



Gravity Goods Ropeway Scaling Up – A case of Technology Standardization in Nepal

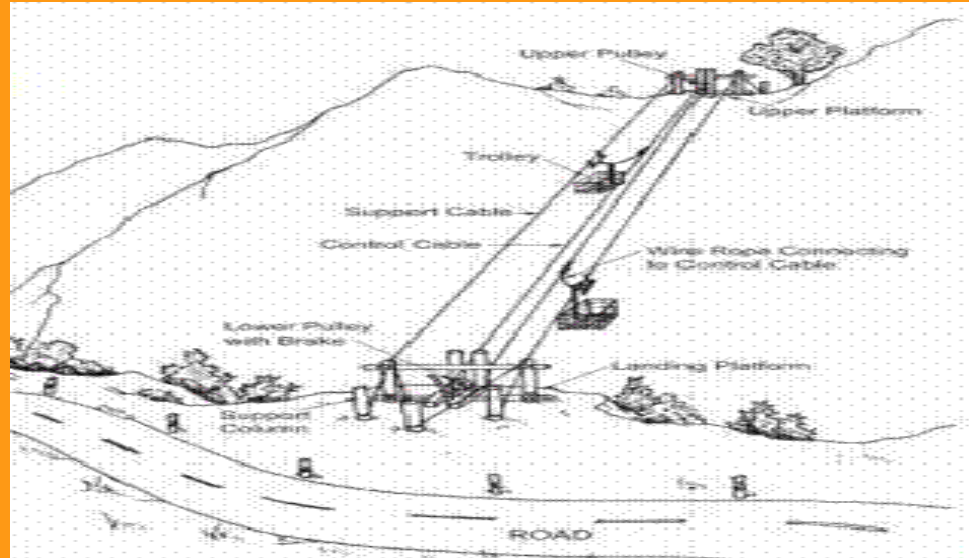
(A mountain friendly technology : Tapping the comparative advantage of rugged terrain to overcome the accessibility challenge posed by it)

Presentation Outline

- Technology and features
- Scaling Up Efforts
- Achievements
- Future Strategy
- Areas for Future Research

Technology

- Operate under gravity (requires 15- 35 degree slope)
- Consists of two track ropes and a haulage rope of smaller diameter
- Have two Carriages which are connected to the hauling cable/rope with a tie and slides on track ropes
- Two cast iron sheaves at two extreme stations
- Wooden handle brake at the lower end to control the speed of trolleys
- When the heavier load slides down , the lighter load hauls up along the second track rope



Features

- **Cost effective** : three times cheaper than building (3.5m wide) Earthen road in hilly areas
- **Efficient** : route /time
- **Environment Friendly** : no or minimum harm to existing ecology/environment
- **Community Friendly** : Employs simple technology requiring labour inputs
- **Short Construction Period** : Max of four months
- Minimal Operation and maintenance
Cost : \$ 175 /per annum (excluding the operators salary)



Scaling up Efforts of Practical Action



- After demonstration of technology in 1998 to 2004 in 2 districts, a five year Project is on-going in four remote districts of Nepal for replication of GR technology
- Organize excursion visits for various national government, international governmental/non governmental organizations, private consultants
- Conduction of technical training to DDC engineers of Dolidar's Transport programmes
- Preparation of Technical Guidelines is in process in collaboration with Dolidar



- Facilitate NGOs to prepare communities, conduct pre-feasibility studies for GRs, site identifications, coordinate with Local authorities
- Provide the technical information and respond to technical queries on GR to all who aspire to know about the technology under its practical answers programme
- Capacitate the technical manpower by providing Internship opportunities and researches in collaboration with Academia
- Support manufacturers to build their capacity to manufacture the ropeway accessories



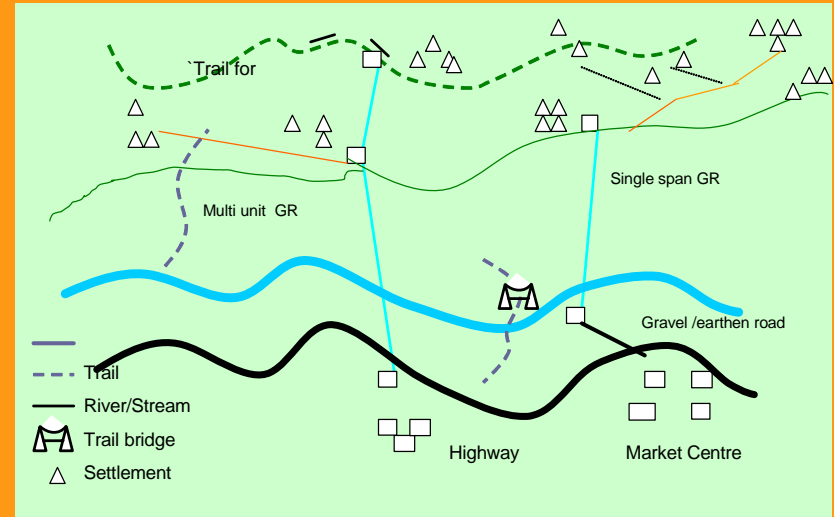
Achievements So Far:

- Successfully demonstrated 11 GRs in 6 remote districts
Draft Technical guideline Prepared
- GR technology reflected in government's District level Planning and other programmes
- Four Manufacturers - one in each region capacitated to manufacture ropeway accessories
- Technical capacity of consultancy firms and individual built by providing internship or contracts
- Technical Capacity of 4 local NGOs developed to plan, implement Gravity Ropeway installation
- Capacitated 16 Community Based organizations (user groups)



Future Strategies

- Standard norms/Policy /Strategies being adopted/owned by Dolidar/MOLD
- Wider dissemination of technology - DDCs, private sector, programmes of GO/NGOs
- Affordability – Facilitate linkage with credit institutions and Government Subsidies
- Research and Development – Collaborate with academia in research for advancement of technology (currently collaborating with University in Spain)
- Integrate with other livelihoods and transport related programmes – complimenting roads, bridges, markets etc.



Areas for Future Research

- **Human transportation in emergencies** - increasing safety factor
- **Harvest the energy being dissipated in GR** - For operating pneumatic tools for operating simple machines - sawing of woods etc.
- **Change the alignment of sheave** -- Horizontal to make a single cable operation to decrease costs
- **Hybrid type ropeway** - possible way of combining power with hydro and gravity ropeway
- **Multi-span or multi unit ropeway** - Intermediate recess stations

