ROADS FOR DEVELOPMENT

exhibition
Status of the Rural Roads Network in Timor-Leste

Most of the Rural Roads in Timor-Leste need full rehabilitation

Estrada Rural barak iha Timor-Leste presiza reabilitasaun kompletu

Water is the biggest enemy of roads and without adequate drainage structures or maintenance, road sections can quickly collapse.

If rural roads are properly maintained there will be less need for emergency work or for complete rehabilitation.

The poor condition of many rural roads makes access to facilities and services, such as schools, difficult.

With its difficult terrain and climatic conditions, rehabilitating and maintaining rural roads in Timor-Leste is very challenging.

Without good rural road access, agricultural potentials cannot be achieved because farmers cannot transport their produce to the local markets at competitive prices.

The poor condition of many rural roads makes access to facilities and services, such as schools, difficult.
Status of the Rural Roads Network in Timor-Leste

Rural People think that Poor Rural Road Access is the Main Constraint to Development

Due to the poor road condition, people’s operating and maintenance costs of vehicles and motorbikes are very high.

In the rainy season roads are very often not accessible to vehicles.

Women and children have to walk long distances to access health care facilities.

Local people on the way home carrying products bought in the local market in Same.

Farmers have to walk many hours to sell their produce in the local markets.

Farmers living along the R4D rehabilitated road Lianai-Grotu, Manufahi District.

Community Rural sìra hanoin katak Aesu ba Estrada Rural ne’obé Ladiak mak sai Preokupasaun Prinsipal ba Dezenvolvimentu.
Examples of some of R4D’s Activities

Establishing Geographic Information Systems (GIS) for Better Planning

Estabelese Sistema Informasaun Jeografíka (GIS) ba Planeamentu ne’ebé Diak

Establishing Geographic Information Systems (GIS) for Better Planning

R4D implementars a Sistemas de Información Geográfica (GIS) no sector público para promover a eficiencia e a eficácia. Con todo, no sector público non hai resposta ás necesidade de información geográfica. A Sistemas de Información Geográfica (GIS) é unha ferramenta importante no proceso de planeamento e organización. Con esta ferramenta, a información pode ser recoñecida, procesada e utilizada para tomar decisións. A información geográfica é vital para a súa admostración en áreas como a súa planificación, a súa estratexia e a súa oportunitas.

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Examples of some of R4D’s Activities

Establishing Geographic Information Systems (GIS) for Better Planning

Estabelece Sistema Informação Geográfica (GIS) ba Planu ne’ebé Diak ilu tan
Examples of some of R4D’s Activities

Choosing Appropriate Pavement Types to Increase the Life-time of the Roads

Gravel, Telford, Plum Concrete and Penetration Macadam

Roads can be made out of many different materials and with different methods, each often suitable for a different gradient, level of rainfall, type of bedrock and soil and available budget. The various road surfaces can be categorised into unbound (loose stones and sand compacted into a tight layer), stone (large stones placed across the road surface), cemented (stones and sand held together by cement) and bituminous (stones and sand held together by bitumen). R4D has taken one road surface from each of these four categories - gravel (unbound), Telford (stone), plum concrete (cemented) and penetration macadam (bituminous) - and chooses which is most suitable for each site.
Using Effective Bio-engineering Techniques to Stabilize Erosion-prone Areas

Examples of some of R4D’s Activities

Uza Tékniku Efetivu Bio-Enjineria hodi Estabiliza Area hirak ne'ebé iha Risku ba Erosaun
Without maintenance, hundreds of millions of dollars of investments in improving the rural roads will be lost.

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Examples of some of R4D’s Activities

Testing the Quality of Compaction Using the Dynamic Cone Penetrometer (DCP)

Testing the Quality of Compaction Using the Dynamic Cone Penetrometer (DCP)
Loose soil collapses under heavy traffic loads, absorbs water and softens, gets blown away by wind and gets washed away by rain. Well compacted soil can support loads, does not absorb water and is resistant to wind and rain. It is therefore important to compact soil on a road, but it is also important to measure the compaction to know if it is sufficient for the road and the traffic. Many test methods involve long laboratory analysis but the Dynamic Cone Penetrometer (DCP) is portable, easy to use and can give results very quickly, and is therefore suitable for use on rural road sites. Feel free to try it out and test the gravel in the box.

Koko Kualidade Ateru/Kompaktasaun Uza Dynamic Cone Penetrometer (DCP)
Rai ne’ebé mamar sei estragu laali wanhana iha traffiku ne’ebé todan, absorba bee no sai mamar lu tan, wini bee liu ast iha no udan bee estraga thá. Rai ne’ebé kompakata ho didiak bele apoa toda, a absorba bee no sei tanan anin no udan. Nune’e importante febes atu kompata ra iha estrada ida, maibe importante mox atu sukat kompakataun fodi hatene se nia raton ona ba estrada no traffiku. Métodu teste barak involve análize laboratoriu naruki mada Dynamic Cone Penetrometer (DCP) portavel febes, fasii atu uza no bele to mutiariu jahais, nune’e apropiadu atu uza iha lokalidade estrada rural. Ami bele senti liu-etu isiko no teste faliu rahun iha kaaka tanan.
Examples of some of R4D’s Activities

Including Social Safeguards in R4D to Promote Social Inclusion

R4D has developed and field-tested a Social Safeguard Framework for rural road works in Timor-Leste. This Framework guides the implementation of social-inclusive and rights-based practices in investments in rural roads in Timor-Leste.

The Social Safeguards Framework includes provisions and measures that are important for involved communities and contractors during the planning, design and implementation of R4D’s rural road works. These relate for example to:

- Adherence to the minimum wage;
- Design options that accommodate the needs of people with a disability;
- Accident insurance for workers;
- Measures that promote equal treatment of women and men;
- The provision of protective clothing and gear for workers;
- The provision of drinking water;
- Training of staff of the Ministry of Public Works and the contractors on First Aid and the on-site availability of First-Aid kits.

The contracts that are signed with the contractors for the implementation of the works include special conditions that stipulate the Social Safeguards requirements. The Ministry of Public Works has also recruited field-based Community Development Officers (CDOs) who engage with communities and contractors to foster awareness about the Social Safeguards and guide and supervise their implementation in the field.

R4D is continuously monitoring the usefulness of - and compliance to - the Social Safeguards. As required, refinements are made to ensure continued relevance and effectiveness of the provisions and measures under the Social Safeguards Framework.

Inklui Garantia Sosial iha R4D hodi Promove Inkluzaun Sosial

R4D dezenvolve ona Kuadru Garantia Sosial ida hodi bele ikoko terenu ba serbisu estrada nian iha Timor-Leste. Kuadru ida ne’e ga implementasaun prátika hirak ne’ebé sosialmente inkluzivu no bazetia ba direitu iha investimentu ba estrada rural iha Timor-Leste.

Kuadru Garantia Sosial inklui provizaun no sasukat hirak ne’ebé importante ba involvimentu komunidade no kontrator durante planeia, dennei ne’ebé implementasaun serbisu estrada rural R4D nian. Buat hirak ne’e relasiona ho:

- Konformidade ho vensimentu mínimu;
- Opisaun direitu ne’ebé akomoda nesesidade ema ho kondisaun defisienti;
- Siguru asidenti ba traballador sira;
- Sasukat hirak ne’ebé promote tratamentu hanesan ba felo no mane sira;
- Provizaun humu ba ekspedimentu protešu ba traballador sira;
- Fornesimentu instrumentu serbisu ne’ebé apropiadu;
- Provizaun bee hemu;
- Formasaun ba funsionáriu Ministériu Obras Públika nian ikona ba Primeiru Sokoru no disponibilidade pakote Primeiru Sokoru iha lokalidade.

Kontrutu hirak asina ho kontrator ba implementasaun serbisu inklui kondisaun especial ne’ebé estipula reafina ona Garantia Sosial. Ministériu Obras Públika mos rekruta Ofisial Dezenvolvimentu Komunidade (ODD) ne’ebé sasukat iha terenu, ne’ebé involve ho komunidade no kontrator sira hodi bele fahamé ihe tan kondisaun ikona ba Garantia Sosial no gao no superviziona sira ba implementasaun iha terenu.

R4D kontinua monitoriza útilidade ho konformidade ho Garantia Sosial. Wainhira presisa, sei reafina fall hodi bele garantie kontinuaun relevansi no efetividade provizaun no sasukat hirak iha Kuadru Garantia Sosial.
Benefits of R4D’s Rural Road Rehabilitation Works

Comparing the Road Condition
Before and After R4D’s Rehabilitation Works

Kompara Kondisaun Estrada – Molok no Hafoin Serbisu Reabilitasaun R4D nian

Before

After

R4D rehabilitated road, Boile-Ulabo (5.2 Km), Baucau District
Estrada ne’ebé R4D reabilita ona iha Boile-Ulabo (Km 5.2), Distritu Baucau

R4D rehabilitated road, Oelulan-Leolbatan (8.0 Km), Oecusse District
Estrada ne’ebé R4D reabilita ona iha Oelulan-Leolbatan (Km 8.0), Distritu Oecusse

R4D rehabilitated road, Oelulan-Leolbatan (8.0 Km), Oecusse District
Estrada ne’ebé R4D reabilita ona iha Oelulan-Leolbatan (Km 8.0), Distritu Oecusse

R4D rehabilitated road, Boile-Ulabo (5.2 Km), Baucau District
Estrada ne’ebé R4D reabilita ona iha Boile-Ulabo (Km 5.2), Distritu Baucau

R4D rehabilitated road, Boile-Ulabo (5.2 Km), Baucau District
Estrada ne’ebé R4D reabilita ona iha Boile-Ulabo (Km 5.2), Distritu Baucau
Benefits of R4D’s Rural Road Rehabilitation Works

Examples of some of R4D’s Rehabilitation Works

R4D rehabilitated road, Boile-Uatabo (5.2 Km), Baucau District:
Concrete pavement on a steep section
Distritu Baucau, R4D reabilita ona estrada Boile-Uatabo (Km 5.2):
Trotoar ho bilaun iha seksaun rai naruk

R4D rehabilitated road, Maliana-Saburai (11 km), Bobonaro District:
In densely populated areas a proper sealing minimizes dust pollution
Distritu Bobonaro, R4D reabilita ona estrada Maliana-Saburai (Km 11):
Iha area ne’ebé populasaun sira hela barak liu, vedasaun adekuada sei minimiza polusaun rai rahun

R4D rehabilitated road, Lianai-Grotu (8.4 km), Same District:
Concrete pavement on a steep section
Distritu Same, R4D reabilita ona estrada Lianai-Grotu (Km 8.4):
Ezemplu seluk iha hui trotoar bilaun iha seksaun iha ho gradienti estrada rai naruk

R4D rehabilitated road, Luro-Baricafa (7 km), Lautem District:
Example of a level crossing across a wide river and gabion protection works
Distritu Lautem, R4D reabilita ona estrada Luro-Baricafa (Km 7):
Ezemplu nivel paisajen ida korta mota no serbisu protesaun gabiaun

R4D rehabilitated road, Lookeu (3 km), Covalima District
Distritu Covalima, R4D reabilita ona estrada Lookeu (Km 3)
Benefits of R4D’s Rural Road Rehabilitation Works

Impact of R4D-improved Rural Roads on the Livelihoods of Local Communities

- More products, including agricultural products and building materials, are transported.
- Ambulance services can now reach remote communities 24-hours per day.
- Public transport facilities have increased.
- Improved business opportunities for local communities.
- Increased agricultural production.
- SISCA staff can provide regular maternal care services to women and children.
- Improved social activities for local communities.
- Increased agricultural production.
Benefits of R4D’s Rural Road Rehabilitation Works

Success Stories

A better house for a better future
Mario Lopez and his family live at the end of the Maliana-Saburai R4D rehabilitated road, on the border with Indonesia, in Bobonaro District. For many years he and his family used to carry products to their households from the District Capital Maliana. They used to live in a house made of bamboo which did not provide adequate shelter and was prone to adverse effects of heavy winds and rains. With the rehabilitation of the road, transport of buildings materials became possible, and trucks transporting cement started to regularly travel on the road up to Suco Saburai. Mario has recently completed the construction of a new house for himself and his family. Other members of the local community are doing the same and many new houses have been constructed along the road.

Uma diak ida ba futur i da ne’ebé diak
Mario Lopez ho ninia familia heia iha parte rohan hui estrada ne’ebé R4D reabilita iha Maliana-Saburai, iha foneira ho Indonesia, iha Distritu Bobonaro. Ba tinan barak, nia ho ninia familia normante lo’i produzu hui ba ba ia nia uma-tan hui Kapita Distritu Maliana. Sia heia iha uma iia ne’ebé halo hui au ne’ebé ia forresse mahon ne’ebé nacion no iha ruku ba effeitu ano no ruku boot. Ho reabilitasaun estrada, transportasaun material hui halo uma nian sai positive, no kamineti hui transporta simentu hauhu hauhu viapu regularmente iha estrada lo’i ba Suku Saburai. Foin daiana nere, Mario foin kompleta konstrusaun uma foun ida ba nia ho ho ninia familia. Membru seluk hui kominidade lo’i hauhu hui alvisidhane hauhu iha konstru uma uma foun barak iha estrada ibun.

Better access to markets and increased income opportunities
R4D started the rehabilitation of the 5.2 Km long Boile-Uatabo road in April 2013. Before the road was rehabilitated, it was not passable for motorized vehicles.

Batista Anin is one of the fishermen living along the section of the road close to the beach. In the past he used to carry fish on his shoulders and sell it at the market in Baucau town. After the road was improved and people of the community gained year-round motorable access, traders started buying fish directly from fishermen at the beach every day. Batista experienced an increase in sales from fishing that allowed him to build a kiosk along the road. He also started growing vegetables in a small agricultural field in front of his kiosk and he started to sell these vegetables at the market.

Aseusu diak liu ba merkadu no amentu oportunidade rendimentu

Promoting Rural Entrepreneurship through Improved Rural Road Access
Cecilia Baptista lives with her husband and 14 other household members in a house along the R4D rehabilitated road Laulara-Ornai. One year ago the road was not accessible for motorized transport, particularly in the rainy season. Six months ago, when R4D’s rehabilitation works were underway, Cecilia and her family saw the opportunity to start a bakery business next to the road. With the improved road it became possible to rent a truck and transport flour from Dili to affordable prices. Initially Cecilia baked bread only for neighbors and relatives. As more demand for her bread became apparent, the business was expanded and at present 6 family members are involved in the bakery business and daily turn-over has increased to 150-200 US$ per day. Customers now also include small shops located in nearby villages and the main market in Dili.

The village where they live also has tourism potential due to a waterfall located a few kilometers further along the road. This has given Cecilia and her family the idea to set up a coffee shop next to their home that will serve coffee and bread to tourists and offer employment opportunities to other members of the community.

Promove Ispíritu Emprezarial rural liu hui Aseusu ne’ebé Diak ba Estrada Rural
Cecilia Baptista heia i ho ninia kabên-mane no membru uma kian iha 14 seku iha uma iha iha area estrada Laulara-Ornai ne’ebé R4D reabilita heia. Tinan ida liu ba, estrada ne’re ema ho transporto motorizada labele liu, liu liu durante tempu udan. Fulan neen liu ba, waihina seresiu reabilitasaun R4D naí hála’o heia. Cecilia ho ninia familia haree oportunidade atu hahuu negoisú tunu dosi iha hála’o heia. Opar ba iha membru familia naí hála’o heia, aseusu iha ninia ema komunidade oportunidade atu hahuu negoisú tunu dosi iha hála’o heia. Cecilia ho ninia familia naí hála’o heia, Cecilia ho ninia familia trehe oportunidade atu hahuu negoisú tunu dosi iha hála’o heia, Cecilia ho ninia familia trehe oportunidade atu hahuu negoisú tunu dosi iha hála’o heia, Cecilia ho ninia familia trehe oportunidade atu hahuu negoisú tunu dosi iha hála’o heia, Cecilia ho ninia familia trehe oportunidade atu hahuu negoisú tunu dosi iha hála’o heia, Cecilia ho ninia familia trehe oportunidade atu hahuu negoisú tunu dosi iha hála’o heia, Cecilia ho ninia familia trehe oportunidade atu hahuu negoisú tunu dosi iha hála’o heia, Cecilia ho ninia familia trehe oportunidade atu hahuu negoisú tunu dosi iha hála’o heia, Cecilia ho ninia familia trehe oportunidade atu hahuu negoisú tunu dosi iha hála’o heia, Cecilia ho ninia familia trehe oportunidade atu hahuu negoisú tunu dosi iha hála’o heia, Cecilia ho ninia familia trehe oportunidade atu hahuu negoisú tunu dosi iha hála’o heia, Cecilia ho ninia familia trehe oportunidade atu hahuu negoisú tunu dosi iha hála’o heia, Cecilia ho ninia familia trehe oportunidade atu hahuu negoisú tunu dosi iha hála’o heia, Cecilia ho ninia familia trehe oportunidade atu hahuu negoisú tunu dosi iha hála’o heia, Cecilia ho ninia familia trehe oportunidade atu hahuu negoisú tunu dosi iha hála’o heia, Cecilia ho ninia familia trehe oportunidade atu hahuu negoisú tunu dosi iha hála’o heia, Cecilia ho ninia familia trehe oportunidade atu hahuu negoisú tunu dosi iha hála’o heia, Cecilia ho ninia familia trehe oportunidade atu hahuu negoisú tunu dosi iha hála’o heia, Cecilia ho ninia familia trehe oportunidade atu hahuu negoisú tunu dosi iha hála’o heia, Cecilia ho ninia familia trehe oportunidade atu hahuu negoisú tunu dosi iha hála’o heia, Cecilia ho ninia familia trehe oportunidade atu hahuu negoisú tunu dosi iha hála’o heia, Cecilia ho ninia familia trehe oportunidade atu hahuu negoisú tunu dosi iha hála’o heia, Cecilia ho ninia familia trehe oportunidade atu hahuu negoisú tunu dosi iha hála’o heia, Cecilia ho ninia familia trehe oportunidade atu hahuu negoisú tunu dosi iha hála’o heia, Cecilia ho ninia familia trehe oportunidade atu hahuu negoisú tunu dosi iha hála’o heia, Cecilia ho ninia familia trehe oportunidade atu hahuu negoisú tunu dosi iha hála’o heia, Cecilia ho ninia familia trehe oportunidade atu hahuu negoisú tunu dosi iha hála’o heia, Cecilia ho ninia familia trehe oportunidade atu hahuu negoisú tunu dosi iha hála’o heia, Cecilia ho ninia familia trehe oportunidade atu hahuu negoisú tunu dosi iha hála’o heia, Cecilia ho ninia familia trehe oportunidade atu hahuu negoisú tunu dosi iha hála’o heia, Cecilia ho ninia familia trehe oportunidade atu hahuu negoisú tunu dosi iha hála’o heia, Cecilia ho ninia familia trehe oportunidade atu hahuu negoisú tunu dosi iha hála’o heia, Cecilia ho ninia familia trehe oportunidade atu hahuu negoisú tunu dosi iha hála’o heia, Cecilia ho ninia familia trehe oportunidade atu hahuu negoisú tunu dosi iha hála’o heia, Cecilia ho ninia familia trehe oportunidade atu hahuu negoisú tunu dosi iha hála’o heia, Cecilia ho ninia familia trehe oportunidade atu hahuu negoisú tunu dosi iha hála’o heia, Cecilia ho ninia familia trehe oportunidade atu hahuu negoisú tunu dosi iha hála’o heia, Cecilia ho ninia familia trehe oportunidade atu hahuu negoisú tunu dosi iha hála’o heia, Cecilia ho ninia familia trehe oportunidade atu hahuu negoisú tunu dosi iha hála’o heia, Cecilia ho ninia familia trehe oportunidade atu hahuu negoisú tunu dosi iha hála’o heia, Cecilia ho ninia familia trehe opport