Software tool for Environmental, Economic and Social Assessment of Road Projects

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BACKGROUND

- Investment decisions are traditionally made in economic terms
- Long term assessment of infrastructure projects is often neglected
- A software tool (EESAR) is under development to incorporate social and environmental aspects for decision-making and post-evaluation
IMPACTS

Economic impacts

Social impacts

Environmental impacts

Projects

Resources

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ECONOMIC IMPACTS

1. Impacts for Vehicle Operating Costs (VOC)
2. Impacts for Travel Time Costs
3. Impacts for Accident Costs
SOCIAL IMPACTS

1. Direct impacts
2. Impacts on the agricultural economy
3. Impacts on education and health
4. Impacts on poverty alleviation and gender aspects
5. Negative effects.
ENVIRONMENTAL IMPACTS

1. Effects on air and water quality
2. Noise
3. Habitat destruction and fragmentation
4. Greenhouse gas emissions
5. Erosion at construction sites
MEASUREMENT

Measurement of impacts is done mainly by interviews with several questionnaires:

1. Household / village surveys
2. Transportation cost surveys
3. Commodity price surveys
4. Environmental surveys
INDICATORS

Example indicators calculated from the survey results:

- Average trip duration to market, town etc.
- Transport & commodity costs
- Market income
- Product loss due to poor roads
- Increase in emissions due to traffic
- Damaged land area
SYSTEM DESIGN

Monitoring

Baseline data

Post-evaluation data:
1. Immediate
2. Short term
3. Mid-term
4. Long term

Reports

Planning

Social data

Environment data

Economic data

Run analysis

Reports

Change status

Mouse click

New project

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The data is stored in the database and restored from there.
For an individual road project

- Pre-project evaluation
- Post-project, immediate
- Post-project, short-term
- Post-project, medium-term
- Post-project, long-term

REPORTS
FUTURE WORK

• Finalisation of the software
• Indicator selection for the pilot project
• Pilot testing with Papua New Guinean projects and survey data