

Transport Research Institute, Edinburgh Napier University

2011 HIGHLIGHTS

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), TRI successfully organised the annual conference of the International Association of Maritime Economists (IAME), held on 25-28 October 2011 in Santiago de Chile. The conference is an international forum for the exchange of research and information among those interested in maritime and maritime-related issues, and this year had a particular focus on shipping markets, port devolution and a changing geography of world maritime transport. For more information please visit www.iame2011.org.

TRI and the Royal Meteorological Society (Scottish Centre) jointly organised a conference on Reducing the Impact of Emissions from Aviation and Shipping, held in Edinburgh on 9th September 2011. This one-day event brought together representatives of the aviation and shipping industries, as well as climate change researchers to exchange views on how to reduce the impact of emissions from shipping and aviation and the implications for climate change. For more information please visit www.conference.tri-napier.org.

TRI and the Transport Statistics Users' Group organized the 11th Annual Scottish Statistics Seminar which took place at the Scottish Government Conference Room on 15th June 2011. TRI's Dr Gordon Wilmsmeier delivered a welcome on behalf of the TRI Director, Prof. Kevin Cullinane, and then gave a speech on International freight flows to and from Scotland, focusing on reducing the carbon footprint of Scottish external trade by providing an analysis of the modal split in Scotland's external trade and the role of Scottish and English ports in international trade. Dr. David Connolly of the MVA provided an analysis of the impact of location on car use in Scotland and Mick Wilson, Head of Transport Analytical Services at Transport Scotland and member of TRI's Advisory Board, highlighted the issues involved in gathering data on island and peninsula ferry usage. For more information please visit http://www.tsug.org.uk/past_seminars.php.

As part of the NMU (Northern Maritime University) project, TRI together with the Institute of Chartered Shipbrokers (ICS) organised the Forum on Maritime Transport Education & Training, held in Edinburgh on 2nd March 2011.

TRI hosted two visiting delegations from China in 2011. A delegation from China's Ministry of Transport wanted to learn about the UK's experience of motorway network

development, in particular the role of government and its supporting policies. Also, a delegation from the Ningbo Transportation Committee visited the UK for a training trip. Their main interest lay in local port development and the administration and maintenance of road transport infrastructure. All delegations met TRI academics in order to discuss transport policies, research, and also future collaborative opportunities.

In 2011, TRI signed a Memorandum of Understanding (MoU) with the Faculty of Logistics at the University of Maribor in Slovenia to participate in a Visiting Scholars Programme. The Programme will initially run for three years, with the Slovenian partner sending a PhD student or Postdoc Fellow to spend three months with the Transport Research Institute to contribute to some of our research projects. For more information please visit www.tri.napier.ac.uk/c/news.

Major projects that started in 2011 include: Know-Me, ORIGAMI and COMPASS, funded by the EU FP7 programme; Transport Learning and CHAMP, funded by the EU IEE STEER; and Maritime Transport Cluster, funded by the EU Interreg IVB North Sea Programme.

Three major books by authors from TRI were published in 2011: *International Handbook of Maritime Economics*, edited by Kevin Cullinane; *Dryport – A Global Perspective: Challenges and Developments in Serving Hinterlands*, edited by Gordon Wilmsmeier and Kevin Cullinane (with Rickard Bergqvist); *Mobilities: New Perspectives on Transport and Society*, edited by Margaret Grieco (with John Urry).

STAFF NEWS

Ursula Cooper joined TRI as a Research Fellow to work with Dr James Cooper on taxi studies.

Dr Jason Monios was promoted to a Research Fellow within TRI in July.

Dr Gordon Wilmsmeier, Principal Research Fellow in Maritime Economics and Management, started to work as an external member of TRI from July due to his new position of Economic Affairs Officer in UNECLAC in Santiago de Chile.

Dr Damian Stantchev was appointed as a Senior Research Fellow, to take up post in January 2012. Damian holds a PhD from the University of Huddersfield on the relationship between logistics and the competitiveness of the regional economy and has worked as a Research Fellow at the Institute for Transport Studies at Leeds University.

Jim Hunter left his position as Lecturer in Civil and Railway Engineering in the School of

Engineering and the Built Environment to take up a role as Senior Project Manager with Parsons Brinckerhoff.

Academic visitors who spent time at TRI during 2011 include: Professor Yanhai Hu from Ningbo University, China; Gintare Zorskaite from Vilnius Gediminas Technical University, Republic of Lithuania; Franch Le Garrec from École des Ingénieurs de la Ville de Paris, France; Associate Professor Yanchang Lv from Shandong Jiaotong University, China; Marko Intihar from the University of Maribor, Slovenia.

STAFF ACTIVITIES 2011

Professor Kevin Cullinane was appointed for three years as a member of Sub-Panel 14 (Civil and Construction Engineering) for the UK REF2014. He was also appointed as 'Expert Evaluator' for the Transport 'Area of Advance' at Chalmers University of Technology in Gothenburg and as 'External Assessor' for the 'Better Learning in University Education (BLUE-11)' Audit at Gothenburg University. During 2011, he reviewed research proposals for the EPSRC, the Hong Kong Research Grants Council, the Government of Flanders Research and Innovation Funding Agency, and for the Social Sciences and Humanities Research Council of Canada. He was also judge for the Palgrave-Macmillan *Maritime Economics & Logistics* best paper and best PhD prizes at the Annual Conference of the International Association of Maritime Economists in Santiago. He continues as Associate Editor of *Transportation Research A: Policy & Practice* and of the *International Journal of Applied Logistics* and as an editorial board member of 7 other journals. Kevin has also been appointed as a member of the Scientific Committee of the Association of European Operations Research Societies Summer Institute on Maritime Logistics in Bremen. He continues as external examiner for Glasgow and Strathclyde Universities, as well as for the Cass Business School at City University. In 2011, he also examined a PhD on the 'Vulnerability of Petroleum Supply Chains' at Imperial College London and delivered a keynote speech at the 8th International Conference on Logistics and Sustainable Transport in Celje, Slovenia.

Professor Kevin Cullinane, Director

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Professor Stephen Stradling continued as Chair of the Transform Scotland Trust until the Trust was incorporated into Transform Scotland Limited in late 2011. He was elected as an honorary member of the Association of Industrial Road Safety Officers, and served as a member of the Strategic Course Development Group of the National Driver Offender Retraining Scheme in developing and evaluating diversion from prosecution courses for minor moving traffic offences.

Professor Alfred Baird represents TRI on the Committee of the Scottish Transport Studies Group (STSG). He is a member of the Project Review Panel for the Norwegian Research Council, and a member of the Peer Review College of the Danish Council for Strategic Research. He acts as External Examiner for BSc Shipping & Transport Courses at the Hamburg School of Shipping & Transport, and for the Business College Athens. During 2011 he was invited to present papers at a number of international conferences and events held in Singapore, Melbourne, Tasmania, Norway, Liverpool, Brussels, and Orkney. He chaired the conference on Scotland's Maritime Future, attended by the Scottish Transport Ministers held on 22nd February 2011 in Linlithgow, organised by Mackay Hannah. He also chaired sessions at an international offshore port conference in Singapore, and in Chile at the International Association of Maritime Economists (IAME) annual conference. He examined one PhD thesis submitted by a candidate at an Australian university. During the year he reviewed 15 articles submitted to international academic journals and he reviewed two books, all relating to maritime transport issues.

Dr James Cooper was engaged as a policy advisor to sit on the advisory board for the Commission for Taxi Regulation's Taxi Tariff Review for the Republic of Ireland. He was a member of the conference committee of the European Taxi Conference in Amsterdam in 2011, and was a committee member of the NHS Lothian Ambulance Transport Policy Group. In 2011, he was appointed as the Chair of the Transportation Research Board Taxi Committee, and as the Director of the Taxi Research Network and the Accessible Transport Forum.

Dr Wafaa Saleh continued chairing the committee of the International Symposium on Travel Demand Management and acting as an external examiner for the MSc Transport Programme at Salford University. She was invited to visit The University of Hong Kong where she is collaborating on a number of research projects with Professor SC Wong and others at HKU and presented a paper on Sustainable transport planning during her visit. She continued to supervise a number of PhD students in the area of transport modelling and travel demand management.

Dr Michael Carreno was appointed as external expert advisor on 'Transport Related Behavioural Change' to the 3 year EPSRC funded Reflect: A Feasibility Study in Experienced Utility and Travel Behaviour Project. He was also invited to design and

deliver a 2-day workshop on 'Individualised Social Marketing' as part of the ongoing CIVITAS VANGUARD initiative, which was held in Toulouse, May 2011.

Dr Achille Fonzone was appointed as the chair of Working Group 3, an experimental approach to transit modelling, of the COST (European Cooperation in Science and Technology) Action TU1004 – Modelling Public Transport Passenger Flows in the Era of Intelligent Transport Systems. He was also the manager of the Scientific Short Term Missions and the Director of the Training School of the same Action.

Dr Jason Monios was seconded to the United Nations Conference on Trade and Development in Geneva throughout July and August 2011, where he was responsible for researching transit port and hinterland access issues pertaining to trade development in landlocked developing countries in Africa.

PROJECTS ACTIVE IN 2011

Projects that TRI researchers participated in during 2011 are listed below, with details of funding bodies and collaborating partners.

*projects that started in 2011

SUSTAINABLE ENERGY AND TRANSPORT

CIC Start Online (ERDF "SEEKIT" Programme, from September 2009 to August 2012)
Professor Tariq Muneer
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 will assist 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 takes a systematic view of the problem by considering local resource availability, appropriate technology choices, institutional arrangements, and the financing options available.

Investigation of Performance of Bus Engine Using Modified Cells (Aqua Energy Company and Lothian Buses, from October 2010 to March 2011)

Dr Wafaa Saleh and Dr Ravindra Kumar

This project investigates an electrolytic cell which generates hydroxyl gas, on demand, for improving the totality and progression of complete combustion of oxygenated hydrocarbon fuels, and hence improving fuel consumption and emissions. This project compares and assesses fuel consumption and gas emissions before and after a hydrogen cell is fitted in a diesel engine.

***Investigation of "Eco 1 Hydrogen Gas Engine" for Transport** (Scottish Funding Council, from October 2011 to March 2012)
Dr Wafaa Saleh

Through experimentation, this project examines one of the potential alternative options to a conventional engine, the Hydrogen Internal Combustion Engine (HICE) which as of yet has not been fully developed as a commercially working prototype. Analysis of the engine's energy outputs, along with emissions and noise levels will be monitored, recorded and compared to that of levels of the traditional internal combustion engine operating under similar conditions.

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

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. 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 work package 3, in which it has developed the labelling and quality management scheme for the project, and trained other partners in its use. This will now be tested in various municipalities across the EU including East Dunbartonshire in Scotland, where TRI will act as "auditor".

CIVITAS ELAN Ljubljana subcontracting (Urban Planning Institute of the Republic of Slovenia, from June 2009 to July 2011)
Professor Tom Rye
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 Tom Rye is employed as an adviser on this aspect

of the work, running workshops on policy development, appraisal and exchange of best practice, and advising on the structure and content of the plan.

***ORIGAMI** (EC FP7, from February 2011 to January 2013)

Professor Christiane Bielefeldt, Helen Condie, and Dr Michael Carreno
www.origami-project.eu

TRI is coordinator of the EC-funded ORIGAMI project that is concerned with improvements in long-distance door-to-door passenger transport chains through improved co-modality and intermodality. ORIGAMI aims to collect a substantial body of new data on the attitudes of long-distance travellers to alternative future transport provision and has developed an online database of examples of current best practices in intermodal transport and potential new technical solutions. The project is also investigating traveller behaviour and attitudes in different countries in Europe in order to identify the factors, demographics and traveller requirements that will influence future trends in travel behaviour. During 2011 TRI's contribution to the project included a review of the needs of long-distance travellers, and contributions to the online survey on transport policy trends, and to the best examples and potential solutions database.

***CHAMP** (EU IEE STEER, from October 2011 to September 2014)

Professor Tom Rye, Catriona O'Dolan, Dr Kathryn Stewart and Susan Tully
www.champ-cycling.eu

CHAMP aims to facilitate the exchange of best practices, experiences and lessons learned (good and bad ones!) within a group of "best in class" cycling cities. Special attention will be paid for transferring the CHAMP-results to cities in the eastern part of Europe that have a traditionally high number of cyclists but are faced with a fast growing car ownership. The 7 partner cities will each implement at least 2 innovative measures. TRI is advising on evaluation and is undertaking quality control. It will also play a key role in drawing conclusions from the project into deliverable(s) to maximize the usefulness of the project findings.

***COMPASS** (EU FP7, from November 2011 to November 2012)

Professor Christiane Bielefeldt, Helen Condie, Dr Michael Carreno, Dr Kathryn Stewart and Dr Achille Fonzone
www.fp7-compass.eu

TRI is coordinator of the EC-funded COMPASS project, which aims to recommend solutions that will allow improvements to the planning and operation of the passenger transport network to enhance co-modality in transport, thus contributing to the reduction of carbon emissions. COMPASS will provide an overall picture of what travellers require from the transport system at present and in the future, based on an investigation of key socio-economic trends in Europe. COMPASS will focus in particular on how ICT (information

and computer technology) and ITS (intelligent transport systems) applications can meet the future demands identified, especially those favouring the integration of multi-modal transport solutions, and will assess how these solutions can contribute to the de-carbonisation of transport activities.

***Transport Learning** (EU IEE STEER, from June 2011 to November 2013)

Professor Tom Rye, Catriona O'Dolan and David Scotney, (Project Lead Partner: Technical University Dresden, Germany)
<http://transportlearning.net>

Transport Learning aims to create knowledge and capacity on sustainable transport policies and measures in municipalities and energy/management agencies of Europe's convergence regions. It further aims to strengthen market activities on sustainable transport, by integrating it within the business portfolio of energy / management agencies, thus supporting the regions' catching up economically. This project targets to reach a wide audience for creating a large-scale impact and in the long-run to safeguard ongoing training and education on sustainable transport. In order to achieve this, the project creates and implements training and site visits. TRI is one of the trainers, specialising in parking management, as well as working on quality control and evaluation.

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

Professor Christiane Bielefeldt, Helen Condie, Dr Gordon Wilmsmeier and Professor Kevin Cullinane
www.interconnect-project.eu

TRI was coordinator of the EC-funded INTERCONNECT project that concluded in 2011, and which examined 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. Key outputs of the project (available on the project website) include: the project toolkit, a matrix of solutions and their feasibility, applicability and potential impact on interconnectivity in long-distance passenger journeys; 13 case study reports covering examples of good and bad practice in interconnectivity; and a report on the impacts of improved interconnectivity in Europe, outlining the implications for EU policy that can be drawn from the analyses carried out in the project.

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 will seek to apply models of governance 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 has a small role providing 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. In 2011 interviews were undertaken with policy makers in transport and related fields in England and Scotland; TRI assisted by attending some interviews and advising on the sample and questions to ask.

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

TRI is the coordinator of this €2 million project funded by the Intelligent Energy STEER programme of the European Union. The purpose of the project is to raise the profile as a mode of transport of cycling but more especially walking, and build capacity amongst partners in planning and promoting walking, as well as 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. TRI is organising the final event and training that will help to disseminate project results. It is also coordinating evaluation activities.

***Development of Sustainable Urban Mobility Plans (SUMP) in Slovenia** (Urban Planning Institute of Slovenia, from March 2011 to August 2012)

Professor Tom Rye
www.uirs.si

Linked to the development of the SUTP in Ljubljana and the Council of EU Transport Ministers' June 2010 minute on SUMP, the Slovenian government has commissioned work to understand how a formal system of SUMP for all larger cities in Slovenia could function, and to develop national guidance on SUMP. Prof Tom Rye has been engaged as an external expert adviser due to his experience of developing SUMP in the UK, and his knowledge of practice elsewhere in Europe. He has attended site visits in Slovenia and reviewed practice on SUTPs elsewhere in the EU in order to inform the work in Slovenia.

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

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 and evaluation in the project, and assists with the training of partners in how to use the QMS.

ELTIS PLUS (EU contract, 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

This project is implementing two inter-related activities: the management of the European Local Transport Information Service website, 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 SUMP is being promoted, related to the European Council of Transport Ministers' 2010 decision on the topic. TRI is responsible for monitoring and the evaluation of the project; has a key role in developing training material on SUMP; and is topic expert for a significant part of the ELTIS website case studies. In addition, it is in charge of English language quality assurance. In 2011, TRI worked on the evaluation of the Eltis site, a review of SUMP activity in Europe and promoted SUMP at several specially arranged workshops in various countries.

TRAFFIC PSYCHOLOGY AND TRAVEL BEHAVIOUR

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 £75,000. 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 behaviour 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.

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 Royal Borough of Hammersmith and Fulham

In conjunction with The Royal Borough of Hammersmith and Fulham, TRI were responsible for the design, implementation

and evaluation of an innovative theoretically 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 the inclusion of theoretical-based content can increase their effectiveness.

TAXI STUDIES AND DEMAND-RESPONSIVE TRANSPORT

***Aberdeen Taxi Demand Study** (Aberdeen City Council, from September to November 2011)

Dr James Cooper and Ursula Cooper, with Pinpoint

Taxi supply can be controlled in three regulatory domains, Quality, Quantity and Economic control. The TRI Taxi studies group was contracted by Aberdeen City council to undertake a review of the demand for taxi service in the city, an input to the regulation of quantity, mandated under the Civic Government (Scotland) Act. The work also developed a GIS and stance design model that allowed for the development of improved supply in the city. The work was adopted by the city and is being implemented.

***Irish Taxi Regulator Call Off Work** (Commission for Taxi Regulation, Dublin, Ireland, from January to March 2011)

Dr James Cooper

The Taxi Studies group was asked to provide expert input to the oversight panel for taxi fares in the Republic of Ireland. Dr. Cooper sat on the oversight panel and provided expert testimony to the rate determination for National Taxi fares.

***St Stephens Green Rank Study** (Dublin City Council, from January to April 2011)

Dr James Cooper, with Pinpoint

This project was part of a review of taxi rank provision across Ireland. The review is specific to Dublin city centre, focused on St. Stephen's Green. The work is predicated on planned changes to the supply of taxi ranks in St. Stephen's Green, and seeks to predict the impacts of such changes in the use of taxis in the immediate vicinity. The basic methodology mirrors approaches applied in other Irish locations. The approach identifies 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.

***Northern Ireland Taxi Fares** (Department for the Environment, Northern Ireland, from January to April 2011)

Dr James Cooper and Ursula Cooper, with PA Consulting

This is a project to develop a taxi fare structure and taxi tariff for the whole of Northern Ireland. Work included the development of links to the Northern Ireland taxi trade, a review of current operating practices, the identification of taxi operating

costs and the structures currently in place within the Northern Ireland taxi market. The study used three main research approaches, the survey of Northern Ireland Taxi Drivers, the development and update of taxi cost models and the recommendation of a consistent taxi fare structure in Northern Ireland.

***Perth Demand Study** (Perth Taxi Association, from January to February 2011)
Dr James Cooper, with Pinpoint

This study was commissioned 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. Taxi supply can be controlled in three regulatory domains, Quality, Quantity and Economic control. The TRI Taxi studies group was contracted in Perth to undertake a review of the demand for taxi service in the city, an input to the regulation of quantity mandated under the Civic Government (Scotland) Act. The work also developed a GIS and stance design model that allowed for the development of improved supply in the city. The work was adopted by the city and has been implemented. The TRI Taxi Studies group has since been commissioned to undertake a further taxi study for 2012 considering supply in the City and the neighbouring town of Blairgowrie.

***Taxi Supply Review Edinburgh** (Edinburgh Taxi Trade, from March to April 2011)

Dr James Cooper

The taxi studies group were contracted to undertake a review of demand on behalf of the taxi operators in Edinburgh. The work addressed measures currently used to define Significant Unmet Demand under the Civic Government (Scotland) Act. The work was presented to the licensing committee of the City of Edinburgh Council.

***Review of Taxi Ranks and Introduction of Rank Exclusion Zones** (Department for the Environment, Northern Ireland, from June to September 2011)

Dr James Cooper and Ursula Cooper

The study was a milestone project completed on behalf of the Government of Northern Ireland and represents, in conjunction with an associated piece of work on taxi fares, the identification of supply issues and regulation not previously applied to taxis in Northern Ireland. The Taxis Act (Northern Ireland) mandated the development of regulated fares and service quality analysis not previously in place. The work of the TRI Taxi Studies Group forms the foundation of this regulation. The study concluded by making a recommendation of future rank provision and exclusion zones.

***Glasgow Taxi Tariff Review** (Glasgow Taxis, from May to December 2011)

Dr James Cooper and Ursula Cooper

The taxi studies group undertook a root and branch review of the tariff structures applied to the City of Glasgow, developing from first principles a tariff model that would be applied

MARITIME TRANSPORT

to taxi fares in the city. The work was consistent with the legislated requirements set out under the Civic Government (Scotland) Act, whilst allowing for the development of a more accurate Industrial Price Index approach to tariff review than applied previously.

TSB Rural Transport (Technology Strategy Board, from August 2009 to December 2011)
Dr James Cooper and Ursula Cooper, with Mobisoft and University of Aberdeen

This project provided a milestone analysis in developing and delivering rural transport across differing modes. The project sought to develop a tool for improved informed personal Travel based on the sharing of data between disparate booking and information sites, and by direct entry on the part of the supplier. Individual users can match shared transport on this basis to an extent not possible to this point. The work focused on the development of the booking and information portal, and its trial in Scotland and England. An innovative transport scheme was devised and operated commercially in West Lothian providing services to Livingston North railway station.

***Edinburgh Taxi Fares Analysis** (Central Taxis and Citycabs, January 2011)
Dr James Cooper and Ursula Cooper

The TRI Taxi Studies Group has been commissioned to undertake a review of taxi fares in the City of Edinburgh, to support an application by the Edinburgh Taxi trade. The work followed standard patterns of cost measurement sometimes described as a "taxi cost model" or formula, and undertaken in most cities from time to time. The most recent application of a taxi cost model in the City of Edinburgh was completed in October 2008, with a further review of costs undertaken by the city council in 2010. The Taxis Studies Group was asked to undertake a review of the changes in costs in Edinburgh in the intervening period, and concluded the mean change in operating costs.

***Canadian School Bus Economic Analysis** (Independent School Bus Operators Association, Ontario, Canada, from September to December 2011)
Dr James Cooper

This project examined the methods by which provision of home to school transport is allocated, concentrated and delivered. It reviewed the nature of contracting, the desire to achieve best value to education departments, local community and wider government authorities. The analysis considered the current trends in procurement and purchasing policy, questioning the effectiveness of current "Request for Proposals (RFP)", responses from transport providers and the nature of interaction between large transport suppliers and local companies.

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

Professor Alfred Baird and Dr Gordon Wilmsmeier
www.startmos.no

StratMoS, led by Rogaland County in Norway, 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 comprises 27 partners in the NSR, from Flanders in the south to northern Norway. The Murmansk, Arkhangelsk and Nenets regions are associated partners. TRI were involved in two specific StratMoS demonstration projects: the introduction of a new Ro-Ro ferry service for trailers between mid-Norway and the continent, and the development of a new container transhipment port for the NSR. During the project TRI, together with German crane manufacturer Gottwald, developed a new and innovative port concept called FCSTT – Floating Container Storage & Transhipment terminal. The low cost FCSTT concept has attracted interest from several port and shipping operators around the world, as well as trade and industry media.

***KNOW-ME** (EC FP7, from June 2011 to June 2014)

Professor Kevin Cullinane and Yakov Boglev

The project will establish a network of excellence in Europe, integrating experience from leading maritime research institutions. The pilot applications of e-courses developed within KNOW-ME will allow for CPD, with the outcomes contributing to improved living and working conditions on board vessels. TRI is involved as the lead partner for coordinating and managing the delivery of this project, organising stakeholder meetings and managing the implementation of school visits to raise awareness of the maritime industry. TRI will also form the strategy and roadmap to integrate the Know-ME network and project results into the 'e-maritime' initiative.

***Ballyvaughan Bay Hop Feasibility Study** (LEADER, from March to August 2011)
Professor Alfred Baird

Led by Spryia Partnership with TRI as sub-contractor providing maritime and service cost/schedule modelling expertise, Ballyvaughan Bay Hop feasibility study is to be used to support the development of a business plan and LEADER funding application for a new passenger ferry service between Ballyvaughan and Galway. The study objectives included: to establish the level of potential demand and if the ferry service could become a competitive and attractive alternative to other means of transport; to identify where the service should

run to and from, and what infrastructure is required; to establish how reliable the service is likely to be, and what mitigation is required; to assess how fares should be structured, taking into account affordability, value and profit margin; and to estimate the anticipated costs / financial projections.

***Maritime Transport Cluster** (EU Interreg IVB North Sea Programme, from June 2011 to December 2012)

Professor Alfred Baird and Professor Kevin Cullinane
www.maritimetransportcluster.eu

The 'Maritime Transport Cluster (MTC)' Project was approved in June 2011 and will end in December 2012. Led by Hafen Hamburg, MTC applies the cluster idea to the maritime transport sector, thus bridging between results obtained from ongoing Interreg IVB projects dealing with maritime transport issues and new business trends from the maritime industry, as well as with EU transport policy development. The overall goal of MTC is building a structure for interchanging the latest knowledge and experiences concerning maritime transport in the context of the Interreg IVB NSRP. TRI is mainly participating in surveys and the analysis of existing R&D projects and published research, with further inputs on other aspects of the work including the organisation of stakeholder workshops.

***Orkney Sea Freight Transport Emissions Study** (St Margaret's Hope Pier Trustees, from January to March 2011)

Professor Alfred Baird

The study investigated CO₂ emissions for ferries operating on competing routes between Orkney and mainland Scotland, with a focus on freight trailers. In addition, through establishing road transport CO₂ emissions, the study estimated total (i.e. ship + road) door-door CO₂ emissions for each route and by ship type, per trailer. Findings revealed that the shortest sea crossing option, between St. Margaret's Hope and Gill's Bay, despite requiring proportionately greater road transport, offers the lowest total CO₂ emissions per trailer for the specific ship types studied.

***Orkney Sea Transport Emissions Study II: CO₂ Emissions for Transport of Passengers and Cars** (St Margaret's Hope Pier Trustees, from March to April 2011)

Professor Alfred Baird

This study was jointly undertaken with Pedersen Consulting of Inverness. The study investigated CO₂ emissions for ferries operating on routes between Orkney and mainland Scotland, with a focus on cars, passengers and connecting public transport modes. Through establishing road and rail transport CO₂ emissions (to/from central Scotland), the study calculated total (i.e. ship + road or rail) CO₂ emissions for each route and by ship type, per passenger for car, bus, train (and air) transport modes. Research findings have implications for public policy and in particular future subsidy for ferry services and investment in strategic roads.

Dryport (EU Interreg IVB North Sea Programme, January 2009 to June 2012)
Dr Jason Monios, Dr Gordon Wilmsmeier and Professor Alfred Baird
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. 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 in the context of research on freight movements. Extensive field work in Europe has enabled a deeper understanding of the role of dryports within integrated port-hinterland networks. Finally, the structure of the UK logistics sector has been included in the analysis in order to match demand with supply, as a precursor to assessing the potential role for public support of freight node developments.

Flemish Seaports (Flander 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 at least 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 members 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 connotations into the final report.

NMU – Northern Maritime University (EU Interreg IVB North Sea Programme, from January 2008 to June 2012)
Professor Kevin Cullinane, Dr Gordon Wilmsmeier and Professor Alfred Baird
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.

***Food Port** (SEStran, from January 2011 to September 2012)
Dr Yuhong Wang and Dr Gordon Wilmsmeier
www.food-port.eu

The Food Port project aims to optimise and coordinate food logistic chains in the North Sea Region by improving the accessibility and transport logistics system of different food clusters in the region. This project aims to promote the development of multi-modal and transnational transport corridors and efficient and effective logistics solutions in the food supply chain, and thereby to strengthen the food industry and position the North Sea Region as a true food hub. TRI was contracted by SEStran to analyse current food production and consumption patterns, logistics supply chains and trade structures, thereby revealing the importance of the food & drink industry to the Scottish economy and particularly to the regional economies in the SEStran area.

LO-PINOD (SEStran, from June 2010 to September 2012)
Dr Jason Monios and Dr Gordon Wilmsmeier
www.lopinod.eu

The LO-PINOD project is focused on logistics optimisation of ports. It has three key aims: to initiate investment for multi-modal connections to ports, to upgrade skills and knowledge, and national and EU policy support. SEStran is a partner in this EU Interreg IVB North Sea Region project, and has contracted TRI to provide assistance in the Scottish element of the project. This has involved research on the potential for short distance container shipping services, and the planning and management of a tender process to locate an operator for the service.

PHD COMPLETIONS IN 2011

Solar Radiation Related Climate Change Projection for the UK
Yieng Wei Tham, supervised by Professor Tariq Muneer and Brian Davison

Thick Film Electronic Ceramic Sensors for Civil Structures Health Monitoring
Saad Abdul-Ameer Jabir, supervised by Dr Naren Gupta and Dr Sam Wamuziri

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

Automatic Monitoring of Vegetation along Railways
Roger Nyberg, supervised by Dr Naren Gupta and Professor Mark Dougherty

Devolution of Libya's Ports Governance
Hesham Ghashat, supervised by Professor Kevin Cullinane and Professor Alfred Baird

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 into the Fitness of the Emirati Technical Vocational Education and Training to the Needs of the Local Construction Industries
Omar Hasan Ahmad Al Aidarous, supervised by Dr Naren Gupta and Dr Sam Wamuziri

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 Microsimulation 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

Provision of Transport for the Night Time Economy in the United Kingdom with Particular Reference to the Role of the Taxi Sector
Maira Weir, supervised by Dr James Cooper and Professor Kevin Cullinane

The Application of Human Factors through Assessment and Improvement of Behavioural Safety to Improve Safety Performance in Small to Medium Sized Enterprises.
William Rose, supervised by Dr Naren Gupta and Jay Hoy

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

PAPERS AND PUBLICATIONS

- Baird, A.J.** (2011) Driving economic growth with an integrated maritime policy. *Scottish Transport Review*, 52, pp. 5-8.
- Baird, A. J.** (2011) Motorways of the Sea (MoS) and Dryport Intermodal Solutions in Europe. Invited paper presented at the Shipping Reform and National Ports Strategy Seminar, Melbourne, Australia, 14 October 2011.
- Baird, A.J.** (2011) The impact of distance on maritime economics: container transshipment in Northern Europe. Invited paper presented at the Coastlink Conference, Liverpool, 15-16 June 2011.
- Baird, A. J.** (2011) Port Reform, Privatisation and Private Equity Investment. Invited paper presented at the Shipping Reform and National Ports Strategy Seminar, Melbourne, Australia, 14 October 2011.
- Baird, A.J.** (2011) Private equity funds investing in ports. Paper presented at the 9th Port Performance Research Network (PPRN) Workshop, Santiago, 25 October 2011.
- Baird, A. J.** (2011) Scottish Integrated Maritime Policy. Invited paper presented at Conference on Scotland's Transport Future in a Changing World, International Association of Transport Professionals, Aviemore, 29 September 2011.
- Baird, A.J. & Rother, D.** (2011) Evaluating the feasibility of offshore floating container hubs. Invited paper presented at the Conference on Floating Terminals – Commercial Applications for Offshore Transshipment and Storage Hubs, Singapore, 17 November 2011.
- Baird, A.J. & Rother, D.** (2011) Floating container storage & transshipment terminal (FCSTT). Invited paper presented at the Conference on Future Prospects and Facilitating the Development of Maritime Transport & Logistics in the High North, Tromsø, 29 April 2011.
- Baird, A.J. & Rother, D.** (2011) Technical and economic evaluation of the floating container storage & transshipment terminal (FCSTT). Paper presented at the Annual Conference of the International Association of Maritime Economists (IAME), Santiago, 25-28 October 2011.
- Baird, A.J. & Wilmsmeier, G.** (2011) Public tendering of ferry services in Europe. *European Transport*, 49, pp. 90-111.
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- Bergqvist, R., Wilmsmeier, G. & Cullinane, K.P.B.** (Eds.), (2011) *Dryports: a global perspective: challenges and developments in serving hinterlands*. Cheltenham: Ashgate.
- Borthwick, S. & Carreno, M.** (2011) 'Green' fiscal measures for lessening the environmental impact of private vehicle ownership - a review. In: Cygas, D. & Froehner, K. (Eds.) *The 8th International Conference on Environmental Engineering - Selected Papers*. Vilnius: Vilnius Gediminas Technical University Press, pp. 860-867.
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- Caliskan, N., Jadraque, E., Tham, Y. & Muneer, T.** (2011) Evaluation of the accuracy of mathematical models through use of multiple metrics. *Sustainable Cities and Society*, 1(2), pp. 63-66.
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- Stradling, S.G., Mitchell, C., Robinson, J.L. & Fraser, S.** (2011) Scottish government national debate on young drivers' safety: support and recommendations. Invited presentation, Decade of Action for Road Safety 2011-2020: Safer Road Users Seminar 2011, Crowthorne 22 June 2011.
- Stradling, S.G.** (2011) GDL and other solutions to the young driver problem in Scotland. Invited presentation, Brake Road Safety Forum 'Youth, Gender and Road Risk', London, 30 June 2011.
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