The Vetiver System for Infrastructure Stabilisation in Africa

(With Special References to Road Batters & Sand Dune Stabilisation in Madagascar)

By

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INTRODUCTION

Hydromulch (Pty) Ltd, has introduced the Vetiver System (VS) to many engineers on road projects in Africa in several countries: Ghana, DR Congo, Guinea, Malawi, Mozambique, South Africa, Swaziland and Tanzania.

They are now realising the erosion control potential Vetiver grass has in road batter protection. The VS has over time been overwhelmingly successful in various projects.

Where severe erosions were once the norm, one can now see the effectiveness of the VS.

The Selembao Project in Kinshasa, DRC 2004

Before and after

Vetiver planted on the RN5 road in NW Madagascar in 2007.

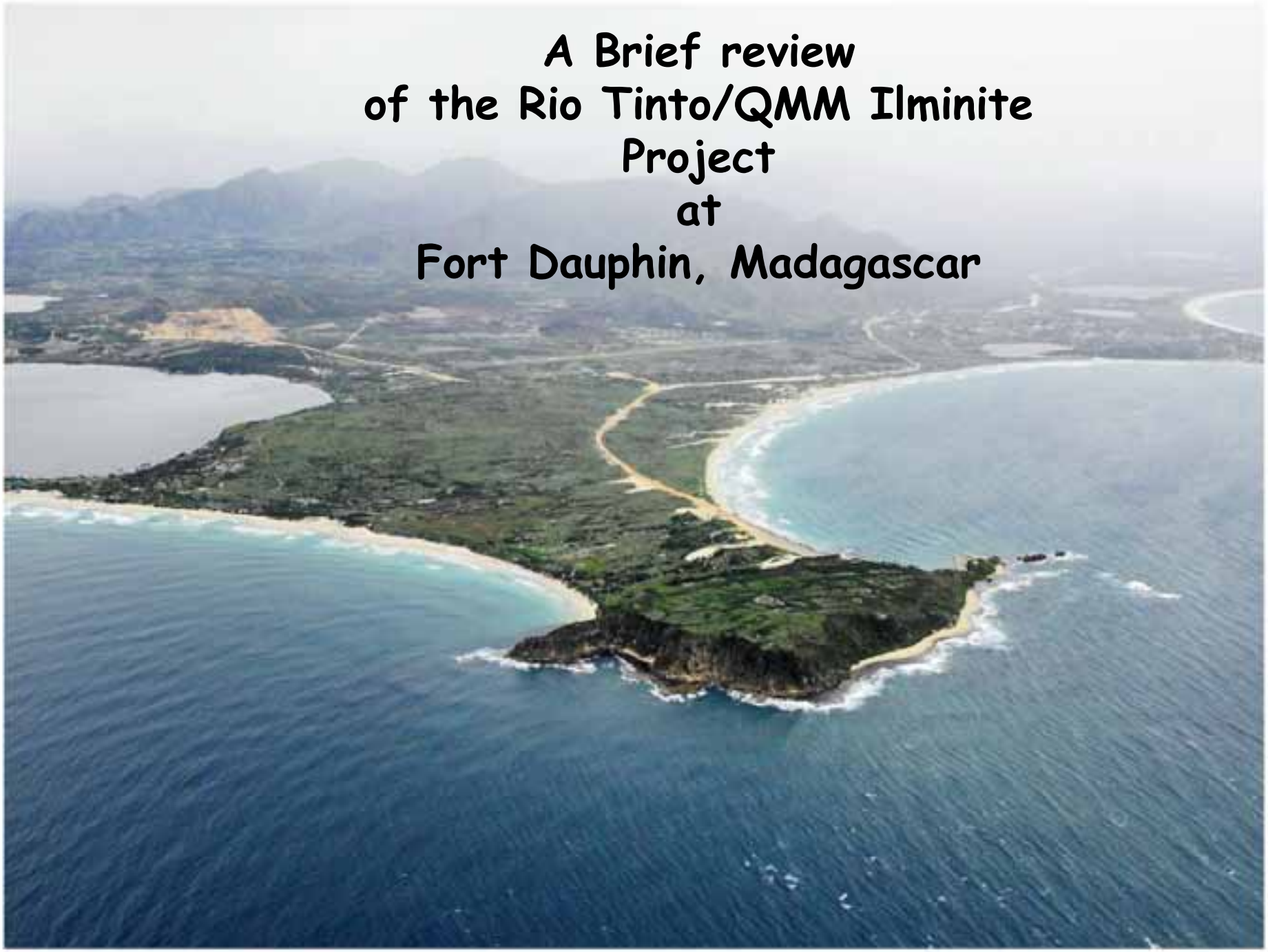
Road Batter stabilisation on a 70% gradient slope at the Rio Tinto Simandou project in Guinea

Side Slope showing the Erosion control capabilities of Vetiver grass hedge rows & hydroseeding

Eroded side slopes before VS treatment on a road in Northern Central Mozambique

Established side slopes after VS protection to the shoulder of the same road. Remainder of slope established with vegetation by the hydroseeding technique

A Brief review of the Rio Tinto/QMM Ilminite Project at Fort Dauphin, Madagascar

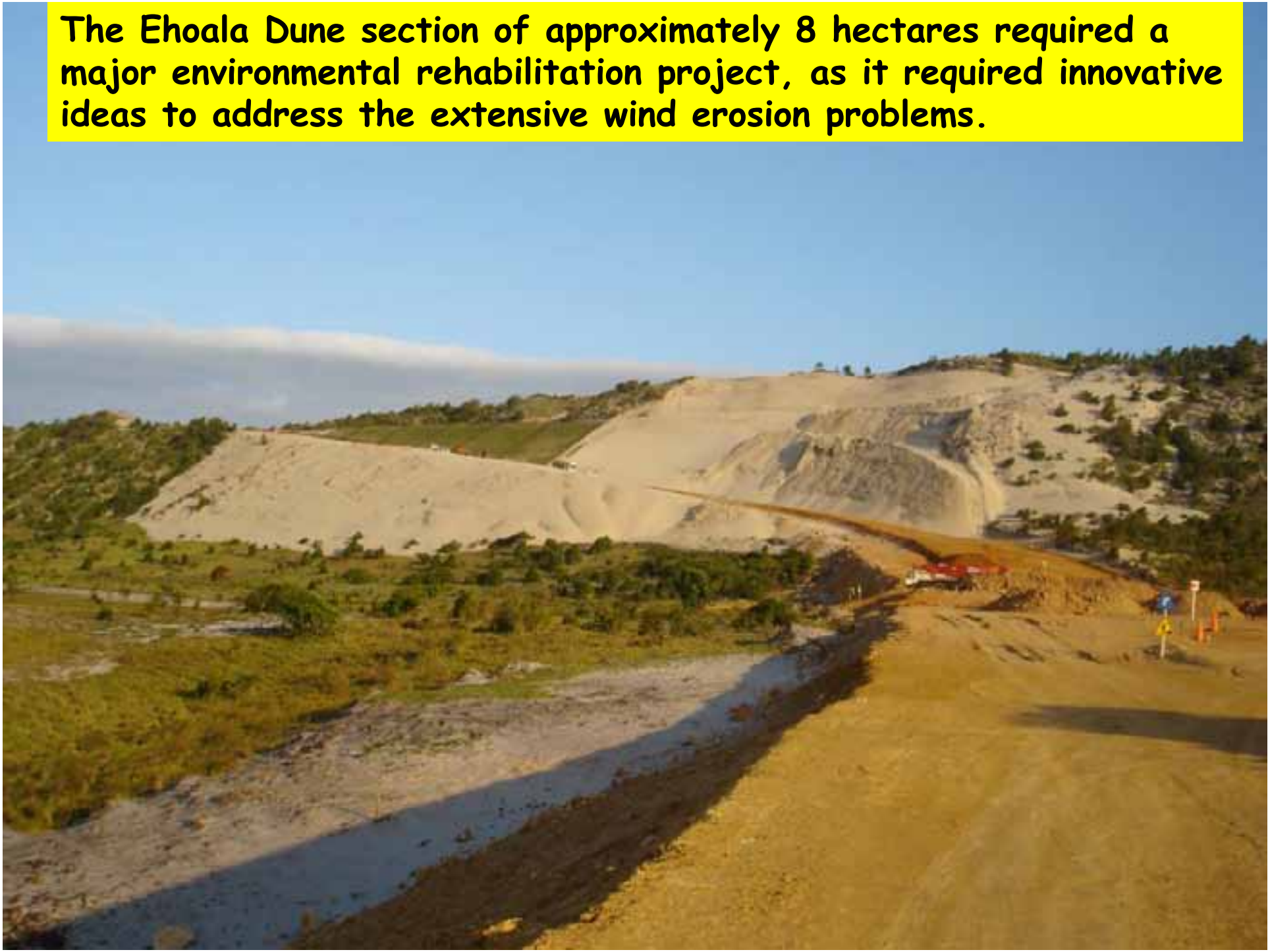


Mineral Separations Plant

26 February 2008

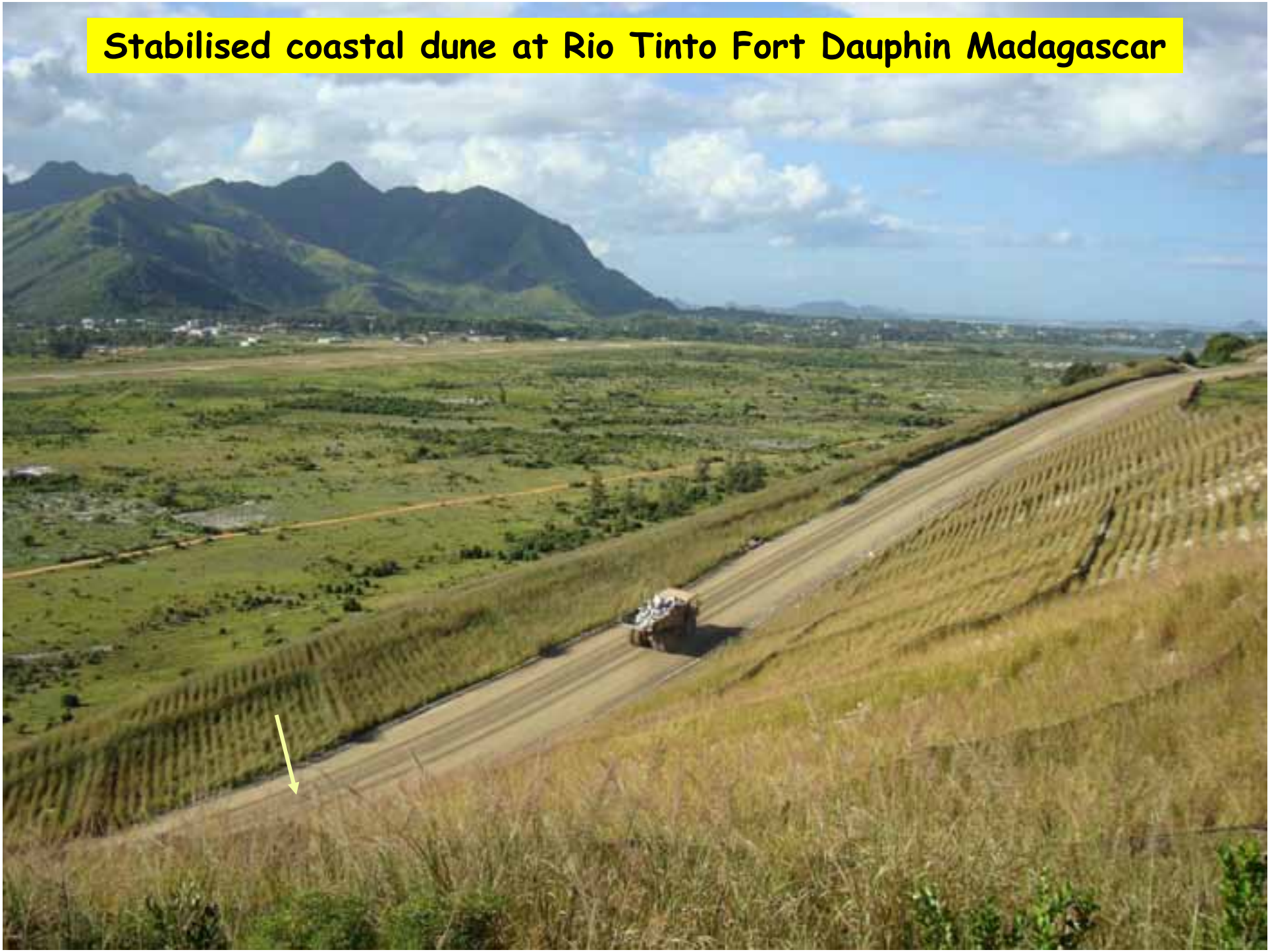
Mineral Seperations Plant

The Ehoala Dune section of approximately 8 hectares required a major environmental rehabilitation project, as it required innovative ideas to address the extensive wind erosion problems.



The areas between the wind barriers and Vetiver hedgerows were scarified to form horizontal drills prior to the placement of brushwood.

FINN equipment coupled to a 4x4 truck was used for the hydroseeding application


Stabilised coastal dune at Rio Tinto Fort Dauphin Madagascar

Stabilised coastal dune,

Fort Dauphin

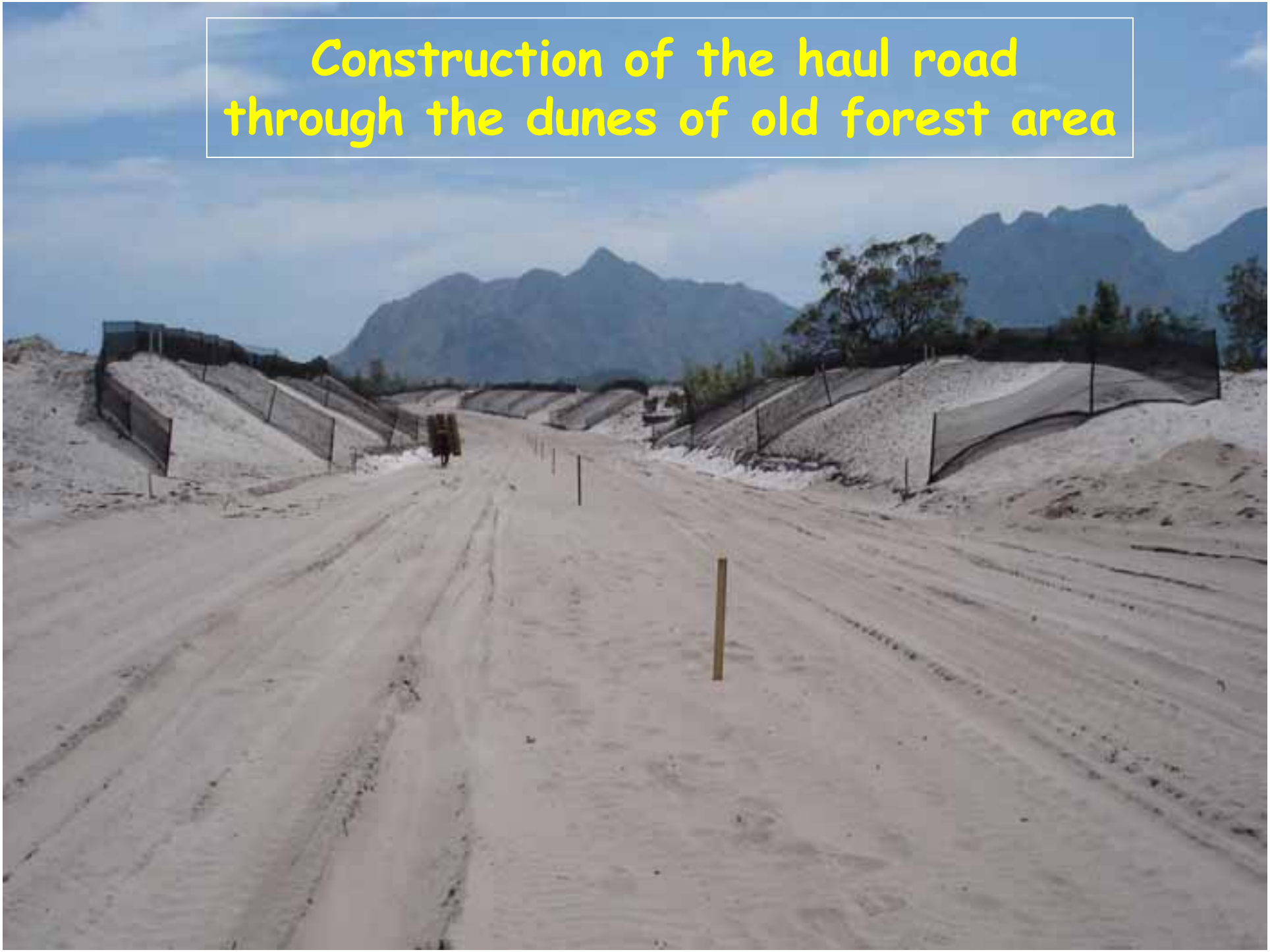
Stabilised coastal dune,

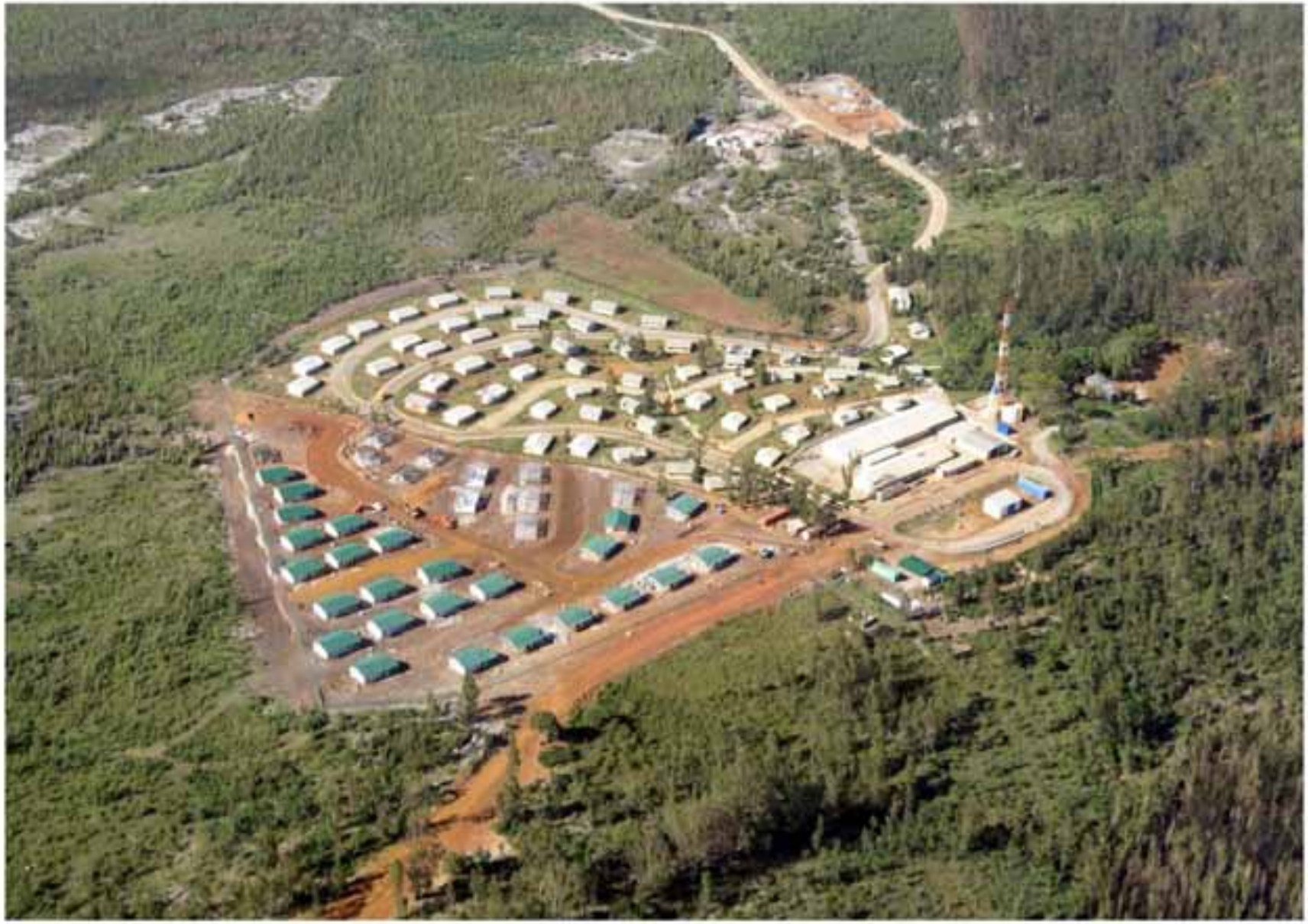
Fort Dauphin

Scaevola taccada, interplanting on the Ehoalo sand dunes.

A Vetiver Plant
removed from
the Ehoala dune
8 months
after planting.

Interesting to note
the extent of the
root system that
grew on the infertile
sandy dune material


Construction of the haul road
through the dunes of old forest area



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Permanent Village - Phase 2 & Pioneer Village

QUANTITY MATERIALS USED ON THE RIO TINTO/QMM PROJECT	
Wind Barrier Netting	36,000 m^1
Brushwood covering	380,000 m^2
Vetiver plants propagated by local communities	3,000,000
Plant Vetiver Grass Hedge Rows	390,000 m
Areas Hydroseeded	48 ha
Quantity Commercial seed used	2,880 kg
Quantity Native seed used	480 kg
Lime Used	24,000 kg
NPK fertilisers	24,000 kg
Organic Supplement	24,000 kg
Soil Binder	480 kg
Mulch	12,000 kg


Before

After

Special Thanks to Kevin Walsh Surveyors for photographs supplied & their support during the construction process