

## Transport Research Institute, Edinburgh Napier University

### 2010 HIGHLIGHTS

In partnership with SEStran and with funding support from the Interreg IVB North Sea Region programme, TRI organised the Edinburgh Dryport conference, held on 21-22 October, to share and exchange expertise on intermodal strategies for integrating ports and hinterlands. The conference brought together 130 delegates from 26 countries around the world, including over 40 speakers from academia and industry. For more information please visit [www.dryport-conference.tri-napier.org](http://www.dryport-conference.tri-napier.org).

The first of the TRI chairman's lectures organised by TRI was held on 8 June in Edinburgh. Dr David Quarumby, the Chair of TRI's advisory board, spoke on the subject of "Low carbon vehicles – prospects and reality".

TRI was commissioned to organise the annual conference of the International Association of Maritime Economists (IAME) in collaboration with the United Nations Economic Commission for Latin America and the Caribbean (UNECLAC) and the Institute of Transport and Maritime Management Antwerp (ITMMA). The event will take place in Santiago de Chile in November 2011. For more information please visit [www.iame2011.org](http://www.iame2011.org).

The TRI taxi studies group launched the International Taxi Research Network, a joint research network led by Edinburgh Napier University, the University of Missouri at St Louis, and the City University of New York, and chaired by the TRI taxi studies group. The network held its first annual conference in Portugal in 2010, with further meetings during 2010 held in New York, Chicago, and Brussels. Network details are available at [www.taxiresearch.net](http://www.taxiresearch.net).

The Northern Maritime University (NMU) project, funded by the EU's Interreg IVB North Sea Region programme, has been given an 18-month extension as a result of positive feedback from stakeholders in the maritime industry about the formation of a transnational network of universities in the North Sea Region. For more information please visit [www.nm-uni.eu](http://www.nm-uni.eu).

Other major projects that started in 2010 include: EcoMobility SHIFT, funded by the EU IEE STEER; ISEMOA, funded by the EU FP7 programme; Flemish Seaports, funded by the Flanders Regional Government, and Northern Ireland Taxi Fares, funded by the Department of the Environment for Northern Ireland.

Three major books by authors from TRI were published in 2010: *International Handbook of Maritime Business*, edited by Kevin Cullinane; *Taxi! Urban Economies and the Social and Transport Impacts of the Taxicab*, by James Cooper (with Ray Mundy and John Nelson); *Failed and Failing States: The Challenges to African Reconstruction*, edited by Margaret Grieco (with Muna Ndulo).

### STAFF NEWS

Professor Stephen Stradling was appointed as Professor Emeritus.

Jim Hunter was appointed as Lecturer in Civil and Railway Engineering in the School of Engineering and the Built Environment. Dr Achille Fonzone joined the School of Engineering and the Built Environment from Imperial College London.

David Scotney joined TRI as a Research Fellow to work with Professor Tom Rye on the ELTISplus, EcoMobility SHIFT and Better Way to Work projects.

In June, Dr Yuhong Wang was appointed as a Senior Research Fellow within TRI. Gordon Wilmsmeier was awarded his PhD from Osnabrück University in December and promoted to Principal Research Fellow within TRI.

Academic visitors who spent time at TRI during 2010 include: Professor Radwan Al-Masri from Al Baath University, Syria; Dr Eulalia Jdraque Gago from Universidad de Granada, Spain; Bulent Suloglu from the Turkish Ministry of Transport, Turkey; Borka Tusevska from Goce Delcev University, Macedonia; Ola Bø from Molde University College, Norway; and Po-Hsing Tseng from National Cheng Kung University, Taiwan.

### STAFF ACTIVITIES IN 2010

Professor Kevin Cullinane was appointed to sit on a panel discussion on "Facing up to Climate Change" organised by the Royal Society of Edinburgh and as a Visiting Professor at the University of Gothenburg. He was also appointed as associate editor of the *International Journal of Applied Logistics*. He delivered invited guest lecture at the Distinguished Lecture Series organised by the Centre for Maritime Economics & Logistics, Erasmus University in Rotterdam, and delivered invited keynote speeches at the 'Vision and Roadmap for R&D Priorities in Maritime Environment, Technology, Business, Policy and Security' in Singapore, and at the Dryport conference in Edinburgh, organised by TRI. He was

elected by the membership to the council of the International Association of Maritime Economists and appointed as Chair of the international steering committee of the 2011 IAME annual conference in Santiago. He was also appointed as a member of the conference programme committees of the 14th Meeting of the EURO Working Group on Transportation in Poznan and of the First European Workshop on Nature Inspired Methods for Environmental Issues in Istanbul. In 2010, he continued as a member of the advisory committee for the Department of Commerce, Finance and Shipping at the Cyprus University of Technology, of the academic advisory council of Athens Laboratory of Business Administration and of the committee of the Scottish Transport Studies Group. He also continued his external examiner roles for masters programmes at City University's Cass Business School and at Glasgow and Strathclyde Universities. He also advised Liverpool John Moores University on the revalidation of their maritime programmes at undergraduate and masters levels and examined PhDs at Chalmers University in Sweden and at Cardiff University.

Professor Stephen Stradling continued as chair of trustees of the Transform Scotland Trust, and acted as a mentor to the Research Councils UK Grand Transport Challenge in Bath. He examined a PhD thesis at Heriot-Watt University and served on the Road Safety Scotland Road Skills Working Party.

Professor Alfred Baird was a committee member of the Scottish Transport Studies Group, and a member of the scientific committee of the International Association of City Ports. He continued as a member of the project review panel for the Norwegian Research Council, Oslo and as a member of the peer review college of the Danish Council for Strategic Research. He acted as a specialist advisor to the Tynwald (Isle of Man parliament) select committee for investigation into ferry services to the Isle of Man, and external examiner for shipping and transport courses at the University of Southampton, London Metropolitan University and the Business College of Athens.

Professor Kevin Cullinane, Director

Transport Research Institute  
Edinburgh Napier University  
Merchiston Campus  
Edinburgh, EH10 5DT

Tel: +44 131 455 2951  
Email: [tri@napier.ac.uk](mailto:tri@napier.ac.uk)  
Web: [www.tri-napier.org](http://www.tri-napier.org)

Professor Margaret Grieco contributed three items to the book *A Dictionary of Transport Analysis*, which concentrates on the social science aspects of transportation analysis with contributions by the leading authorities in the field. She was an invited expert providing consulting services to UN-Habitat (2010-2012), with particular focus on the social sustainability of urban transport.

Dr James Cooper was engaged as a subject expert to sit on the advisory board for the Commission for Taxi Regulation's Taxi Tariff Review for the Republic of Ireland, and commissioned by the Perth taxi trade to review taxi supply in the town. He delivered a number of reports and presentations to the US National Academies Transportation Research Board, the International Road Union, and the New York based Universities Transportation Research Centres on international taxi best practice and policy. He was appointed as a member of the editorial board of the *Journal of Logistics and Sustainable Transport*.

Dr Wafaa Saleh continued chairing the committee of the International Symposium on Travel Demand Management and acted as an external examiner for the MSc Transport Programme at Salford University. She successfully oversaw the refurbishment of the environmental engineering laboratory at the Faculty of Engineering and the Built Environment, Edinburgh Napier University. She presented a number of conference papers at the World Conference on Transport Research (WCTR), Lisbon, International Symposium of Transportation Reliability (INSTR), Minneapolis and the 5th International Symposium on Travel Demand Management in Aberdeen. She continued to recruit and supervise a number of PhD students in the area of transport modelling and travel demand management.

Dr Gordon Wilmsmeier was appointed as a council member of the International Association of Maritime Economists (IAME), and as an invited lecturer to the University of Applied Sciences Bremen in Germany and Gothenburg University in Sweden. He gave invited keynote speeches at the Controlling Transport Emissions Forum at the Scottish Parliament, and the Dryport conference in Edinburgh. He was also invited to join the PortEconomic Initiative as associated member.

Dr Kathryn Stewart was appointed to the organising committee for the 5<sup>th</sup> IMA Conference on Mathematics in Transport in London. She also continued as a member of the programme committee for the annual Scottish Transport Applications and Research (STAR) conference.

## PROJECTS ACTIVE IN 2010

Projects TRI researchers participated in during 2010 are listed below, with details of funding bodies and collaborating partners.

\*projects that started in 2010

## SUSTAINABLE ENERGY AND TRANSPORT

**CIC Start Online** (ERDF "SEEKIT" Programme, from September 2009 to August 2012)  
Professor Tariq Muneer  
[www.cicstart.org](http://www.cicstart.org)

Edinburgh Napier University is a partner with six other Scottish higher education institutions in this collaborative project, which aims to embed sustainable building design and refurbishment into practice. The project assists Scottish small and medium sized enterprises (SMEs) to develop and test sustainable building innovations, making use of testing facilities at all the project partners' institutions.

**Decentralised Off-grid Electricity Generation in Developing Countries: Business Models for Off-grid Electricity Supply** (EPSRC, from October 2009 to October 2014)

Professor Tariq Muneer (Principal Investigator is Dr S.C. Bhattacharyya, University of Dundee)

This project aims to develop innovative solutions to the problem of lack of access to electricity supplies in developing countries through interdisciplinary research involving UK and South Asian (Indian) universities, NGOs, government agencies, financing institutions, and other stakeholders. The project develops a systematic view of the problem by considering local resource availability, appropriate technology choices, institutional arrangements, and the financing options available.

**ETRESH** (EU ERASMUS Programme, from September 2008 to August 2010)  
Professor Tariq Muneer

This life-long learning programme involved education and training for 50 students from eight EU universities: Edinburgh Napier, Glasgow Caledonian, Abertay, Brno (Czech Republic), Heulva (Spain), Mustafa Kemal (Turkey), Dublin Institute of Technology (Ireland) and Jyvaskala (Finland).

**A Better Way to Work** (Climate Challenge Fund, from December 2009 to March 2011)  
Dr Michael Carreno and Professor Tom Rye (Project Coordinator: The Bike Station, Edinburgh)

The Climate Challenge has funded this project to the value of £750,000. It targets a range of small and medium sized Edinburgh-based organisations and offers a range of mobility management services to employees with the aim of changing employees' travel behaviours to more sustainable transport choices. TRI has provided expert advice on how the project should be evaluated and analysed data collected by the Bike Station to examine the impacts of the project on Edinburgh commuters' modal choice decisions.

**\*Validation of On-Demand Hydrogen Fuel Saver Technology** (Aqua Energy Company, from October 2010 to March 2011)  
Dr Wafaa Saleh and Dr Ravindra Kumar

The objective of this project is to test the impacts of fixing an electrolytic cell which generates hydroxyl gas, on-demand, for improving the totality and progression of complete combustion of oxygenated hydrocarbon fuels. Particularly referring to the mono-atomic hydrogen oxygen combination introduced into the combustion chamber during the induction stroke of the pilot bus and bench test diesel engines. TRI will act as an accredited third party to have the bus pilot validated. Scope of validation includes a before and after testing of the installation of AquaCell™ System of fuel consumption, engine oil analysis to agreed industry standards, exhaust analysis for NO and other emissions, smoke of exhaust gases and noise. Lothian Buses (LB) will pilot the AquaCell™ system on one bus in its fleet. Scottish Enterprise (SE) has provided Innovation Grant for the trial and bench testing of the AquaCell™ system.

## ECONOMICS, PLANNING AND POLICY

**\*EcoMobility SHIFT** (EU IEE STEER, from June 2010 to May 2013)  
Professor Tom Rye, Catriona O'Dolan and David Scotney  
[www.ecomobility.org](http://www.ecomobility.org)

The EcoMobility Scheme to Incentivize Energy-Efficient Transport (EcoMobility SHIFT) is working to create a labelling scheme based on a set of criteria to assess and help improve the sustainability of local governments' transport policies. The scheme is referred to as "EcoMobility Label" because it promotes clean and energy efficient mobility systems by awarding a quality label to cities for their transport policies, services and infrastructures. Underlying the labelling scheme will be a quality management system to help cities to analyse, understand and improve their transport and mobility decisions so that they can continually improve their performance against the criteria and work towards the highest standards of EcoMobility. TRI is leading WP3 of the project, developing the labelling and quality management scheme.

**CIVITAS ELAN Ljubljana subcontracting** (Urban Planning Institute of the Republic of Slovenia, from June 2009 to July 2011)  
Professor Tom Rye  
[www.civitas.eu](http://www.civitas.eu)

Ljubljana is the lead partner city in the CIVITAS ELAN project, one of the CIVITAS Plus projects that started in autumn 2008. UIRS in Ljubljana are also a partner, charged with developing an SUTP for the city as one of its CIVITAS measures. Professor Rye is employed as an advisor on this aspect of the work, running workshops on policy development, appraisal and exchanges of best practice, and advising on the structure and content of the plan.

## **Knowledge Exchange in Public Policy** (Scottish Funding Council, from January 2009 to January 2010)

*Professor Tom Rye and Catriona O'Dolan, in collaboration with the University of Glasgow and the University of Aberdeen*

This project brought together academics and practitioners in seminars discussing various topics related to transport policy and climate change in Scotland, such that each party could better appreciate the needs and perceptions of the others. Workshops were held on topics including climate change itself, better managing the road network, transport and economic development, and active travel. Evaluation showed that the project was successful in increasing mutual understanding between academics and practitioners and that it had introduced new policy ideas that are now being implemented in practice.

## **Secondment to Transport Scotland Sustainable Transport Team** (Transport Scotland Sustainable Transport Team, from November 2009 to August 2010)

*Professor Tom Rye*  
[www.scotland.gov.uk/transport](http://www.scotland.gov.uk/transport)

Professor Rye worked two days per week for the sustainable transport team at the Scottish Government, mainly on the development and evaluation of devolved policies to reduce transport's climate change impacts. This work was subsequently used as input to the government's report on Policies and Proposals, a statutory document required under the 2008 Climate Change (Scotland) Act, that identifies measures the government can or will take to meet its targets for greenhouse gas reduction.

## **INTERCONNECT** (EU FP7, from June 2009 to May 2011)

*Professor Christiane Bielefeldt, Helen Condie, Gordon Wilmsmeier and Professor Kevin Cullinane*  
[www.interconnect-project.eu](http://www.interconnect-project.eu)

TRI is coordinator of the EU-funded INTERCONNECT project, which is examining the role of local and regional interconnections in the context of longer distance passenger journeys in Europe, in order to address the potential for greater economic efficiency and reduced environmental impact. During 2010 TRI's contribution to the project included the analysis and presentation of case studies of good and bad practices in interconnectivity, consultation with key stakeholders, and contributions to the INTERCONNECT "toolkit" of potential solutions that can help to achieve good interconnectivity. TRI also continued with project management and coordination, and with the quality assurance of all project outputs.

## **\*UKTRC-Long Term Programme Example Project on Governance of Transport and Climate Change in the UK** (ESRC, from June 2010 to July 2013)

*Professor Tom Rye*

This project seeks to apply models to a study of the governance of transport policy

on climate change in Britain. The theoretical framework will be used to unpick and compare approaches to the governance of this topic in England and Scotland. TRI's role is to provide input to the analysis of the Scottish situation. Originally part of the UK Transport Research Centre, with the demise of that organisation from April 2011, this project has moved to being entirely ESRC funded.

## **\*Fast-Answers: New Traffic Planning Tool Set to Save Industry Millions** (Scottish Enterprise and the European Regional Development Fund, from June to December 2010)

*Dr Wafaa Saleh, Alistair Lawson (CDCS) and Fast-Answers.Com*

Costly transport planning could be a thing of the past with the launch of a new software suite of programmes that is aimed at designing complicated traffic junctions efficiently within seconds. Fast-Answers products (Quick-PJ for priority junctions, Quick-RA for roundabouts and, Quick-Sig for signals) enables developers to make design decisions quickly, significantly reducing project development costs, minimising risk and rapidly eliminating infeasible options. The TTOM project has improved the algorithm for Quick-Sig. Developed and tested by experienced traffic and software planners, as well as leading academics from TRI and the Institute for Informatics and Digital Innovation (IIDi), Fast-Answers works out highly complex sustainable junction designs within seconds of inserting traffic flow data.

## **MOBILITY MANAGEMENT AND TRAVEL PLANNING**

### **Active Access** (EU IEE STEER, from July 2009 to June 2012)

*Professor Tom Rye and Catriona O'Dolan*  
[www.active-access.eu](http://www.active-access.eu)

TRI is the coordinator of this project, funded by the Intelligent Energy STEER programme of the European Union. The purpose of the project is to raise the profile of cycling, and especially walking, as modes of transport, and to build capacity amongst partners in planning and promoting walking, and to implement projects in 11 partner cities to encourage more walking for health and to improve the local economy. Implementation activities are now fully underway, underpinned by earlier training and exchange of best practice amongst partners.

### **\*ISEMOA** (EU FP7, from August 2010 to September 2013)

*Professor Tom Rye and Catriona O'Dolan, (Project Lead Partner: FGM-AMOR, Austria)*  
[www.isemoa.eu](http://www.isemoa.eu)

ISEMOA is developing quality management schemes for the improvement of the accessibility of the whole door-to-door mobility chain in European municipalities, cities, and regions. These schemes will be made up of a standardised quality management process with which a municipality, city or region can assess (together with an external auditor) the state

of accessibility in public space and public transport in their areas, and on that basis develop strategies and measures to improve its quality, thus encouraging more people – especially those with reduced mobility – to cycle, walk and take public transport. TRI is responsible for quality assurance in the project.

### **\*ELTIS plus** (EU Commission, from May 2010 to April 2013)

*Professor Tom Rye, Dr Michael Carreno, David Scotney and Catriona O'Dolan (Project Lead Partner: FGM-AMOR, Austria)*  
[www.eltis.org](http://www.eltis.org)

This project is implementing two inter-related activities: the management of the European Local Transport Information Service website, [www.eltis.org](http://www.eltis.org), and the promotion of the uptake of sustainable urban mobility plans across all member states. The ELTIS website is being fully overhauled and relaunched to make it more attractive to use and, through a large number of local training and awareness-raising events as well as by the production of promotional and training material, the concept and content of Sustainable Urban Mobility Plans (SUMP) is being promoted, related to the European Council of Transport Ministers' 2010 decision on the topic. TRI is responsible for monitoring and evaluation of the project, has a key role in developing training material on SUMPs, and is topic expert for a significant part of the ELTIS website case studies. In addition, TRI is in charge of English language quality assurance.

## **TRAFFIC PSYCHOLOGY AND TRAVEL BEHAVIOUR**

### **Hammersmith Travel Awareness Intervention Study** (Transport for London Innovation Fund Award, from February 2009 to March 2011)

*Dr Michael Carreno and Professor Tom Rye, with the Royal Borough of Hammersmith and Fulham*

In conjunction with the Royal Borough of Hammersmith and Fulham, TRI is responsible for the design, implementation and evaluation of an innovative theoretical-based awareness intervention campaign using a randomised controlled trial design which aimed to influence the travel decisions of car drivers visiting Hammersmith, UK. The project made recommendations to help inform the design of future travel awareness raising interventions and how inclusion of theoretical-based content can increase their effectiveness.

### **Exploring Kirkwall's Car Culture** (Orkney Island Council, from October 2009 to October 2010)

*Dr Michael Carreno and Professor Stephen Stradling, with MVA*

As part of the wider Scottish Government's Smart Choices/Smarter Places initiative, TRI provided advice on the design of a theoretical-based survey of local residents to explore the extent and nature of the car culture in Kirkwall Scotland. TRI also performed a supplementary analysis of local

household data collected by MVA, which aimed to examine the underlying reasons why people choose to drive, and the potential for various smarter choices measures to encourage them to switch to more sustainable travel choices.

## **\*ILS Secondment: How Best to Measure the Impacts of Transport on Social Exclusion?** (ILS, from September to October 2010)

*Dr Michael Carreno*

Dr Carreno was seconded to ILS, a Dortmund-based research institute for an eight-week period to advise on how transport related social exclusion (TRSE) is measured in the UK, and whether the UK approach could be transferred to a German context. As part of the research a critical examination of how TRSE is measured in the UK and Germany was performed, highlighting limitations in these approaches and initial recommendations as to how TRSE could be measured at a local, national and European level.

## **\*The Design of Effective Pedestrian Warning Systems: a Review of the Literature** (Z-one Safety Ltd., from January to April 2010)

*Dr Alex Willis and Dr Michael Carreno*

This project aimed to establish the efficacy of audiovisual pedestrian warning alerts for use within the Z-one Safety System, which can be retrofitted onto school and service buses in order to reduce the number of accidents caused by pedestrians walking in front of/behind buses into oncoming traffic.

## **TAXI STUDIES AND DEMAND-RESPONSIVE TRANSPORT**

### **Carnegie Travel** (Carnegie Trust, from June 2009 to June 2010)

*Dr James Cooper*

This project identified the role that taxis play in the provision of transport to remote and isolated communities. The use of taxis is often underestimated in mainstream transport analysis, and the particular roles of Jitney, shared and more traditional taxis in providing transport for lower income communities are also little reported. The work did not seek to take a view on legality or illegal taxi services, though it is clear that such services exist, but rather identified a full cross section of service types and the benefits of their use.

### **Glasgow Taxis: Taxi Service**

#### **Optimisation Modelling** (Glasgow Taxis, from October 2009 to October 2010)

*Dr James Cooper*

The TRI taxi studies group developed a new approach to the assessment of taxi demand to ensure improved supply, including the continuous assessment of rank performance, and the optimisation of fleet delivery. The group is piloting the taxi demand model in Glasgow, on behalf of Glasgow Taxis Ltd., and has demonstrated initial measurement and optimisation.

### **Irish Taxi Rank Study** (Commission for Taxi Regulation, Republic of Ireland, from March 2009 to March 2010)

*Dr James Cooper*

The Irish Taxi Rank Study is a part of a four-year framework involving the TRI taxi studies group being completed for the Irish Taxi Commissioner. The group has designed and piloted a taxi-at-rank model specific to the location and optimisation of taxi ranks throughout the Republic of Ireland. The model has been successfully applied in nine case study sites, with an additional continuation project commissioned for Dublin Airport, with the Dublin Airport Authority. The taxi-at-rank model forms a part of national taxi rank guidelines to be issued by the commission in early 2010.

### **TSB Rural Transport** (Technology Strategy Board, from August 2009 to August 2011)

*Dr James Cooper*

This project aims to offer new forms of flexible transport that people will actually use and improved information sharing for the more intelligent use of demand responsive transport (DRT). A DRT management portal will match the demand for shared transport to the supply and allow passengers to actually book transport in real time. This will include at least one existing DRT operator and introduce a new rural scheme based in Scotland. The trial will demonstrate how existing operators can interface to their current systems and new, smaller, operators can offer their services directly. The project comprises two industrial partners and two academic partners plus promised cooperation from local and regional authorities in Scotland.

### **Wheelchair Access and Future Trends**

(Dumfries and Galloway Council, NHS, from December 2009 to February 2010)

*Dr James Cooper*

The work covered four areas of research: the review of existing literature specific to wheelchair use; a primary data collection exercise identifying use of wheelchairs including any difficulty in such use; a review of the socio-economic trends in the population that might impact on future use; and the transport implications of such changes.

### **\*Electric Scooter** (Scottish Funding Council and industry partner contribution, from January to October 2010)

*Dr James Cooper*

The study was undertaken with industrial partners Charge Ltd., a supplier of electric scooters, to investigate the potential for new applications of electric scooters. The work should be seen as part of a wider application of electric scooters in specific niche markets. The feasibility study is identified against specific work areas, being: the current state of technology; the potential for new applications; barriers to new development; and potential to overcome barriers to development. The work has since led to the development of a partnership in developing electric vehicles on a UK and US programme.

### **\*Irish Taxi Regulator Advisory Panel** (Irish Taxi Regulator, from July 2010 to March 2011)

*Dr James Cooper*

Dr James Cooper was engaged as a subject expert to sit on the advisory board for the Commission for Taxi Regulation's Taxi Tariff Review for the Republic of Ireland.

### **\*Dublin City Council Taxi Work**

(Commission for Taxi Regulation, from October 2010 to January 2011)

*Dr James Cooper*

The work was predicated on planned changes to the supply of taxi ranks in St. Stephens Green, Dublin and aimed to predict the impacts of such changes in the use of taxis in the immediate vicinity. The basic methodology mirrors the modelling approach designed by the taxi studies group for taxi assessment across the Republic of Ireland, applied in other Irish locations. The approach identified the extent of demand for taxi use from taxi ranks in any given location (by type), and the extent to which such demand may be transferred to a (similar) further location. A further study goal has been to identify the impact of the closure of the ranks at the northern corner of St. Stephen's Green, officially identified as two ranks on facing carriageways of St. Stephen's Green North, located between Dawson Street and Grafton Street.

### **\*Northern Ireland Taxi Fares** (Department of the Environment for Northern Ireland, from October 2010 to April 2011)

*Dr James Cooper*

The development of a statutory taxi tariff was set as a key outcome of the Taxis Act (Northern Ireland) 2007, and highlights the fact that, with the exception of some taxi services in Belfast, Northern Ireland had no guiding legislation requiring a tariff to be applied. The work is being undertaken with industrial partners PA Consulting to determine and make recommendations as to the levels of fares that should be applied. The work develops a ground-up cost model, being designed by TRI, and accounting for the full operating costs of taxis in Northern Ireland.

### **\*Perth Significant Unmet Demand (SUD)**

(Perth Taxi Association, from November 2010 to January 2011)

*Dr James Cooper*

The TRI taxi studies group was commissioned as an independent organisation by the Perth Taxi Association, to undertake a review of taxi services consistent with the requirements set out in the Civic Government (Scotland) Act 1982. The findings suggest that the current demand for taxis in Perth is well catered for by the current fleet. On the basis of current best practice, and using the *de facto standard* approach of an Index of Significant Unmet Demand, Perth displayed a very low level of unmet demand.

## MARITIME TRANSPORT

**StratMoS – Strategic Motorway of the Sea Demonstration Project** (EU Interreg IVB North Sea Region Programme, from April 2008 to March 2011)

*Professor Alfred Baird and Dr Gordon Wilmsmeier*

[www.stratmos.no](http://www.stratmos.no)

StratMoS aims to promote and facilitate the shift of cargo from road to sea-based intermodal transport, and to improve accessibility within the North Sea Region (NSR) by supporting the implementation of motorways of the sea (MoS) and related transport networks in an integrated logistical chain. The project currently comprises 27 partners in the NSR, from Flanders in the south to northern Norway. The Murmansk, Arkhangelsk and Nenets regions are associated partners. TRI involved in two specific StratMoS demonstration projects: the introduction of a new RoRo ferry service for trucks between mid-Norway and the continent, and an exploration of the economic and environmental implications of developing a transshipment port in the Pentland Firth.

**\*Flemish Seaports** (Flanders Regional Government, from September 2010 to July 2011)

*Professor Alfred Baird*

The aim of this project is to examine, from a nautical-technical and economic perspective, how Flanders can maintain or improve the competitive position of the Flemish seaports against a background of changing vessel dimensions and changing maritime flows. Professor Baird is one of several international specialists forming a scientific committee. The expertise of the member of the committee is applied on an *ad hoc* basis. The members will be asked to provide input for or feedback on assumptions and intermediate results. At several strategic moments during the study the findings will be presented to the committee. Each member will provide feedback on these findings from his own field of expertise, which will enable the project lead to amend intermediate findings and bring scientific validity and international connotation into the final report. Consequently, the scientific committee will play an important role in both the final recommendations and the final results of the study.

**Dryport** (EU Interreg IVB North Sea Region Programme, January 2009 to December 2011)

*Dr Gordon Wilmsmeier, Professor Alfred Baird and Dr Jason Monios*

[www.dryport.org](http://www.dryport.org)

TRI and SEStran are the Scottish partners in the European dryport consortium, examining the critical role that dryports can play in maximising the capacity and efficiency of sea ports, while also shifting traffic from roads and on to rail or inland waterway. Scottish involvement in dryport is a natural extension of the Regional Transport

Strategy, focusing on developing sustainable and integrated freight movement in southeast Scotland. Dryport is focussing on the important existing maritime gateway ports of Grangemouth and Rosyth to improve their attraction for direct imports and exports by bringing about the improvements required at the gateway interface, and on hinterland road and rail transport service and infrastructure. The TRI research team has carried out stakeholder interviews with key actors in the Scottish and UK port and maritime industry and has investigated potential dryport sites and commenced a thorough analysis of these sites with the assistance of modelling software and research on freight movements.

**NMU – Northern Maritime University** (EU Interreg IVB North Sea Region Programme, from January 2008 to June 2012)

*Professor Kevin Cullinane, Dr Gordon Wilmsmeier and Professor Alfred Baird*  
[www.nsr.nm-uni.eu](http://www.nsr.nm-uni.eu)

TRI is the lead partner in the NMU consortium, which includes 10 partners from five countries in the North Sea Region (NSR). The major objective of the NMU is to build a strong transnational network of universities in the NSR to develop and deliver multidisciplinary and internationally oriented qualification offerings in maritime transport. In 2010, industry representatives and stakeholders responded very positively to the NMU approach and intensive discussion with stakeholders has revealed new strategic needs regarding education, specifically for the maritime sector in the North Sea Region. An 18-month extension period has been given to this project.

**\*IAME – International Association of Maritime Economics 2011** (Attendance fees and sponsorship, from July 2010 to January 2012)

*Professor Kevin Cullinane and Dr Gordon Wilmsmeier*  
[www.iame2011.org](http://www.iame2011.org)

TRI is organising the annual conference of the International Association of Maritime Economics in collaboration with the United Nations Economic Commission for Latin America and the Caribbean (UNECLAC) and the Institute of Transport and Maritime Management Antwerp (ITMMA). The event will take in Santiago de Chile in November 2011 and is expected to attract more than 200 researchers from around the world.

**\*Dryport USA Research Trip** (Royal Society of Edinburgh, September 2010)  
*Dr Jason Monios*

Visits were made to the ports of Long Beach, Virginia, Jacksonville and Memphis, as well as rail terminals at Chicago, Memphis and Columbus. In addition to these visits, meetings were held with the federal Department of Transportation in Washington DC (highways, railroads and maritime), the Association of American Railroads, transport corridor development agencies, state legislators, major railroads and state planners. A number of university visits and presentations were also scheduled, including Northwestern University, the

University of Memphis, Old Dominion University, DePaul University and the Illinois Institute of Technology.

## PHD COMPLETIONS IN 2010

**Modelling trip generation/trip accessibility using Logit models**

*Shucheng Hu, supervised by Dr Wafaa Saleh and Professor Mike Maher*

## CURRENT PHD PROJECTS

**A critical examination of the life cycle assessment of cement production**

*Loubana Elatasi, supervised by Professor Tariq Muneer and John Wood*

**Analysing and modelling motorways of the sea in Spain**

*Xavier Gese Aperte, supervised by Professor Alfred Baird and Professor Kevin Cullinane*

**Devolution of Libya's ports governance**

*Hesham Ghashat, supervised by Professor Kevin Cullinane and Professor Alfred Baird*

**Evaluating the impact of different forms of taxi regulation on taxi supply at key points of demand in the UK and Ireland**

*Paul Simpson, supervised by Dr James Cooper, Professor Margaret Grieco and Professor Ron Mcquaid*

**Freight hub development in Scotland**

*Jason Monios, supervised by Dr Gordon Wilmsmeier, Professor Alfred Baird and Professor Kevin Cullinane*

**Intelligent transport systems as applied to travel information**

*Karol Gruszczynski, supervised by Dr Andrew MacIver, Dr Simon Smith and Professor Tom Rye*

**Investigation of GIS in monitoring spatial trends in urban areas and its impact on the performance of the transport system and the community**

*Mohamed Al-Ali, supervised by Dr Wafaa Saleh and Dr Andrew MacIver*

**Modelling of driving behaviour and congestion in Urban Areas**

*Ahmed Al Zaidi, supervised by Dr Wafaa Saleh and Professor Kevin Cullinane*

**Modelling the effects of road tolling in micro-simulation models**

*Eva Martinez, supervised by Dr Kathryn Stewart and Dr Wafaa Saleh*

**Modelling the relationship between pilgrim pedestrian casualties and Land use type: a Case Study of Al Madinah Al Monawarah**

*Raed Alahmadi, supervised by Dr Wafaa Saleh and Dr Kathryn Stewart*

## Pedestrian accidents analysis and modelling in UAE: the effective way forward

*Khalfan Saeed Al Naqbi, supervised by Dr Wafaa Saleh and Professor Kevin Cullinane*

## Performance monitoring and modelling of micro-, midi- and macro wind turbines and their aerodynamics

*Ahmad Makkawi, supervised by Professor Tariq Muneer and Dr Naren Gupta*

## Reduction of car dependency through the enhancement of public transport in Riyadh, Saudi Arabia

*Al Othlman, Othman, supervised by Professor Margaret Grieco and Dr Wafaa Saleh*

## Solar radiation related climate change projection for the UK

*Yieng Wei Tham, supervised by Professor Tariq Muneer and Brian Davison*

## The potential for "green" fiscal measures to lessen the environmental impact of private car use in Scotland

*Sarah Borthwick, supervised by Dr Michael Carreno and Professor Kevin Cullinane*

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