

ARCoES Project Metadata Proforma

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PhD Title: Defining the architecture and attributes of 'successful' climate change adaptation surrounding long-lived static infrastructure in the coastal zone

Overview of the research: The PhD is part of the Adaptation and resilience of the coastal energy supply (ARCoES) project based at Liverpool University. The PhD is registered to Loughborough University under the supervision of Professors Rob Wilby (Loughborough University) and Robert R.J Nicholls (Southampton University).

The project investigated the means by which stakeholder organisations, surrounding nuclear energy infrastructure, relate to issue of climate change and integrate adaptation into coastal management practices. The research comprised of two empirical phases: adaptation framework analysis and an evaluation of social factors affecting the adaptive capacity of stakeholder organisations.

The first activity involved the development of a criterion tool based on recurrent features of different adaptation frameworks described in research literature. Six distinctive features emerged as discriminators of Scenario-Led (SL), Vulnerability-Led (VL) and Decision-Centric (DC) frameworks. The criterion tool was then tested using four coastal case study areas (Hinkley Point, Portsmouth, Sizewell, and Wylfa), drawing on evidence from public domain adaptation documents.

The second phase of the research investigated the social factors enabling or inhibiting stakeholder adaptation efforts. The Grounded Theory Methodology (GTM) was used to design and iteratively adjust semi-structured interviews with 30 participants representing 16 stakeholder organisations in the nuclear neighbourhood of Sizewell, Suffolk, UK. Interviews took place between April and September 2015. Interviews were transcribed and coded using the qualitative analysis software NVivo 10. The findings from the two phases were brought together to identify opportunities for strengthening the adaptation processes, focusing on gaps and incentives.

The analysis of the adaptation frameworks revealed that stakeholders rarely use a single theoretical adaptation approach. In practice, a hybrid adaptation framework is adopted, with the DC/SL or DC/VL being utilised most frequently. These findings reveal a mismatch between the idealised frameworks offered by research studies and those that are actually implemented. The criterion tool was found to be capable of classifying 86% of the real world, case study materials.

The semi-structured interviews exposed six key themes that define the adaptation process. These are: decision timescales; perceived responsibility; units of governance; response to climate shocks; knowledge flows and; levels of partnership working. Each theme is interlinked and influenced by social factors. Stakeholder

organisations reported 12 factors that affect their standpoints. These are: i) communication, ii) education, iii) empathy, iv) empowerment, v) finance, vi) intellectual capital, vii) legacy of extreme events, viii) perceived responsibility, ix) politics, x) positionality, xi) preparedness and xii) trust. Standpoints were broadly similar within stakeholder thematic networks (STNs) of corporations, community groups, national Government, local government, NGO's and statutory agencies. The STNs, key themes and influencing factors provide an evidence base for evaluating the complex social dynamics affecting 'successes' of the adaptation process, potentially offering a route to pragmatic guidance. In particular, gaps between theory and practice, unequal knowledge and differing resources, and variations in stakeholder positionality need to be addressed.

This research differentiated elements of the adaptation decision-making process. By considering the architecture and attributes of adaptation, and applying the criterion tool, coastal stakeholders in neighbourhoods with long-lived static infrastructure could strengthen the adaptation process, thereby realising their shared vision(s) of integrated coastal management.

Keywords to describe the data

Interviews, semi-structured, coastal management, climate change, adaptation, frameworks, success, Suffolk, ARCoES, decision timescales, static-infrastructure, coastal management, responsibility, knowledge flows, extreme events, governance, partnership working.

Title of datasets

Interview 1 – Suffolk Coastal District Council (SCDC). Word document/NVivo file

Interview 2 – National Trust (NT). Word document/NVivo file

Interview 3 – National Farmers Union (NFU). Word document/NVivo file

Interview 4 – Royal Society for the Protection of Birds (RSPB). Word document/NVivo file

Interview 5 – Suffolk Coastal District Council (SCDC). Word document/NVivo file

Interview 6 – Natural England (NE). Word document/NVivo file

Interview 7 – Natural England (NE). Word document/NVivo file

Interview 8 – Regional Flood and Coastal Committee (RFCC). Word document/NVivo file

Interview 9 – Suffolk Coastal District Council (SCDC). Word document/NVivo file

Interview 10 – Environment Agency (EA). Word document/NVivo file

Interview 11 – Natural England (NE). Word document/NVivo file

Interview 12 – National Trust (NT). Word document/NVivo file

Interview 13 – Area of Outstanding Natural Beauty (AONB). Word document/NVivo file

Interview 14 – Environment Agency (EA). Word document/NVivo file

Interview 15 – Committee on Climate Change (CCC). Word document/NVivo file

Interview 16 – Suffolk Coast Against Retreat (SCAR). Word document/NVivo file

Interview 17 – Area of Outstanding Natural Beauty (AONB). Word document/NVivo file

Interview 18 – Alde and Ore Estuary Partnership (AOEP). Word document/NVivo file

Interview 19 – EDF Energy (EDF). Word document/NVivo file

Interview 20 - Natural England (NE). Word document/NVivo file

Interview 21 - Natural England (NE). Word document/NVivo file

Interview 22 - Natural England (NE). Word document/NVivo file

Interview 23 - Environment Agency (EA). Word document/NVivo file

Interview 24 – Royal Society for the Protection of Birds (RSPB). Word document/NVivo file

Interview 25 – Suffolk Wildlife Trust (SWT). Word document/NVivo file

Interview 26 – Sizewell B (SZB). Word document/NVivo file

Interview 27 – EDF Energy (EDF). Word document/NVivo file

Interview 28 – Environment Agency (EA). Word document/NVivo file

Interview 29 – Mismere Levels Stakeholder Group (MLSG). Word document/NVivo file

Interview 30 – EDF Energy (EDF). Word document/NVivo file

Adaptation Framework Criterion tool - pdf file

Creator(s) of the data:

Jennifer Claire Armstrong was the creator of the data.

Names and affiliations of other contributors:

The creation of the data was supported by supervisors Professor Rob Wilby (Loughborough University), Robert J Nicholls (Southampton University) and the ARCoES project at Liverpool University.

Data owner

The data owner is the Department of Geography at Loughborough University geography.ug@lboro.ac.uk

Statement on legal, ethical, and access restrictions (if required)

There is no access to the interview transcripts, except through express permission of the creator Jenny Armstrong, details in section below. The restrictions are required because individuals representing organisations involved in coastal management on the Suffolk coastline are identified.

Contact details for accessing the file:

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Metadata / README file and Data files are stored on the University of Liverpool Data Archive <http://datacat.liverpool.ac.uk/>

Publications:

Armstrong, J. (2017) Defining the architecture and attributes of 'successful' climate change adaptation surrounding long-lived infrastructure in the coastal zone. *Loughborough University*, PhD thesis.

Armstrong, J., Wilby, R., & Nicholls, R. (2015). Climate change adaptation frameworks: an evaluation of plans for coastal Suffolk, UK. *Natural Hazards and Earth System Science*, 15, 2511-2524.