

# DRIVING FORCES INFLUENCING ON-FARM AGROBIODIVERSITY (ABD) IN A MAN AND THE BIOSPHERE (MAB) RESERVE IN CUBA

## CONTEXT AND STUDY AREA

- Recent shift towards the inclusion of local communities in nature conservation.
- The UNESCO Man and the Biosphere concept defines no separation of people from nature.
- The protection of agricultural landscapes has largely been neglected over the last decades.

## STUDY AREA

- Cuchillas del Toa MaB reserve, in Cuba's most eastern Province Guantánamo, where about 6000 subsistence farmers live.



- Among the largest area of agricultural landscapes in Cuba
- Diverse agro-ecosystems with traditional eco-agriculture
- Rich in natural and agricultural biodiversity

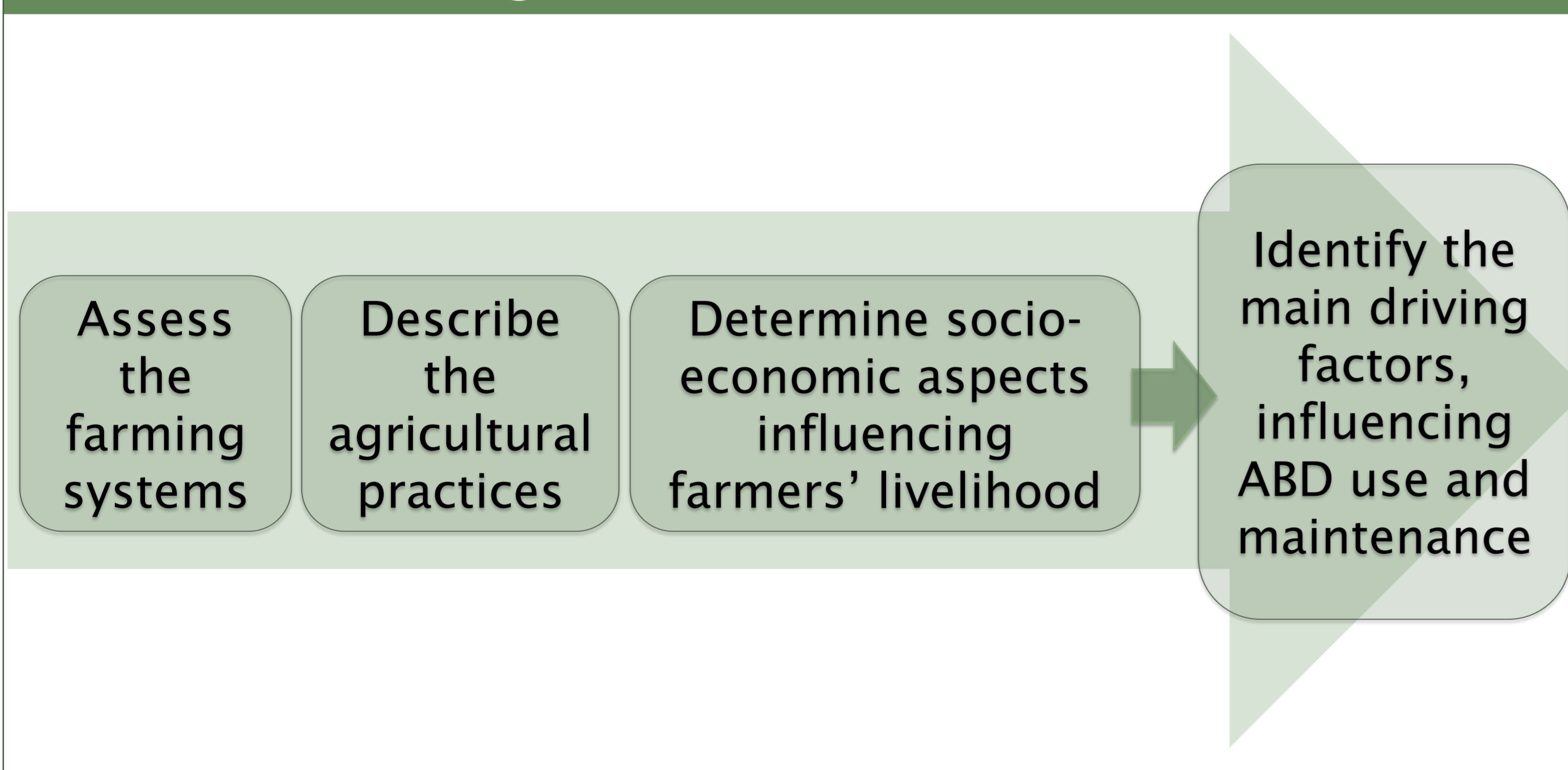


**Knowledge gap between natural ecosystems and agricultural landscapes**

## FOCUS ON TWO AGRO-ECOLOGICAL ZONES

|                        | Coastal            | Mountain   |
|------------------------|--------------------|--|
| Altitude               | 0-200m a.s.l.      | 400-800m a.s.l.  |
| Annual rainfall        | 1400-2800mm        | 1300-2100mm  |
| Slope                  | 0-25 %             | 25-60 %  |
| Predominant production | Coconut, livestock | Grains (bean and maize), vegetable production, livestock |

## RESEARCH OBJECTIVES AND METHODS



## METHODS

- Household-level survey: 12HH in coastal, 25HH in mountain zone on agricultural practices and socio-economic aspects.
- Transects to identify wild diversity on-farm and soil biology aspects, including participatory mapping of farms.
- Farmers' workshops to identify synergies and trade-offs to consider the use of ABD to conserve protected areas.

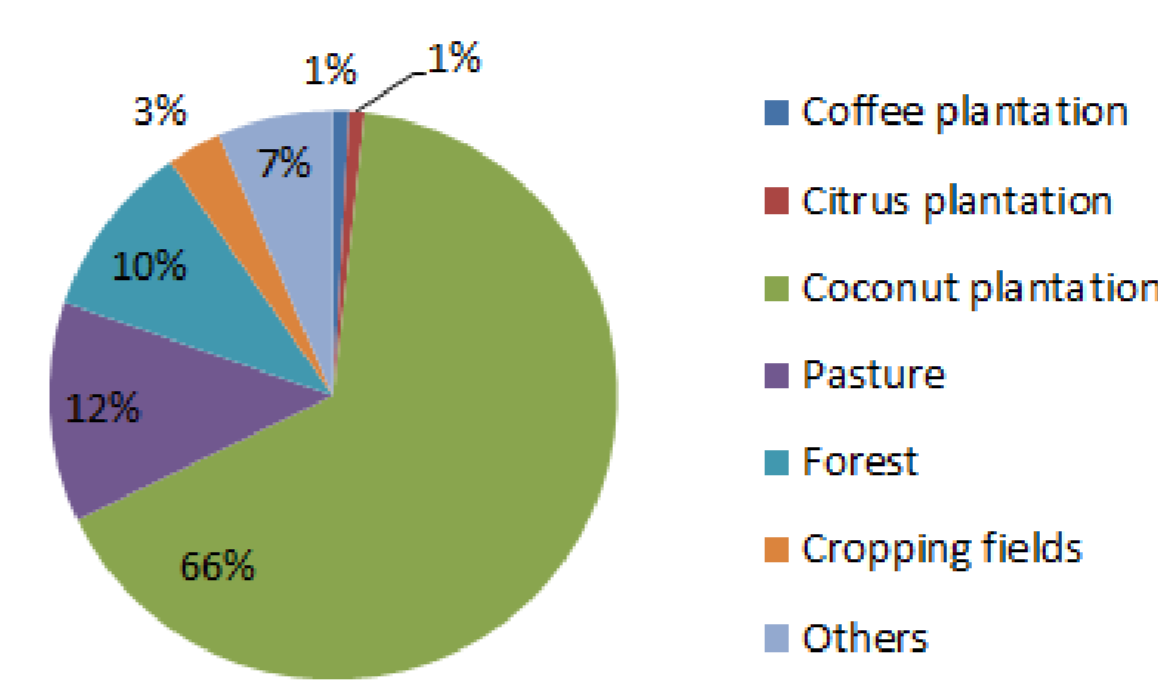
## RESULTS – FACTORS INFLUENCING ABD

### FARMING SYSTEMS

#### Coastal

- Home gardens as dynamic agricultural ecosystem, with a high diversity of useful species.
- High transformation of landscape: high population density and location alongside the main road.

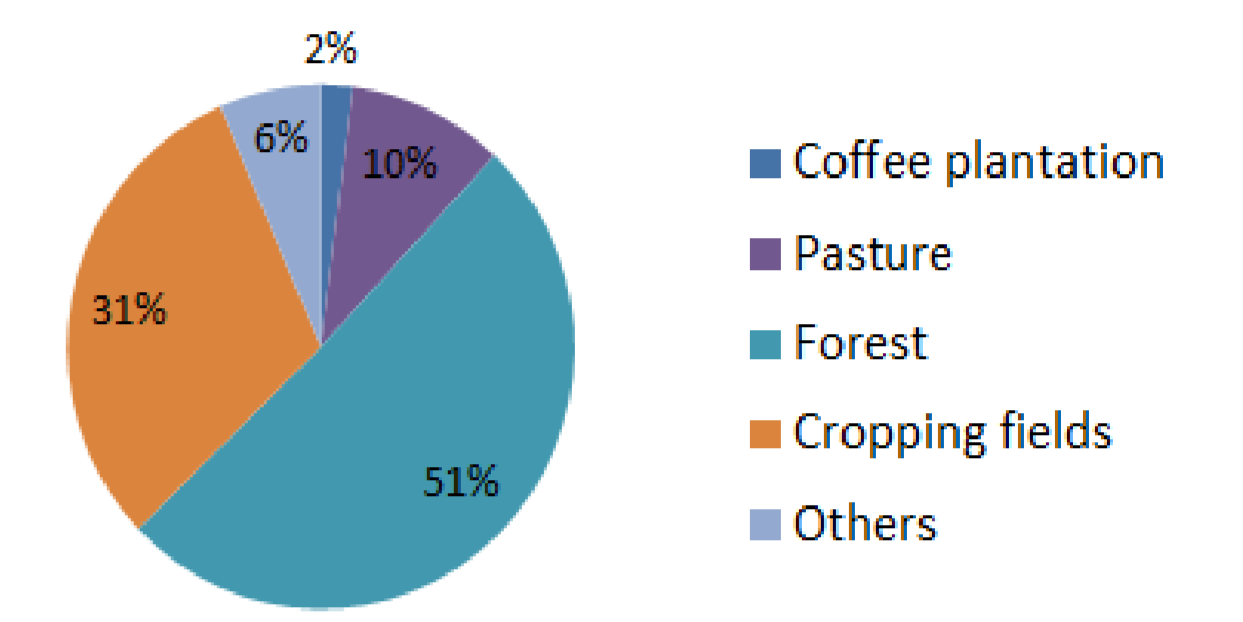
Farming system components of coastal zone



#### Mountain

- Embedded by natural forest of significant diversity: facilitates migration of species.
- Forest patches satisfy energy supply, are used to collect timber for construction and medicinal plants.

Farming system components of mountain zone



### AGRICULTURAL PRACTICES

#### Coastal

- Zero application of chemical inputs as located in National Park, use of organic fertilizer and biological pest control.
- Declining soil fertility due to exhausted soils.
- Freely grazing animals and deforestation foster habitat destruction.

#### Mountain

- Location-specific risks (e.g. soil erosion) indicate non-adaptiveness of production system (vegetable production).
- Unsustainably high application of chemical fertilizer.
- High traditional knowledge and use of underutilized species and wild flora.

### SOCIO-ECONOMIC ASPECTS

#### Coastal

- High degree of permanence (including women).
- Secured access to infrastructural services and markets.
- Increasingly simplified and less diverse eating habits
- Relative low traditional knowledge.

#### Mountain

- High rural and especially female-out migration.
- Remoteness leads to inadequate livelihood options (lacking access to health, education and markets).
- Unclear intergenerational tenure over farm holding.

## CONCLUSION AND RECOMMENDATION

- Socio-economic aspects are the critical issue influencing ABD.
- Inappropriate agricultural practices in MAB's buffer and core zone decreases ABD.

### RECOMMENDATION

