



# EIROCRETE

Queen's University Belfast (QUB) and Banagher Precast Concrete collaboration in FP7

## Introduction

The European Commission funded FP7 Project, 'EiroCrete,' worth more than €1 million, is aimed at the development of sustainable, low carbon, pre-cast concrete infrastructure. The four-year project is funded by the European Marie-Curie Industry-Academia Partnerships and Pathways (IAPP) programme, which links public and private research, boosting skills' exchange between the commercial and knowledge-based sectors. In this case study Su Taylor, a Professor in Structural Engineering at Queen's University Belfast (QUB), shares her experience on the FP7 project and offers advice for those looking to participate in the current Horizon 2020 Programme.

### About the project

<http://www.qub.ac.uk/schools/SchoolofPlanningArchitectureandCivilEngineering/OurResearch/Projects/EiroCreteDevelopmentofsustainablelowercarbonpre-castconcreteinfrastructure/>

It is estimated that concrete projects are responsible for more than five per cent of humanity's carbon footprint and the major aim of EiroCrete is to develop significantly lower energy, durable concrete products for use in civil infrastructure by encapsulating waste products.

As concrete infrastructure, such as bridges, suffer from premature deterioration, mostly due to the corrosion of the steel reinforcing bars (rebars) embedded in the concrete, the project is also focusing on combining corrosion-resistant basalt fibre reinforced polymer (BFRP) fibres and creating bars which are stronger, lighter and have a lower carbon footprint than steel equivalent rebar.

By maximising the inclusion of waste products, this gives the ability to almost halve the carbon footprint of our concrete, lowering its energy and by integrating the BRFP, it becomes much more durable and there will be associated cost benefits for this.

EiroCrete will produce an optimisation of the precast concrete mix which will be more environmentally-friendly.

<b>Acronym</b>	EiroCrete
<b>Start</b>	2013
<b>End</b>	Ongoing
<b>EU Grant Aid</b>	€1million

#### EiroCrete Spokespeople

Professor Susan Taylor & Dr Mohammed Sonebi, School of Planning, Architecture and Civil Engineering (QUB), Peter Deegan, Banagher Precast Concrete

#### Academic Partners

Queen's University, (QUB), (Belfast)  
Politecnio Di Milano (Italy)

#### Industry Partners:

Banagher Precast Concrete Ltd (Offaly, Ireland)  
Azichem SRL (Italy)

### Why engage in collaborative EU R&D and innovation projects?



Professor Taylor explains:  
"Following attendance at a workshop hosted by Invest Northern Ireland

and InterTradeIreland where we heard other peoples' EU project experience, Dr Sonebi and I were enthused by the research possibilities offered by EU funding streams.

"Following this event, we posted our project idea on an FP7 IAPP forum

and, having had an excellent ongoing relationship with Banagher Concrete, myself and Dr Sonebi decided to pursue the EiroCrete project together. The Italian partners from academia and industry were secured soon after and our bid submitted.



*“Collaborative projects like this are an excellent way to take research from a lab to a real world.”*  
Prof Taylor

“Industry thinks differently from academia and to have these different viewpoints intermingling together can create something exceptional.”

## North South Collaboration

Prof Taylor adds: “It is so useful to have a leading commercial concrete expert, Banagher, on our consortium and to have them so close at hand.

“Concrete by its very nature is bulky and it would not be so easy to transport between us if we were not on the same island! It is simple enough to put some samples in the car and bring them up to our lab setting for testing.

“There are definitely cultural similarities to working with a partner on a cross-border basis as we often have the same work/life outlook in the North and South.”

Peter Deegan of Banagher, based in Co Offaly, comments: “I have a combined interest in this project as it straddles both academia and the commercial world and I am of the opinion that it is through collaborative working with like-minded people that the overall industry can progress.

“Through EiroCrete we are lucky to have the research and precast expertise on the same island. While I need to plan my day a bit more if I need to go to QUB, at least I have the option to jump in a car rather than having to catch a plane. It is certainly a benefit to be working with a partner in the North from this point of view.”

*“Involvement in this project will hopefully raise Banagher’s profile within Europe”*  
Peter Deegan, Banagher

## Project progress



Dr Mohammed Sonebi explains: “We had a breakthrough on an algorithm for technology to be used in fibre reinforced concrete slab. This learning could see us ahead of schedule in another six months’ time.

*“Collaboration has opened so many doors for each of the partners.”*  
Dr Sonebi

“Our consortium and project is relatively small on a European basis, in that we are four partners across three countries. The two Italian partners have the benefit of being based in the same country, speaking the same language and the two partners across Ireland have the same synergy, which, when we come together, allows us to move something on, perhaps more quickly than if we had all been based further apart from each other.”

*“We are delighted that EiroCrete will have a European-wide impact and potentially change the way that the concrete industry operates, bringing more durability and a reduced environmental impact to structural and civil engineering infrastructure.”*  
Prof Taylor

## How can InterTradeIreland help?

InterTradeIreland is helping companies and researchers from Northern Ireland and Ireland to collaborate in Horizon 2020.

*“We wouldn’t have become involved in the first place had it not been for the InterTradeIreland and Invest NI workshop.”*  
Prof Taylor

Peter Deegan concludes: “My advice for other SMEs considering taking part in a European-funded project would be to make sure you have clear commercial goals in mind.

“Becoming involved can be really worthwhile as you can bring your real-time knowledge to a research setting, gaining a competitive edge against other companies, as academia will be working with you to

## About the Industry-Academic-Partnerships-Pathways (IAPP) scheme

Marie Curie Actions Industry-Academia Partnerships and Pathways (IAPP) help public and private research to work together on project-based joint cooperation programmes. Partners include universities and companies of all shapes and sizes.

