

UNESCO International Hydrological Programme (UNESCO-IHP)
Contributions as Partnership Activity Leader (PAL)

Activity B2.1.1, “Freshwater - Aquifer/Groundwater Structured Learning”

Summary report

April 2008

The report, as deliverable no 15, provides a summary review of activities, outcomes and outputs under the IAA with evaluation of joint activities with recommendations for UNESCO/ISARM/IGRAC sustaining knowledge sharing support (“Sustainability plan”) - and potentially expanding linkages between the UNESCO/ISARM/IGRAC and GEF-IW Aquifer/Groundwater constituencies.

1. Scope and progress

The Activity B2.1.1 “Aquifer/Groundwater Structured Learning”, with the objective,

Thematic structured learning among current and completed transboundary aquifer/groundwater projects to enhance Integrated Shared Aquifer Resource and IWRM capacity at project- and basin-levels through sharing of experiences among GEF IW projects, their partners and national counterparts,

is executed by UNESCO International Hydrological Programme (UNESCO-IHP), with the support of the “International Groundwater Resources Assessment Centre” (IGRAC), as the Project Activity Leader (PAL). The activity started in March 2005 and was concluded, with the present report, in April 2008. It assisted in the introduction of groundwater as a new area in GEF-IW, and complemented the recent and parallel groundwater reviews undertaken by GEF-STAP in cooperation with UNESCO/IHP and its ISARM partners.

The Activity supported a number of steps and outputs as the result of the cooperation and interaction between UNESCO/ISARM, responsible for the management, concepts and priority scope and the contact with the groundwater community, projects and countries under the activity, and IGRAC providing the state-of-the art information management methodology and capacity for design, development and maintenance and operational management of the digital learning environments for aquifer projects. The steps included,

- Thematic structured learning program for GEF-IW supported transboundary groundwater/aquifer projects at the GEFIW3 in Salvador, Brazil, June 2005 and at GEFIW4 in Cape Town, South Africa, July 2007:
- Incorporation of the existing GEF aquifer project environments for the Iullemmeden and North Western Sahara; available at the IGRAC website, www.igrac.nl
- Facilitated the groundwater sessions in the two GEF IW Conferences (GEFIW3, GEFIW4) with:

(1) pre- and post- meeting e-conference dialogues in the IW-LEARN groundwater list with about 90 participants in 2005, and increased to some 350 participants in 2007. The participants, of different disciplines and from different regions and countries included major scientists, governance and policy experts in the groundwater community. The dialogue in 2007 was organized as an established GEF-Groundwater Forum, established and managed at the IGRAC website, www.igrac.nl. During the project, 2005-2008, the expanding groundwater list was actively used for the dissemination of information and posting of new groundwater related initiatives and events.

(2) In 2007, prior to GEFIW4, aquifer project digital learning environments for operational aquifer projects (Iullemeden, North Western Sahara, Nubian Sandstone, Guarani, Limpopo aquifers projects), were reviewed, supplemented and updated, for linkage with and establishment in IWRC at the IGRAC website, www.igrac.nl also considering to post environments for pipelines (Mediterranean Coastal Aquifers; Gulf of Guinea Coastal aquifers, Lake Chad Aquifer, Caspian Sea coastal groundwater) and future transboundary groundwater projects.

(3) Provided groundwater sessions, and round table dialogues in GEFIW3 and GEFIW4.

(4) Findings and conclusions of the groundwater activities and the sessions in GEFIW3 and GEFIW4 were documented in conference reports, available at the IGRAC website, www.igrac.nl.

(5) Throughout the project UNESCO/ISARM provided access to relevant groundwater projects and programmes in all regions (ISARM, IHP and other programmes) and expert assistance also in relation to the GEF-STAP/UNESCO groundwater reviews in 2004, 2005 and 2006 and presented posted the groundwater activity in international water resources and groundwater conferences and workshops, (indicated in the IV-ly bullets report) including GEF STAP/UNESCO Workshop on Managing the Sub Surface Environment, Delhi, September 2005, and presented the scope for groundwater integration with other IW and GEF focal areas, e.g. aquifers and LMEs, and land management respectively including, 3rd Global Conference on Oceans, Coasts, and Islands, UNESCO Paris 23-28 January, 2006, and the International Dryland Conference; “The Future of Drylands” Tunis Tunisia; June 2006. The activity period coincided with the development of ISARM-Americas, ISARM-MED and ISARM-Africa and the preparation of the Groundwaters of the World Map, the global WHY-Map and with UNESCO/IHP support under the ongoing UN-ILC process for development a global groundwater convention. This provided for leading multidisciplinary experience under ISARM, and inventories and the strategic and operational plans at regional level, including science, legal and institutional, socio-economic and environmental aspects, and the issues of groundwater and climatic change and variability, is documented with UNESCO/IHP and ISARM as the basis for global integrated groundwater environmental management. IGRAC has organized this information and made it available for digital dissemination and structured learning.

As a result of the activity the recognition and awareness of groundwater as a global and local natural and environmental resource and a critical cross-cutting ecological

factor has been enhanced with groundwater representing an IW strategic priority under GEF4. Integrated application arrangements have been established for thematic structured learning among current and completed transboundary aquifer/groundwater projects to enhance Integrated Shared Aquifer Resource and IWRM capacity at project- and basin-levels through sharing of experiences among GEF IW projects, their partners and national counterparts.

2. End-of-activity evaluation; scope for sustainable and potentially expanded aquifer knowledge sharing.

The evaluation of the activity B2.1.1, in the following has been summarised for a number of general and operational areas: (1) cost-effectiveness, (2) organization and management, (3) effective structured learning, requirements and constraints, and (4) recommendations for (a) sustainability of knowledge sharing arrangements, and (b) potential expanded linkages between UNESCO/ISARM and IGRAC and the GEF-IW Aquifer/Groundwater constituencies.

2.1 Cost-effectiveness of thematic structured learning using digital aquifer learning environments;

The incremental gains and outcomes in global environmental benefits of active, high participation structured learning and exchange between the projects, while difficult to estimate and evaluate, is secure beyond doubt.

It can be argued, and in particular for groundwater that the cross-benefits in GEB from synergies of a more integrated approach from synergies themes cutting across the IW areas and other focal areas would be substantial also for structured learning and assist promote integration as a main objective supported by the GEF AG, with consequent improved institutional cost-effectiveness.

2.2 Organization

The aquifer knowledge sharing benefited from the joint contribution and cooperation of (a) UNESCO/IHP as a specialized intergovernmental organization with a global mandate in water resources and groundwater management, and actively involved in the formulation, execution and supervision of GEF Aquifer projects, managing and scientifically supporting the activity, and (b) The UNESCO/WMO International Groundwater Resources Assessment Centre (IGRAC), as responsible for groundwater assessment and effective information management and dissemination technology. The partnership with a comprehensive capacity and a clear definition of task provided an effective organization for optimal outreach and broad scientific knowledge on groundwater supporting the progress of the structured learning arrangements. It was found effective and consistent with the other IW areas, to initiate the e-dialogue with IW-LEARN, coordinated under one and the same groundwater list.

It will eventually be important to focus all information and tools at the same website. For example the IGRAC website as a sustainable and accessible destination with an intensive contact with transboundary groundwater systems and issues was eventually adopted as final location for the digital learning environments. For sustainability and for enhanced user participation and ownership it will be important that, ultimately the digital learning environments can be established and maintained by the projects and the countries.

2.3 Effective structured learning: requirements and constraints,

Project staff and national counterparts in some of the aquifer projects (e.g. Iullemeden and North Western Sahara) have participated and also contributed actively in the structured learning initiatives. However the project and country participation and contribution in e-dialogs and digital learning environments have remained low and limited and a general constraint to effective digital exchange between the GEF aquifer projects and has limited participatory interventions in digital environments and web-sites. Therefore one priority is to recognize the limited project participation and the low demand and the need to understand and actively address structured learning at project level.

2.4 Joint activities with recommendations for:

- (a) UNESCO/ISARM/IGRAC sustaining knowledge sharing support (“Sustainability plan”),

The arrangements and the tools for structures learning and knowledge have been established under the project. It is observed, as mentioned under 2.3 above that effective participation and contribution are primary requirements for effective knowledge sharing, to use and exchange information from digital learning environments and to participate in and benefit from e-dialogues. This calls for incentives and enhanced motivation for active country involvement, and implication of the individual aquifer projects and a more participatory and capacity building process for local participation in the establishment and management of the digital learning tools, complemented with formal requirements for participation and contributions, included, agreed and provided for in the project agreements. It also calls for direct interventions of the IA’s and EA’s in promoting project participation in structured learning, which need to be reflected and supported in project work plans and budgets. In this process the involvement of regional and national officials and expertise is critical. The involvement through the UNESCO/IHP national committees offers a powerful option to secure sustainable local participation.

- (b) Potential for expanding linkages between the UNESCO/ISARM/IGRAC and GEF-IW Aquifer/Groundwater constituencies.

The potential expanding linkages include:

Links between IGRAC and the GEF-IW and the GEF - IA’s responsible for implementation of IW projects.

Linkages and working groups between the aquifer projects and groundwater related projects in other IW areas (LME: GEF-Med/Map regional project; GEF-UNDP, Guinea Current LME Project. Land Degradation and land management: MENARID programme (IFAD) etc).

Continued GEF-UNESCO cooperation on Groundwater Indicators,

Structured learning on the UNILC project for a global groundwater convention.

3. Conclusion

The Activity B2.1.1 under UNOPS-UNESCO/IHP IAA supported and promoted the introduction of groundwater with the expanding GEF-IW aquifer project portfolio. While the progress under the activity has been satisfactory there is a priority need to incorporate structured knowledge sharing into the project work plans and budgets to

ensure the ownerships and participation of the aquifer projects in structured knowledge sharing approaches including digital learning environments for global dissemination and exchange of the experience, successes and constraint during the project implementation. The IAs and EAs can be expected to provide valuable management, monitoring and supervision support in this process.