

gTKP global Transport Knowledge Partnership

**Transport Power Points:
10-minute briefing series**

Low Cost Structures

Rural Transport

gTKP global Transport Knowledge Partnership committed to sustainable transport

The Context

The World Bank Transport Business Strategy (2008-2012) advises:

- 1.2 billion of the world's poor still lack access to an all-weather road
- Between 40 and 60 percent of people in developing countries live more than 8 km from a healthcare facility. Few transport services exist
- In some regions (such as Sub-Saharan Africa and Latin America) less than 15% of roads are paved

Without effective rural transport systems, the MDGs and ALL rural development & poverty initiatives, agriculture & growth are substantially constrained

There are serious concerns that the MDGs may not be achieved, unless radical new initiatives are taken

gTKP global Transport Knowledge Partnership committed to sustainable transport

The Challenge

Conventional rural road provision usually costs **> US\$100,000/km**

Basic Access and Spot Improvement strategies using Local-resource-based approaches could provide all-weather access to many rural communities for **<US\$10,000/km**

Using a combination of:

- In situ soils to form Engineered Natural Surface
- Improved surfaces for limited problem sections
- Provision of simple structures; such as culverts, drifts and small bridges for water course crossings

As illustrated in the following slide

gTKP global Transport Knowledge Partnership committed to sustainable transport

Spot improvement strategy
Example application over a typical rural route

Spot/Surface Application:

Maintenance: MAINTENANCE REQUIRED THROUGHOUT

Low Cost Structure or culvert

Surface Options

Engineered Natural Surface (ENS) (Earth Road)

Maintenance

gTKP global Transport Knowledge Partnership committed to sustainable transport

Why use Local-Resource-Based methods?

- The existing internationally accepted guidelines are based on the 'traditional' use of reinforced concrete
- Not enough consideration given to the use of local-resource-based road works:
 - Local labour (skilled and unskilled)
 - Local materials
 - Local enterprises
 - Local communities and social structures

Therefore a new gTKP Low Cost Structures Guideline has been developed with international cooperation

It provides guidance on planning, selection, design, construction & maintenance of Low Cost Structures using stone, brick, timber and concrete.

gTKP global Transport Knowledge Partnership committed to sustainable transport

Why use Local-Resource-Based methods?

The resource base is very different in developing countries:

- Labour wage rates typically **<US\$10/day** (instead of **>US\$100/day** in developed countries)
- Credit scarce and expensive **>20%p.a.** (instead of **<10%p.a.** and usually available in developed countries)
- Some local materials do not meet normal international guidelines, however can provide affordable solutions
- Local carpentry, masonry skills and local community and enterprise resources usually not mobilized sufficiently in rural road works

Considering the above, we **cannot** directly transfer technology from developed countries into a limited resource environment.

gTKP global Transport Knowledge Partnership committed to sustainable transport

Why do we need yet another Guideline?

The developing world has abundant examples of **BAD PRACTICE** in structures provision for rural roads

gTKP global Transport Knowledge Partnership committed to sustainable transport

Stone: an under-utilised resource

Masonry skills available in many communities
Can be used mortared or un-mortared

gTKP global Transport Knowledge Partnership committed to sustainable transport

Fired Clay Brick: an under-utilised resource

Especially in areas with lack of hard stone resources
Small scale kilns using agricultural waste can produce engineering quality bricks

gTKP global Transport Knowledge Partnership committed to sustainable transport

Timber: an under-utilised renewable resource

Low carbon footprint if managed sustainably
Carpentry skills available in many communities

gTKP global Transport Knowledge Partnership committed to sustainable transport

People: an under-utilised resource

Often ready to be involved in creating and maintaining their own access
Local people, enterprises and communities can be helped with knowledge and support

gTKP global Transport Knowledge Partnership committed to sustainable transport

Further Information

The following important dissemination forums are supporting Rural Roads & Transport knowledge:

gTKP **global Transport Knowledge Partnership:**
www.gtkp.com

AFCAP **Africa Community Access Programme**
www.crownagents.com/AFCAP/About-AFCAP.aspx
jeff.turner@afcap.org & rgeddes@africaonline.co.zw

IFRTD www.ifrtd.org

Further information may be obtained from the above websites and the gTKP Rural Transport Theme Champion:
rob.petts@gtkp.com

*Image credits: gTKP and Intech Associates
This knowledge may be copied or quoted, but please acknowledge source.*

gTKP global Transport Knowledge Partnership committed to sustainable transport