



International  
Road Federation  
[www.irfnet.org](http://www.irfnet.org)

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.

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# Environmental solutions for tomorrow's roads

Leading the change, IRF organises its 2nd Conference on Roads & Environment in Geneva, Switzerland on 10-11 November 2008

An opinion poll in the UK at the end of June showed that more people think their government should first try to tackle environmental issues before trying to tackle global economic problems.

Two-thirds of people were even in favour of green taxes, either now or when economic conditions improve. The environment remains high on the agenda in most countries, including in those where public or political acknowledgement of these issues is relatively recent.

When thinking of roads and their effect on the environment, people naturally focus their attention on the users. They tend to ignore the providers, those stakeholders active in the road infrastructure sector who have the ability to make the real difference between roads that are mere strips of hot-laid tarmac and roads that are intelligent, safe and environmentally friendly, for

today and tomorrow.

At its first International Conference on Roads & Environment, the International Road Federation made an inventory of positive developments in the performance of vehicles and road infrastructure. There is an over-riding need to reduce CO<sub>2</sub> emissions: members of the IRF must deliver roads which minimise energy consumption.

The road industry has the ability today to respond to the environmental challenge with sophisticated solutions, often more avant-garde than what the public and political bodies would expect. Contracts are too often awarded on a price base, leaving aside precious ecological advancement. Convinced that such advancements are not only good options, but an absolute must, the 2nd International Conference on Roads & Environment will demonstrate how to make roads greener, cleaner and healthier, for the sake of everyone.

The conference will focus on innovative materials to save energy and resources, on inspiring solutions for water management, on integrated approach to noise and air pollution and, last but not least, on Greenhouse Gas (GHG) emissions monitoring, accounting and offsetting.

## FOUR STEPS TO CLEANER ROADS

**Materials and Technology:** The road industry has come a long way in the 100 years, since macadamised roads first began to challenge the ascendancy of rail transport. So far has it come, that it is challenging itself in its choice of materials and technology. The challenge started

with the price for energy and fuel. The road industry has invested a lot of time and money into researching alternative material, recycled cold asphalt, reflective signs that do not need lighting and bio-degradable material. Such materials are available and tested and ready to be used.

**Noise and Air Pollution:** The easiest and most readily available approach to noise and air pollution is to cut the average speed of driving, everywhere. Various studies show the positive reductions in perceived decibels, reductions in NOx, other airborne pollutants, and reduction in accidents, that result from given speed reductions. But it is not that simple. Specifics of roads vary widely; there are differences in materials, predominant traffic types, tyre designs, proximity to private or commercial property, degree of elevation, number of lanes, and the human nature which is unwilling to adapt to reduced speed. Today we can achieve a balance in which both technology and policy have their place. There are noise barriers available which take pollutants from the atmosphere. There are optimal speeds for differing traffic densities and weather conditions. There are innovative, noise-absorbing pavements.

**Water Management:** no road construction has zero impact on the environment in which it is placed. Construction materials themselves will have a response to the underlying hydrological status which is different from the soils they have replaced. Construction impedes natural water flow with sometimes heavy consequences. Sensitive environment may be at risk from polluting highways' run-offs. Road designers must assess the potential impact of each construction project. Road authorities are faced with decisions such as using de-icing agents,

choice of permeability of materials, drains and filters. Mitigation measures must address each risk in a technically and economically satisfactory manner. Water management is a major challenge in a world where the perverse effects of climate change make the weather more erratic.

**Emissions:** One of the more useful environmental slogans is: 'Reduce What You Can, Offset What You Can't.' The 'what' is GHG emissions. If the world is moving to a 'cap and trade' regime for carbon emissions, how can emissions be measured? They can be estimated at the macro-level, or they can be established with much greater accuracy at the micro-level. So individual plant operators and road contractors can allow the effects of their activity to be 'guesstimated' by a third party, and wait passively for the consequences. Or do the calculation themselves, announce results that are strictly verifiable, provide a model to reduce emissions, and propose effective off-setting measures? The IRF GHG calculator is tailor-made to do that. It is a flexible tool for the assessment of road projects, of its environmental performance, enabling to report and provide information for CO<sub>2</sub> compliance, taxation, or offsets.

These are the four steps in the right direction, leading the road industry towards more environmentally responsible road construction. The delegates of the 2nd International Roads & Environment Conference will discover alternatives to traditional material, and gain knowledge on research and test results.

IRF has made this conference climate neutral. The total emissions caused through staging the event will be offset through myclimate. IRF is walking the talk. ■

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## 2nd Roads and the Environment Conference

EMISSIONS AND POLLUTION - ADDRESSING THE CHALLENGE

10-11 November 2008  
Geneva, Switzerland

more information on [www.irfnet.org](http://www.irfnet.org)

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# Trading on carbon markets

Anticipating new trends, IRF is organising a panel discussion on this promising and fast-growing market during the 2nd International Roads & Environment Conference

Signing the declaration on Energy, Security and Climate Change in Hokkaido, Japan, during the last G8 meeting, 17 leaders of the world's major economies have underlined the potential of appropriate market mechanisms when looking for global solutions in the fight against climate change.

Emissions' trading is one of the options and certainly the instrument on which major attention has been focused after the launch of the EU Emission trading scheme (EU ETS) and the one operating under the Kyoto Protocol.

## CARBON EMISSIONS TRADING SCHEMES

Emissions' trading is a market-based scheme for environmental improvement that allows parties to buy and sell permits for emissions or credits for reductions in emissions of certain pollutants. It allows established emission goals to be met in the most cost-effective way by letting the market determine the lowest-cost pollution abatement opportunities. This kind of scheme is often organised as a 'cap and trade' system, that is to say it caps the overall level of emissions allowed but, within that limit, allows participants in the system to buy and sell allowances as they require. These allowances are the common trading 'currency' at the heart of the system.

The system is purely electronic, and so allowances are not printed on paper but exist only in an online registry account. The latter keeps track of the ownership of emission allowances as they change hands in the market. It is similar to a banking system which keeps track of the ownership of money in accounts, but does not track the deals made in the goods and services markets, which are the cause of the money changing hands.

## AN UNDENIABLE MARKET TREND, BUT NOT EXEMPT FROM CRITICISM

Carbon emissions' trading has experienced a tremendous growth in recent years. According to the World Bank's Carbon Finance Unit, 374 million tonnes of carbon dioxide equivalent (tCO<sub>2</sub>e) were exchanged through projects in 2005, a 240% increase relative to 2004 (110 million tonnes CO<sub>2</sub>e) which was itself a 41% increase relative to 2003 (78 million tonnes CO<sub>2</sub>e). In its 2008 survey, the World Bank has estimated the size of the carbon market is US\$11 billion in 2005; \$30 billion in 2006, and \$64 billion in 2007 (WB, State and Trends of the Carbon Market 2008).

Despite these impressive figures, criticism has been expressed on a certain number of things:

too generous distribution of free allowances, deficiencies in accounting and reporting of emissions, lack of a systemic view in the scope of action and so on. Writing on cap and trade systems, the Financial Times argued that "Carbon markets create a muddle..." and "...leave much room for unverifiable manipulation" (FT, 26 April, 2007).

More recent criticism relates to the broader consequences generated by the implementation of some projects under emissions trading schemes. One of them being that old growth forests (which have slow carbon absorption rates) are being cleared and replaced with fast-growing vegetation, to the detriment of the local communities.

## CHOOSING THE RIGHT OPTION...

Cap and trade systems like the EU ETS scheme seem to be the model towards which we are moving on a global scale. But what about other investment opportunities besides buying and selling allowances?

The Panel Discussion 'Trading on Carbon Markets' will look into achievements and deficiencies of cap and trade systems, price versus quantity, the quality and rating of 'green' investment opportunities and many of the issues at the heart of this debate.

Organised by the International Road Federation (IRF) in the margins of the 2nd Roads & Environment Conference (Geneva, Switzerland, 10-11 November 2008) this panel discussion brings together major stakeholders in this field.

The IRF has the pleasure to welcome Patrick Birley, Chief Executive of European Climate Exchange; Henry Derwent, President and CEO of the International Emissions Trading Association; Jochen Gassner, Director of the Climate Neutral department at First Climate; Ben Lashkari, Director in the Environmental and Commodity Markets (ECM) unit of Swiss Re Capital Markets Limited; H.E. Abdullah A. Al-Mogbel, Deputy Minister of Transport for Roads, Kingdom of Saudi Arabia; Axel Pierron, Senior Vice President at Celent, and Thomas Houston, Executive Vice President & General Counsel at Global Eco Rescue (GER), who will provide insights on the risks and opportunities of this fast growing financial market and explain how to shape short and long-term investment strategies despite constant changes in the legislative framework. ■

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CARBON MARKETS  
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● For further information on the Roads & Environment Conference and the Panel Discussion, please contact:

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# Australian centre wins road safety prize

Creating safer highways using low-cost, multi-disciplinary approaches to improve road safety has won 3rd Prize for the NSW centre for Road Safety in the 2007 IRF Road Safety Awards

**IRF 3rd place 2007 Road Safety Award (from left) Jean Lalo, Chairman of the IRF Working Group Safer Roads; Sibylle Rupprecht, Director General IRF-GPC; Andrew Graham of the NSW Centre for Road Safety**

The Pacific Highway, a busy 700km interstate freight corridor from Sydney to the Queensland state border, and the Princes highway, a 430km stretch from Sydney to the Victoria state border, are important highway links in New South Wales (NSW), Australia, and both suffered high accident and fatality records.

The Roads and Traffic Authority of NSW, and specifically its Centre for Road Safety, decided to apply a multi disciplinary approach to conduct safety reviews of each highway. The review process, based on the Safe systems approach, encompassed an analysis of reports on fatal crashes and crash trends, physical inspection of the highways and a review of speed limits. The

outcomes of the reviews were used to set up a two year AUD 35 million integrated programme for the Pacific Highway and a AUD 30 million three year programme for the Princes highway.

The programmes consisted of engineering, behavioural and enforcement components. The engineering programme included among others the improved delineation including the installation of wire rope safety barriers in the median of the highways, sealed shoulder widening and removal of roadside hazards and the improvement of intersections. Within the framework of the behavioural programme an education programme was set up, various technologies were used to provide feedback to drivers on their speed and speed zoning and signposting were revised. Finally, the enforcement programme aimed at increasing the profile of police speed enforcement and included joint operations between the police and the road authority targeting heavy vehicle compliance.

By 2006 the Pacific Highway safety review had been fully implemented and the Princes Highway was nearing completion

The benefits were calculated by comparing crash costs in the year prior to the review and those in the year after the review was completed. For the Pacific Highway they were calculated for 2003 and 2006 as well as for the two years (2001 and 2002) prior to 2003. For the Princes Highway they were calculated for 2004 and 2006 as well as for the two years (2002 and 2003) prior to 2004. This was to minimise the impact of a one-off crash history for the one year before the review.

The roll out of the programmes resulted in dramatic road safety improvements: on the Pacific Highway fatalities decreasing from 55 in 2003, the year the review began, to 25 in 2006 while injuries dropped from 617 to 483 over the same period. On the Princes Highway fatalities dropped from 24 in 2004, the year the review began, to 4 in 2006. Injuries decreased from 324 to 294 over the same period.

The benefits are expected to last for around five to fifteen years following completion although some sections of the Pacific Highway are expected to be replaced due to general upgrading over this time.

Benefit Cost Ratio	10 years	15 years
Pacific Highway	9.1	11.8
Princes Highway	8.1	10.5

The multi-disciplinary approach used was able to identify safety opportunities missed by conventional areas. The methodology has now become the blueprint for subsequent route reviews. For example, the Newell Highway, which is 1,160km long and runs north/south from Victoria to the Queensland border, is currently under similar review.

It is for this comprehensive, thorough-going approach, delivering demonstrable impressive benefits that the NSW Centre for Road Safety is awarded the 3rd prize in the 2007 IRF Road Safety Awards. ■