

Climatic changes in the mid-hills of Nepal: a case study of smallholder farmers' perception and reactions

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Introduction

- Nepal is vulnerable to climate change due to geographic factors, dependency on agriculture and low adaptive capacity
- Farmers are affected by climate change effects
- Vulnerability is also determined by human aspects:
 - ⇒ Perception of change
 - ⇒ Willingness and capacity to react

Aim of study: Investigate how smallholder farmers perceive and react to climatic changes

Methods

- Weather data from 1981 to 2015 (35 years) from two weather stations
- Standardized interviews with 60 farmers in a village approx. 15 km northwest of Kathmandu between March and July 2016
- Comparison of weather records and farmers' perception and reactions
- Influence of selected factors such as membership in agroforestry NGO and residence time in the village

Results

Weather records

- Minimum and maximum temperatures are significantly increasing (Fig. 1 a and b)

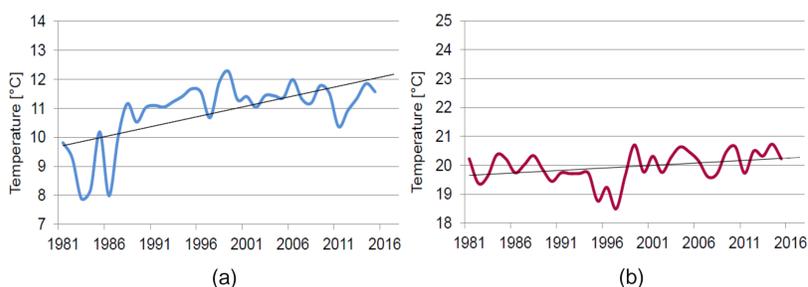


Fig. 1 Mean annual (a) minimum and (b) maximum temperatures between 1981 and 2015

- Rainfall amounts decrease non-significantly (Fig. 2)

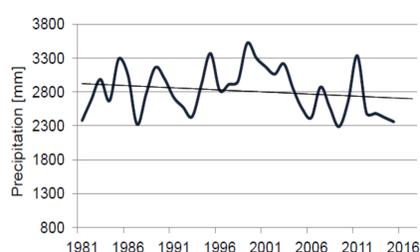


Fig. 2 Total annual rainfall between 1981 and 2015

Results

- Annual rainfall increasingly concentrated in July and August, while post-monsoonal and winter precipitation is decreasing (Fig. 3 a and b)

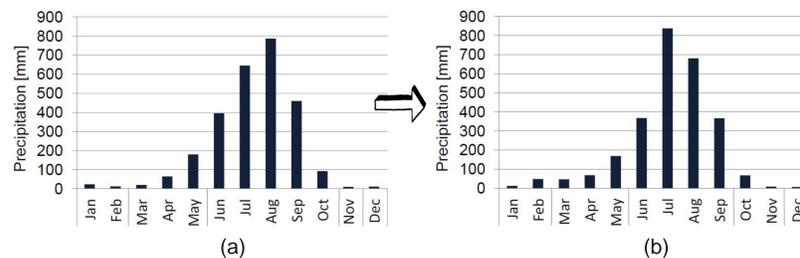


Fig. 3 Seasonal shift in rainfall - comparison of precipitation mean of (a) 1981 - 1985 and (b) 2011 - 2015

Farmers' perception

- Most farmers perceive reduced or unseasonal rainfall (Fig. 4), increasing temperatures and an increased occurrence of drought and wind

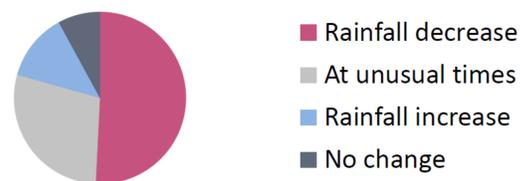


Fig. 4 Distribution of farmers' perception regarding change in rainfall

- Cited impacts include wilting and death of plants, the need to delay time of planting and an increased infestation with pests and diseases

Farmers' reactions

- Most farmers (59%) do not react with specific measures to climatic changes (independent of NGO membership and residence time)
- Farmers who do react delay planting or irrigate their plots (short-term coping strategies) (Fig. 5)

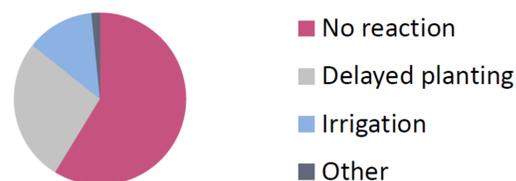


Fig. 5 Current reactions of respondents to climatic changes

Conclusions

- Evidence for a changing climate: rising temperatures and a shift in rainfall distribution – these are reflected by local farmers' perception
- Farmers have difficulties to counteract climate change effects, in particular reduced water availability
- Local agroforestry NGO may contribute to an increased awareness within the entire community

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