

## **Climatic Hazards Programme**

## Innovate UK **MiGHT** 🔊

Newton-Ungku Omar Fund



## Forecasting Urban Climate Extremes

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he Project of Disaster Resilience Cities: Forecasting Local Level Climate Extremes and Physical Hazards for Kuala Lumpur is supported by the Newton-Ungku Omar Fund, administered by Innovate UK and the Malaysian Industry-Government Group for High Technology (MIGHT). Many hazards associated with climate change have the greatest impacts in urban areas where most people and property are concentrated. Severe and extreme weather events are projected to increase losses challenging governments and insurance systems world-wide. Communication, transfer and development of climate-related knowledge is most effective when it is sensitive to context, diversity of decision types, decision processes and the requirements of constituencies. This project will adapt carefully selected meteorological and hazard models for circumstances in Malaysia and Southeast Asia. It will test their viability and integrate them onto a common multi-hazard platform designed for managing and communicating risks and enhancing disaster resilience.

The project which commenced on the 1st December 2016 is led by Professor Lord Julian Hunt of University of Cambridge (UoC) and Professor Joy Jacqueline Pereira of Universiti Kebangsaan Malaysia's Southeast Asia Disaster Prevention Research Initiative (SEADPRI-UKM). There are three research organizations (University of Cambridge, UoC; British Geological Survey, BGS; University College London, UCL) and three business partners (Cambridge Environmental Research Consultants, CERC; Cuesta Consulting, Cuesta; JBA Risk Management, (JBA) from the UK collaborating with five research organizations

Cuesta

(SEADPRI-UKM; Universiti Malaya, UM; Malaysian Meteorological Department, MetMsia; Mineral and Geoscience Department of Malaysia, JMG; Department of Environment Malaysia, DOE) and five business partners (UKM Pakarunding, Geomapping Technology, UKMP; Param Agricultural Soil Surveys, PASS; Geological Society of Malaysia, GSM; CoRE Expert Systems, CoRE) from Malaysia involved in this project which seeks solutions to the challenges of urbanization and climate change in Malaysia.

Pilot studies will be conducted in Kuala Lumpur and adjacent areas to forecast flash floods, landslides, sink-holes, strong winds, urban heat and air pollution at very detailed scales. The project comprises (i) an administrative component which includes management, capacity building and outreach; and (ii) three technical phases including meteorological forecasting, hazard modelling and multi-hazard forecasts. Each phase has work packages (WP) that will provide project deliverables. Dissemination and outreach activities, such as capacity building and training of Malaysian partners and others in appropriate methods of risk communication and modelling results, will proceed in parallel with and be an integral part of all aspects of the technical work. Upon completion, the output will be made operational to support decision-makers, insurers and other users in the city.

PHASE 1: PHASE 2: PHASE 3: PROJECT STEERING COMMITTEE METEOROLOGICAL HAZARDS MODELLING MULTI-HAZARD Chair: DBKL Representative FORECASTING FORECASTS Secretariat: SEADPRI-UKM **GEOPHYSICAL HAZARDS** Members: MULTI-HAZARD Flash floods & floods METEOROLOGICAL Key Stakeholders in Kuala Lumpur PLATFORM Landslides **Project & Thematic Leaders** PARAMETERS Sink-holes Platform for Precipitation WP2.1-WP2.5 managing and MANAGEMENT, CAPACITY BUILDING AND OUTREACH [WP 0] Temperature communicating **Project Leaders:** • Humidity ATMOSPHERIC HAZARDS risks in a changing Prof. Lord Julian Hunt (UoC) & Prof. Joy Jacqueline Pereira (SEADPRI-UKM) Wind Speed Strong winds climate Urban heat NP3.1-WP3.2 WP1.1-WP1.2 Air pollution METEOROLOGICAL GEOPHYSICAL ATMOSPHERIC MULTI-HAZARD WP2.6-WP2.9 PARAMETERS HA7ARDS HAZARDS **PLATFORM** Thematic Leaders Thematic Leaders Thematic Leaders Thematic Leaders University of British Geological **CERC & UKMP** SEADPRI-UKM & MANAGEMENT, CAPACITY BUILDING AND OUTREACH [WP 0] Cambridge & Survey & CORE MetMalaysia Universiti Malava Innovation 1: Adaptation and customisation Innovation 2: Multi WP1.1-WP1.2 WP2.1-WP2.5 WP2.6-WP2.9 WP3.1-WP3.2 of temperate UK models for tropical climate hazard platform for cities **Project Management Structure** Project Approach and Innovation Features UNIVERSITY OF OF MALAYA Seadpri Geological Survey CAMBRIDGE CERC ≜

This project has the potential to be replicated across ASEAN, offering significant commercial opportunities as well as the obvious benefits in risk reduction to ensure sustainable development.