Analysis of Local Agriculture and Flora regarding Climate Adaptive Crops in the Kafa Biosphere Reserve (KBR), SNNPR, Ethiopia

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NABU

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Presentation outline

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INTRODUCTION

- Analysis of Local Agriculture and Flora regarding Climate Adaptive Crops

- Under the Work package/ Output 8 of
- *'Biodiversity under Climate Change: Community-Based Conservation, Management and Development Concepts for the Wild Coffee Forests'*

PURPOSE OF THE WORKPACKAGE

- **Objectives of the assignment :**

to assess local agriculture/flora for climate resilient crops in order to increase food security and agrobiodiversity at the KBR/Kafa

- **Specific objectives**:
- Assess the local agriculture and agriculture traditions of past regarding climate adaptive crops
- Assess the local flora regarding climate adaptive crops
- Identification of at least 10 climate – resilient commercial crops
- Identify 5 climate adaptive crops which are suitable for (re) introduction to local farmers' fields

CONTRIBUTORS TO THE ASSIGNMENT

- **The work has been done in collaboration with:**
  - Local community/ farmers (male and female farmers in various age groups)
  - Kafa zone agriculture department
  - Kafa woreda level agriculture offices
  - Field gene banks of Ethiopia Biodiversity Conservation Institute
  - Kafa zone agriculture research institute
  - NABU offices experts in Ethiopia (Addis Ababa and Bonga)

APPROACH OF THE ACTIVITY

- Recent and historical agricultural practices assessed
- in tandem with consumable flora
- Special features and reactions of different crops /consumable
- flora to climatic stresses such as rainfall fluctuation/shortage assessed,
- Adaptive traits of crops and varieties assessed, and finally
- Climate resilient crops identified

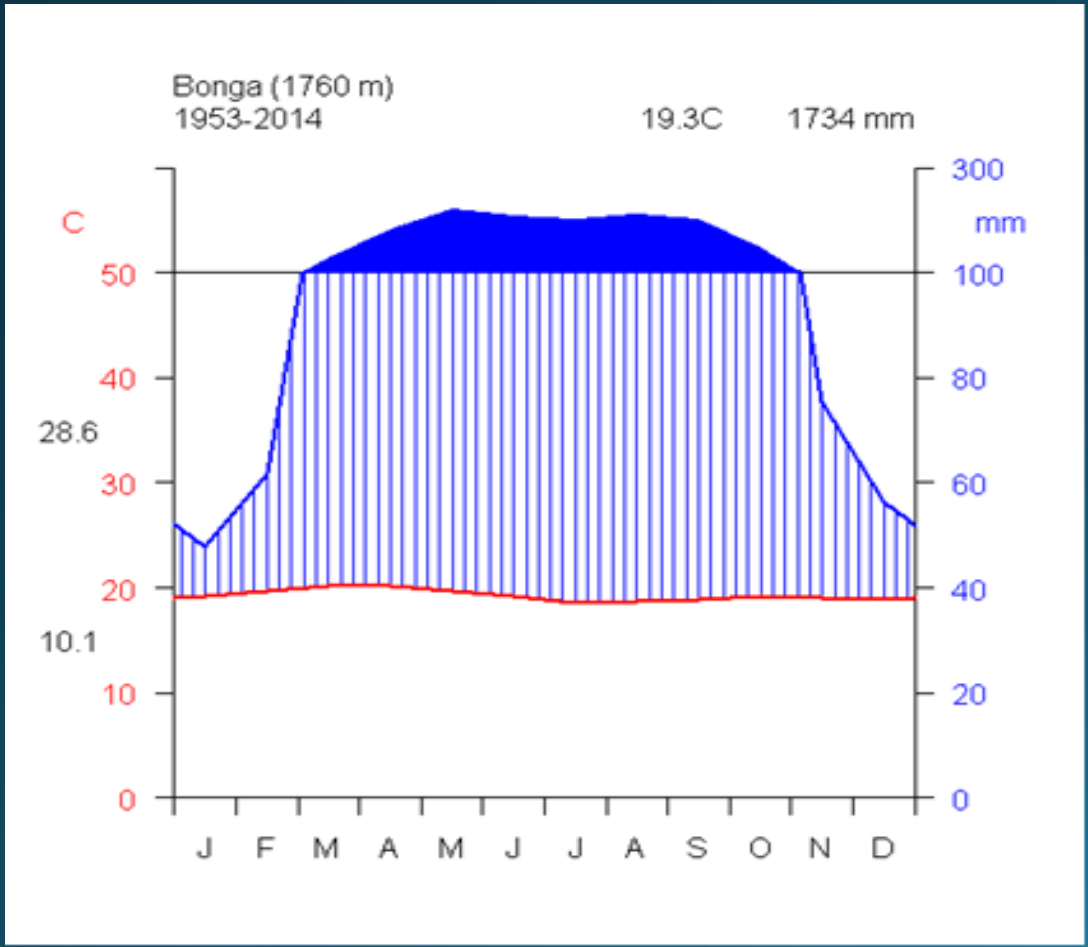
Through

- Literature review
- Visiting home gardens, main farmland, forest and market survey
- Individual interviews and focus group discussions with farmers and experts,
- with semi structured questionnaire, and ranking tools (direct and pairwise matrixes)

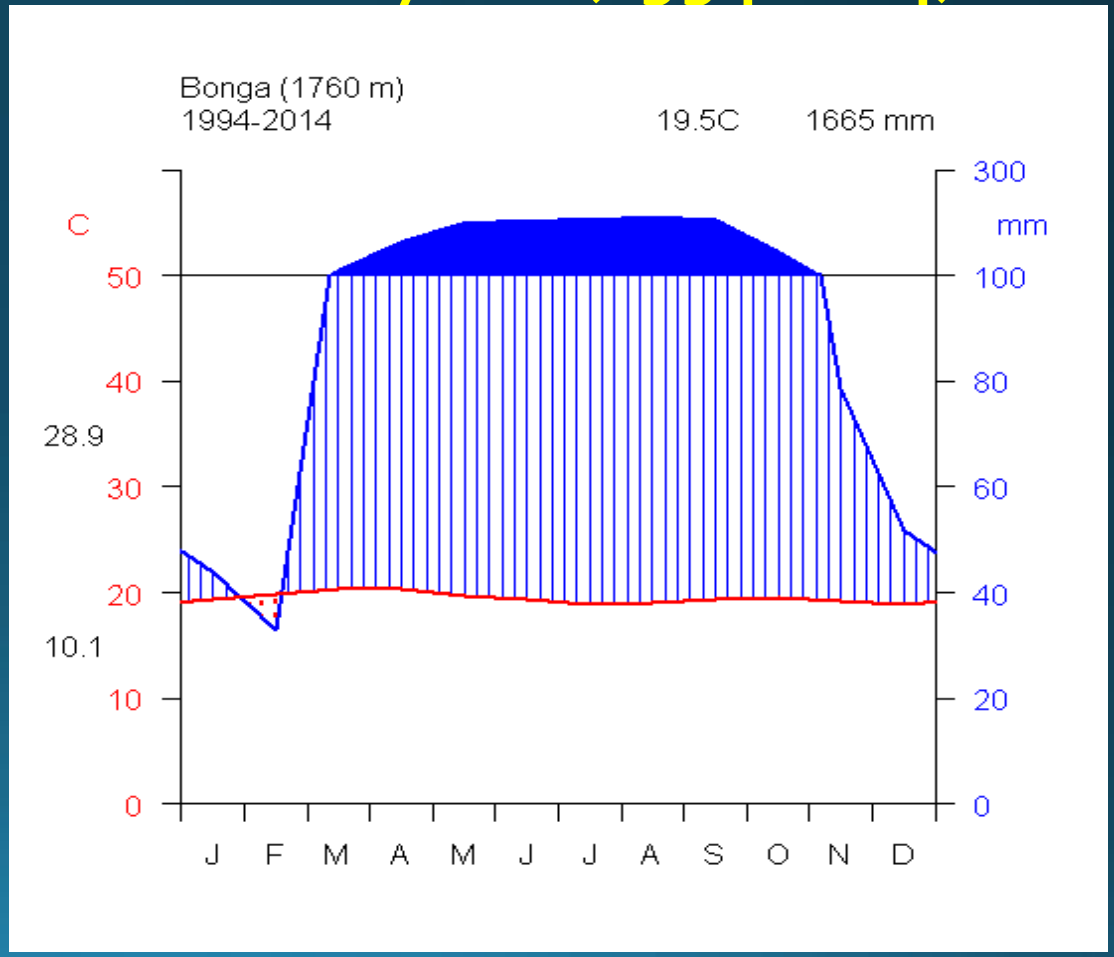
RESULTS

- History of climatic challenges around the Kafa biosphere reserve in the last 50 years

The last 62 years (1953-2014)



The last 20 years (1994-2014)



RESULTS contd.,

-Traditional agriculture of the Kaffecho people is based on *Enset* and root crops such as Taro , Dioscorea, etc.

-This traditional system is performing well with the current climate variability

-Cereal crops based agriculture (the "introduced culture") – shows sensitivity to CC

- to Rainfall and temperature variations (shift of growing seasons and susceptibility to fungal disease/ rust)

	Planting time of cereals in different years					
Crops	Before 1960s	1970s	1980s	1990s	2000	2012-2015
Maize	December	December	January	January	January	March-April
Sorghum	March	March	March	March	March	March-April
Teff	August	August	August	August	August	July-August

RESULTS contd.

All in all 78 species of consumable flora identified from domesticated and wild flora

- 10 root & tuber,
- 8 vegetable,
- 13 spices,
- 5 pulse,
- 4 oil,
- 8 cereals,
- 11 fruits,
- 9 medicinal,
- 3 stimulants,
- 1 beverage flavor ,
- 1 sweetener,
- 7 wild

RESULTS Contd.

- **15 climate adaptive food/commercial**
- **crops selected**
  - 2 root and tuber
  - 2 stimulant
  - 1 fruit
  - 2 vegetable
  - 1 spice
  - 2 pulses
  - 5 cereals
- **5 climate adaptive crops selected**
- **for (re)introduction**
  - **2 fruits**
  - **1 vegetable/medicinal/ timber**
  - **1 cereal**
  - **1 root**
  - **XXXXX**

Diversity in the market

SOME OBSERVATIONS

- There is growing dependence on cereals, or growing tendency of cereal based feeding habits,
- High market demand for cereals (are both food and cash crops)
- Cereals are sensitive to climate change (water stress and increasing temperature), and disease such as rust
- Cereal cultivation hastens deforestation as well
- Except ***Enset*** other traditional root and tuber crops are cultivated in small scale, and production mainly for home consumption,
- These traditional crops are less sensitive to climate change and are forest friendly

REFLECTIONS FOR FURTHER INTERVENTIONS

- Promote traditional crops (roots and tubers) production and use,
- Add values to traditional food (nutrition and preservation aspects),
- Enhance market to traditional food crops and spices (from forests and home gardens),
- Carry out research on **Nobo** (***Enset*** variety) and its resistance to Bacterial Wilt disease; including its genome,
- Research on health values of traditional crops such as ***Enset***,
- Strengthen Kafa Zone Agriculture Research Center to work more on improving traditional crops/or forest friendly crops,
- Design and implement a strategy to deter community attention from cereals to traditional crops for income and food, and for adaptation to climate change

THANK YOU FOR LISTENING