

# Socio-economic and ecological changes in farming systems of Targa N'Touchka (Anti-Atlas, Morocco)

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## Introduction

- Berber communities have practiced oasis agriculture combined with livestock husbandry for many centuries in Moroccan mountains
- Livestock husbandry traditionally provided a savings and risk mitigation strategy, year-round income, and high contribution to covering the nutritional needs of the rural population
- Currently, these few remaining mountain oasis systems in Morocco experience rapid socio-economic and ecological changes
- To identify the ongoing transformations of the agricultural sector, 61 semi-structured interviews were conducted with farmers in Targa N' Touchka (29.886667, -9.204444), a typical mountain oasis

## Results and Discussion

### What do the oasis agricultural systems look like under the ongoing transformations?

- Predominance of female population due to male-dominated off-farm activities (which mainly take place locally)
- Women responsible for animal husbandry
- Predominant animal types: goats, chicken, sheep, cattle, donkeys (mostly traditional breeds) with 39% of households herding their small ruminants
- Decreasing planting activities (food and fodder), instead fallow land and purchases, due to changing weather conditions (e.g. fires) and labour shortage
- 83% of households receive off-farm income

### What are the effects of transformations on gender equality and food security?

#### Gender equality

- Shorter education period and higher participation in farming of girls
- Few opportunities of income-generating activities for women
- Women are unpaid family workers with limited control of marketing operations and money access
- Low economic independence and low social status linked to disempowerment of women in Morocco
- Increasing responsibilities ≠ participation in decision making
- But: there are examples of women taking decisions and responsibilities, such as shopping at the souk, mostly in cases of widowed women

#### Food security

- Dwindling agricultural activities = less food self-sufficiency
- Food self sufficiency strongly connected to food security: main global challenge of the 21st century
- But: remittances contribute to food security
- People without off-farm income are disadvantaged
- Animals provide meat for self-consumption (esp. on religious holidays)
- Milk and eggs for daily consumption
- Changing climate (fires, drought) influences food security negatively due to difficult planting conditions
- Dependency on imported food and fodder

## Objectives

- Understand the rural transformation processes of the agricultural systems in the commune of Targa N'Touchka
- Assess how they affect gender equality and food security with the important parameters of (i) farming practices, (ii) off-farm income, (iii) women's role in agriculture and (iv) food security
- Contribution to global goals of gender equality and hunger elimination

## Materials and Methods

- Literature research on Moroccan agriculture
- 61 semi-structured interviews on-site with a questionnaire programmed with CSPro and snowball sampling of respondents
- Translation help of Moroccan bachelor student
- Coding of qualitative answers, descriptive analysis of answers with R studio and Excel and application of modified DPSIR Framework to the results (Fig. 1)
- Comparison of results with existing literature [eg. 1, 2, 3]

## Results and Discussion

### Which kind of system transformation occurred in the recent past?

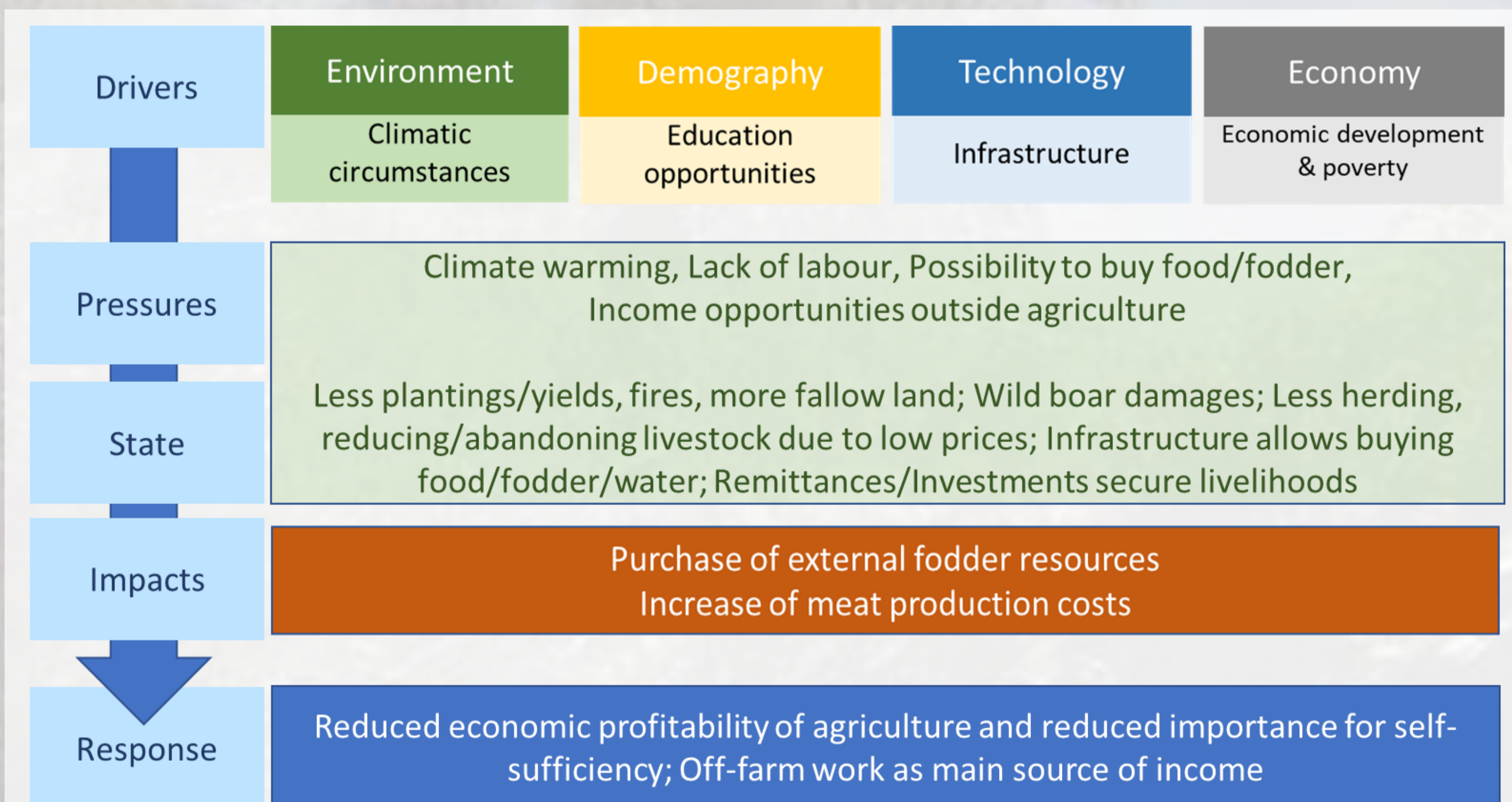


Fig. 1: Simplified version of modified DPSIR Framework

## Conclusions

- Agriculture: change of its traditional meaning
- Male-dominated off-farm activities are most important income source
- Feminisation of oasis agriculture
- Food and fodder purchases
- Decreasing economic incentives for agricultural sector
- Dwindling contribution of agriculture for food self-sufficiency
- Animals: kept for religious reasons and tradition
- Greater responsibility of women ≠ greater participation in decision-making processes
- Potential of oasis: stable water availability
- Climate adaption needed and possible
- Open new income opportunities for women through trainings and cooperatives