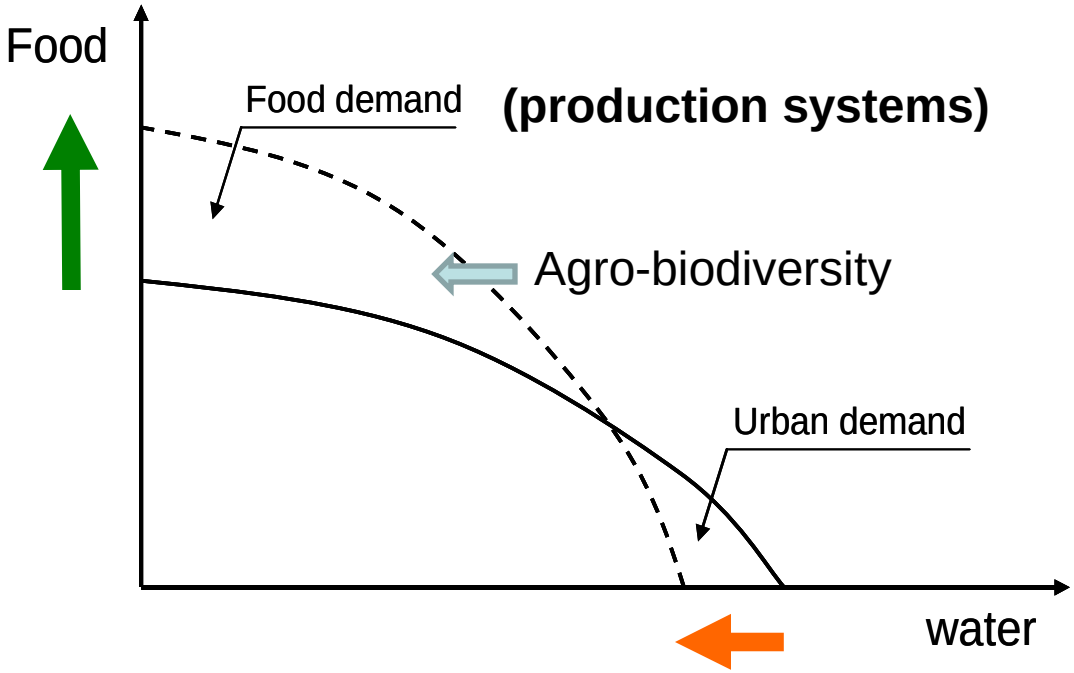


1. **Boosting olive production in Morocco (Broadening and enhancing use of olive agro biodiversity to mitigate climate change and market quality preferences for better livelihood)**

2. **Use of fruit and nut crops diversity to mitigate climate and market changes for better livelihoods in marginal areas.**

3. **Utilizing date palm diversity in the oases of Morocco**

Biodiversity to mitigate CC



Gregory (2006) suggested that root architecture be considered along with the increasing emphasis on the **more efficient use of water and nutrients in production systems**.

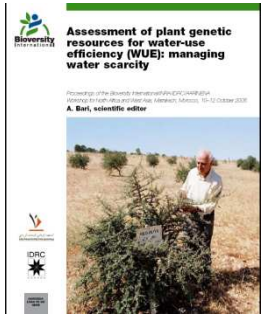
Functional traits (Unlocking diversity)

Root systems vary not only between species but also within species.

- Root functional trait variation in olives
  - WWW 2004
- Root prospective functional traits associated with drought (H_2O)
  - Fractal and complexity in nature 2004 (Benoit Mandelbrot)
  - Inter-drought 2005
- Root prospective functional traits associated with WUE (Δ)
  - 1st Drought conference (2007-2008)

Patterns

http://www.worldscibooks.com/chaos/5521.html



http://www.worldscibooks.com/chaos/6032.html