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****Please read accompanying guidance notes****

Department	School of Engineering and the Built Environment
Supervisors	Dr. Lina Khaddour, Dr. Suha Jaratdat, Prof. Mark Deakin
Funding Status	Funded PhD Project (Worldwide)
Application Deadline	14/04/2022
Project Title	Developing BBB Framework for Post-Disaster Re-construction Recovery

PROJECT DESCRIPTION

Build Back Better (BBB) as a re-construction approach to post-disaster recovery has escalated globally since 2016. It is intended to speed up the planning process, enabling re-construction to address sustainability, risks and future disasters. The UK government's post-COVID-19 proposals set out a new "zonal" system for BBB. This re-construction approach sets out three categories of land: growth areas (suitable for substantial development), renewal areas (suitable for development), and protected areas for BBB. This in turn means the legislative framework and financial regime for BBB shall have to align the re-construction of any post-disaster recovery with long-term sustainability goals.

The aim of this research is to develop BBB as a Multi-Objective Decision Method (MODM). The post-disaster re-construction risks, legislative framework and financial regime shall be based on a mathematical optimization technique. This optimisation technique shall in turn be founded on an Analytic Hierarchy Process (AHP) created as a Multi-Criteria Decision Making (MCDM) tool for ranking the critical variables of BBB. The variables critical for this tool's ranking of MCDM shall also be subject to a consistency check designed to reduce the multitude of inconsistencies among the policy makers, regional planners and construction practitioners responsible for sustaining the post-disaster recovery process.

Academic qualifications

A first degree (at least a 2.1) ideally in Construction management, architecture, architectural technology, or any built environment or computer science realeated topic with a good fundamental knowledge of construction management, sustainable construction standards and risk management..

English language requirement

IELTS score must be at least 6.5 (with not less than 6.0 in each of the four components). Other, equivalent qualifications will be accepted. Full details of the University's policy are available online.

Essential attributes:

- Experience of fundamental AHP analysis and Risk simulation
- Competent in Multi-Criteria Making MCDM
- Knowledge of construction management, regional planning, construction policies, legislations and sustainability standards.
- Good written and oral communication skills
- Strong motivation, with evidence of independent research skills relevant to the project
- Good time management

Desirable attributes:

Self-motivation, commitment, time management.

Indicative Bibliography	Bilau, A. A., Witt, E., & Lill, I. (2018). Research methodology for the development of a framework for managing post-disaster housing reconstruction. *Procedia engineering*, *212*, 598-605. Bilau, A. A., Witt, E., & Lill, I. (2018). Practice framework for the management of post-disaster housing reconstruction programmes. *Sustainability*, *10*(11), 3929.
Funding notes	This project may be funded by a scholarship of the School of Engineering and Built Environment. Please school funded PhD scholarships- RESEACH

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	AND INNOVATION (napier.ac.uk) for information on the scholarships and how to apply for them.
Enquiries	For informal enquiries about this PhD project, please contact Dr. Lina Khaddour
Web page	https://www.napier.ac.uk/research-and-innovation/research-degrees/application-process

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