# Foreword

At present we have great challenges as inhabitants of the Earth. We are living in a society with cheap fossil energy and an expanding urban population. This exerts high demands on the infrastructure in the form of railways, roads and buildings of different kinds. However, we do not know if cheap energy will be available in the same way in the future. At the same time climate seems to be changing and becoming more unstable and unreliable. This is probably to some extent due to the expanding human use of energy and release of greenhouse gases.
To help our society to be more sustainable, it is important to retain and use what we already have where possible, rather than investing in new structures. Instead of tearing down old, often beautiful, railway bridges and replacing them with new ones, we need to preserve and upgrade them by using better assessment, monitoring and strengthening methods. This is the goal of the European Integrated Research Project "Sustainable Bridges – Assessment for Future Traffic Demands and Longer Lives" (TIP3-CT-2003-001653). The project has been running since December 2003, and is now coming to an end with a final conference in Wrocław, Poland, on October 10–11, 2007. The project has had the following three specific goals:

- **increase the transport capacity** of existing bridges by allowing higher axle loads (up to 33 tons) for freight traffic at moderate speeds or by allowing higher speeds (up to 350 km/hour) for passenger traffic with low axle loads,
- **extend the residual service lives** of existing bridges by up to 25%,
- **enhance management, strengthening, and repair systems**.

A consortium consisting of 32 partners drawn from railway undertakings, consultants, contractors, research institutes and universities has carried out the project, which has a gross budget of more than 10 million Euros.

This CD contains the final drafts of the main output from the project namely the following four guidelines and supporting reports:

**SB-ICA (2007): Guideline for inspection and condition assessment of railway bridges.**

**SB-LRA (2007): Guideline for load and resistance assessment of railway bridges.**

**SB-MON (2007): Guideline for monitoring of railway bridges.**

**SB-STR (2007): Guideline for use of repair and strengthening methods for railway bridges.**

It is possible that these documents will be subject to amendment as a result of feed back received during the conference. Therefore the project web site (http://www.sustainablebridges.net) should be checked to ensure that the most up date version is being used. The partners in the project have used their best endeavours to ensure that the information presented here, and also in the final reports when available on the web site, is of the highest quality. However, no liability can be accepted by the project partners for any loss caused by its use. The information presented on this CD does not necessarily reflect the views of all the partners in the Sustainable Bridges project or the European Commission.

We now heartily welcome everyone to Wrocław and the final conference. We hope this CD will provide a good overview of the main results. We have come a long way towards our goals. However, there is much work to be done to test and implement the methods presented. We therefore hope that this CD will inspire the readers to utilise our guidelines and report their opinion to the various authors. There will certainly be a need for development and further work in order to increase the capacity and service life of existing bridges.

| *Jan Olofsson* | *Lennart Elfgren* | *Jan Bień* |
|---|---|---|
| Coordinator | Scientific Leader | Dissemination Leader |