global Transport Knowledge Partnership

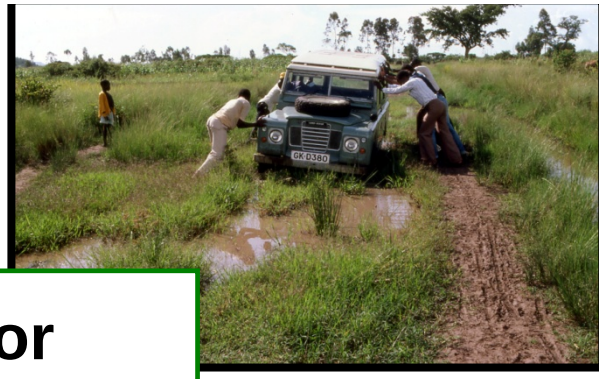
Transport Power Points:
10-minute briefing series

Rural Road Management

of unpaved roads in developing regions

Rural Transport

The Rationale



- The commonly encountered *'reactive'* or restorative maintenance regime for unpaved road networks is ineffective and poor value for money - usually resulting in continued deterioration of this vital and valuable asset.
- It does not provide year round access for the rural poor and constrains the impact of ALL other rural development initiatives and agricultural production.
- Annual network maintenance cost savings of at least 50% can usually be achieved by instituting proper *'preventive'* maintenance strategies. This is in addition to substantial user transport cost savings.

The Rationale

- A big problem facing many unpaved road network managers is how to move from a substantially deteriorated network to one on which a ‘preventive’ maintenance strategy can be implemented.
- The vast majority of the rural road networks in developing regions are unpaved, and many of the these roads are only to earth standard.
- With the problems of cost and sustainability of gravel surfaces in most locations, it is inevitable that much of the network length will have to remain as (engineered) earth standard for the near future. However this does not mean that the roads cannot be cost effectively maintained with limited budgets and provide relatively low cost transport to the rural users.

The Solution

One corrective approach involves FOUR complementary Components to counter poor unpaved network condition by substantially reducing the costs of rehabilitating and maintaining the network. The Components are:

1. Rehabilitation to 'maintainable' condition
2. Institute cost-effective 'preventive' maintenance
3. Spot improve the problem sections
4. Upgrade the high traffic sections

The economics of such an approach can make it attractive to development agency investors/support

Component 1 - Rehabilitation

Through rehabilitating the currently 'un-maintainable' unpaved road sections – make them maintainable.

Any of the following Options may be suitable:

i Making better use of the available heavy equipment resources,

ii Introducing proven large agricultural tractor and labour based technology, and

iii Using efficient labour based technology approaches

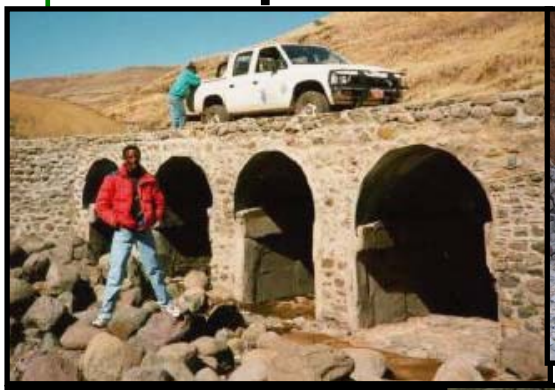
Component 2 – Preventive Maintenance

Once rehabilitated these roads and those already maintainable should be kept in good condition by '*preventive*' maintenance using low cost, small agricultural tractor and light towed grader and local labour support technology, using local contractors or road agency units.

In labour-abundant areas, alternative manual camber and drainage system maintenance may be feasible.

Component 3 – Spot Improvements

Problem sections on earth roads (e.g. 'black cotton'/dust/hill/swamp) should be tackled using a wide range of proven low cost, labour based spot improvement options & low cost structures.

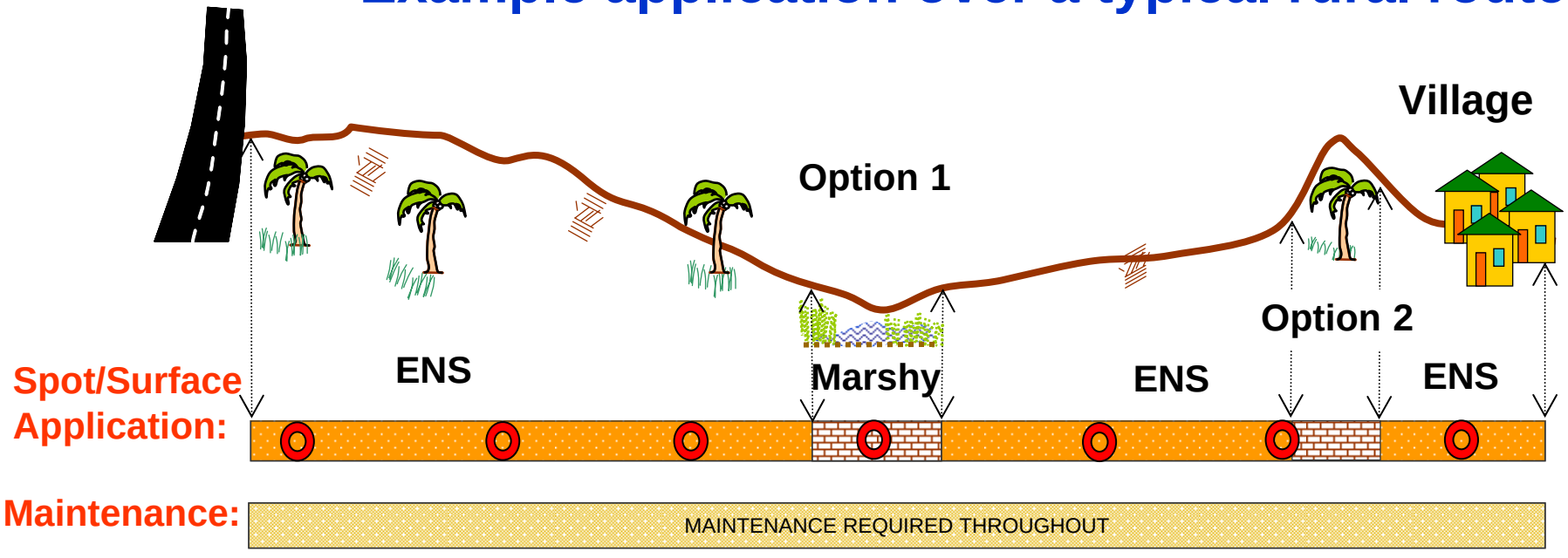







Component 3 – Spot Improvements

Example application over a typical rural route



Low Cost Structure or culvert

Surface Options

Engineered Natural Surface (ENS) (Earth Road)

Maintenance

Component 4 - Upgrading

- **High Traffic earth roads carrying 50 – 100 motor vehicles equivalent per day or more should be considered for upgrading to low cost paved standard. Some weak soils can justify upgrading at lower traffic levels.**
- **A range of proven low cost seals and paving techniques can allow this work to be carried out by local contractors, particularly if they have building construction experience.**

Making the changes

- Moving from a situation of poor network maintenance to an effective preventive maintenance regime is not easy. Established arrangements and practices will almost certainly have to change.
- Issues of policy, finance, 'real costs', standards, specifications, surface options, technology, planning, implementation arrangements, personnel development, community interaction and demonstrating good practice are likely to need to be considered and addressed.
- It is advisable to carefully review the existing arrangements, identify constraints, develop the necessary strategies with all of the stakeholders and seek assistance for issues that are not well understood or experienced locally ……. Change Management.

Making the changes

- The World Bank and leading experts have previously advised that developing effective maintenance capacity can take many years, sometimes more than a decade.
- However substantial improvements and major changes can be achieved IF key stakeholders are consulted, informed and motivated to effect positive change.
- The technical component of good maintenance is not substantial, and is certainly dwarfed by issues such as governance, consensus building, finances, logistics, resource management and personnel development.
- An 'enabling' environment must be created for both local private sector and agency implementation options. A stable market for maintenance services must be created.

Further Information

The following important dissemination forums are supporting Low Traffic Volume Rural Roads (LVRR) knowledge:

global Transport Knowledge Partnership:

www.gtkp.com

SEACAP **Southeast Asia Community Access Programme**:

www.seacap-info.org

AFCAP **Africa Community Access Programme**

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

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