Contribution to Integrated Water Management: Modelling of storm water erosion management in the village of Ait Idir (Dadès valley) and the village Chouirij (Haouz-Tensift), Morocco

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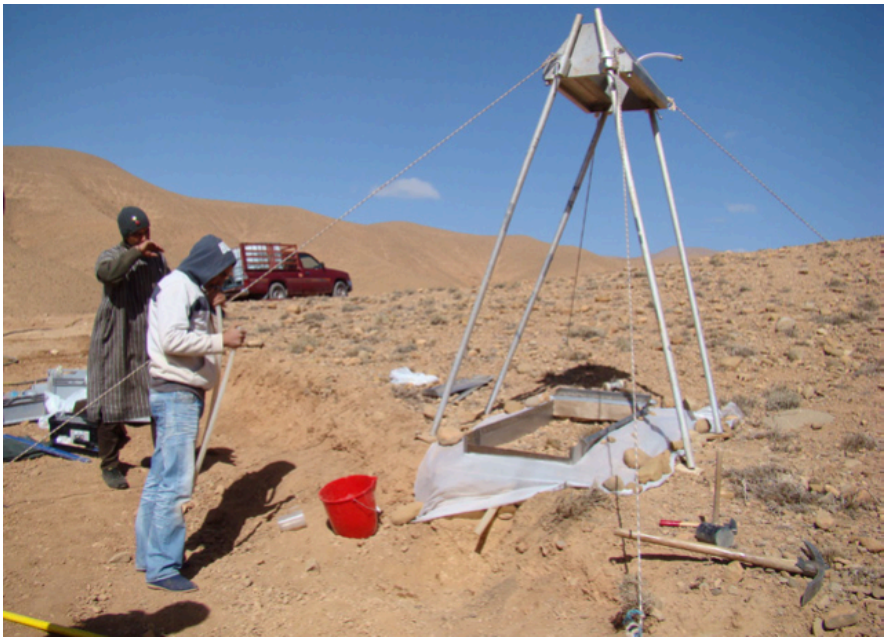
Due to the increasing intensification of climate conditions in Morocco, a dramatic increase of long hot and dry times can be observed. At the same time, intense heavy rain events are predicted. Therefore, the erosion risk of large areas in Morocco rises intensively. The adaptation of the planning and decision support tool EROSION-3D is aimed to predict water erosion related damage, to plan and implement targeted protection measures regarding the affected catchments (on-site damage to agriculture, off-site damage to dams and infrastructure). Therefore, the project also represents a direct substantive contribution to integrated water management (IWRM).

The German-Moroccan program "Appui à la Gestion Intégrée of Ressources en Eau - AGIRE" is aimed to improve the organisational and institutional water sector in Morocco and at the implementation of measures to ensure better protection of water resources and their rational, economic and sustainable use.

Based on comprehensive data acquisition combined with field works, rain simulation tests as well as laboratory analyses in Morocco and Germany, the erosion risk for two selected pilot catchments at Ait Idir (Dades) and Chouirij (Houz-Tensift) were evaluated based on EROSION-3D. This assessment includes a quantitative evaluation of surface runoff and the erosion/deposition due to heavy rain fall events. Based on a "base scenario", i.e. the current status quo (worst scenario) practical proposals of specific measures for sediment and water retention were exemplary developed as "best case scenarios".

The project was also aimed at a practical introduction on how to use the support decision tool E3D for an "interactive" planning of protection measures: This includes the understanding of the processes of sediment mobilisation and delivery processes to predict the frequency, magnitude and extent of erosion



Client:
German Society for international Cooperation (GIZ)

Services provided:
Adaptation of the planning and decision support tool E3D
Prediction of water erosion related damage
Planning of targeted protection measures

Execution period:
2014

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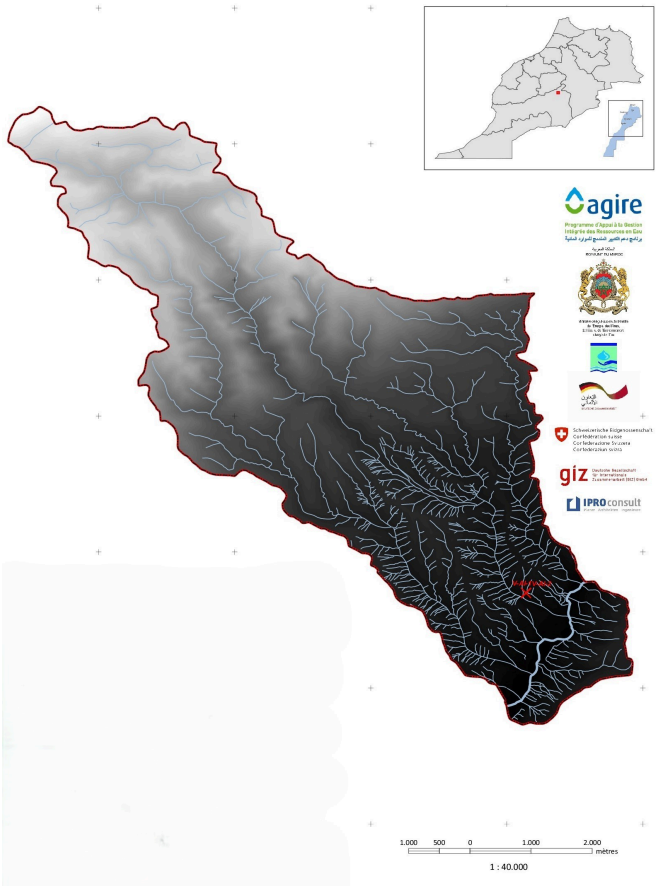
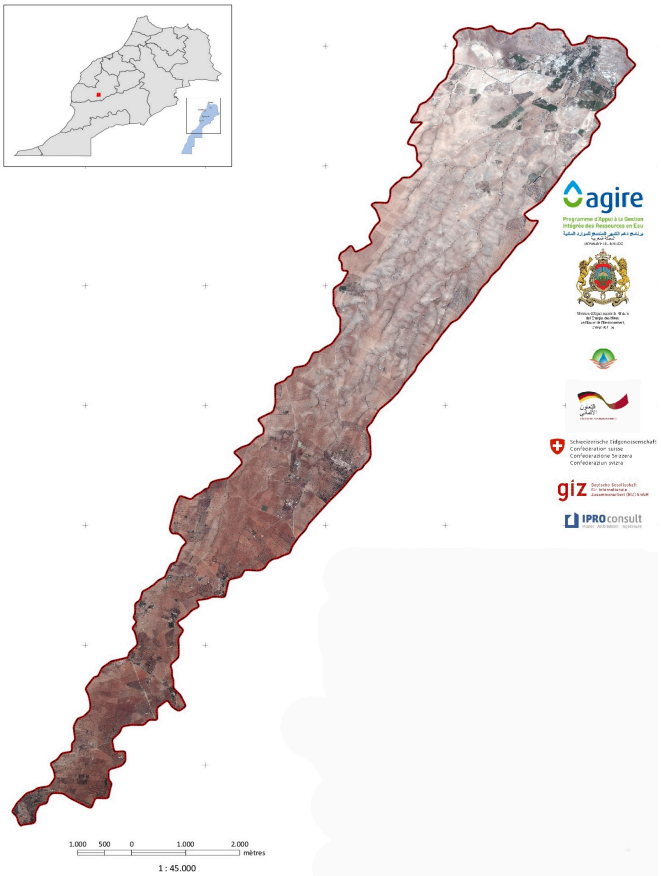
hazards, and as a consequence the demand for adequate tools for risk assessment and prevention purposes, as well as new challenges for planning authorities, in order to cope with impacts of water erosion.

Several on site measures with respect to the protection of agricultural land, infrastructure and also to harvest rain water within the catchments have been developed for both catchments. A large-scale erosion hazard maps allowed to calculate for every interesting or critical site within the catchment the relevant quantities of eroded and deposited sediment based on the runoff.

Therefore, protection measures were exemplary developed for the two investigated catchments.

Thus, a connection could be established between the watershed management focussed on infrastructure protection as well as the decentralised storm water management and erosion prediction measures within the catchments.





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