

## UGIE TO LANGENI EASTERN CAPE SOUTH AFRICA

The project comprised the feasibility study, route determination and economic analysis of the 55 km route which was completed by HHO Africa in 2003. Thereafter HHO Africa were appointed for the design stages and construction supervision of the 2nd phase mountain pass (15,3 km) section of the route which was opened to traffic in 2008.

Key project characteristics and statistics give a sense of scale and diversity for this major infrastructure project :

- ◆ **Extremely rugged and unstable terrain in complex geology**
- ◆ **Timber haul road - continuously reinforced concrete over steep 7 km section (11,5% grades)**
- ◆ **8 Reinforced Earth retaining walls (20 000 m<sup>2</sup> minimised footprint and impact on forests)**
- ◆ **245 m long viaduct over indigenous forest**
- ◆ **22 km soil/terranailling stabilising talus cuttings**
- ◆ **1 100 000 m<sup>3</sup> spoil**
- ◆ **350 000 m<sup>3</sup> rock toes, rock fills and pioneer layers**
- ◆ **500 000 m<sup>3</sup> rock cuttings for crushed materials**
- ◆ **45 000 m<sup>3</sup> concrete**
- ◆ **Severe environmental constraints in indigenous forests and wetlands**
- ◆ **Full time ECO (Environmental Control Officer)**
- ◆ **Over 60 000 indigenous plants and tree saplings transplanted for revegetation**
- ◆ **Community liaison and relocation of households**
- ◆ **300 000 person day of employment for local labour (538 persons employed)**
- ◆ **Fulton Award commendations for concrete pavement and Viaduct 1**
- ◆ **Vinci Award for design and construction of composite nailed and mechanically stabilised embankment structure across a talus slope**
- ◆ **Popular and frequently used tourist route**



Boardwalk pedestrian access (for Contractors) into indigenous forest below Viaduct 1



Viaduct under construction



Viaduct 1 & concrete road



Terranail installation in talus

# ROAD ENGINEERING

## UGIE TO LANGENI EASTERN CAPE SOUTH AFRICA



Only previous access through forests,  
up mountain pass



Nyibeni Village gabion toe berm



Construction haul road  
converted to cattle track



Ncembu Plateau section of route



Reinforced earth and gabion retaining walls  
with sawmill in background



Ncembu Plateau to Langeni  
Plan view of the route



Completed mountain pass