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The importance of information management systems (IMS) to good governance of shared groundwater resources

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Groundwater resources are vital for drinking water supply, irrigation, the sustainability of wetlands and rivers. Improving data availability and knowledge is crucial to better understand the functionality of the hydrogeological systems. Through a well-established monitoring network (both temporal and spatial) the assessment of groundwater resources can be done in a more consistent and scientific based way contributing to a more sustainable use of these resources. However, a good groundwater monitoring schemes by itself does not guarantee good governance and sustainability. Groundwater governance needs to promote responsible collective action to ensure control, protection and socially-sustainable utilisation of these resources [1]. This challenge is even bigger when related to the management of transboundary groundwater resources.

Accurate and widely-shared information and knowledge of a groundwater system is one of the components of groundwater governance [2]. IMSs have an important role in the dissemination of information because they make data available on-line and therefore accessible to a larger number of stakeholders. Another important aspect in relation to governance is the possibility of further analyses of the assessment results (e.g. by creating overlays, by filtering, etc.) which in itself is a governance tool and might enable policy integration. By publishing assessed data in a geographically distributed way (map-layers) one will also give to the non-technical stakeholders the chance of understanding better what the current state of the concerned aquifer is. To promote information and knowledge sharing, IGRAC developed the Global Groundwater Information System (GGIS). GGIS operates as an interactive, georeferenced and web-based portal facilitating groundwater data sharing either within the scope of a project - thus only between project partners -, or making assessed groundwater information available to the general public. In 2016 IGRAC updated its GGIS and expanded the system with several 'portals': amongst others, (a) the Transboundary Groundwaters portal; (b) the Managed Aquifer Recharge portal, (c) the Global Groundwater Monitoring Network and (d) three project-dedicated portals.

One of the projects making use of the GGIS is the GGRETA project (Governance of Groundwater Resources of Transboundary Aquifers) financed by the Swiss Agency for Development and Cooperation (SDC). Within this project IGRAC assisted UNESCO-IHP in an exercise to improve joint assessment and informed management of three transboundary aquifers (TBA's): the Stampriet aquifer system shared by Namibia, South Africa and Botswana; the Pretashkent aquifer shared by Kazakhstan and Uzbekistan and the Trifinio aquifer system shared by Honduras, Guatemala and El Salvador. The TBA's assessments were carried out by national experts and representatives from local research institutions and the country respective ministries. The involvement of several different organisations and local stakeholders motivated the involved authorities to participate in the discussion of conjunctive management. Hence, the interaction among the groundwater experts helped bringing forward important issues to be solved/elucidated towards the sustainable management of the groundwater resources. The data

collected and interpreted during this project is stored and shared in the GGRETA-IMS portal within GGIS and has been used to disseminate the project results towards the general public.

References:

[1] GEF Groundwater Governance Programme (2015), Groundwater Governance a call for action: A Shared Global Vision for 2030

[2] GEF Groundwater Governance Programme (2015), Global Framework for Action to Achieve the Vision on Groundwater Governance

