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IRF was founded in 1948 to encourage better road and transportation systems worldwide. IRF is a non-profit, non-political service organisation which helps in the application of technology and management practices to produce the maximum economical and social return from national road investments. Some 500 governments, companies and associations around the world are members of IRF and provide financial support to the three offices in Geneva, Brussels and Washington DC. National and regional road associations around the world make up the Federation. IRF is an accredited transportation consultant to the United Nations, the Council of Europe, and the Organisation of American States, and works closely with other international institutions in the transportation field.

Green path to climate-neutral roads

IRF showcases Roads Sector Greenhouse Gas Calculator

One problem in the control of greenhouse gas (GHG) emissions is to know the size of the target one is aiming at. IRF is taking a lead in identifying the size of the target for every road sector component through development of its new Greenhouse Gas Calculator.

The new tool, developed in collaboration with the Scott Wilson Consultancy Group and the Borneo Tropical Rainforest Foundation, will help companies in the road industry to remain leaders in green innovation by reducing emissions, and to achieve a competitive edge.

The GHG calculator is a flexible tool to suit different monitoring purposes. It will provide for:

- Internal management of environmental performance.
- Public corporate environmental reporting.
- Information for CO2 taxation or compliance schemes, negotiated agreements or emissions trading.
- Benchmarking of the industry and provision of a competitive edge for those doing better than the established norm.
- Road construction environment life-cycle analysis.

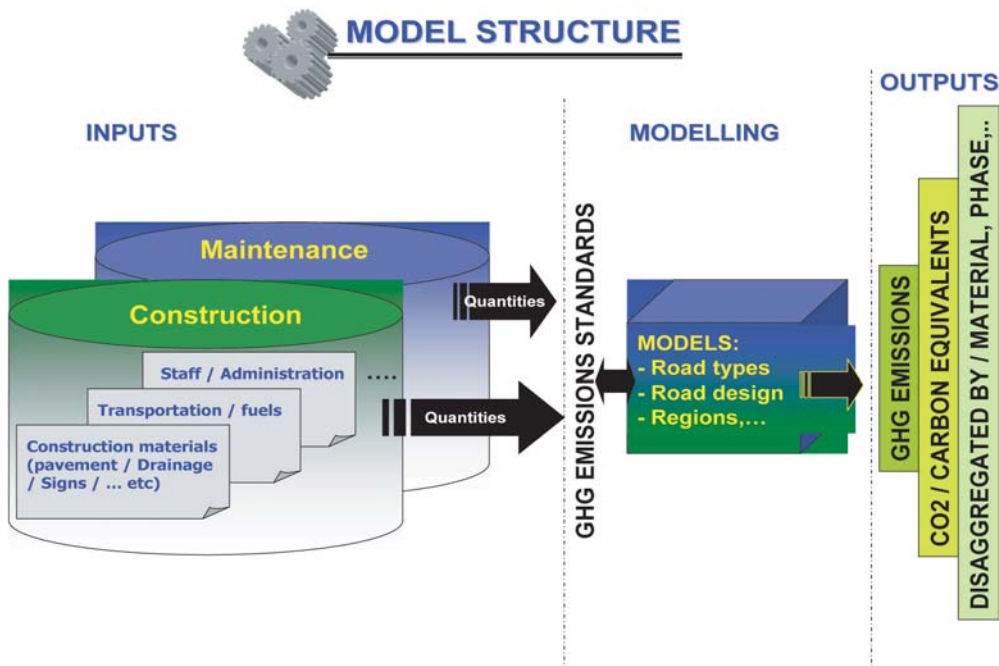
It is designed to be consistent, transparent and credible in its coverage of emissions sources, and is functional at different levels, from site level to company level to industry-wide application. The calculator allows for distinctions to be made between drivers of emissions, thus allowing for technical improvements. It is fully compatible with International Panel on Climate Change (IPCC) guidelines. The model is being developed with a view to elaborate an IRF Standard and Certification.

Methodology of Nobel Prizewinner

The GHG Calculator uses an input/output model form. This form of modelling has been a branch of economics for over 40 years and earned creator Wassily Leontief the 1973 Nobel Prize for Economics. Input/output models show the amount of resources required (the input) to produce or build a unit of output. The GHG calculator model is based on detailed road construction and maintenance data as well as on appropriate standards for GHG emissions.

The model will incorporate several categories of emissions sources into its calculations: road construction materials (including pavement, drainage systems, road signs, line painting); road construction machines; waste materials; fuel consumption; construction site energy usage, and administration and research energy outflow.

The emissions of each GHG, such as carbon dioxide (CO2), methane (CH4), and nitrous oxide (N2O), are calculated separately and then converted to CO2 equivalents based on their global warming potential, as determined in the current IPCC report. These CO2 equivalencies are then reported to carbon-offsetting project specialists who review the data for program compliancy. The calculator includes maintenance costs and forecasts changes in construction designs over time. Specific geographic content is also taken into account within the calculations of this model, as carbon costs vary for energy or materials use, depending on region. Further development, as this calculator is put into use, will allow for continual adaptation and improved functionality.



Product structure/training

The product is structured in two main parts:

- The protocol in PDF describes the overall purpose, content, Excel spreadsheets, and sources of emissions.
- The calculation model in Excel format contains the calculations for easy quantification of GHG emissions from various sources in the inventory.

The Excel workbook section within the PDF overview contains the description of what is being reported, the actual calculations and aggregation, the default emissions factors, unit conversion information, and complete instructions for use. A two-day training course will accompany each model to enable the user to understand compliance, measurement and offsetting resources.

The calculator is for use by road industry and construction companies worldwide. It facilitates

“**The calculator allows for distinctions to be made between drivers of emissions, thus allowing for technical improvements**”

the monitoring and accounting of all direct and indirect greenhouse gas emissions from road construction projects. Totals are reported in a direct, absolute form of emissions per year and in a specific, ratio-based form of tons emitted per unit consumed.

The calculator output will provide incentives for innovation and advance current construction practices along the path of reduced emissions and company savings. It will help identify energy-intensive techniques which could be replaced by more energy-friendly ones.

Carbon neutrality aim

Calculator results and associated offsetting projects can be published by the companies, giving them a competitive edge and showing their positive corporate image.

For the planned IRF standards and certification, the results will be communicated and checked by the IRF on a continued basis.

In their most recent reports, IPCC has established beyond reasonable doubt that human activity has contributed to the build-up of GHGs, to global warming and, therefore, to climate change.

In this urgent context, "business as usual" is not an option. The challenge is how to balance economic growth with responsible energy consumption and environmental protection, and to ensure that current mobility levels are sustainable for the future. The road sector must continue to play a part in this process. Contrary to popular beliefs, the sector is already extremely proactive in the search for, development, and implementation of new environmentally friendly technologies and sustainable solutions. The Road Sector Greenhouse Gas Calculator is a vital addition to the inventory of cost-efficient solutions.

The road construction industry is taking the 'green path' to become carbon neutral.

'Better Roads, Better World' is a good way to sum up the continuing efforts of IRF and its members. In the effort to control future climate change, there is no one miracle solution. Better roads must be built by practitioners who are fully aware of the environmental impact of their activities and of the possibilities for reducing that impact. The new IRF tool will enable that. The result will be a better world ■

- For more information about the GHG Calculator please contact:

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Guardian Angels in the Sky

GALILEO applications are expected to span a large range of sectors, from mass-market location-based services to professional uses in freight transport and agriculture. For many of these services, reliable, accurate and up to date knowledge of geographic position will be required by law. Today, a research initiative supported by the European GNSS Supervisory Authority (GSA) is underway to understand and demonstrate how EGNOS today and GALILEO tomorrow will help track and trace sensitive assets in a regulated environment.

How to guarantee the safe transport of radioactive material whether by sea, rail or road? How to ensure fishing rights are observed or that livestock is transported under humane conditions? How to implement farm-to-table food safety policies? Asset tracking finds practical uses in numerous services of community interest.

Over the next six months, the MENTORE project will help achieve a shared understanding of the regulatory and technological enablers supporting the widespread usage of GNSS for applications governed by law, and facilitate the identification of missing regulations at the European level.

An Application Observatory comprising a panel of 20 international experts has

met, and will meet in future at key stages of the project, to help validate its methodology and bring scientific support to the study recommendations.

In the second stage of the project, a representative subset of these applications will be selected and demonstrated in the course of five pilot trials staged in real-life environments with the support of end users.

MENTORE constitutes a "unique" chance for Europe to adapt its regulatory framework to the capabilities and features of its satellite navigation programme. If you would like to receive regular project updates, please register your interest at www.gnsstracking.eu.

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The Brinje Tunnel, controlled through the topXview™ system based on a complete integration model, was declared the safest tunnel in Europe for 2007 (see ADAC survey Tunneltest 2007)



simple and secure traffic management in the following modes:

- Regular traffic mode.
- Special traffic conditions mode (such as passage of special, flammable and explosive cargo).
- Maintenance mode, such as various traffic diversions and traffic delays due to works.
- Extraordinary/emergency modes, such as a traffic accident in a tunnel, fire, malfunction of vital equipment.

Some additional specific requirements were added to the problem, including:

- Provide a solution to the conflicts created by multiple alarms.
- How to implement procedures in a case of extreme crisis such as extraordinary/emergency situations in several tunnels at the same time.

The main prerequisite creating and implementing the model was to design a dedicated traffic information system capable of supporting:

- Optimal use of commonly-used technologies for control of safety, surveillance and management systems in the tunnel and on the highway sections.
- Use of various standard and non-standard communication technologies and protocols in order to exchange data between various systems.
- 'Real' ergonomic and functional integration of all subsystems, including CCTV.
- Automatic interactive guidance of the traffic management process.
- Procedurally-oriented help in guidance of the traffic management process.
- Ability to adapt to all end-user requirements and conform to requirements laid down by a hierarchical concept of traffic management system at the national level.

A complete integration model was achieved through using a topXview™ software package

2007 Global Road Achievement Award

Winner Telefon Gradnja d.o.o. profiles its winning project, Complete Traffic Management Subsystems Integration

Any large tunnel, by its nature, is a very complex infrastructure item: demanding and elaborate management processes are needed, together with many supervisory, control and safety systems.

Finding the right solutions is not easy. Telefon Gradnja d.o.o. was tasked with finding a design solution for traffic management and information systems for highways leading from the hinterland of Croatia to its Adriatic coast. In recent years Croatia has built approximately 400km of such highways, including slightly more than 50km of tunnels. The challenge was not only to find a solution for appropriate traffic management and information systems, but to do so in a systematic manner which will allow further applications to similar systems.

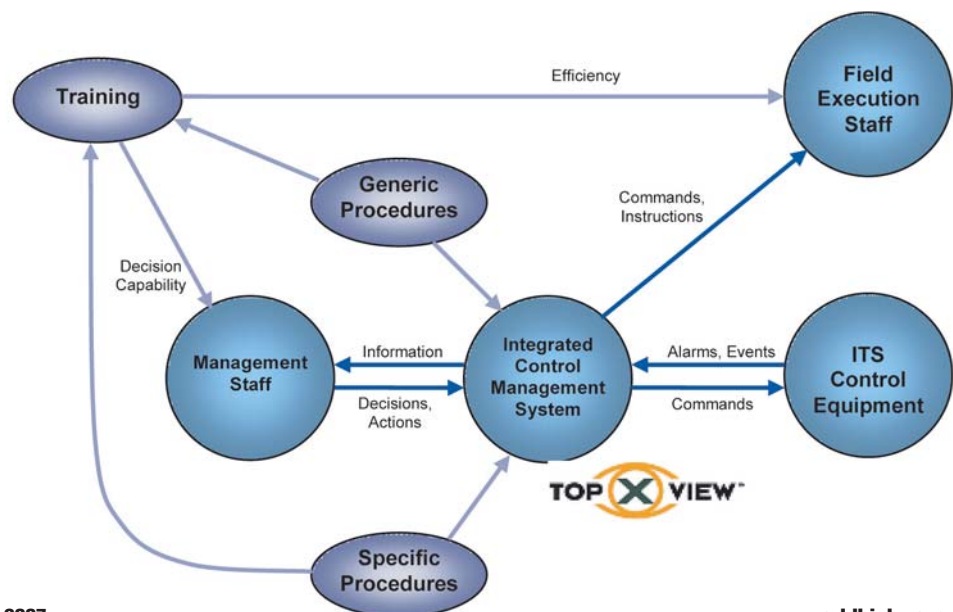
The main task is to make the passage through a tunnel as safe as possible. To achieve this, it is necessary to secure simple, safe and efficient ways of performing all applied processes in tunnel management (as shown in the chart, Relations between incident management process components).

An additional challenge was the design and construction of control

centres for highway sections which included several large tunnels.

To ensure on-time project completion to prescribed standards of quality, ergonomics, reliability and safety, it was necessary to use already-proven technological solutions for surveillance, control and management systems. This, in turn, called for a model and adequate programme support for a complete integration of all subsystems in order to allow for

Relations between incident management process components



developed by Telefon-Gradnja. Through its internal architecture and available interfaces, this package allows adaptation to various configurations of traffic information systems. There is a high level of adaptability in relation to:

- System complexity.
- Specific requirements for traffic management of a particular highway section.
- Specific requirements of the end user's internal organisation or horizontal and vertical interaction of traffic management control centres.

Implementation of topXview™ systems comes down to configuration of well-tested programme modules and graphic interfaces, adapted to a specific traffic management application. Such an approach allows for:

- Simple, quick implementation and operational readiness.
- Reduced testing time for the control centre and overall systems.
- System reliability guaranteed by ready made well-tested programme solutions.

An ability to fully anticipate the appearance and functionality of the final system solution and to determine a target date for complete system functionality. The implementation and application of the integrated traffic management and information systems which control the highways sections between the cities of Karlovac and Split, on which there are several large tunnels, was conducted in several phases. A pilot project was the implementation of the system on the Mala Kapela tunnel. Again, I realise that there could be a space problem. If it is of help, I suggest that most readers are aware of the shape of the Croatian coastline and that, therefore, the map could be cropped south of Zagreb and moved up.

This 6km long, single tube tunnel was a real challenge and a project where the complex procedures and rules of conduct were translated into topXview™ code.

The whole project ran in parallel, on two tracks. On the one hand, all written, agreed, procedures and rules of conduct had to be transformed into a form suitable for automatic processes, while on the other, support for applying the interactive part of the process had to be translated into topXview™ code. This included various programme dialogues that interact with system operators and provide them with guidance, indicating nascent problems, seeking confirmation and indicating the direction of further action, as well as providing necessary support, to use accepted

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The main task is to make the passage through a tunnel as safe as possible
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rules of conduct in resolving crisis situations.

The process of iterative system implementation began after several months of preparation and internal testing. This provided the first contact between real-time application and the end user. After adjustments, a transitional period and detailed tests, trial operations got underway early in 2006.

The extremely positive experience gained from this led to overall project implementation:

Tunnels on Croatian Highway A1

complete integration of three control centres, which together survey, control and manage traffic through six large tunnels. These are the Brinje Tunnel (1,540m long, with the operations and management centre/OMC at Brinje); Grič (1,259m, OMC Brinje); Brezik (407m, OMC Perusic); Plasina (2,300m, main OMC Perusic, with hot standby of OMC at Plasina); Dubrave (820m, OMC Dugopolje); Konjsko (1,240m, OMC Dugopolje) ■



IRF Seminar Combining PPPs with EU Funds

Bucharest, Romania
 4th-5th February 2008

This is the right moment to join the restricted club of those who are really able to master the complexity of hybrid PPPs

Participants will:

- Learn about the advantages and drawbacks of applying PPP schemes to EU grant co-funded projects.
- Get a clear understanding of EU procurement directives introducing competitive bidding procedures.
- Improve their skills in setting up and implementing hybrid PPP type of contracts.
- Find out how lenders evaluate PPPs blended with EU funds.

**Space is limited,
 There are only 50 places available!
 so registration will be on a first-come-first serve basis.**

Register Now

Book Hotel

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