UNPAVED ROADS IN CHILE: INTERNATIONAL ROUGHNESS INDEX AS A PRIMARY FACTOR IN MAINTENANCE CONTRACTS

José-Pedro Mery
Assistant Professor
Faculty of Engineering
Pontificia Universidad Católica de Chile

Mauricio Pradena M.
Assistant Professor
Faculty of Engineering
Universidad de Concepción, Chile
Unpaved road network in Chile: a maintenance challenge

• Road network in Chile

• Budget decision

• Common task of the Latin America countries

• Modalities to the unpaved network maintenance
Proposal interest

- Maintenance policies should be focused on results (quality or level of service)

- The innovation in the maintenance strategies are allowed

- This situation may reduce maintenance costs

- Adequate standards coverage should increase in the roads network.
Proposal basis

- The contractor has the possibility to choose, to plan, to program and to apply intervention activities.

- The road agency should then define and control the maintenance results.

- IRI is a well validated index used to express the road surface quality.
Payment proposal basis for unpaved road maintenance contracts based on IRI surface road control

\[ P_m = f_r \times f_a \times f_t \times f_{tp} \times f_o \times L \]

<table>
<thead>
<tr>
<th>Factor</th>
<th>Adjustment due to:</th>
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<tbody>
<tr>
<td>( f_r )</td>
<td>Roughness (US$/km)</td>
</tr>
<tr>
<td>( f_a )</td>
<td>Carriageway width</td>
</tr>
<tr>
<td>( f_t )</td>
<td>Finished appearance</td>
</tr>
<tr>
<td>( f_{tp} )</td>
<td>Heavy traffic and rainfall</td>
</tr>
<tr>
<td>( f_o )</td>
<td>Contractor financial offer</td>
</tr>
</tbody>
</table>
Payment proposal basis for unpaved road maintenance contracts based on IRI surface road control

Roughness factor payment for AADT = 200
PROPOSAL DEVELOPMENT

Payment proposal basis for unpaved road maintenance contracts based on IRI surface road control

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PROPOSAL DEVELOPMENT

The case of the heavy traffic-rainfall factor

Rainfall → Loads
PROPOSAL DEVELOPMENT

The case of the heavy traffic-rainfall factor
PROPOSAL DEVELOPMENT

The case of the heavy traffic-rainfall factor

Methodology to the construction of curves $\Delta IRI - \Delta RF$
CONCLUSION

Although the present study is based on the Chilean unpaved road network, it could be extended and adapted to any network.

- Contracts length should not be short. On the contrary, it is recommended that they should last at least between 4 to 6 years.

- Some works, like the bridges infrastructure, could be contracted through the traditional modalities.

- A management infrastructure analysis is required.
God Bless Chile

God Bless Concepción

Thank you very much