



## National and Global Affairs



## Turn Challenges into Solutions

To tackle persistently intractable challenges, technical solutions can offer an answer but rarely the total answer. Many innovations can struggle to move beyond being a plausible idea to something that works in the real world and produces lasting societal benefit. The solution must often be simultaneously technological, economic, environmental and social.

These are the types of issue of interest to Professor Paul Coughlan. A specialist in operations management and organisational improvement, he has a particular interest in

bringing organisations together to learn through collaborative action.

In the REHEATZ project in Zambia, engineers have designed a novel wastewater heat-recovery system, while Professor Coughlan and the team have explored and facilitated companies, government departments, researchers and communities in collaborating to adopt it. His work with a large food producer, NGO and policymakers about the wider implications of heat recovery for skill-building vocational learning in sustainability demonstrates what is possible.

This work showcases how Trinity is changing public attitudes to a societal issue through multiple approaches, such as evidence-informed programmes, deliberative processes and media engagement.

*Prepared by Trinity Civic Engagement for Societal Impact, September 2026*

### Professor Paul Coughlan

#### SCHOOL

Trinity Business School

#### PARTNER AGENCIES

Southern African Institute for Policy and Research  
Build It International Zambia  
Ministry of Green Economy, Zambia  
Embassy of Ireland in Zambia  
ZamBeef  
Eastern and Southern African Management Institute

#### FUNDERS:

Research Ireland  
Irish Aid  
INTERREG  
Enterprise Ireland  
Trinity AIB  
Climate Hub  
Horizon Europe

#### SUBJECT AREAS

Continuous improvement  
Manufacturing and product development  
Inter-organisational collaboration  
Action learning  
Action research  
Service innovation  
Commercialisation of university research



## The REHEATZ Project

The philosophy at the heart of REHEATZ (Recovering Embedded Heat in Zambian Food Production) is that no one expertise nor one sector alone can solve a complex societal challenge. Funded by Research Ireland and Irish Aid through the SDG Challenge Programme, with additional support from the Trinity AIB Climate Hub, REHEATZ set out to harness the heat energy in wastewater discharged by food-processing companies in Zambia. The transdisciplinary project developed and demonstrated a low-cost system for recovering and reusing that heat.

While, on the surface, REHEATZ sounds like a purely engineering project, the work must be understood in its political, social and environmental context in order to succeed. Zambia is seeking rapid industrialisation while reducing dependence on fossil fuels and reducing emissions. It is also prone to drought.

As an operations management specialist, Professor Coughlan and the REHEATZ team have demonstrated a technology that works, along with the business case and the relationships required to implement it. This has meant vocational training for young Zambians, exploring green employment, and examining how a technology developed through an international academic partnership can be embedded in the local economy.

Most importantly, REHEATZ has opened a channel for collaboration between research, industry, NGOs and government. The team has engaged with Zambia's Ministry of Green Economy and Environment and Ministry of Energy. This

has meant codeveloping and demonstrating a policy approach which, if adopted by the Zambian government, could support wider adoption of similar systems.

## Other Water Projects

Professor Coughlan has played active roles in a number of water and energy related projects, exploring the factors that transform what is technically possible into sustainable practice:

**HY4RES**, an Interreg Atlantic Area project developing hybrid renewable-energy systems to help communities and businesses in Ireland, France, Portugal and Spain move towards net zero.

**iAMP-Hydro**, a Horizon Europe project to develop an intelligent asset-management platform to improve the efficiency, flexibility and sustainability of existing hydropower plants, using digital sensors, data-sharing protocols and new digital services.

**Dŵr Uisce**, an Ireland-Wales collaboration demonstrating ways of reducing the energy demands of water systems, combining engineering research with business and stakeholder engagement, developing novel technologies including micro-hydropower energy recovery and wastewater heat recovery systems.

**REDAWN (Renewable Energy in Water Networks)**, an EU-funded project exploring the use of micro-hydropower technology to recover energy from water networks across the Atlantic region. The project also explored energy and carbon costs, taxation and incentives.

# Outputs

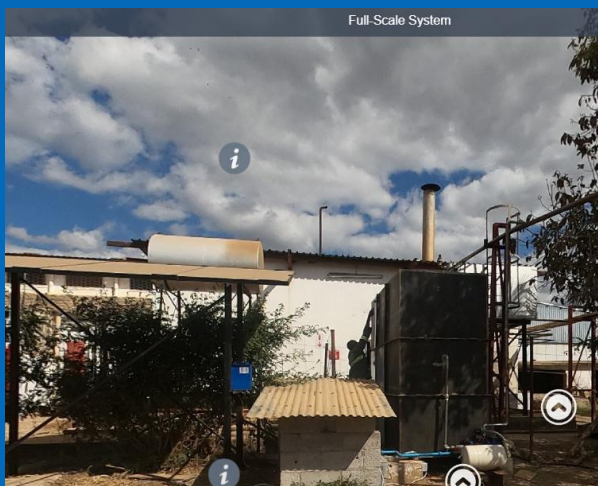
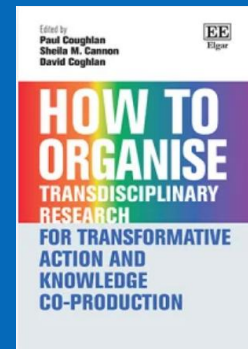


## *Zambia's factories burn too much coal – how reusing hot water can cut energy use (2025)*

Professors Coughlan and McNabola coauthored this article in collaboration with Trinity researcher, Eleanor Mancusi-Ungaro, for The Conversation explaining the relevance of the REHEATZ project in a developing world context.

## *How to Organise Transdisciplinary Research for Transformative Action and Knowledge Co-Production (2026)*

This recently published book makes the case for transdisciplinary research as a response to societal, operational and environmental challenges. Drawing on eight initiatives (including five by Trinity researchers), it explores novel research designs, knowledge production methods, learning mechanisms and evaluation criteria.



## *3-D Tour of Full Scale Wastewater Heat Recovery System (2026)*

This is a virtual tour of the REHEATZ solution as implemented by ZamBeef in a food production plant in Zambia.

“Good ideas have come from the engineers and other researchers but, ultimately, they are being realised through materials, people resources, capabilities in Zambia. This is not transactional: this is relational.”

Professor Paul Coughlan  
DSAI Webinar Series  
June 2026



Paul Coughlan has been Professor in Operations Management in Trinity Business School for many years. He served various roles in the School including MBA Director, Director of Postgraduate Teaching & Learning, Director of Research, Course Co-Director at the TCD-UCD Innovation Academy, Director of Accreditation & Quality Assurance, and Co-Director of Faculty. He also served as President of the European Institute for Advanced Studies in Management (EIASM) from 2003-2009 and Conference Board Chair of the Innovation and Product Development Management Conference (IPDMC) from 2018-2022.

Now retired but in an Adjunct Professor role, he continues to contribute actively to funded research projects exploring environmental sustainability of water distribution and use. Collaborative strategic improvement of operations through network action learning is at the heart of this research.

## For More Information

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