

## NCRM Placement Fellowships

### Advertised Placement – Role and Person Specification

#### Placement Title

**National Security Risk Management Spending**

Name of receiving organisation	<b>Government Office for Science &amp; Cabinet Office</b>
Location of placement	<b>1 Victoria Street, London, SW1H 0ET</b>
Desired length of placement	<b>6 months</b>
Desired time commitment per week (part-time, full-time, or proposed %)	<b>Ideally Full Time – but other models of working can be explored</b>
Approx. Start Date	<b>Late July/Early August 2017</b>

#### Project Description (max. 400 words)

Please ensure that you explain the relevance of social science to the proposed Fellowship.

Thinking about where and how people will live in the future, climate change, human and plant diseases, and improving national security are just a few of the challenges that drive government activity and permeate public consciousness. They are also just a few of the issues that the Government Office for Science (GO-Science) is grappling with on any given day.

GO Science in collaboration with the Cabinet Office is now looking to undertake a focused research project to review, assess, and develop integrated-assessment modelling methods for possible government use in the comparative cost-benefit analysis of risk management spending.

The project will support a wider piece of work related to risk assessment in the national security field. The biennial National Security Risk Assessment (NSRA) identifies and prioritises all major disruptive risks to the UK's national security interests over the next 5 and 20 years. Since 2010, the NSRA has informed decision-making in the context of the National Security Strategy and the Strategic Defence and Security Review (SDSR), which together set out the government's overall approach to national security.

The 2015 NSRA grouped 20 kinds of risk into three Tiers. We now need to improve our understanding of relationships between these risks and spending on policies for managing them. A practicable method for achieving this would be of great value to policy-makers in this field.

Existing Treasury Green Book and Magenta Book guidance outlines methods of cost-benefit analysis for policy appraisal and evaluation. Uncertainties in risk likelihood or plausibility, and difficulties in monetising risk impacts over varied time-scales, complicate use of such methods. Their use is limited where there are dynamic uncertainties, feedback effects, and long or inter-generational time-scales. Such features characterise many NSRA risks.

An ideal cost-benefit analysis would include both marginal and non-marginal changes arising from alternative policy choices, take account of ethical principles, and be based on credible empirical evidence of risk impacts and probabilities. Recent studies suggest that a range of comparative methods could be used to analyse relationships between costs and national security risks. Systematic review of such studies could identify promising models for potential use in relation to national risk assessment and future strategy development.

Integrated assessment models could in principle help. These can bring together risk drivers, impacts, management costs and consequences into a single model simulating alternative policies for each of a range of specified risks. Illustrative examples include dynamic stochastic general-equilibrium models used to assess broad and long-term consequences of climate change, general deterministic macro-economic models for a number of risk types, and agent-based models of economic sub-sectors.

The project will complement and interact with a current review of existing published studies on cost-benefit analysis of risk management spending. It will contribute to wider feasibility studies currently in hand on prospects for use of cost-benefit analysis to inform decisions on risk prioritisation, acceptance, and resource allocation.

### **Key Deliverables** (max. 200 words)

The key output from this project will be a report that should

- review existing cost-benefit analysis models with specific reference to recent work in integrated risk assessment modelling, including the representation of uncertainties and extremes of probability distribution for test scenarios;
- identify practicable approaches enabling decision-makers to compare the cost-benefit properties of alternative policies for a given risk, for example in terms of emphasis on “upstream” activity (anticipation, assessment, prevention, resilience) versus action “downstream” (response, recovery and rehabilitation);
- indicate the strengths and weaknesses of such approaches with reference to NSRA risks; and
- recommend specific options for ways to model, and therefore to prioritise, the allocation of resources between disparate types and scenarios of national security risk.

**Role Description** (max. 400 words)

The Fellowship will be located in the Government Office for Science and will work closely with the Cabinet Office.

Through existing networks across Whitehall Departments, the role will involve close cooperation with analysts and policy-makers with an active interest in use of models in decision-making for integrated risk management purposes.

The role offers an opportunity to gain substantial insight into evidence-based policy-making in Whitehall.

Dissemination of project findings will be subject to confidentiality and shared Intellectual Property agreements made between the Government Office for Science and the NCRM.

The successful candidate will need to go through standard security clearance processes. The level of security needed in Security Check (SC). This can take at least two months.

**Research Methods** (max. 200 words)

NCRM Fellowships must involve the application or development of advanced research methods. In this section, please clearly detail how the proposed placement will deliver on this objective.

The proposed placement will review existing and potential new approaches to cost benefit analysis modelling for risk management with the aim of recommending a practicable method for use across the spectrum of national security risks. Subject to progress and to departmental capability, the placement may offer an opportunity to test use of such a method in forthcoming work.

**Person Specification**

Criteria	Essential	Desirable
Qualifications and academic experience	A research background in economics, statistics or quantitative social science with experience of cost benefit analysis.	
Knowledge & experience of specific Research Methods	Cost Benefit Analysis methods. Confidence in dealing with quantitative data and integrated assessment models.	
Knowledge & experience working with public sector		An interest in risk assessment, resilience and/or national security is desirable, but not essential.
Communicating and influencing	Good oral and written communications skills. Ability to explain technical concepts to non-expert audiences, both in oral presentation and in writing.	

## Further details

Further details on this specific role can be obtained from:

Name	Colin Armstrong
Role	Head of International Resilience, Government Office for Science
Email	<a href="mailto:Colin.armstrong@go-science.gsi.gov.uk">Colin.armstrong@go-science.gsi.gov.uk</a>
Telephone	0207 215 2036

Further details on the application process can be obtained from:

Name	Alexandra Frosch
Role	NCRM Centre Manager
Email	<a href="mailto:a.s.frosch@soton.ac.uk">a.s.frosch@soton.ac.uk</a>
Telephone	023 8059 7473