Water Supply Chain Risk: Measurement and Management

Supervisors
- Prof. Kulwant Pawar (The Business School, The University of Nottingham)
- Dr Christos Braziotis (The Business School, The University of Nottingham)
- Prof. Helen Rogers (Nuremberg Technical University, Germany)

Summary
The Supply Chain (SC) consists of both activities and relationships that connect organisations to effectively add value to the offering to the final customer (Braziotis et al., 2013). The SC performance and effectiveness may suffer from unforeseen disruptive events unless its structures, strategies and operational dimensions are designed to mitigate potential disruptions or uncertainties. Further, several disturbance factors need to be considered, relevant to both uncertainties and risk, and mitigation strategies need to be developed to effectively calibrate the SC configuration (Huq et al., 2016). Water Supply Chain Risk (WSCR) Management needs to be explicitly designed and developed against a backdrop of increased globalisation, natural disasters, competitive context, technological innovation, evolving government policies, potential supplier failure etc. There are several factors that have been identified to affect the water SC, these include environmental impact, operational efficiency, risk assessment, communicating to stakeholders, sustainable manufacturing, product eco-design, supplier involvement, process standardization, communities’ engagement and information sharing.

Aim & Scope
The PhD research will aim to develop empirically-based comparative studies on an international basis of the Beverages and Pharmaceutical industries, providing the foundations for the development of a set of comprehensive WSCR measurement and management methods, tools and strategies to support the key decision-makers. The PhD research will broadly be divided into four phases, to achieve a set of objectives:

- **Phase 1 – State of WSCR Knowledge**: Literature review of WSCR management leading to a thorough classification of the state of the art.
- **Phase 2 – WSCR Conceptualisation**: Development of model to encapsulate key requirements for measuring water footprint within the SC context and to understand their relationships, and development of hypotheses. In-depth interviews for refinement of the model and appropriate concepts and items.
- **Phase 3 – Research and Analysis A**: Large scale online questionnaire survey indicating differing requirements by industry and company characteristics.
- **Phase 4 – Research and Analysis B**: In-depth interviews with managers to gain further insights (the ‘hows’ and ‘whys’) and determine key metrics for the development of strategies for effective WSCR implementation.

The outcomes of the research will be disseminated in high-ranking academic journals and premier international conferences.
References


Applications

Please apply by using the application form sending completed forms to pg-funding@nottingham.ac.uk.

Applicants are required to complete the Equal Opportunities Form, Referee forms and guidance notes for referees are also available.

Applications will remain open until the scholarships are filled.

Applicants for the EWR doctoral programme should have at least a 2:1 degree in a Physical Sciences, Life Sciences or Engineering discipline.