

# PROJECTS IN PROGRESS

in for the current financial year and R10-billion for 2009/10, before tapering off to the R3,5-billion to R4-billion levels in the two subsequent financial years.

In 2007/8, the group issued its first two bonds for R2,5-billion. The R37-billion will be used to fund part of its R80-billion capital expansion of its rail, port and pipeline businesses – about R47-billion of this has been allocated for growth projects and the R33,7-billion balance for replacement capital.

The group will spend over R38-billion between 2008/9 and 2012/13 on its freight rail business; some R16,4-billion on harbour infrastructure over the same period; another R9,6-billion on port operations equipment and infrastructure; and nearly R12-billion on upgrading its fuel pipeline from Durban to Gauteng.

Making up the balance of the five-year capital plan is R2,3-billion for the group's rail-engineering unit and another R2,1-billion for support services, including information technology and business intelligence systems.

#### Participants

TPT, TFR, TNPA, TRE, Transnet Pipelines, Protekon, Mars and Murray & Roberts Union Carriage, Investec and Deutsche Bank, Wagon Build, Smorgon Steel and EMD.

#### On budget and on time?

Not stated.

#### Construction materials

Not stated.

#### Contact details for project information

Transnet, tel +27 11 308 4000.

## SQUARE KILOMETRE ARRAY PROJECT, AUSTRALIA AND SA

#### Name and location

Square Kilometre Array (SKA) project, Australia and South Africa.

#### Project description

The aim of the project is to construct an SKA. The SKA will be an interferometric array of individual antenna stations, synthesising an aperture with a diameter of up to several thousand kilometres.

The SKA will operate over a range of frequencies from about 100 MHz to 25 GHz. The radio telescope array will deploy a collecting area of one-million square metres and will be composed of a very large number of elements. It requires a high-quality imaging of low brightness emission and also high angular resolution;

a milliarsecond-scale imaging capability. The array configuration will include a compact core with about 50% of the collecting area within 5 km, an extended array containing about 75% of the collecting area within 150 km, and the rest in various distant stations up to a few thousand kilometres.

The MeerKAT radio telescope array currently under construction could ultimately be a component of the SKA. The MeerKAT is emerging as highly strategic to South Africa's space science agenda. It is integral to the SKA bid.

#### Value

€1,5-billion.

#### Duration

Construction of the telescope is expected to begin in 2013.

#### Breakdown of main contracts

None stated.

#### Client

The International SKA Project Office.

#### Latest developments

South Africa has entered the design phase of the international SKA.

The design phase, known as PrepSKA, has just begun. PrepSKA will lead the way for SKA, with a three-year programme, which will unite all the international efforts to establish a final, cost-accounted, technical design, as well as to define a legal framework.

The UK's Science and Technology Facilities Council is leading PrepSKA. A final decision on which country will host the SKA is now expected in 2012. South Africa has also been negotiating with other African countries about their becoming partners in the SKA programme and hosting outstations of the SKA radio telescope. These countries are Namibia, Botswana, Mozambique, Mauritius, and possibly Madagascar, Kenya and Ghana.

An agreement has been reached in principle with all these countries to establish bilateral agreements with South Africa, and to implement radio astronomy and science programmes in their countries. The agreement includes in addition to a possible hosting of remote SKA stations, the development of human capital and technology transfer programmes. All the African partner countries fully support the implementation of protected areas around SKA stations. Further, South Africa's prototype development programme, in support of the country's bid to host the SKA, MeerKAT, is progressing well, despite the engineering and prototyping being on tight time scales. Should

South Africa win the bid to host the SKA, MeerKAT will form the core of the giant international instrument.

A full experimental system for MeerKAT has been commissioned at the Hartebeeshoek radio astronomy observatory, west of Pretoria. In addition, a small seven-dish array has been deployed at the South African Astronomical Observatory, in Cape Town.

The acquisition of 14 000 ha of land has been finalised. The civil works are progressing well; they include the construction of data transport network, power connection, roads, and other facilities. The site will be ready to receive the first dish by October this year.

MeerKAT will be composed of a number of 12-m diameter dishes. The prototype array will have seven of these dishes, while the final MeerKAT will have 80 such dishes.

The R900-million MeerKAT will be constructed in the Karoo, in the Northern Cape, and should be commissioned by 2012.

#### Participants

IST (construction of prototype dish).

#### Construction materials

Too early to state.

#### On budget and on time?

Too early to state.

#### Contact details for project information

SKA South Africa project manager

Tracy Cheetham, tel +27 11 442 2434 or email tcheetham@ska.ac.za.

## PLAINES WILHEMS SEWAGE PROJECT, MAURITIUS

#### Name and location

Plaines Wilhems sewage project, Mauritius.

#### Project description

The project will involve the construction of a new 27-km trunk sewer to increase trunk sewer capacity from the Plaines Wilhems district to the St Martin sewage treatment plant; the construction of 262 km of reticulation network in the Plaines Wilhems catchment areas to increase sewage flows to the St Martin sewerage treatment plant; and the construction of nearly 32 500 house connections in the municipalities of Quatre Bornes, Beau Basin/Rose Hill, Curepipe and Vacoas/Phoenix and the effluent outfall to the La Ferme irrigation system. The project also included the reconstruction of the St Martin wastewater treatment plant.

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