Experts say Red-Dead concerns can be addressed

A satellite image shows the Dead Sea and the Gulf of Aqaba (Photo courtesy of World Bank)

AMMAN - The final feasibility report of the Red Sea-Dead Sea Water Conveyance Study Programme will be ready in May next year, while the Environmental and Social Assessment is expected in October 2011, consultants said on Monday.

Experts examining the feasibility of the project have proposed a location in the Gulf of Aqaba as a seawater intake.

Meanwhile, the initial impressions of consultants assessing the environmental and social impact indicate that the dangers to the ecosystem and social environment will be minimal, or already aptly addressed when the project is completed.

The Red-Dead water conveyance seeks to halt the continuous decline of the Dead Sea and provide potable water to its three stakeholders, namely Jordan, the Palestinian Authority and Israel, according to the World Bank.

The two studies were launched in May 2008 to review the scheme's economic feasibility and its impact on ecosystems and the Red Sea and the Dead Sea waters.

The studies, in addition to three sub-studies, are led by the World Bank and implemented by international consulting companies and panels of experts in various fields.

Pointing to the latest progress on the studies, consultants said the feasibility study proposed a seawater intake located to the south of Aqaba Port.

The feasibility study suggested three alternative locations for the Red Sea intake on the Gulf of Aqaba, but said the eastern intake location, at the site of the disused Aqaba Thermal Power Station, currently appears to be the most favourable.

The other two locations proposed include a western intake in Israel, which was rejected early in the options screening and evaluation process, and a northern intake location.

“A range of types and configurations for the intake are being considered… the configuration of the Red Sea intake works will be finalised based on input from the additional study of the Red Sea,” said Red Sea-Dead Sea Conveyance Feasibility Study team leader at the French company, Conye et Bellier David Meehan, yesterday.

Meehan made the remarks during a public meeting organised by the Ministry of Water and Irrigation and the World Bank to update the public on progress of the Red-Dead study programme.

In his presentation, Meehan said several options for the water conveyance from Aqaba to Ghor Fifa were proposed and were narrowed down to three potential conveyance configurations.

The first water conveyance option is a gravity tunnel from Aqaba to a desalination plant at either Ghor Fifa or in the hills above Ghweiba, while the second option proposes a pumped conveyance (pipeline or tunnel) for five kilometres from the intake site, followed by a gravity tunnel, which would include two long open canal sections, descending to a desalination plant at either Ghor Fifa or in the hills above Ghweiba.

The third option is a pumped conveyance beginning with a tunnel around Aqaba to a site close to King Hussein International Airport, followed by a pipeline laid in Wadi Araba to Gharandel. A gravity pipeline would then take the water via a desalination plant near Bir Mathkour to Ghor Fifa.

The feasibility study is also considering the establishment of a desalination plant at one of three locations, including along the pipeline route near Bir Mathkour, on the tunnel route in the hills above Ghweiba and on the plains to the west of Ghor Fifa.

It also proposes a hydropower plant at a site close to Fifa village, west of Ghor Fifa.

“One of the major concerns raised consistently in previous consultations has been the risk of seawater leaking from the system and contaminating the groundwater aquifer,” Meeham noted.

In his presentation, the consultant highlighted that the engineering designs proposed for all the alternative conveyance configurations will incorporate several safeguards against this risk.

They include rigorous material specifications, monitoring any leakage by both visual inspection and remote sensing and provision for rapid shut down of the system in the event of leakage being detected including isolation of the leaking location among other measures.

Commenting on the water conveyance capacity, Meeham said between 1,000 and 2,000 million cubic metres of water will be transferred each year from the Red Sea, noting that the desalination plant will be developed in phases to match the growth in demand for desalinated water and will have an ultimate capacity of 850 million cubic metres per year of desalinated water.

The consultant added that the hydropower plant rating will be in the range of 150MW to 250MW, while the ultimate Dead Sea target level is aimed to stabilise between 410 and 420m below sea level, which will be achieved around the year 2048.

Environmental and social assessment

In the meantime, the environmental and social assessment (ESA) carried out by the British firm Environmental Resources Management will produce in 2011 a full preliminary draft ESA report based on three sub-studies.

They include the Red Sea Modelling Study which looks at the impacts of the scheme on the physical, chemical and biological make up of the Red Sea and the Dead Sea Modelling Study which examines the impact of the assessment on the Dead Sea and its surroundings, and mainly how the water quality of the Dead Sea will be affected.

The third sub-study examines alternatives of the scheme, such as water transfer options from the Mediterranean Sea to the Dead Sea and transferring water from Turkey, according to Alexander McPhail, lead water and sanitation specialist at the World Bank.

He noted that "taking no action" is among the alternatives being investigated and what would happen to the Dead Sea.

Meanwhile, ESA team leader Raymond Colley said yesterday that up-to-date findings of the study indicate that eastern intake from the Gulf of Aqaba is preferable in all terrestrial environmental and social areas, noting the eastern site is set in an already built-up plot, while the northern site overlays an active seismic fault, and is within a flood drainage channel.

"The major issues associated with the marine environment remain to be investigated," Colley said in his presentation yesterday.

Regarding the seawater conveyance method and their differential impacts, the ESA indicated that areas affected by pipeline construction will be larger but the duration of effects will be shorter than for the tunnelling options, Colley said.

He noted that pipelines affect the Qatar salt flats area, while tunnel entrances are close to ecologically sensitive wadi mouths. In the meantime, leakage risk is highest for pressurised pipes, but risk is lowest for a low-level tunnel, which will have a significantly lower impact on all environmental and social resources than a high-level tunnel, according to the study.

"All options continue to be studied in the ESA," Colley underscored.

On the freshwater pipe routes, the study proposed three separate alignments for a freshwater pipeline to Amman. The first route is to the south of Tafileh Governorate, the second route is to the north of Tafileh Governorate and the third route goes along the Karak Governorate.

"All routes travel north along the Desert Highway/Disi pipeline corridor," Colley said.

The initial results of the study indicated that the third route impacts important birds areas in Fifa and affects more agricultural areas, while the first and second routes are close to the Dana Biosphere Reserve.

The study indicates that there will be impacts to ecology, communities and herding from noise, dust, plant, transportation and access restrictions from pipeline construction.

But its preliminary assessment indicated that such differential impacts are minimal and readily mitigated or offset.

The ESA also examined the scheme's impact on archaeological and historical sites, which were mostly in Aqaba, Gharandel, Finan Timna, Telah and Ghor Fifa area.

On the social assessment, the study expected negative social impacts during construction from dust, noise, traffic, waste disposal, but indicated that they are readily mitigated through construction contract controls.

It expected positive impacts from availability of additional freshwater and attendant development opportunities, especially in Jordan.

A similar public meeting to inform the public with progress on the studies will be held today in Aqaba at the Movenpick Hotel at 9:00am, while similar meetings will be held in Eilat tomorrow, Jerusalem on June 16 and Ramallah on June 20, according to the World Bank.