

Crucial maintenance of transport infrastructure

To avoid future catastrophes, there is an increasing and urgent requirement to look after Europe's roads, bridges and other infrastructure as it ages

The collapse of the Genoa bridge in Italy on August 14 dramatically showed the maintenance backlog Italian authorities are facing – with this bridge having been put into service in 1967, this structure would have suffered from degradation and typical problems such as corrosion of steel and concrete, lack of maintenance, and insufficient diagnosis.

To avoid new catastrophes, a reflection on life expectancy and infrastructure is needed. The European Commission (EC) has released a welcome discussion paper called State of Infrastructure Maintenance.

It sets out that transport infrastructure represents 1.1% of GDP (gross domestic product) in the 19 Member States that are covered by research and consulting group Euroconstruct.

Taking the example of road infrastructure, if maintenance is neglected over a period of three years, it is estimated that the necessary repairs or renewals of these roads may cost three to six times more. An EC study on infrastructure expenditure and costs, found maintenance and operational costs for road infrastructure were important

parts of the overall costs of transport infrastructure.

Nevertheless, current maintenance and operational expenditure differ significantly between Member States – 12% to 65%. FIEC estimates road maintenance costs approximately €25/m² annually, corresponding to 1% of the initial investment.

DATA COMPARISONS

Regarding the financial allocations dedicated to maintenance, data comparisons between EU countries are very difficult.

Data quality differs between Member States, as they are not based on homogenous definitions of maintenance expenditures. Moreover, several bodies may be responsible for the good condition of infrastructure within each Member State.

The dataset from the OECD (Organisation for Economic Co-operation & Development) confirms the existence of an increasing need for transport maintenance infrastructure in Europe as this infrastructure ages.

Road maintenance expenditure fell 38% between 2006 and 2012 from €31 billion to €19 billion per year. There are large variations between Member States – Poland increased road maintenance by 60%, France reduced it by 35%, and Italy decreased it by 45% from 2008 to 2009.

FIEC is warning about the threats of ageing infrastructure, as much critical infrastructure in Member States, especially bridges built post-war, now faces the problems of ageing concrete structures.

These problems are aggravated further by public budget cuts that lead to reduced maintenance activities, but also to a loss of personnel to the private sector.

Usually, checks are made by a specialised mobile monitoring vehicle used to measure critical parameters for road quality while moving in traffic. The frequency of

such checks can vary per country – four to five years in Germany, twice a year in Poland and UK, once a year in Ireland.

Usability levels are based on operational characteristics of the road surface depending on road type, and norms exist to correlate the state of infrastructure to a dimensionless indicator.

In this context, the 2011 White Paper for Transport calls for a move to more sustainable financing, applying the principles of user pays and polluter pays, with a long-term goal of user charges for all vehicles on all networks to reflect at least the maintenance cost of infrastructure, congestion and external costs.

Different ways of funding and delivering road maintenance exist through the EU. Some countries fund this directly via government spending, while others do it through various sources.

The first method is considered more vulnerable to spending cuts. Funding by alternative sources is, however, seen as more resilient to governmental budget changes. Nevertheless, the economic environment has an impact, such as the reduction of traffic flows which hit revenues from tolls in Austria after the 2008 crisis.

INSUFFICIENT BUDGETS

Local and regional roads were hit harder by spending cuts during this crisis. They suffer from insufficient budgets, as in Italy or the UK, and poorer maintenance levels than at a national level.

Analysing the maintenance backlog, it has declined in Member States most affected by the crisis, but some increased maintenance expenditure over that period. These differences depend on parameters such as the source of maintenance funding and political choices made by policy makers.

The Discussion Paper concluded that variations in maintenance

spending were mostly driven by funding availability rather than actual maintenance needs.

In connection with the Genoa bridge, the maintenance needs will increase in years to come, as the steel corrosion within reinforced and pre-stressed concrete structures appears to reduce the lifecycle of critical infrastructure earlier than initially expected. Most bridges in the EU were built in the 1950s and 1960s.

The EC recommends different levels of action.

The priority is to guarantee the funding of infrastructure maintenance by earmarking specific tax revenues, mobilising grants, implementing road pricing schemes or exploring public-private partnerships (PPP), and to adapt project contracting to include maintenance activities.

In addition, it would be interesting to have a lifecycle approach for the construction as well as the use phases of the infrastructure, to optimise the use of resources over the entire lifecycle of the property.

The Netherlands transferred the responsibility for maintenance to construction companies in new contracts for road construction, providing them incentives for more sustainable choices in the design and build of the roads.

As a conclusion, the EC gave several leads on the possible role of the EU on this – the use of a standardisation of maintenance assessment methodologies for keeping up the standard infrastructure quality for the TEN-T Corridors (Trans-European Network-Transport); the sharing of goods practices between Member States for performance-based contracts for infrastructure maintenance; and the potential for EU support for the development of digitalisation and artificial intelligence in the management and maintenance of transport infrastructure. **ce**



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