

A RIVER RUNS THROUGH IT

Left: ploughing in Negesso
Main image: tomorrow's farmers in Megech

Halcrow studies assess sustainable development options for Ethiopia



Africa's longest river: facts and figures

From Lake Victoria in east-central Africa, the White Nile flows north through Uganda and into Sudan where it meets the Blue Nile at Khartoum, which flows from its source at Lake Tana in the Ethiopian highlands. From its remotest headstream, the Ruvyironza River in Burundi, the river is 6,671km long.

The Nile River basin is home to an estimated 160 million people, while almost twice that



One of the world's iconic watercourses, the River Nile – northern Africa's lifeblood – has sustained local populations for millennia.

A Halcrow-led project is taking initial steps towards helping Ethiopian communities secure a stable water supply, through infrastructure development and improved resource management.

Work is well underway on feasibility studies for irrigation and drainage projects spanning some 80,000ha in Ethiopia's Nile basin region. Funded by the World Bank and delivered by Ethiopia's ministry of water resources, the £4 million studies comprise three water management schemes centred on the Nile's source, Lake Tana – 112km wide and fed by more than 40 tributaries.

As well as boosting the productivity of small holder and commercial farms, serving to alleviate rural poverty, these proposed schemes offer the prospect of sustainable economic diversification in the Horn of Africa – with proposals carefully balanced against environmental and social factors.

Set to improve Ethiopia's food security, this work represents a tangible example of Halcrow's recently launched water scarcity strategy, which articulates the company's commitment to the fight against global water scarcity. Some 2.8 billion people – 40 per cent of the world's population – live in areas where there is either insufficient water to meet basic needs, or which lack the funds required to effectively exploit available water supplies.

From its origin in the Ethiopian highlands, the Blue Nile meanders thousands of kilometres north into Sudan. It meets the White Nile near the capital, Khartoum, before flowing through Egypt to the Mediterranean. An economic gap exists between countries that have successfully tapped into this vast resource and those currently lacking the infrastructure to harness the river's potential. Egypt falls into the

first category, Ethiopia the second – but with an unswerving focus on rectifying the imbalance.

Given its negligible rainfall, Egypt's annual water consumption demands are met almost solely by extraction from the river. Egypt has developed infrastructure to channel water to its cities and commercial agriculture. The craggy, mountainous terrain of Ethiopia's Nile basin region acts as an additional barrier to such development, meaning exploitation of the river's water resources in the area is much less advanced. As a result, the agriculture on which so much of the Ethiopian population depends for its livelihood is at the mercy of increasingly erratic seasonal rains.

(Agriculture ... is at the mercy of increasingly erratic seasonal rains)

Halcrow's feasibility studies – which it began in March 2009 and is set to complete in early 2011 – are an essential precursor to redressing these problems. Various irrigation development options will be evaluated against stringent social, environmental, technical and economic criteria, ensuring the schemes are sustainable and will attract international financial backing.

Designed to increase food productivity in the region, the project's proposed infrastructure will harness and divert water for agriculture, with additional scope for hydroelectricity production at one of the potential dam sites. Water pumped from Lake Tana is set to irrigate a 6,000ha area at Megech on the lake's northern shore. Diverted river flows will supply some 60,000ha in Upper Beles, to the west of Lake Tana, supplemented by transfers from the lake for a newly constructed hydropower/basin transfer scheme. Further south in the Negesso valley, up to 12,000ha of arable land will benefit from the certainty of irrigation, sustained by a proposed dam and reservoir further upstream.

Thorough consultation with rural communities, focus groups, and stakeholders at local, regional and federal levels underpins and informs the studies. "The stakeholder consultation process has been a massive undertaking," said Richard Harpin, who leads Halcrow's water scarcity team. "The project hinges on engagement with all elements of society and the economy, ensuring the interests and needs of the people are accounted for."

As well as compiling all existing data – including feasibility studies dating back to 1964 – Halcrow is undertaking a series of further investigations, including socio-economic, topographic, soil, geotechnical, water quality and sediment surveys. Developed as part of the project, a water balance model for Lake Tana will steer and inform the conservation of this resource for future generations. The team will produce full feasibility reports for each project; presenting all costs and implementation programmes, as well as outlining investment schedules, management structures and institutional responsibilities.

Martin Smith, Halcrow's project director, commented: "This work provides a platform for Ethiopia's ongoing sustainable development, and the potential impact is far-reaching – economic diversification, agricultural intensification, food production and infrastructure development all hinge on cohesive water resource management."

Halcrow's involvement in the Nile basin project is the latest in a series of significant commissions recently undertaken in Ethiopia. Others include the Awash basin flood control and catchment management project and the Rift Valley lakes basin integrated resources development master plan.

Halcrow's work in Ethiopia is a salient example of practical measures to tackle water scarcity on a regional level. When the Nile basin studies conclude in 2011, Ethiopian communities will be one step closer to improved food security and better economic prospects.

number – roughly 300 million – live within the ten countries that share the Nile's waters.

Without the Nile, an immense desert would extend from the Red Sea to the Atlantic Ocean.

In some communities as much as 80 per cent of residents' daily calorie intake is provided by goods and services directly related to Nile basin ecosystems.

During the Pharaohs' rule the Nile was worshipped as a divinity. A bureau was established to measure flood levels, enabling a proportionate amount of tax to be levied on farmers. The higher the flood waters reached, the more the land was expected to produce.