

Tackling challenges of environmental and human health – A behavioural science approach

1. Cluster description: Modern societies face various **challenges of environmental and human health**, which require an in-depth exploration of overarching policy themes. These themes, including climate change, energy consumption, sustainable transport, waste management, pollution, and the interplay of environmental conditions with physical activity, **align seamlessly with the University's R&I Strategy** of meaningful improvements of Spaces, Places, and Lives. Our interdisciplinary cluster strategically adopts a **social-science perspective** to unravel the complexities shaped by human behaviours, cultural norms, and social structures in addressing these challenges. This cluster is composed of researchers with a collective background in **Behavioural Science**, an approach that is grounded in the nuanced comprehension of human behaviour. This understanding is pivotal for **crafting effective policies and interventions**, with behavioural insights derived from our research illuminating strategies to **promote sustainable practices and improve environmental and public health outcomes**. Emphasising the importance of a social-science perspective in our interdisciplinary pursuits, the cluster aims to develop widely accepted and inherently effective policy solutions.

2. Sample Projects: **Sample Project 1: "Navigating Healthcare Efficiency: A Triple Helix Collaboration on Waste Management through Behavioral Science."** This project will leverage the Triple Helix collaboration with NHS Forth Valley, integrating the University, Forth Valley College, local government, and the Forth Valley NHS trust. Focused on NHS waste management, including staff retention, medical waste, and inefficiencies in medication and prescription utilization, the research employs behavioral science to identify challenges and propose interventions for improved resource utilization and overall healthcare system efficiency. **Sample Project 2: "Behavioural Science and Travel Behaviour Change: Effectiveness and Acceptability."** Travel behaviour change towards more active travel is needed to reduce environmental harm and improve physical and mental health. This project will use behavioural insights to improve the efficiency of "hard" behavioural change interventions such as congestion charging or low emission zones through behaviourally informed communication and design.

3. Discipline and methods: Given the multidisciplinary nature of Behavioural Science, this cluster will combine multiple disciplines across four Faculties: **SMS, FNS (Psychology, Biological and Environmental Sciences), FoSS, and FHSS**. The field of Behavioural Science emerges from bringing insights from Psychology to bear on economic behaviour, thereby predicting and explaining behaviour that is not anticipated by standard economic theories. A unique aspect of this cluster is that it blends this social science expertise with cutting-edge natural-science findings. The cluster's interdisciplinarity is also reflected in the **mix of methods** that will be used, which includes conceptual/theoretical work (e.g. focus groups, co-creation, behaviour-change techniques) and quantitative methods (e.g., surveys, experiments, randomised controlled trials (RCTs), evidence-based program evaluation, lab experiments, as well as statistical tools to analyse observational data). The cluster, therefore, will give a unique opportunity for PhD students to learn and develop skills in diverse areas.

4. Cluster fit with Stirling and beyond: The proposed cluster would **perfectly complement a thriving (yet under-tapped) research infrastructure in Behavioural Science** at Stirling. The **Behavioural Science Centre** is a globally recognised research hub and the only behavioural-science group in Scotland and one of only a few within Europe. Our flagship MSc programme, **Behavioural Science for Business & Management**, is internationally renowned and holds its own against similar offerings at LSE or the University of Warwick. Despite the MSc programme's applied focus, our curriculum is rigorous and at the research frontier, which is evidenced by the fact that, year after year, more than 10% of our graduates pursue a subsequent PhD. Save for occasional successes in highly competitive funding schemes such as SGSSS, we systematically lose highly talented students to other universities because **demand far exceeds our supply of funded PhD positions**. The proposed cluster would solve this problem and – as an added bonus – increase the attractiveness of our MSc programme as a direct pathway to a PhD in Behavioural Science (this is a viable model, as our MSc has been granted ESRC recognition as a direct SGSSS pathway for an Economics PhD).

That being said, while the University has rich expertise in behavioural science as well as in environmental and health sciences, **cross-faculty cooperation has been limited in the past**. The proposed cluster would be a vital shot in the arm of Stirling's interdisciplinary capacity. The *Behavioural Science Centre* would be revitalized by **increased cooperation and integration across faculties**. By pooling more of our activities (such as joint weekly seminar series and regular research workshops) we expect an influx of colleagues interested in collaborative work, who are not yet members of the *Behavioural Science Centre*. We also anticipate that a PhD programme will significantly increase Stirling's attractiveness when it comes to recruitment of future research-active staff.

Furthermore, our **revised cluster theme directly aligns with the University's mission-oriented approach**. Compared to last year's bid, we have **narrowed the focus to challenges of environmental and human health** (our previous theme was the application of Behavioural Science to societal challenges more generally). Not only does this improve the integration of our cluster to local (the mapping from environmental health to '**Spaces**' and human health to '**Lives**' could hardly be more seamless), national (UKRI: 'Climate Change and Sustainability' as well as 'Health, Wellbeing and Social Care') and international (UNDP Goals 3, 6, 7, 11, 12, 13, 14, and 15) research priorities. It also builds on a nascent collaborative link

between colleagues from FNS (Biological and Environmental Sciences, and Psychology) and SMS that directly resulted from last year's IAS studentship competition and that has already led to a successful NERC grant ('Human health' or 'environmental health'? Quantifying narratives for driving behavioural change of single-use hygiene products.). While this success underscores the feasibility of the proposed cluster, we feel that joint studentships would be vital in solidifying this cross-faculty collaboration.

To **attract highly qualified PhD candidates to Stirling**, we will tap our excellent links to international networks such as the International Behavioural Public Policy Association (IBPPA), the International Association for Research in Economic Psychology (IAREP), and various informal contacts to researchers teaching behavioural science MSc programmes in, for example, London, Warwick, Dublin, Amsterdam, and Munich. This has been a winning formula in last year's bid, as the quality and quantity of student applications (including many with relevant professional experience returning to doctoral study) were outstanding. To **create a steady and sustainable stream of future PhD cohorts**, this cluster will compete for additional funding schemes beyond IAS (such as SGSSS, Leverhulme, Carnegie, or DTP). To foster a true cohort spirit, **PhD students will benefit from** weekly lab meetings; a regular programme of visiting speakers consisting of leading academics and practitioners from the policy and private sector; research visits to affiliated groups at other Universities (such as LSE, LMU Munich or University College Dublin); the opportunity to audit modules within our MSc and MRes programmes; 'second-year' PhD courses in academic writing, research communication, and best academic practice; annual student conferences that provide opportunities to showcase the cluster research and to engage external stakeholders both in terms of knowledge exchange and career opportunities; and several other institutional features that have proven to be an integral part of PhD student development at top graduate schools in the sector.

5. Academic importance and impact: Besides our distinct academic publication and supervisory track records, an additional strength of this cluster is its pathway to impact: We already have **strong links with the Scottish and local governments and a range of relevant organisations**, through which we put the novel observations from our research into practice. Our strong ties with various environmental and public-health organisations (fostered through consultancies, research projects, and student dissertations) include Zero Waste Scotland, Keep Scotland Beautiful, Paths for All, NERC, and the NHS. These partnerships are strengthened by active participation in initiatives such as the **City Deal and the Local Policy Innovation Partnership (LPIP)**. The LPIP, in particular, aims to form robust relationships with key players like the Scottish Environment Protection Agency and Scottish Water. We are actively engaged in **public dissemination** of our research. We have been featured in various media outlets, including the BBC (Radio and TV), Time, and the Financial Times. We also participate in talks at professional meetings, public engagement, and industrial knowledge exchange and training. Our ultimate goal is to ensure that our research has the strongest possible impact and benefits society at large.

6. Cluster management: *6.1. Management team and lead supervisors:* : **PI: Dr Till Stowasser (SMS):** Senior Lecturer in Behavioural Economics; lead PhD supervisor of 5 PhD students in Behavioural Science (4 current + 1 completed – now PostDoc at London School of Economics); **Co-I: Prof Gözde Özakıncı (FNS):** Professor of Health Psychology; PhD supervisor (6 completed + 4 current); holder of *NERC, NIHR* grants; **Prof David Comerford (SMS):** Professor of Economics; *PI on funded projects that apply behavioural science to promote breastfeeding, gauge Covid responses, understand antibiotic use in fish farming* **Prof Ashley Shepherd (FHSS):** Professor of Nursing, Innovation, and Quality Improvement.

6.2. Additional supervisory capacity: **Dr Purva Abhyankar (FNS)** Lecturer in Psychology (Health); **Dr Craig Anderson (SMS)** Lecturer in Economics (Sustainability); **Dr Clare Andrews (FNS)** Lecturer in Psychology (Behavioural Biology); **Prof Danny Campbell (SMS)** Professor of Economics (Environment); **Dr Sinead Currie (FNS)** Lecturer in Health Psychology; **Dr Jen Dickie (FNS)**, Senior Lecturer in Environmental Geography (Energy); **Dr Elaine Douglas (FoSS)** Associate Professor in Ageing and Public Health; **Dr Hannah Durand (FNS)** Lecturer in Health Psychology; **Dr Brad Duthrie (FNS)**, Lecturer in Biological and Environmental Sciences (Environmental Modelling); **Prof Seda Erdem (SMS)** Professor in Economics (Applied Micro & Behavioural); **Dr Lily FitzGibbon (FNS)**, Lecturer in Psychology (Child Behaviour); **Prof Leonard Lades (SMS)** Professor of Economics (Environmental Behaviour); **Dr Viktoria Mileva (FNS)**, Lecturer in Psychology (Climate Change Anxiety); **Prof Mirko Moro (SMS)** Professor of Economics (Applied Micro & Behavioural); **Dr Dylan Powell (FHSS)**, Lecturer in Public Health & Innovation; **Prof Richard Quilliam (FNS)** Professor of Environment and Health (Water Pollution); **Dr Pamela Rackow (FNS)**, Lecturer in Psychology (Behaviour Change); **Dr Hector Ruffrancos (SMS)** Senior Lecturer in Economics (Applied Micro); **Dr Willem Sas (SMS)** Lecturer in Economics (Applied Micro); **Prof Anna Whittaker (FHSS)** Professor of Behavioural Medicine.

Our supervisory team brings together colleagues from diverse disciplines who have a track record of first-class research. The group consists of a healthy mix of **senior colleagues with ample PhD supervisory experience** and eager **early-career researchers** (Abhyankar, Anderson, Andrews, Currie, Durand, FitzGibbon, Mileva, Powell, Rackow, Sas) who view this cluster as an invaluable opportunity to grow their supervisory expertise. They, too, would directly **benefit from the infrastructure** (weekly lab meetings, IAS development programme, etc.) this cluster would offer to our PhD students. To further expand supervisory capacity, future recruitments will be integrated into the cluster, and we expect that more colleagues with aligned research interests will join once the cluster is established.