

DURABLE TRANSPORT INFRASTRUCTURES IN THE ATLANTIC AREA

NETWORK

ACCESSIBILITY & TRANSPORTS
PROJECT 2008-1/049



DURATINET

NEWSLETTER

Nr 05

January 2011

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ATLANTIC AREA Transnational Programme
ESPACIO ATLÁNTICO Programa Transnacional
ESPACE ATLANTIQUE Programme Transnational
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This Newsletter reports on the dissemination activities and project progress achieved during the 4th semester (June-December 2010) of the DURATINET project.

The 4th Consortium Meeting and the 4th Trans-national Workshop took place in Dublin on 10-11 June 2010. The Meeting and the Workshop were hosted by Trinity College Dublin and organised for the communication and dissemination of project activities to the partners and to Irish stakeholders.



Trinity College Dublin

Trinity College Dublin founded by royal charter in 1592 is recognised internationally as Ireland's premier university. It is the only Irish university ranked in the top 100 internationally (52nd in the world) and in the top 25 European Universities (15th in Europe) by the 2010 THES World University rankings: it is ranked 52nd worldwide for Arts and Humanities and 99th for Engineering and Technology. TCD is highly successful in securing research funding. The research income for 2008/2009 was €89.7m. Approximately 1,500 research staff are employed and approx. 3800 postgraduate students are registered. Trinity College has been an active participant in Framework Programmes dating back to the very first programmes. Participation in FP6 included 50 RTD contracts (total €28.6m) and in FP7 76 RTD contracts (total €28.8m). The College has 24 Schools across 3 Faculties and a number of research institutes. As Ireland's premier university, the pursuit of excellence through research and scholarship is at the heart of a Trinity education. TCD has an outstanding record of publications in high-quality journals and in terms of the impact of its research publications, TCD ranks in the top 1% of the world in 14 key areas: immunology; materials science; plant & animal science; pharmacology & toxicology; social sciences, general; agricultural sciences; engineering; clinical medicine; molecular biology & genetics; physics; chemistry; neuroscience & behaviour; microbiology; & biology & biochemistry. For the period 2006 to 2009, TCD published 5,560 articles, had 23,772 citations, and recorded an H-index of 53.



*This is the 5th edition of the **DURATINET Newsletter**. The Newsletter is one of the ways developed in the project for communication and dissemination of information on project activities. The format of the newsletter is mainly designed for on-line download*

Albert Daly, NRA

Advisory Committee Leader



The main goal of the DURATINET project is to create a network of excellence to facilitate an efficient exchange and transfer of knowledge, to promote the durability, safety and sustainability of transport infrastructure in the Atlantic Area. The network encourages all stakeholders to take part, including infrastructure owners, operators, consultants, contractors, managers, suppliers and researchers. This ensures that the guidance being developed on the repair and management of steel and concrete infrastructure is efficient, effective and practical.

The function of the DURATINET Advisory Committee (AC) is to ensure that owners' views are taken into account in all of the project activities and outputs. The AC brings together all the non-academic partners of the project and coordinates input from the National Administrations and Industry responsible for the management and operation of road, rail and water infrastructure. This ensures that the project results and deliverables are disseminated and implemented in a consistent way across the Atlantic Area regions. It is a fundamental component of the project.

The particular functions of the AC include the following:

- ✓ It is responsible for creating the project Stakeholders Group
- ✓ It ensures that the focus of all DuratiNet activities is aligned with the needs of end-users
- ✓ It provides recommendations to the DURATINET SC and PL regarding dissemination and implementation of the project conclusions and deliverables.

Meetings of the AC take place in conjunction with the Partners Meetings that take place every six months. These meetings are chaired by Albert Daly of the Irish National Roads Authority.

4th Trans-national Workshop

The 4th Trans-national Workshop was held on 10 June 2010 at Trinity College Dublin, Ireland. The event was chaired by Albert Daly of the Irish National Roads Authority and was attended by 51 delegates. These included engineers responsible for maintenance and repair of infrastructure in Ireland, as well as product and repair system developers and providers. The workshop was divided in two sessions.

Session 1 was devoted to presenting the DURATINET project objectives and progress to date. The project leader presented an overall view of the objectives and expected results of the project and the Work Group leaders gave more detailed information concerning the DURATINET activities, progress to date and future plans for the activities development inside each WG.



Session 2 was devoted to present the Irish experience on Maintenance and Repair of Transport Infrastructure.

Three presentations were made concerning:

- Policies and procedures on bridge inspection, maintenance, repair and management, Liam Duffy, Structures Manager NRA;
- Experience of bridge collapse and reconstruction at Malahide: Liam Meagher, Programme Manager - Structures, Irish Rail
- Maintenance and repair of bridges in Ireland: The view from a consultant company: Joe Kelly, Roughan O'Donovan Consulting Engineers

The workshop concluded with a Panel Discussion between the invited speakers, the project consortium members and all the participants in the Workshop, concerning several aspects and practical issues in the maintenance and repair of transport infrastructure.



4th Consortium meeting

The 4th Consortium Meeting was held at the UCD-TCD Innovation Centre in Dublin on 10-11 June 2010. The meeting was attended by 54 consortium members from five European countries, representing the 17 DURATINET partners.



During the meeting, each of the Working Group leaders presented the progress achieved in the first year of the project and presented their plan of activities for project semester 3. Agreement on the progress achieved in relation to the overall project plan was evaluated by the Steering Committee and the milestones and deliverables for the third semester were established and assigned to all partners. The Advisory Committee

discussed several aspects related to the public project documents, their contents and the formats to be adopted.

After the meeting, the partners and the invited workshop guests meet informally at a reception and during a consortium dinner hosted by TCD, which provided the opportunity for informal but, nevertheless, important discussions to take place in relaxed and convivial surroundings.



Technical Visit to Ferrycarrig Bridge

This bridge, located at Ferrycarrig, Co Wexford, is 126m long and was constructed in 1980. In 2007 following an inspection and assessment process it was decided to carryout extensive repairs on Ferrycarrig Bridge. These repairs afforded an opportunity to instrument the bridge crosshead beams to monitor the ingress of chloride ions and rates of corrosion. Five different methods were employed in the repair of the crosshead beams in a move aimed at securing information necessary for optimisation of future repairs of structures in marine environment. During this technical visit it was possible to observe the condition of the repairs and the monitoring systems installed in the different zones of the structure.



Dissemination Actions in International T&SC Conferences

During the project semester 4, several papers for oral or poster presentations were prepared and submitted to various technical and scientific International and National Congresses, for DURATINET activities dissemination.

Special Session DURATINET, 24th June - Lisbon

Included in the program of REABILITAR 2010, a Special Session DURATINET was organized for dissemination of project activities and discussion of DURATINET achievements with Portuguese project end users. Several presentations were done, according to the program below.

Project Context, objectives and expected results

Manuela Salta, LNEC

Metallic Structures Repair: Guidelines manual - type of defects and damage causes, inspection and repair methods

Hugo Patrício, REFER, E.P.E.

Reinforced Concrete Structures Repair: Guidelines manual - type of defects and damage causes, inspection and repair methods

Afonso Póvoa, EP, E.P.E.

Probability based maintenance optimisation of bridges located in marine environment

Alan O'Connor, TCD (IR)

Case studies in the project

Rita Moura, BEL

Cluster "Green and Smart Structures" Development & innovation

Antonio Santos Silva, LNEC



WG A 2 - Maintenance decision tools for repair optimisation

WG A 3 - Maintenance and repair of concrete structures

WG A 4 - Maintenance and repair of steel structures

The activities in these WG's during this period were mainly focused on the preparation of the contents of the Technical Guide. This document contains guidance for the maintenance and repair of steel and reinforced concrete structures with reference to: methodologies for optimising the maintenance of infrastructures; issues relating to durability requirements; the deterioration processes; testing techniques for inspection and diagnosis of deterioration; repair options and procedures. Several procedures relating to deterioration processes, defects, testing techniques and repair methods were prepared and will be included in the web version of the Technical Guide. This version will be freely available from the DURATINET website in January 2011. The full version of Technical Guide will be ready for publication during the 1st semester of 2011.



STRUCTURE OF DURATI MANUAL

Even when adequately built, properly used and well maintained, the environment actions and the increased traffic loads will affect transport infrastructures. Thus, their components will require repair or protection due to deterioration and in some cases also due to accidental actions. The main purpose of the DURATI manual is to provide background information for structures maintenance mainly as it concerns the evaluation of the structural material condition which can be related to the underlying cause or causes of the material deterioration process; the testing techniques that can be used on structures inspections; and the selection of the appropriate repair method to restore the original integrity of the structure or to compensate and avoid recurrence of defects caused by deterioration. Aspects strictly related with strengthen of structures are outside the field of the manual.

After a brief introduction to basic methodologies on 'structures management: maintenance and assessment', for each structural material, steel or reinforced concrete, the information is organized according to three topics:

Deterioration This topic contains general information on deterioration processes of structural materials including short and general description of mechanisms, main factors and causes, their typical defects/damage and respective consequences on the material conformity.

Testing It includes the several types of testing techniques (NDT and DT) which can be used in situ or in the lab for inspection of structures to obtain data on the deterioration progress supporting the assessment of durability and structural condition.

Repair Details on structural materials repair and protection methods are presented with information concerning their adequacy to the type of defects and damage induced by the deterioration processes.

Who should use these Manual?

All responsible by carrying out the maintenance of structures, implementing inspection works in the structures, taking decision on the repair or protection interventions during service life of structures, and also by those following the implementation of repairs and the inspection of the repair works either using day labour or contractors.

WG A 5 - Quality control needs for repair products

WG A 6 - Smart and Green Materials

WG A 7 - Performance evaluation of repair systems and products

The activities in these WG's were developed according to the program and Technical Reports will be available in the website next semester.

Next Project Meetings

6th Trans-national Workshop & 6th Partners Meeting

June 2011

U. Nantes, France

7th Trans-national Workshop & 7th Partners Meeting

Nov 2011

LNEC, Lisbon, Portugal

Next issue:

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More information on DURATINET can be obtained from the website

www.duratinet.org

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