

OVERSEAS WORK

Malawi

In conjunction with the Millennium Challenge Corporation, LTSI, in partnership with IUCN, CDM and WRA, has recently developed an Environmental & Natural Resource Management Action Plan for the Upper Shire River, with a focus on the East and West Malombe catchments.

Under the leadership of Pat Reynolds, the Technical Assistance Team undertook the following tasks:

- Identification of stakeholders in the Malombe area
- Inventory and assessment of relevant projects
- Determination of the economic, social and biological drivers of degradation, including community perceptions
- Description of land use practices, including documentation of seasonal land use
- Detailed mapping of weed infestation and siltation
- Climate risk and vulnerability assessment
- Survey of the population and organisational nodes
- Assessment of gender inequalities, and identification of the social and economic incentives

Hydroelectric power generation on the Shire is severely affected by siltation and aquatic weeds. Investigation showed that 120 sq km of the Malombe catchment may be classified as having high soil erosion potential. Bio-control agents are seen as the solution to reduce the spread and density of water hyacinth by affecting flowering and seed production.

Climate change is likely to have significant implications for the communities living in the Upper Shire basin, and may exacerbate existing problems of siltation, aquatic vegetation and river flow reliability for hydro-electric power production. Higher temperatures and more intense rainfall may increase flood/drought frequency and severity, put pressure on ecosystem services and forests, which will have knock-on effects on agriculture and fisheries, land degradation and erosion, health issues, infrastructure and settlements, and ultimately lead to social conflict through change in water use and /availability.

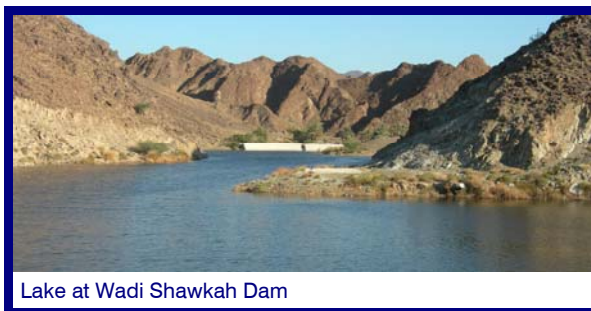
Collectively, the social, economic and environmental issues identified in the baseline study are each likely to have negative impacts on household income and economic development in the basin, driving greater inequity and poverty particularly for women and already vulnerable groups.

To lay the foundations for the Action Plan, the team outlined priority areas to focus on the control of soil

erosion, and agreed priorities based on stakeholders assessments for a compilation of environmentally positive interventions in the areas of economy, energy, environment and civil society. Key performance indicators were selected to monitor the effectiveness of the prioritised interventions during the five-year operational period of the Action Plan.

Dubai Dam inspections

In December, WRA teamed up with Reservoir Safety Services Ltd and Conser Consulting Engineers to carry out a review of four operational dams in the Masafi Mountains: Tawiyaeen, Wurraya, Sifuni and Shawkah. Potential safety problems were highlighted relating to leakage, settlement and hydrology, listing action and remedial measures required to ensure that dam safety is maintained.



Lake at Wadi Shawkah Dam

The assignment included field reconnaissance and visits with the director of dams, Salim Akram, and a desk review of documentation at the offices of the Ministry of Environment and Water. Whilst Wadi Shawkah was full, Wadi Tawiyaeen was empty and over two metres of accumulated sediment was being removed from the reservoir basin.



Desilting operations at Wadi Tawiyaeen

The team members also spoke at a conference organised by the client in the Municipality of El Ain, delivering papers on flood estimation for wadi catchments and the dams in UAE, and international practice in the monitoring and supervision of dams.

UK WORK

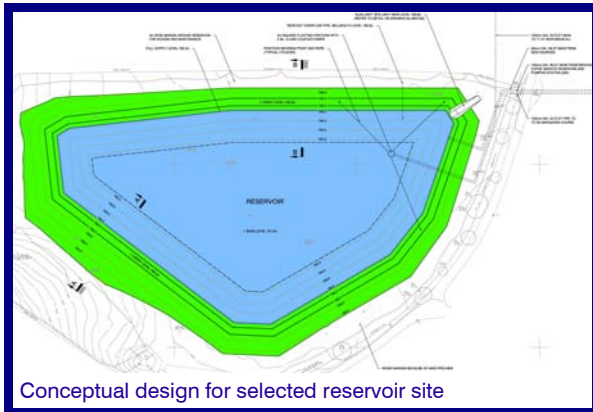
Reservoir Options at Woburn

In December, the Environment Agency granted Bedford Estates a new abstraction licence for taking water from the Woburn Sands aquifer. Focus is now on connecting the borehole up to the Marquess Golf Course irrigation tanks for use during summer 2011.

In the second half of 2010, WRA studied options for further development of groundwater and providing raw water storage in a 100 megalitre reservoir positioned at the centre of the three Woburn golf courses. This would irrigate 58 hectares in a 50 yr drought.



No valley sites were found in the vicinity of Woburn Golf Club that would be suitable for construction of impounding reservoirs of sufficient size and storage capacity. Six sites were then studied with potential for the development of non-impounding storage. Survey and preliminary ground investigations at the best location confirmed the need for a geomembrane liner. Conceptual design and cost estimation was completed.



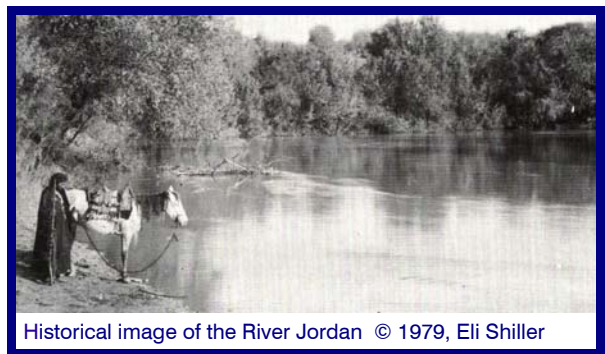
Conference at Oxford on the River Jordan

Paul Whitehead helped to organize and run a special workshop in Oxford on the River Jordan and the Dead Sea Valley, an area that has a unique ecosystem shared by Israel, Jordan and the Palestinian Authority. The region is rich in water resources, cultural, religious and touristic value as well as an important region for economic activities. Nonetheless, decades of unilateral

action by the region's riparian owners has left a legacy of environmental degradation throughout the basin. Although bilateral agreements on managing the region's resources exist between Israel and Jordan and Israel and the Palestinian Authority, no multilateral system yet exists for an ecosystem-wide and sustainable management solution. The purpose of this workshop was to launch the Jordan River and Dead Sea Valley Forum which will bring together experts and regional decision makers to discuss collaborative projects that can be undertaken for the benefit of the environment and the peoples of the region and to create momentum for multilateral management. The primary purpose of the workshop was to officially launch the Forum and to identify implementable regional projects for the year 2011 and beyond. Early photographs of the River Jordan from 1893 show a strongly flowing water body with extensive bankside vegetation. [<http://www.eretzyisroel.org>]



This contrasts with the current state of the Lower Jordan which has been depleted by water abstraction, resulting in over 90% less flow, and loss of ecological status. Little water reaches the Dead Sea, where water level has fallen dramatically over the past 40 years, and continues to fall at a rate of 1m per year.



WRA Software News

In response to demand, WRA has added significant capability in climate change simulation to both the daily and monthly versions of HYSIM 4.9. An update will be given in the next issue of the bulletin.

WRA Board Meeting

15th April 2011

The **WRA Bulletin** is a quarterly publication, and relies on contributions submitted by Directors, Associates and Consultants. The document is circulated by email, and published on the WRA web-site, aiming to keep the WRA network, up-to-date with respect to current activities. Please email contributions for future issues to pach@watres.com

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