

Transport Power Points: 10-minute briefing series

Low Cost Structures

Rural 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

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

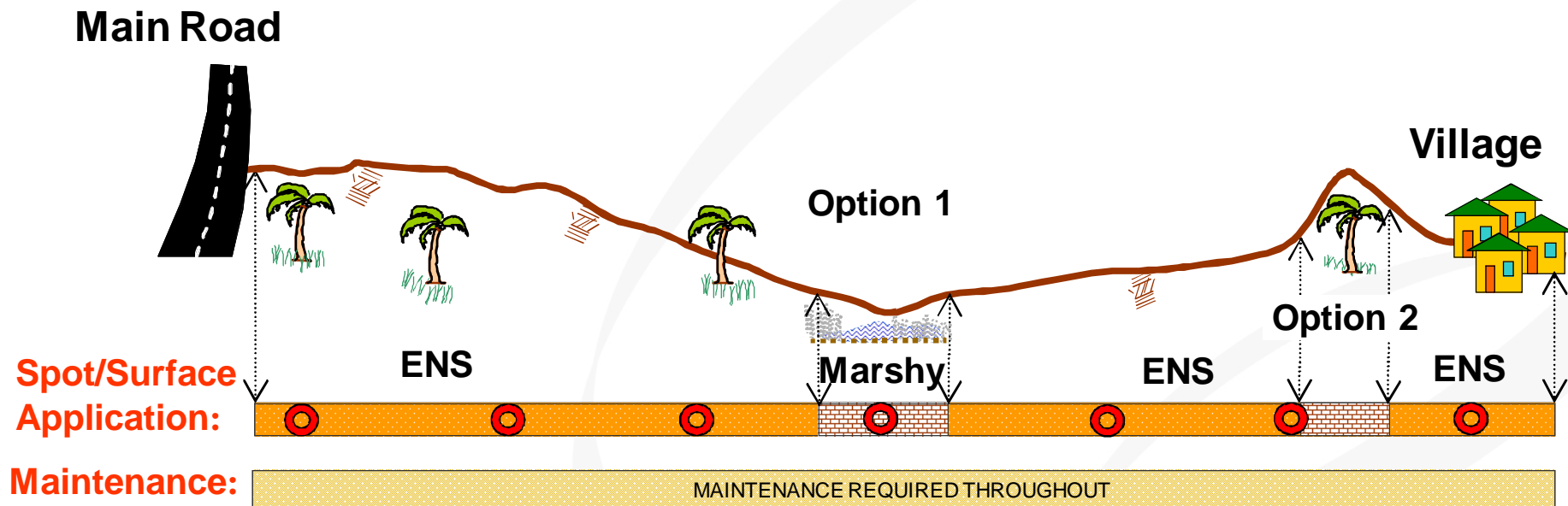
Using a combination of:

- 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

Spot improvement strategy

Example application over a typical rural route



Low Cost Structure or culvert



Surface Options



Engineered Natural Surface (ENS)



(Earth Road)

Maintenance



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.

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.

Why do we need yet another Guideline?

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



Stone: an under-utilised resource

Masonry skills available in many communities

Can be used mortared or un-mortared



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



Timber: an under-utilised renewable resource

Low carbon footprint if managed sustainably

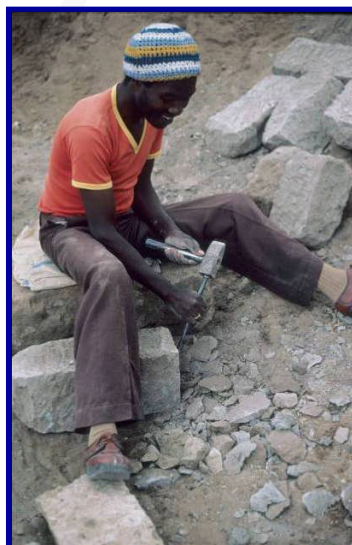
Carpentry skills available in many communities



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



Further Information

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



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:

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