

A Methodological Basis for the Definition of Common Criteria regarding the Identification of Bottlenecks, Missing Links and Quality of Service in Infrastructure Networks

SECOND DRAFT REPORT

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Background

- Revision of the paper previously discussed at the 20th meeting of the Inland Transport Committee Working Party on Transport Trends and Economics in September 2007
- Purpose of this work was to extend the analysis sponsored by the Committee in the mid-1990s on bottlenecks and missing links and reported in TRANS/WP.5/R.44 (1993) and TRANS/WP.5/R.60 (1994)
- Incorporates some further thinking and information on a number of other studies of bottlenecks and missing links
- Aimed at developing a broad methodology to help co-ordinate network development, based on devolving bottleneck and missing link identification down to country level

Main additions

- Incorporation of material from:
 - the UIC 2007 *ERIM* report
 - the *Northern Transport Axis* study
 - the IBRD/World Bank study of *Best Practices in Corridor Management*

Key conclusions

- Bottlenecks and missing links as concepts continue to be influential and relevant
- Analysis continues to be conducted primarily in terms of individual modes
- There are no theoretical principles that unambiguously identify the presence of bottlenecks or missing links
- Bottlenecks may be identified through:
 - Assessment against design standards
 - Capacity analysis, comparing traffic volume with capacity
 - Outcome-based analysis against policy-based expected performance indicators

Key conclusions (cont.)

- Identifications of bottlenecks and missing links are essentially pragmatic judgements made against expectations of quality of service
- They respond to a particular social and political context in terms of planning systems, data availability, funding, etc.
- But there is real value in seeking, for each mode, as consistent and shared a methodology as possible to help provide 'rational' guidance
- Identification of bottlenecks and missing links is not a substitute for rigorous planning but is a helpful component of overall analysis
- Some danger of simplistic thinking, especially in the policy arena

Recommendations

- UNECE and others should, for the time being, continue to use a devolved approach to identification.
- Adopting shared assumptions for traffic forecasting should be firmly encouraged.
- Identification should be based as far as possible on shared and technically explicit guidelines as to what constitutes a bottleneck or how a missing link might be identified.
- A degree of pragmatism is appropriate. Inability to conform precisely with the guidelines is less of a concern than failure to return data at all.

- The focus should be primarily on bottleneck identification
 - methodology for recognising missing links is less developed,
 - few links are totally missing in the more developed parts of the networks,
 - missing link identification is better done from an overall network perspective, rather than link-by-link or country-by-country.
- The general approach should be based on either capacity analysis or outcome-based analysis – the latter may be relatively difficult to implement if agreement on expected performance indicators is difficult at an international level

- Separate approaches needed for individual modes: road, rail and inland waterway. Countries should be encouraged to understand modal interchanges as the equivalent to links in networks and identify them as bottlenecks or missing as appropriate.
- Rail and inland waterway appear closer to having agreed international assessments than road at this time

- Guidelines should encourage a moderately 'inclusive' approach to identification; better to identify rather too many than too few.
- Guidelines must not be over-engineered relative to forecasting capacity or data availability. Data demands must be realistic for less well established transport administrations. Many important infrastructure developments are likely to involve such regions.
- Objective should be to construct a 'long list' of candidate investments and/or administrative actions. Very heavy analytical effort simply to identify members of the candidate list is hard to justify.