Strengthening Participatory Groundwater Management in Guanajuato, Mexico

Location	Guanajuato, Mexico
Contractor	Partners for Water Program
Partners	MetaMeta, Wageningen UR, the Guanajuato State Water Commission
Period	2007

Scope of the project

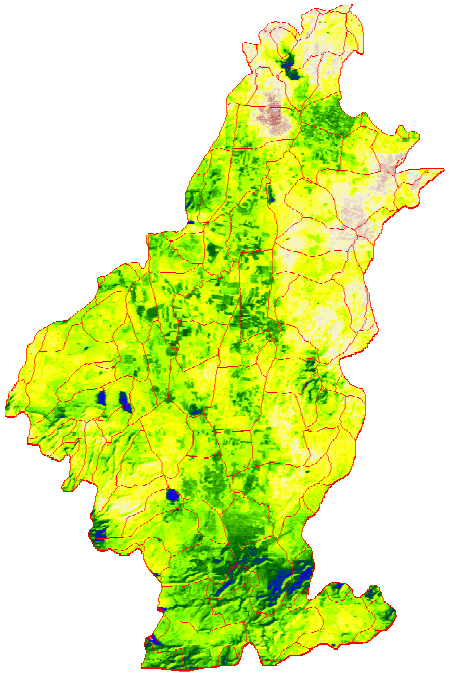
Increasing water shortages are often augmented by ground water resources, but the amount of extraction is seldom understood. Hence, groundwater is often used to compensate the gap between water demand and water supply. The objective of this study was to strengthen aquifer management in Mexico. To improve ground water regulation, an innovative tool has been built that allows stakeholders to interactively study the impact of groundwater management actions using satellite based information on the hydrology of the groundwater system.

Study approach

SEBAL was applied in combination with 24 medium resolution satellite images and 2 high resolution images of 2003. A demonstration of SEBAL outputs and analysis was provided to four water management levels: the national water resources authority, the governmental state water management unit, the level of state, and two individual COTAS. The analysis and applicability was adjusted for each level of water management. SEBAL has been selected because it provides data on actual crop water consumption, crop yield and water productivity without the necessity to collect complex field data sets. Also a separate analysis for crop type (maize, wheat and other crops) was included.

Results

The outputs of SEBAL were reported as actual consumed water, actual produced crop yield, and indications of water productivity. The results were through discussions coupled to groundwater management and water savings techniques. These discussions formed an input in the institutional analysis and approach of improvements. An institutional analysis was prepared by Wageningen University of the current situation, with emphasis on the COTAS. The technical basis provided by SEBAL was included in the planning for institutional strengthening of the COTAS, as well as for strengthening the communication between CEAG and the COTAS. MetaMeta has translated the information obtained from the SEBAL analysis and the institutional into communication tools. These tools included flyers, information sheets and a CD with background information and process descriptions.



Actual annual total consumed water (blue is high and white/brown is low consumption) in the COTAS Rio Turbio

Conclusions

The project proved that remote sensing data is feasible for improving ground water management. Especially the linkage between the technical data and the use of these data as a basis for discussions on an equal level between the stakeholders was a new aspect and will be further developed in other projects.

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