

TURAS submission to Current Opinion in Environmental Sustainability

EUROPEAN UNIVERSITY-COMMUNITY PARTNERSHIP-BASED RESEARCH ON URBAN SUSTAINABILITY AND RESILIENCE

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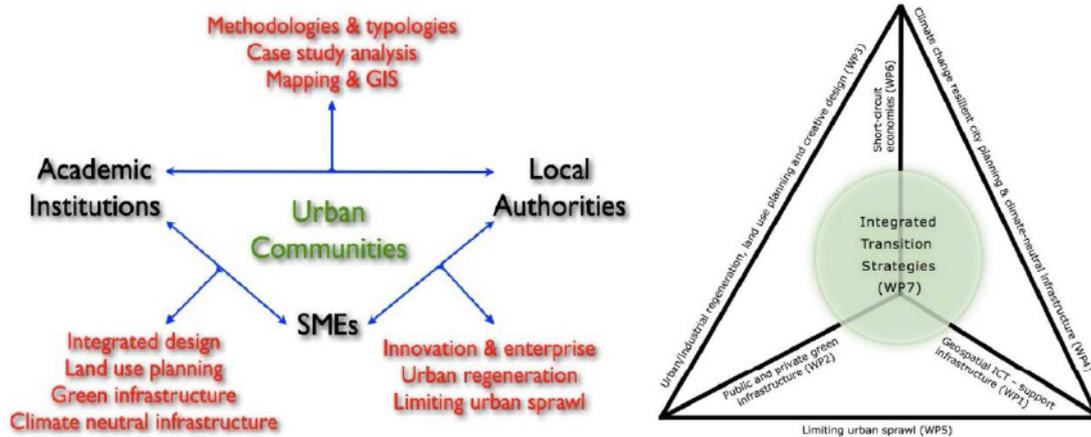
Abstract

Transitioning Towards Urban Resilience and Sustainability (TURAS) project is based on the partnership between decision makers in local authorities with SMEs and academic institutions to develop and demonstrate transition strategies for urban resilience and sustainability. Out of eleven case study sites, three are presented in this brief, including: brownfield redevelopment in London, community mobilisation around underutilisation of urban sites in Dublin, and a web portal for sustainable mobility in Ljubljana.

Introduction

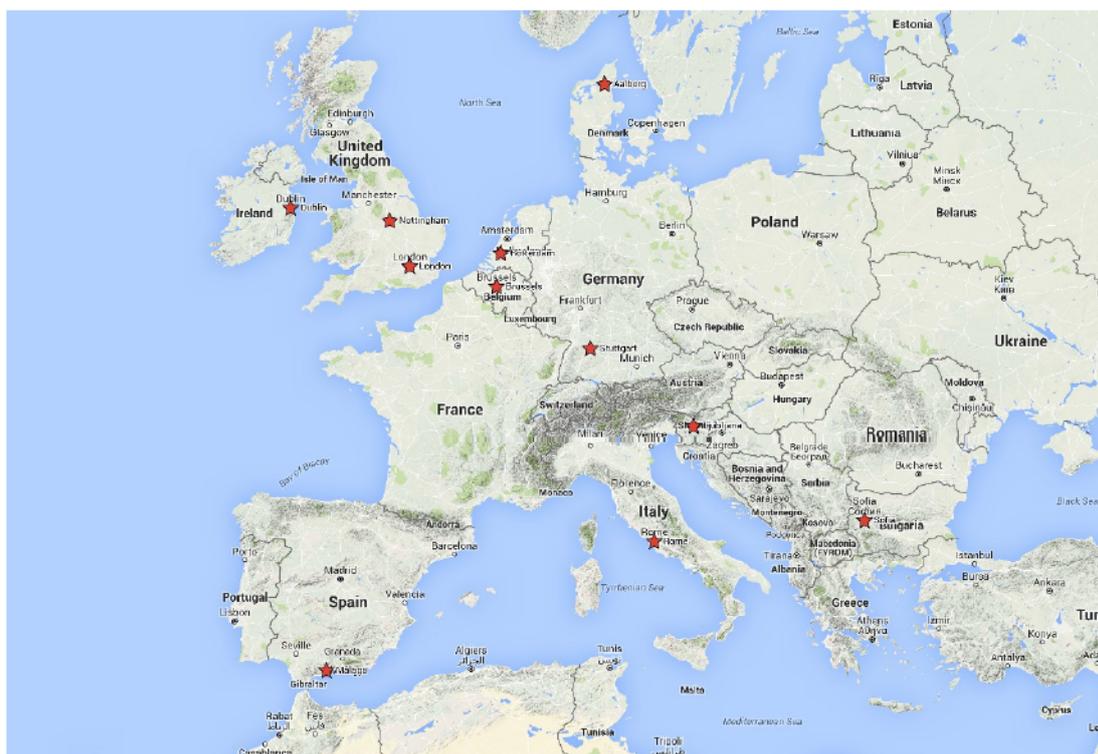
Transitioning Towards Urban Resilience and Sustainability (TURAS) project aims to bring together researchers, local authorities, small and medium enterprises (SMEs) with local communities and neighbourhoods to research, develop, demonstrate and disseminate transition strategies and scenarios to enable European cities and their rural interfaces to build vitally-needed resilience in the face of significant sustainability challenges. To ensure maximum impact, the TURAS project has developed an innovative twinning approach bringing together decision makers in local authorities with SMEs and academics to ensure meaningful results and real change are implemented over the duration of the project. Eleven local authorities or local development agencies are involved as partners in the project and they orient research and development from the outset towards the most significant sustainability and resilience challenges facing their cities (Figure 1). Nine leading academic research institutions and eight SMEs work with these public sector bodies helping them to reduce their urban ecological footprint through proposing new visions, feasibility strategies, spatial scenarios and guidance tools to help cities address these challenges. The specific challenges addressed in TURAS include: climate change adaptation and mitigation; natural resource shortage and unprecedented urban growth. The final objective is to identify integrated transition strategies that will build on various strands of knowledge generated by the project consortium.

Figure 1. Research typology of the TURAS twinning concept illustrating three expertise couplets and their respective areas of speciality (red). Central to the concept are urban communities in the form of local neighbourhoods or districts.



Over the five year duration of the project, the feasibility of these new approaches is observed in selected case study neighbourhoods of the participating cities and new measures to enable adaptive governance, collaborative decision-making, and behavioural change towards resilient and sustainable European cities will be tested. In the final stage of the project, the impact of these new approaches will be measured and results compared between participating cities before a final set of strategies and tools will be developed for demonstration, dissemination and exploitation in other European cities. The cities represented in TURAS are representative of European regions in terms of size, geographical location and sustainability challenges. They include 6 European capital cities: Brussels (Belgium), Dublin (Ireland), London (UK), Rome (Italy), Sofia (Bulgaria), and Ljubljana (Slovenia); and other cities representing regional capitals and smaller cities including Nottingham (UK), Malaga (Spain), Rotterdam (The Netherlands), Stuttgart (Germany), and Aalborg (Denmark) (Figure 2).

Figure 2. Local authority partners in TURAS



The project teams work side by side the local authority partners to identify the local communities which will offer a rich material for studying specific issues and demonstrating innovative solutions. We offer the following three examples of partnerships developed under the auspices of TURAS project:

1. University of East London and London Borough of Barking and Dagenham
2. University College Dublin and Dublin City Council
3. University of Ljubljana and Regional Development Agency of Ljubljana Urban Region

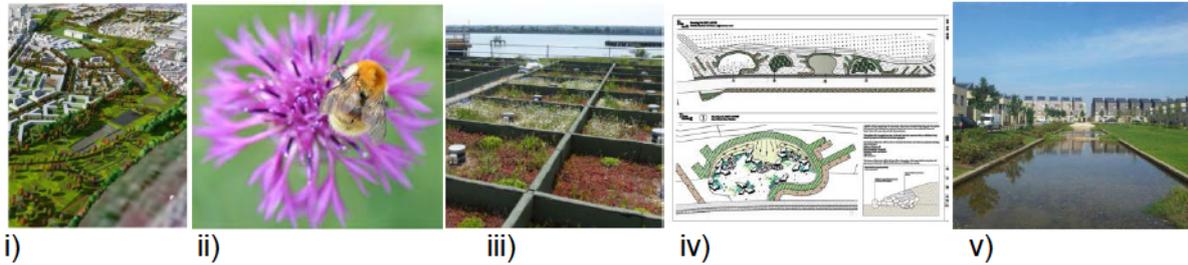
University of East London (UEL) and London Borough of Barking and Dagenham

UEL have several demonstration projects going on with numerous partners, including the London Borough of Barking and Dagenham, Barking Riverside Ltd (a public-private partnership, initially with between Bellway Homes housing developers and now London and Quadrant Housing Association and the Greater London Authority). The subject of the collaboration is the design of green infrastructure within a new community for 11,000 people being developed on a large brownfield site in the Thames Corridor (Figure 3i). The project must provide a sustainable community with a good quality of life for the new residents whilst at the same time mitigating for the loss of biodiversity (Figure 3ii) and ecosystem service provision when moving from a biodiverse greenfield state of a brownfield site to a new development. Thus far, numerous experiments have been initiated looking at green roof design (Figure 3iii) and ecosystem service provision and the incorporation of ecomimicry of the habitat associated with the brownfield site into green roof and ground-level landscape design (Figure 3iv) in order to support the local biodiversity of national conservation importance.

The success of the experiments is beginning to be incorporated into the masterplanning of the development, the local authority planning process for future developments and to the Community Interest Company (a not-for-profit organisation made up of elected resident representatives) that will ultimately become responsible for the management of the greenspace on site. This model of community-led management is not typical in the UK and represents another innovative aspect of the TURAS collaboration. Results and learning from Barking Riverside are also being rolled out more broadly across London and beyond through a number of demonstration projects and initiatives to incorporate ecomimicry into planning guidance opportunities such as Sustainable Urban Drainage Systems (Figure 3v). The experience has been very positive with numerous opportunities for co-creation of knowledge and knowledge exchange between partners. Such has been the success of the collaboration that we have been invited to present at numerous national conferences, submit peer-review papers and Barking Riverside has won an Integrated Habitats Design Award.

Figure 3. i) Master planning - artist's impression of the Barking Riverside Development; **ii) Brown-banded carder bee (*Bombus humilis*)** - UK Biodiversity Action Plan conservation priority species associated with the Barking Riverside brownfield site; **iii) Green roof experiment** - test bays investigating the effects on ecosystem service provision of moving away from generic green roof systems to locally-inspired systems; **iv) Brownfield landscaping** - designs for habitat pockets to be incorporated into ground level landscaping at Barking Riverside

taking inspiration from brownfield habitat features; **v) Sustainable Drainage System (SuDS)** - part of the SuDS design at Barking Riverside to manage storm water on site.



University College Dublin (UCD) and Dublin City Council (DCC)

This collaboration evolves around several projects:

- a) Reusing Dublin - A crowd sourced web - GIS application for mapping underused spaces
- b) Connect the Dots - An open initiative to build an interactive arena around the issues of relationships between vacant spaces and interested users in Dublin City
- c) Collaboration Dashboard - an on-line portal that provides visibility, facilitates connection and networking between different types of groups in the city

Reusing Dublin - A crowd sourced web - GIS application for mapping underused spaces

There are many challenges associated with the accumulation, validation and maintenance of data on underused spaces that can to some extent be addressed by a process of volunteered geographic information (VGI) which could be considered as the basis of real community planning supported by the VGI's potential to reduce the dependence on data from government and provide more relevant and insightful information. In Ireland, Dublin City Council carried out a survey of vacant sites in 2013 in preparation for the introduction of a levy on vacant land. Alongside this information, the TURAS project researched and developed a crowd sourcing web GIS application with the working title *Reusing Dublin* (Figure 4i). This application explores the potential to obtain a finer grain of information by mapping underuse as opposed to simply 'vacant space' and the potential contribution of volunteered geographic information. Through *Reusing Dublin*, users can discover and share information on an identified space and connect with others who have ideas about how that space could be used more efficiently and imaginatively. They can also add markers for underused spaces not already recorded and share information or connect with others about that space. Such crowd sourcing initiatives are social innovations with the potential to precipitate change at different scales.

Connect the Dots - An open initiative to build an interactive arena around the issues of relationships between vacant spaces and interested users in Dublin City

Connect the Dots is an experimental interactive space that encourages dialogue on how we prioritise values over others, adds knowledge about spatial agency and builds critical mass to the debate on underused spaces (usually through an event where food is shared). The initiative has received steady traction from citizens with approximately 40 -50 people attending each time (Figure 4ii). The initiative brings together a broad range of stakeholders including Councillors, academics, Council officials, community cultural projects, squatters, social innovators. A database of shadow networks is

being created. Face to face sharing and exchange of knowledge between people of different backgrounds is valuable allowing for change alliances to be built.

Collaboration Dashboard - an on-line portal that provides visibility, facilitates connection and networking between different types of groups in the city

Collaboration Dashboard has a vital role to play in the public participation network to which 510 community groups signed up to in 2014 (Figure 4iii). Groups or projects that create a step change to the dominant perspectives or directly contribute to social or community capital shall be on the dashboard. As Irish society is a 'high context', network based society; it is often difficult to quickly find out what exists outside of one's network. The dashboard answers questions such as "What groups exist already? What type of groups are they? How can I access them? What is the category of their collaboration?" It makes tacit knowledge legible and facilitates legacies of knowledge to be passed from older communities or projects to new ones. Projects are categorised on a conceptual scale with the local authority (top down) at one end and grass roots community action (bottom up) at the other. In between there are categories of collaboration of the Council and other institutions, communities of practice, social entrepreneurs and as we understand more, other categories shall emerge in between.

Figure 4. i) *Reusing Dublin* - web interface ii) *Connect the Dots* - community meeting; iii) *Collaboration Dashboard* - web interface



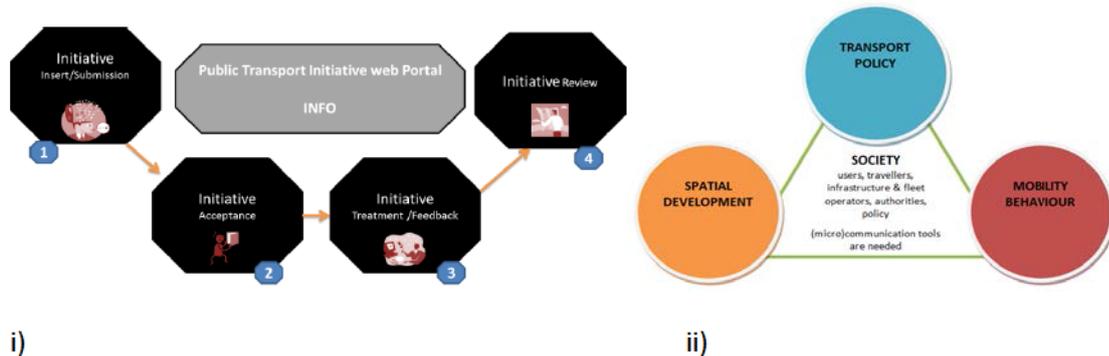
University of Ljubljana and Regional Development Agency of Ljubljana Urban Region (RDA LUR)

The focus of UL FGG collaboration with RDA LUR is development of micro-communication tool with stakeholders for more interactive dialogues through **LUR Public Transport Initiative web Portal (LURPP)**. This means, that a user GIS interface is introduced for e-participation, which enables public to be active in improving public transport services and transport infrastructure (mobility). The application is integrated with the open-sourced GIS components and it is related to the geo-spatial database which allows users in the structured way to pose questions, to comment, suggest and response by individual content sorted in different groups or themes. Figure 5i describes LURPP as an interactive GIS platform with 4-step process of public participation. [Regional Development Agency of the Ljubljana Urban Region](#) is proposed as the main operator (moderator) for initiative management in LUR, for all stakeholders in the field of transport including public transport operator, infrastructure managers and municipalities. Users participate anonymously or they could be identified by themselves.

WebGIS for initiatives in sustainable mobility (Figure 5ii) could be a part of smart mobile applications or other GIS portals for public participation with appropriate coordinate system and projection. Future webGIS platform could have the possibility for liking and/or ranking past initiatives while setting

priorities of measures in transport sector based on estimates of the general public. There could be the possibility of choosing from the available variants of potential measures based on estimates of the general public and selection of measures. Future webGIS platform can be used as a crowdsourcing tool for different purposes as sensors for calibration and validation of different spatial (traffic) models (Figure 5iii), as a communication tool for evaluation of different implemented measures in the field of mobility, energy, environment and waste management.

Figure 5. i) Four step process of LUR Public Transport Initiative web Portal; ii) Challenges of sustainable mobility; iii) Results of traffic modelling, example of annual average daily traffic values in the city of Ljubljana (Source: UL, FGG-PTI, 2011)



UL FGG has developed the beta version with optimization, debugging, customizing, and testing of the webGIS portal. Transfer of the first demo version WebGIS portal – LURPP has occurred recently to RDA LUR. This will follow with the workshop for stakeholders and users organised by RDA LUR and further testing of performances on the webGIS activity. During the research and development phase at the [UL FGG](#), the transport researchers and engineers have found that the method for data collection and monitoring from various sources is applicable also for other purposes in traffic engineering, for example traffic management plans and real-time traffic and travel information, including information on incidents related to transport (e.g. road works, accidents, blocked road, floods). The process and tools for the communication with the public could also be used for energy, environment and waste management.

The Outcomes

The three presented case studies of collaboration between academic institutions, SMEs and local authorities to develop transition strategies towards urban sustainability and resilience have demonstrated the positive outcomes of such joint efforts. Collaboration at Barking Riverside has

proved very successful with a number of green infrastructure experiments being established on site and results from these being gradually fed into masterplanning design for the development to the Local Authority partner, and further afield. The involvement of local green infrastructure experts in the project has enabled designs to maximise biodiversity and associated ecosystem service benefits. It will also support the transition process from development site to site managed by the local residents by providing socio-economic benefits to residents through work-based training opportunities.

The three initiatives with Dublin City Council have provided an innovative way of interfacing with urban residents interested in understanding local issues and engaging in solving them via various means – from information provision to networking and collaboration. *Reusing Dublin* has facilitated identification of over 620 underused sites/assets within a 3km² area of Dublin City centre and has over 1000 followers on social media. *Connect the Dots* has been trialled six times over the last year. Cork City has invited them to explain their method and consider an adaptation of the process for Cork City. The third initiative, *Collaboration Dashboard*, may be taken up by Dublin City Council as a pilot project for their Public Participation Network and the Local Economic and Community Plan 2016 -2021. All three initiatives have attracted interest from cities in Ireland (Cork and Belfast in particular) and TURAS local authority partners across Europe, e.g., London Borough of Barking and Dagenham (London, UK), Brussels Environment (Belgium), Malaga (Spain), Belgrade (Serbia) which found them potentially pertinent and useful for enticing their local actors in constructive dialogues about urban underutilized spaces.

Our third case, the city of Ljubljana is on the right way towards sustainable mobility. The city was awarded the prestigious European Mobility Week Award for 2013 and the European Green Capital Award 2016 with the jury highlighting the city's achievements towards sustainable mobility. The regional public transport initiative web portal has been an important contributor to realizing this goal. The interactive feature of this portal which facilitates communication with the transport users and public at large has shown prominence to support better understanding of needs and improvements of infrastructure and operations. Just as the other two cases, this initiative was enabled through TURAS project and has demonstrated the value of its core concept.

In summary, TURAS is an ambitious and broad reaching project which aims to bring together community stakeholders at all levels, local industry and local authorities with researchers and visionaries from many disciplines in order to achieve a real and lasting transition towards more sustainable and resilient green cities.

Acknowledgement

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