

Rail-Agenda 21—For Sustainable Development of Deutsche Bahn AG

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From Rio until Today

The UN Conference on Environment and Development held in Rio de Janeiro in June 1992 was the first attempt to create a common future for 'Space-ship Earth' and her inhabitants. At the close of the 20th century, global ecological and social challenges like the changing world climate, reduction in species diversity, and the fight against poverty should be tackled in a supranational manner to guarantee a worthwhile future for coming generations.

178 countries, including the Federal Republic of Germany, reached an understanding on guidelines for sustainable development. The basic objectives are set forth in *Agenda 21* and can be summarized as:

- Preserving the natural basis of life
- Enabling economic prosperity
- Ensuring social justice

However, to translate these objectives into reality, it is necessary to give them life on all levels—social, political, and administrative, as well as business level.

Why a Corporate Agenda 21 for Deutsche Bahn AG?

Deutsche Bahn AG (DB AG) is the largest transport service provider in Germany and recognizes its special responsibility in this context.

In the transport sector, by the year 2005, road transport is expected to show increases of just under 25% in passenger traffic and more than 90% in freight traffic in comparison with 1988. As a result, despite the drop in average fuel consumption of cars and trucks, CO₂ emissions will still increase by more than 40%. The German transport sector already exceeds the 'industry' and 'households' sectors in its emissions of CO₂ greenhouse gas, presenting a large hurdle for the pro-active climate-protection policy of the German Federal government. The German target of a 25% reduction in CO₂ emissions by 2005 compared to 1990 no longer seems feasible without a determined change of direction, especially in the transport sector.

Here, the energy-efficient railways can and must make a substantial contribution.

The process of decoupling economic performance and environmental impact (Fig. 1), which started years ago in the manufacturing and energy sectors, must get under way in the transport sector as well. With DB AG successfully expanding its present position as an environmentally sound transport provider and drawing more traffic to the railway, the environmental impact of the transport system as a whole can be reduced significantly. Thus, DB AG is contributing to the process of shaping a lasting and environmentally compatible transport system defined by *Agenda 21* as well as to its own business development. Therefore, establishing 'Rail-Agenda 21' in accordance with the original spirit of *Agenda 21*, serves as a schedule for DB AG's main tasks and targets in the 21st century and constitutes a strategic guide to protect its future business.

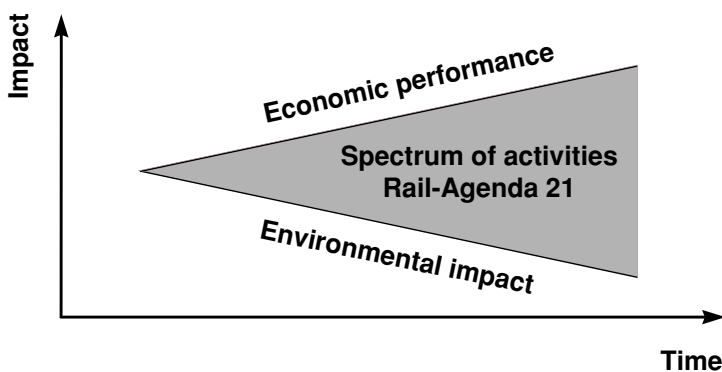
Development and Strategic Targets of Rail-Agenda 21

In developing Rail-Agenda 21, it was essential to answer the following questions:

- What are the strategic areas where DB AG must 'throw the switch' today to meet the ecological, economical and social challenges of the next 10 to 30 years, and at the same time secure its own business success?
- What projects, programmes, and measures are required to fill out these strategic areas?
- How can a discussion process be organized, involving all employees within DB AG and making the best use of their creativity and improvement potential?

To define the strategic areas of Rail-Agenda 21, the Environmental Advisory Board—an advisory body to DB AG composed of well-known German and Swiss scientists—was asked to prepare a draft structure. This draft was submitted to the DB AG executive board in June 1997. It comprises the following crucial points:

Figure 1 Decoupling of Economic Performance and Environmental Impact



- Creating the preconditions for a major shift of road traffic and air traffic to the railways
- Reducing emissions as a contribution to reducing regional pollution and for protecting climate
- Reducing rail traffic noise
- Protecting nature and the countryside
- Strengthening the role of DB AG in the context of urban and regional development
- Increasing the cost efficiency of investment and operation
- Establishing an environmental management and auditing system

In October 1997, after completing discussions, the Railway Environment Centre was given the responsibility of elaborating an implementation concept for the seven strategic areas stipulated by the Environmental Advisory Board. This concept was submitted in June 1998.

Implementation of Rail-Agenda 21

Figure 2 shows the essential elements of Rail-Agenda 21 and its implementation. It is based on the three equally important guidelines formulated in 1992 in Rio de Janeiro:

- Economic compatibility
- Ecological compatibility
- Social compatibility

These three pillars constitute the basis of Rail-Agenda 21—the platform on which all future business activities will be conducted. Here a large number of various programmes, projects, and measures for advancing DB AG's corporate development will be planned, developed and implemented, gradually building the pillars of a so-called 'Agenda House'.

This House symbolizes the successful establishment of long-term balanced and continuous business activity. The seven strategic areas (seven pillars) embodied in the implementation concept, form the cornerstones of the Agenda

House and have always had the highest priority in DB AG's business activities. The seven strategic areas are as follows:

Shifting traffic from roads and airlines to railways

To shift more traffic from road and air to railways, increased efforts have been made recently to raise the technical and operational performance of DB AG and to expand transport services, as well as to increase attractiveness. This includes the following measures:

- Segregating traffic (a sub-network exclusively for high-speed traffic, a sub-network for mixed traffic at medium speed, and a secondary network for regional traffic) as well as harmonizing speeds on the sub-networks in project 'Netz 21', further development of control and safety technology, opening up the capacity reserves of the existing network and significantly increasing efficiency.
- Introducing 'rendezvous technique' in

passenger traffic as well as freight traffic.

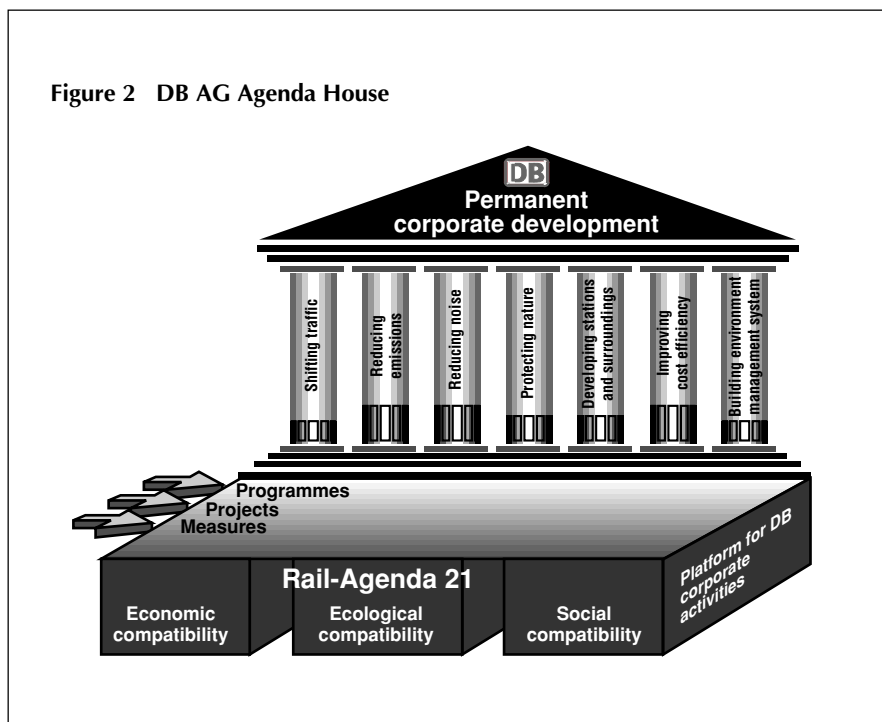
This means using small and flexible train units that can be formed into trains of different sizes at short notice, thereby adjusting supply to individual temporal and spatial demand, and significantly increasing the occupancy rate.

- Establishing intelligent linking of carriers and door-to-door transport for passengers and luggage.

This step will greatly increase the attractiveness of railways. Sale of through-tickets covering different transport modes could complement this proposal and help develop new customer potentials.

Reducing emissions

Reducing emissions from rolling stock and infrastructure facilities provides a major opportunity to contribute to reducing regional atmospheric loads and protecting the climate. This is a crucial point in realizing 'Energy Saving Program 2005'





This 'low-noise freight train' cuts noise emissions by 23 dB (A) using wheel encasement and disc brakes on acoustically optimized tracks with ultra-low-acoustic barriers. (DB AG)



Slab track with ultra-low-acoustic barrier on high-speed test line between Karlsruhe and Mannheim (DB AG)

along with improving exhaust standards for new rolling stock and lowering emissions of existing diesel locomotives. This programme aims to achieve a 25% cut in CO₂ emissions from traction units by 2005 compared to 1990 levels, by increasing occupancy rate, optimizing operation modes, and using new rolling stock. Moreover, more intensive use of renewable sources for electric power generation instead of fossil fuels is being investigated.

Reducing noise

Freight traffic plays a special role in reducing railway noise because the major part of freight traffic is handled during the noise-sensitive night hours. Accordingly, in 1995 a joint project by the Austrian Federal Railways (ÖBB), Swiss Federal Railways (SBB), Italian Railways (FS) and DB AG ran tests with a low-noise train to determine noise-reduction potentials for freight traffic. The tests showed that a 75% reduction is technically feasible, but this solution cannot be implemented presently

by EU railways for economic reasons. Moreover, lone adoption by DB AG would not have any appreciable impact due to the Europe-wide exchange of freight cars. Therefore the 'Noise Abatement Freight Wagon' UIC Working Group is developing a programme that obliges all EU railways to retrofit their rolling stock with noise-reducing parts (e.g., composite brake shoes). This would cut noise from freight trains by about half in the first stage. DB AG is already preparing for this conversion.

There are also opportunities to reduce noise by procuring acoustically optimized vehicles, and by grinding more rails.

Protecting nature and countryside

DB AG is pursuing protection of nature and landscapes by a variety of activities, all of which serve the objectives of ecologically and socially compatible use of space and introduction of closed material cycles. These include, for example:

- Soil protection
- Weed control and control management system
- Rolling stock recycling (90% recycling target)
- Separate waste collection
- Reduced drinking-water consumption
- Ecological oriented procurement

Developing stations and surroundings

Presently, increased efforts are being made to transform railway stations into service and shopping centres. In prominent locations like Stuttgart or Frankfurt, there are plans to completely reshape railway stations and adjacent areas based on the so-called 'Bahnhof 21 Project' (see *JRTR* 10, pp. 22–29). Former railway land in cities will be transformed into new office and housing sections as centres of vibrant urban life.



Conventional weed control method using herbicide (left) and preventive measures using new materials in wayside areas (right) (DB AG)

Improving cost efficiency

In the spirit of *Agenda 21*, the activities of DB AG must be constantly focused on harmony between ecology, social concerns, and economy. Therefore, transparency in investments and costs are essential elements of Rail-Agenda 21. Areas for substantial improvement can be found by introducing standard reference codes throughout the company, by using an ecological control system, and by introducing cause-related consumption cost accounting (waste, water, energy). In purchasing products and services, comprehensive cost optimization can be achieved by taking life-cycle costs into account. For example, although slab track is more expensive initially than conventional ballasted track, it is a better investment in the long term, because of lower maintenance costs.

Building environmental management and audit systems

In addition to adopting environmental management for the current corporate restructuring process (Railway Reform Stage 2), the present main emphasis is establishing an environment information and audit system. In this way, DB AG management can provide its executives with information to survey ecological and economic developments and take countermeasures if necessary. Moreover, self-defined targets can be scrutinized using environment checks in the form of spot-check ecology audits.

Rail-Agenda 21 as Process

With Rail-Agenda 21, DB AG is asserting its claim to become the leading provider of future transport services in Germany. Meeting this challenge means that all present and future decisions must be examined with regard to their economic, ecological and social effects and directed towards long-term balanced and sustainable development of the company.

At the same time, all DB AG employees must be made aware of the lasting effects of their decisions. Therefore, Rail-Agenda 21 is also a learning and discussion process that must include all employees.

DB AG structures this process into three levels (Fig. 3):

- The executives of DB AG are presently

examining the impact of Rail-Agenda 21 on the internal and external corporate image. If necessary, the image will be modified and further developed.

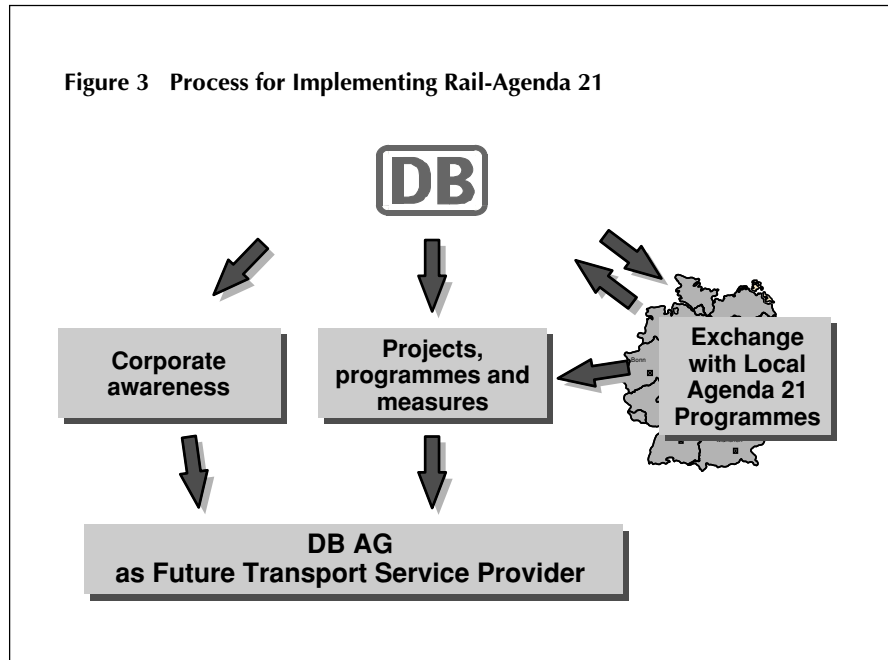
- To ensure that the process reaches the entire company, DB AG is initiating a railway-wide information and consultation process. As a starting point, a Railway Day has been planned as an information event for top management. It will be supported by additional events in individual business units and regions. This intensive dialogue will carry the objectives and meaning of Rail-Agenda 21 to all levels of the company, and existing *Agenda 21* approaches and steps will be integrated into the programme. In this way, employees at the grass-roots level will be motivated to integrate *Agenda 21* into their own ideas and suggestions.
- Local communities and municipalities working on their own Local Agenda 21 programmes will be contacted to inform the public of DB AG activities and to get public feedback.

The DB AG Group Committee on Environmental Protection has responsibility for structuring and guiding this multi-layered discussion and implementation process. As a complement to the internal and public discussions, talks are planned with relevant federal ministries on a joint programme for protection and development of socially and environmentally compatible transport. In addition to creating an image of DB AG as an environment-friendly carrier, it is hoped that this will gain government support through grants and subsidies.

Conclusions

Today, environmental protection can no longer be considered separately from other social problems. Increasingly scarce natural resources and rising social tensions both at national and international levels mean that the reactive, purely technical solutions

Figure 3 Process for Implementing Rail-Agenda 21



of the 1970s and 1980s must be replaced by proactive comprehensive solutions. In principle, what matters most is that present and future company decisions are evaluated with equal regard to their economic, ecological, and social impacts. If this balancing act is handled successfully, both society and the company itself will benefit. ■

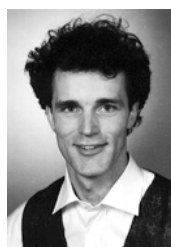


Separate waste collection at stations (DB AG)



Joachim Kettner

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Ulrich Ostermayer

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