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Introduction

In the area around Rabat in Morocco, land degradation and desertification are increasing problems for both environment and local communities (van Dijck et al. 2006, Laouina et al, 2007).

This study is part of the DESIRE project that aims to fill a lack of insight on these problems and to address these with policy makers to counter degradation and desertification. DESIRE selected the Sehoul plateau as research area, which is where this study was conducted.

Conclusion of Results

The results indicated that three phenomena were predominant causes for change in Sehoul:

- 1) a shift from traditional to modern agriculture, resulting in increasing land degradation;
- 2) demographic changes that increase the pressure on Sehoul, result in for example overgrazing;
- 3) the seasonal variability of precipitation, which in combination with current cultivation seasons, results in high erosion risks.

It was recommended that policy makers and researchers focus especially on the third issue, in follow-up studies and policies, adjusted to the changes that are ongoing in Sehoul.

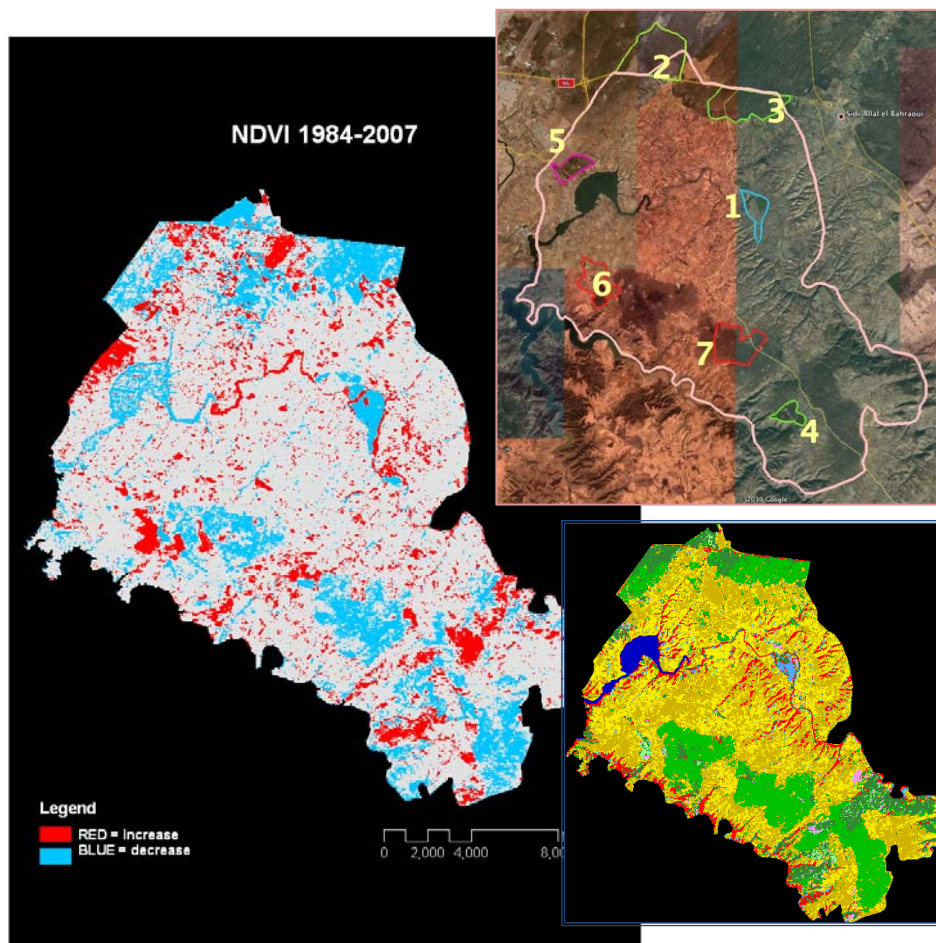


Figure 1 - NDVI Change detection 1984 – 2007

Figure 2 - (right) Selected hotspots of change for follow-up field research and analysis

Figure 3 - Land cover SAM reclassification Sehoul (2007)

Discussion

Most of the changes in land use were related to increased pressure on the Sehoul region. However, the relative influence of the causes of this pressure is not known. The ratio between the costs and benefits for the regional community of modern agriculture might put a different light on the ‘problems’ of land and forest degradation in Sehoul.

Also, considering the period of fieldwork, Sehoul was very dry compared to the years the Landsat images were taken. Therefore, the conclusions linking field observation to image analysis focus on qualitative rather than quantitative analysis.

For the validation of the WOCAT classification, it proved to be accurate enough to indicate the main patterns of land use in the Sehoul research area, and it is therefore a suitable method as a starting point for studies on degradation and land cover changes. However, for a more into-depth study, field visits are necessary to distinguish vegetation types from each other, in Morocco especially between the natural forests and tree plantations.

Method

In this research, the aim was to provide an overview of changes in land surface properties in the Sehoul using Landsat TM images. Selected hotspots of changes were analysed with field data in order to get insight in the links between these changes and socio-economic and/or natural phenomena (Lu et al, 2004). Additionally, this analysis was upscaled for temporal trends, to detect underlying causes for a short term (with MODIS data) and a long term (precipitation data) period.

Also, the classification method used by DESIRE was validated to get insight in the possibilities of land cover classes for all DESIRE study sites. A reclassification was made in order to show which classes are interesting to add to enlarge the analytical value for the Sehoul site specifically.



References

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