

<b>Institution: University of Dundee</b>
<b>Unit of Assessment: UoA 14 Geography and Environmental Studies</b>
<b>1. Unit context and structure, research and impact strategy</b>

**Overview:** UoA14 is the leading unit undertaking social science and environmental research at the University of Dundee, significantly contributing to the University's *Transforming Lives Locally and Globally* agenda by conducting distinctive and cutting edge disciplinary and interdisciplinary research through the intersecting themes of *Environmental Futures* and *Social Futures*, respectively. In recognition of the need for diverse expertise and research capacity, and building on core research strengths in Geography, the UoA has expanded (from 14.3 FTE to 23 FTE), assimilating researchers with shared interests within the UoA14 domain from the Social Sciences disciplines of Politics and International Relations and Architecture and Urban Planning. Our strategy and supportive environment mean staff engage in world-leading research delivering transformative impact at local to global scales. In disciplinary terms, our research is contributing to the development of geographical theory, practice and methods, seeking to make a positive difference to policy, public discourses and livelihoods. Since REF2014, this strategy, supported by School and University resources, has led to demonstrable success with a doubling of annual research income compared to the previous REF period, inclusive of European and UKRI sources. The current UoA stands at 23 FTE, plus 9 research fellows, 3.5 technicians and 27 registered PhD students.

**REF2014 Strategy and achievements:** In REF2014, we articulated three strategic aims that would shape our research activity into the current review period. These were: (i) to advance theory in the areas of environmental change, social justice, security and resilience, and the interplay between environment and society; (ii) to develop innovative methodological approaches to geographical endeavour underpinned by sound ethical practice; (iii) to make evidence-based contributions to policy debates and practice via close engagement, co-production and knowledge exchange with users. Table 1 describes published exemplars showing how we have achieved aims (i) and (ii), whilst aim (iii) is evidenced in Table 2 (Section 4) which details examples of collaborations and where our research has provided evidence for policy-, practice- and academic-related impacts.

*Table 1: Exemplars of research connecting directly to strategic aims (i) and (ii) as set out in REF2014:*

Aim (i): advancing theory and understanding in environmental change, social justice, security and resilience with social transformation
<p><b>Environmental Futures:</b></p> <ul style="list-style-type: none"> <li>Quantified multi-decadal increases in above-ground carbon density from forest restoration in SE Asia, demonstrating for the first time that current carbon prices are a disincentive to investment in forest restoration (Philipson, <b>Cutler et al.</b>, 2020, <i>Science</i>).</li> <li>Through measurement and modelling, advanced the theorisation of the ablation and hydrological behaviour of high-mountain debris-covered glaciers, with implications for downstream water resources (Fyfe, <b>Kirkbride et al.</b>, 2019a,b, 2020 <i>J. Hydrol</i> and <i>ESP&amp;L</i>).</li> <li>Established Shetland's coastal stratigraphy as a globally-significant field laboratory, better calibrating numerical models of tsunami sediment run-up as a critical advance in hazard assessment in populated coastal zones (DawsonA, <b>DawsonS et al.</b>, 2019 <i>Sedimentology</i>).</li> </ul>

- Quantified that foregone carbon sequestration and degradation associated with clearance and fragmentation of tropical forest areas increases the net carbon impact by a factor of six (626%), equivalent to two years of global land use emissions (Maxwell, **Morel et al.**, 2019, *Science Advances*).
- Proposed re-parametrisation of glacial erosion models based upon compilation of the first global empirical dataset of glacial erosion rates, ice velocities and climate, unpicking fundamental controls on glacial erosion (**Cook, Kirkbride et al.**, 2020, *Nature Comms.*).

#### **Social Futures:**

- Going beyond everyday livelihood processes, theorised young Ethiopian sex workers critical im/mobilities as relational: their livelihoods and identities shaped within and between places, important for creating appropriate policy interventions (**vanBlerk** 2016, *Annals Association of American Geographers*).
- Challenged common assumptions about territorial autonomy projects as a route to secession and questioned teleological arguments about regionalism developing into nationalism, prevalent in theories of territory and conflict (**Stjepanovic**, 2017, Routledge Book).
- Merged macro- and micro-level analyses of the experiences of Police Community Support Officers in England to re-examine established theories of police occupational culture by highlighting the centrality of story-telling to the process (**O'Neill**, 2019, OU Press, Book).
- Identified the new concept of 'debt amnesia', providing a counter-narrative to debates on the financial costs and gains of homebuying. Innovative empirical evidence demonstrated that the normalisation of debt feeds into tacit knowledge of profit calculations, challenging lack of transparency in mortgage selling (**Searle** 2016, *Env. & Planning A*).
- Reframed the concept of Sick Building Syndrome (SBS), providing holistic analysis for SBS symptoms, proposing potential mitigation strategies and the evolution of healthy building design (**AlWaer, et al.**, 2018, *Architectural Science Review*).

#### Aim (ii): developing innovative methodological approaches

- Based on the Lake Habitat Survey developed by **Rowan**, led creation of two European Committee for Standardization (CEN) standards for (i) characterising lake hydromorphology (EN 16039); and (ii) assessing the degree of modification (EN 16870) (Boon, **Rowan et al.**, 2019 *Aquatic Conservation*).
- Developed empirical relationships to predict glacial lake volume from satellite imagery and a conceptual model of lake evolution in different contexts, leading to development of a no-cost, universally applicable, glacial lake outburst flood (GLOF) risk assessment protocol (**Cook & Quincey**, 2015, *Earth Surf. Dynamics*; Kougkoulos, **Cook et al.**, 2018, *Sci. Total Env.*).
- Developed a methodology for co-produced longitudinal participatory research and knowledge exchange with marginalised homeless youth, which fostered 'street citizenship' among young people, engaged with policy and created the largest database on young people's street lives in African cities (**vanBlerk et al.**, 2020, *Space and Polity*, and Impact Case Study).
- Created a collaborative Knowledge Exchange and research methodology for artists, academics, galleries and culturally diverse communities, facilitating wider public engagement addressing conversations with Caribbean communities (**Mains**, 2018, *Small Axe*).
- Developed interdisciplinary methods for understanding home-making by combining visual mappings from architecture with interviews, facilitating understanding of the unspoken spatial dimensions of domesticity (Lewis, **Costa Santos et al.**, 2018, *Methodological Innovations*).

## Unit-level environment template (REF5b)

**Unit structure:** All UoA14 staff are located in the School of Social Sciences (150+ FTE). Established in 2015, the School includes Geography, Politics and International Relations, Architecture and Urban Planning, Law, Psychology, and the Centre for Energy, Petroleum and Mineral Law and Policy (CEPMLP). The focus of our research is on critical social and environmental issues which require wide perspectives and diverse expertise. In pursuit of greater critical mass we have actively recruited cognate researchers into UoA14 from Politics and International Relations (2 FTE) with expertise on security and migration issues, and from Architecture and Urban Planning (4 FTE) with advanced spatial/analytic approaches with an emphasis on sustainable place making. All staff, researchers and PhD students come together in two research groups (*Environmental Futures* and *Social Futures*), nested under the aegis of the Institute for Social Sciences Research (ISSR), an interdisciplinary cross-school research initiative spanning four Schools (Figure 1).

### Unit of Assessment 14

Research Partners:

- MASTS
- UNESCO
- SAGES
- CRFR
- SPRE
- SIPR

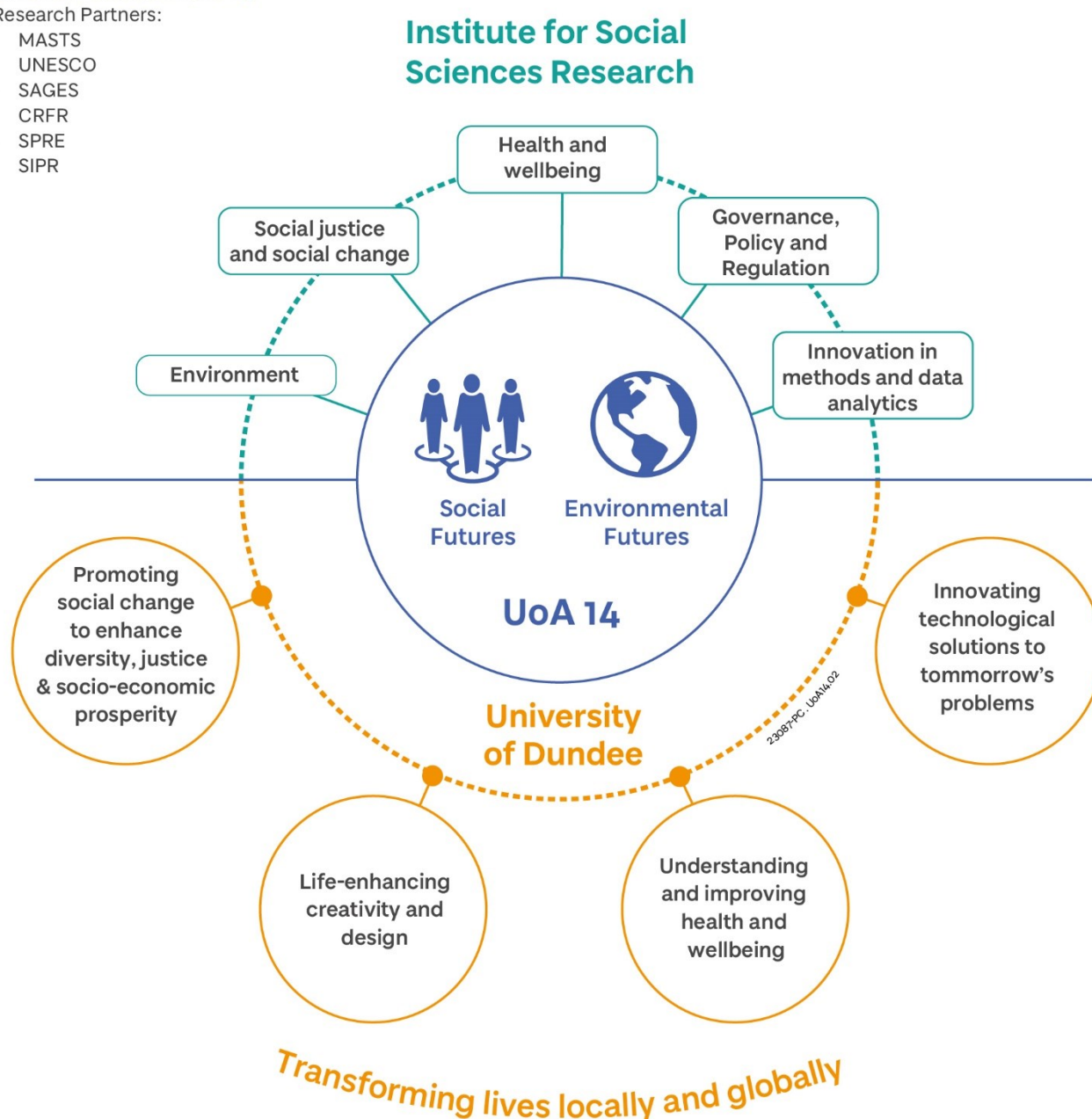


Figure 1: UoA14 structure within ISSR and University interdisciplinary research themes. Note 'partners' denotes University and external research centres (Section 4) to which UoA14 staff are affiliated.

## Unit-level environment template (REF5b)

**Thematic priorities and interdisciplinary research environment:** We have defined six thematic priorities informing our research and staffing strategy straddling both research groups. These align seamlessly with the thematic approach of ISSR and the University's four high level interdisciplinary priorities (Figure 1 and accompanying REF5a). Thus, bottom up and top-down strategies meet to address global challenges, such as contributing to the delivery of UN Sustainable Development Goals, especially SDGs 1, 2, 6, 10 and 13.

The *Environmental Futures* Group examines contemporary and future environmental change over a range of spatial scales and geographies. The priorities are to measure and quantify system dynamics and build better understandings of future drivers of change, the sensitivity of environmental systems and the societies that depend on them. Working within international research agendas, our research focuses on three predominantly water-related environmental change domains:

- Water extremes and their management (flooding, drought, coastal inundation and lake behaviour), including UKRI funded projects addressing global lake change (**Cutler** and **Rowan**), drought in the UK (**Black**), and tsunamis and hazards in coastal zones (**DawsonS**); EU Horizon 2020 projects examining marine spatial planning futures (**Onyango**) and the GROW Observatory validating EO soil moisture products (**Rowan**); and international collaborative science on sustainable water resources through the Newton-Bhabha programme (**Rowan**). Scottish-Government-funded projects include research into natural flood management (**Black, Spray & Rowan**), climate change mitigation through emission control in new builds (**Onyango**) and national climate adaptation policy (**Rowan**).
- Processes, rates and consequences of glacier melt and retreat (outburst floods, altered sediment fluxes, landslides) including the Newton-Paulet PEGASUS network (**Cook**), the BGS Hydrometric monitoring of the Virkisá river, Iceland (**Black**), and reconstructing past glacial extents, erosion and processes (**Kirkbride** and **Cook**).
- Biophysical responses to changing water availability and climate (carbon and forest degradation, land-use change and management) including UKRI-funded projects on ecosystem and carbon sequestration responses in tropical forests (**Cutler**), agricultural landscapes (**Morel**) and ecosystem services (**Rowan** and DawsonT), and NERC / Belmont Forum funded research into food security and ecosystem series (DawsonT and **Rowan**).

The *Social Futures* Group examines the multiple drivers of social inequalities and change within and between societies globally. It further focuses on challenging injustice and creating geographically-informed theoretical and methodological advancements for understanding society and fostering more equitable livelihoods. Our research in *Social Futures* identifies three thematic priorities:

- Socio-spatial inequalities (urban austerity, poverty and violence; youth transitions and livelihoods), including ESRC/Backstage Trust-funded *Growing Up on The Streets* (**vanBlerk**), ESRC/DFID-funded *Social cash transfers and generational relations* (**vanBlerk**); DFID-funded Youth transitions in protracted crises (**vanBlerk**); and Leverhulme Trust-funded *Mind the Housing Wealth Gap* (**Searle**).
- Safety and security (crime; policing practices and urban governance; geopolitical relations and international security/securitisation), including H2020 projects UNITY (**O'Neill**), and *NORDFORSK* (**O'Neill and Mendel**), research into geopolitical relationships and international security (**Brown**), and territorial politics and migration funded by Swiss National Science Foundation (**Stjepanovic**), ESRC-funded Evidence-based *Crime Reduction* (**Fyfe**) and Leverhulme-funded *Community Policing* (**O'Neill**).

## Unit-level environment template (REF5b)

- Creating just societies and places (inclusive spaces, wellbeing, transformation and participation) including ESRC-funded research *Reclaiming Social Care* (**Hall**) and *Uncovering the Environment: The Use of Public Access to Environmental Information* (**Mendel**), AHRC-funded projects *Green Spaces* (**Smith**) and *Place and Belonging* (**Costa Santos**), Dundee-council funded *Evaluation of Dundee hubs (substance misuse)* (**Searle and Smith**) and Scottish Government-funded participatory research into sustainable place making (**AlWaer**).

Increasingly, international research agendas focus on critical global problems that demand understanding of both social and environmental systems. Addressing these, intra-UoA collaborations have flourished, including projects such as *Assessing the effectiveness of Scotland's public flood warning service* (**Geddes** and **Black**) funded by the Centre for Research Expertise in Waters (CREW), the Joseph Rowntree Foundation funded *Scottish Borders Climate Resilient Communities* (Fazey and **Searle**), the Scottish Funding Council (SFC) Global Challenges Research Fund (GCRF)-funded *Environmental Degradation and Sustainable Livelihoods in East Africa* (**Cutler** and **vanBlerk**) and *Tackling water security to improve health in rural Malawi* (**Geddes** and **Halliday**), EU Marie-Skladowska Curie fellowship examining *Water Sanitation and Hygiene issues in Sub-Saharan Africa* (Akpabio and **Rowan**), and the UK Space Agency IPP3 project *Antislavery using Satellite Technology for Uganda's Sustainability* (ASTUS) (**vanBlerk** and **Cutler**).

All UoA staff recognise that translating science and evidence into genuine solutions demands robust interdisciplinary working and have built close collaborations with external-facing centres, national and international organisations (Section 4).

*Institute for Social Sciences Research*: Creation of the School of Social Sciences in 2015, under the inaugural Deanship of **Rowan**, enabled comprehensive re-imagining of research priorities into fewer and stronger thematic priorities. Established initiatives, such as the Centre for Environmental Change and Human Resilience (CECHR) and the Geddes Institute for Urban Research, were assimilated as cross-cutting vehicles set into the five cross-cutting thematic pillars of the ISSR - environment, social justice, well-being, governance and methods (Figure 1). ISSR, established and led by UoA14 staff (**Fyfe** and **vanBlerk**), developed into a four-school initiative by 2019 (Schools of Business, Education and Social Work, Health Sciences, and Social Sciences) and is now the largest interdisciplinary centre supporting interdisciplinary research in the University.

Interdisciplinary research that ISSR has fostered include (i) NORDFORSK / ESRC-funded research into online state surveillance and ethical internet use (in collaboration with Law; **O'Neill** and **Mendel**); and (ii) Oak Foundation research into Human rights violations surrounding major sporting events (**vanBlerk**, **Fyfe**, **Mendel**) with colleagues in Law and Education and Social Work. The collaboration fostered by ISSR includes joint supervision of PhD projects, currently with Law, Psychology and CEPMLP, and the Schools of Business, Health Sciences, Science and Engineering, Life Sciences, Duncan of Jordanstone College of Art and Design, and externally with the James Hutton Institute and British Geological Survey.

UoA14 staff lead and contribute to the research and management of externally-focused interdisciplinary research centres. Described in Section 4, these include the Centre for Research on Families and Relationships (CRFR) (**vanBlerk**), the Scottish Institute for Policing Research (SIPR) (**O'Neill**, **Fyfe**), the UNESCO Centre for Water Law, Science & Policy (**DawsonS**, **Rowan**) and provide institutional leads for two SFC national 'research pooling' initiatives - the Scottish Alliance for Geoscience, Environment and Society (SAGES) (**Cook**) and the Marine Alliance for Science and Technology for Scotland (MASTS) (**DawsonS**). SAGES is an SFC-funded initiative

## Unit-level environment template (REF5b)

that integrates UoA14 researchers to a network of affiliated staff at institutions across Scotland. It supports numerous fora to foster collaboration (such as the Pollinating Wellbeing network led by **Searle**), as well as dedicated funding support for ECRs, pump-priming activities and large grant preparation. The SAGES Graduate School provides funded scholarships with supervision of students required across two affiliated institutions. Three SAGES PhD studentships have been/are based in UoA14, with staff also supervising at other institutions. Our staff help organise networks and events and **Cook** is a member of the Executive Committee. MASTS is a multi-disciplinary marine partnership that brings together researchers from institutions across Scotland, facilitating communication, collaboration and co-ordination in the marine research community.

**Research strategy and supporting mechanisms:** Building on our progress towards realising our REF2014 objectives, we review our research strategy to address emerging thematic priorities and opportunities at regular research group meetings, away day events and with the wider University through the Dundee Interdisciplinary and Innovation Forum (DIIF). Our structure within the School of Social Sciences, ISSR and our external-facing centres (SIPR and UNESCO water centre) provide the sustainable resourcing to foster and promote success in both research and impact. Thus, our strategy to achieve the research priorities identified above is aligned directly to the research process itself:

- (i) *securing resources and infrastructure:* to sustain and broaden our research base we need to maximise research grant income. This has been achieved through internal mentoring, peer-review and sharing of successful applications, fostering a 'PI culture' to encourage staff to lead major bids and to become members of UKRI peer review panels. Staff and researchers have access to pump-priming funds, from the School, ISSR, and through the institutional SFC-GCRF grant, as well as through external organisations such as SIPR (e.g. **O'Neill** Impact Case Study), the Carnegie Trust for the Universities of Scotland (e.g. *Ties to the Tay, Mains*) and the Scottish Universities Insight Institute (e.g. *The centrality of 'folk, place and work', in the UN SDGs, Searle; Embedding Ethics by Design in the Policing of Digital Futures in Scotland, O'Neill*).
- (ii) *facilitating research:* we build collaborative and often international networks (e.g. through the ISSR Global Scholars Programme) exploiting conference and networking funding, with a focus on encouraging co-production and early engagement with stakeholders. In contributing to interdisciplinary networks and centres we secure state-of-the-art laboratory facilities, including sharing of institutional resources through SAGES, and sponsor major interdisciplinary conferences (e.g. third Biennial International Conference on Transformations to Sustainability in 2017). These deliver essential cross-fertilization of ideas at all levels of research and raise the profile of the University. Funding for academic exchanges is available from the School, ISSR (pump-priming for establishing networks) and the SAGES International Collaboration Schemes.
- (iii) *ensuring quality outputs and impact:* to optimize quality we peer review outputs prior to submission, leverage UoA-specific funding to support development of impact from research, and provide opportunities for staff development around writing and research impact, including hosting and supporting staff to attend internal and external writing retreats and workshops.

Maximising opportunities within our wider structure, we take forward our research strategy and deliver excellence with impactful research through a four-stage process (Figure 2).

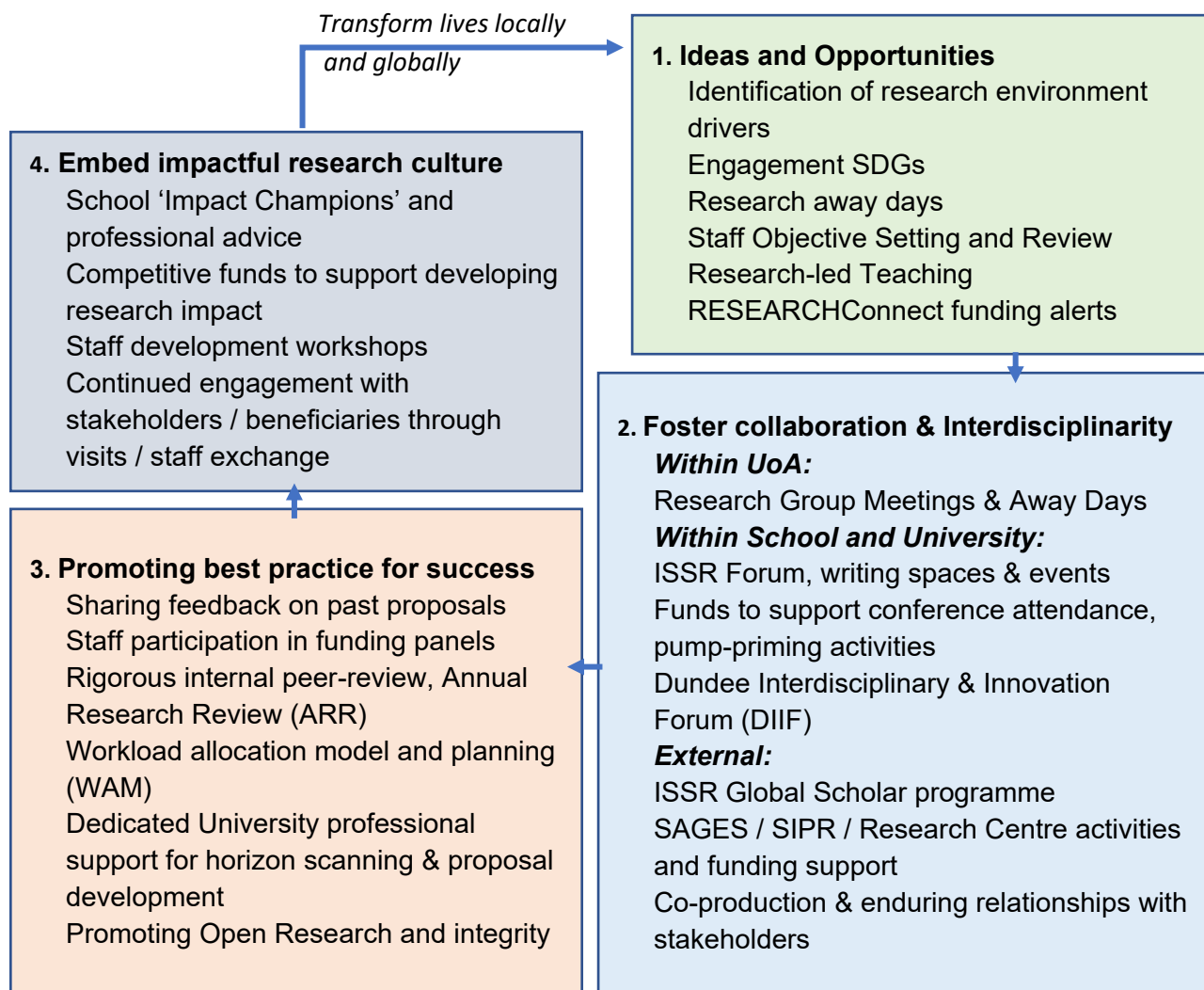


Figure 2: Strategies for supporting increased research income generation, promoting impactful research and engagement with internationally-relevant research agendas/networks

At the heart of our strategies for stakeholder engagement and maximising impact is genuine co-production at every phase of research. For example, we have been awarded seven Scottish Graduate School of Social Science (SGSSS) collaborative PhD studentships developed with a range of external stakeholders (including local government and third sector bodies) and through SIPR have hosted a practitioner fellowship for serving police officers to engage with research from development to dissemination. Our ODA-related research engages with international NGOs and Governments who contribute to research design, delivery and outreach. Dedicated support for impact and engagement (including financial support and training) is provided by the School, ISSR, and through externally-funded UKRI Impact Accelerator Accounts (formerly KTP grants) (e.g. Knowledge Transfer Partnership with Scottish & Southern Electricity Networks (**Hall**)). Impact and engagement are further promoted by the School Impact Champion (**O'Neill**). Our strategy of promoting engagement and impact through co-creation is demonstrated in all three impact case studies submitted, as well as selected exemplars described in Table 2 (Section 4).

**Promoting an Open Research Agenda:** The ethical use, storage and management of research data are integral to our research protocols. Where possible, we aim to make data, tools and code

## Unit-level environment template (REF5b)

available with a view to increasing access and reproducibility, either via the institution online repository (Discovery) and/or national data centres, such as ReShare: UK Data Service, NERC Environmental Information Data Centre, NERC Earth Observation Data Centre, and host organisation websites (e.g. European Union Crime Prevention Network). Our commitment to effective sharing and management of research data is exemplified by **Geddes** leading a successful ESRC bid to host a SafePod® to the wider benefit of the University and researchers across the UK. SafePods are an independent network of safe settings providing secure facilities for researchers to remotely access datasets from participating Data Centres across the UK. To promote the Open Research agenda, staff attend training in research data management and open access publication during annual *Open Access Week* events delivered by the University Library and Learning Centre.

To maximise our research reach, staff are encouraged to publish outputs outside the remit of the REF Open Access Policy via other open access routes, including reports and working papers. This includes publications available through the SIPR publications portal, the CARISCC Working Paper series, papers, reports and presentations through the online publication platform *issuu.com*, and outlets such as *The Conversation* (**vanBlerk, Searle, Kirkbride, Cook and DawsonS**).

The School Research Integrity Group (UoA14 representation from **Mendel** as Deputy Research Integrity Lead) supports the five commitments for good research conduct and governance as defined by the Concordat to Support Research Integrity. This provides (i) an independent point of contact for staff and research students outside their immediate research environment, (ii) impartial advice on responsible conduct of research, and (iii) advice on making misconduct allegations. Staff and PhD students are provided with online video-based training in Responsible and Ethical Practice in Research and Publication. Ethical review and approval of non-clinical research involving human participants proposed by staff and students is overseen by the School's Research Ethics Committee.

## 2. People

**Staffing strategy:** Our staffing strategy looks to the appointment of outstanding researchers to enhance excellence and capability in research expertise in both research groups' themes. Despite the loss of senior staff due to retirement and posts elsewhere, we have capitalised by appointing early-career academics, as well as expanding the UoA to include staff from related disciplines. New appointments have been made based on four criteria: potential/proven research and knowledge exchange excellence; potential/proven collaborative and interdisciplinary working; commitment to the development of colleagues; commitment to societal impact. Six new lectureships, including four early-career appointments, have been made since 2014, producing a well-balanced demographic profile, with five professors, three readers, seven senior lecturers and eight lecturers. 39% of Category A staff are female.

To enhance the *Environment Futures* group, we have made appointments relating to all three thematic priority areas, with **Cook** (glacial processes) and two early-career academic staff appointed as Lecturers: **Halliday** (water extremes and management) and **Morel** (biophysical responses and systems). To support interdisciplinary themes in the *Social Futures* group, three appointments have been made: **Costa Santos** (just societies and places) to a Senior Lectureship and **Stjepanovic** and **Brown** (safety and security) as Lecturers. All staff in the UoA are employed on open-ended/permanent contracts.



## Unit-level environment template (REF5b)

The ambition of UoA14 staff to shape the research agenda within the UoA and wider University is exemplified by the key roles that staff have taken up during the assessment period. **Rowan** was appointed Dean of the new School of Social Sciences in 2015, and then to Vice-Principal for Research in 2018. **Fyfe**, inaugural Director of SIPR and then Associate Dean for Research (ADR) was appointed Dean in 2018 to replace **Rowan**, with **vanBlerk** succeeding as ADR. All three were instrumental in the formation of the ISSR, embedding geographical and interdisciplinary research at its heart, and continue to represent the UoA and ISSR at the highest levels in the University whilst retaining active research portfolios.

Recognition of research excellence and impact are key criteria for staff promotion and the supportive research environment within the UoA is evidenced by promotions since REF2014: three staff to Personal Chairs (**vanBlerk** in 2015; **DawsonS** and **Cutler** in 2019 - both previously promoted to Reader in 2015), two staff to Readerships (**O'Neill** and **Al Waer** in 2019 - both previously appointed to Senior Lectureships in 2015 and 2016 respectively), and four staff to Senior Lectureships: **Hall** (2013), **Geddes** (2018), **Cook** and **Mendel** (2019).

**Career development, well-being and review:** We pride ourselves on maintaining a collegiate, mutually supportive and intellectually stimulating research environment through our formal and informal activities and in line with the Concordat to Support the Career Development of Researchers. Social and academic interactions take place at daily morning coffee breaks, attended by staff, researchers and PhD students. Research group round table meetings occur regularly and include MSc students, Honorary Research Fellows and retired staff members to share ideas, experiences and plan future activities. More formal training and sharing of best practice (available to all staff and PhD students) is delivered through School-wide training in publication writing and research development workshops, and the University's Organisational and Professional Development (OPD) programme, while ISSR offers support through interdisciplinary funding, networking seminars and events (often led by UoA14 members). During COVID-19 restrictions the research groups, School and ISSR moved to online away days, webinar-based seminars and randomised coffee trials, where individual staff meet online with researchers from other parts of the University to share experiences and opportunities for research under COVID-19 conditions.

As detailed in REF5a, individual staff research is reviewed by an Annual Research Review (ARR) panel, drawn from staff within the UoA and including an Associate Dean for Research from another school to ensure consistency. Supporting the University's Excellence Agenda, this enhancement-led review assesses the quality of outputs, funding applications and impact activity. All staff receive constructive feedback on their achievements and plans, which feeds into each individual's Objective Setting and Review (OSaR) with their line manager. OSaR reviews, which all staff and PDRAs have once each year, allows research activity, career development and ambition to be balanced alongside teaching and administrative commitments in the workload allocation model. Staff are allocated 30% of their time for research endeavour as a base-load. Research leave of one semester (11 weeks), provides relief from teaching and administration. Identified and encouraged by discipline leads through the OSaR process, staff are entitled to apply for research leave every three years. Five staff took research leave during this REF cycle, making significant contributions to research outcomes and building international relationships (Section 4). Our teaching programmes are planned such that Honours modules are delivered every second year, providing staff with lighter teaching loads in alternate years to enable their focus on research. New staff are supported by a Probation Mentor and have lower teaching and administrative duties to allow them space to develop their research portfolio and engage in staff development and training.

**Unit-level environment template (REF5b)**

For support outside formal review systems, each staff member is mentored by an experienced colleague within the discipline. Additionally, four UoA14 staff have served as both mentors and mentees in the voluntary cross-institutional Teaching, Research & Academic Mentoring Scheme, an innovative collaboration between Dundee's OPD and the University of St Andrews. This pairs experienced academics with earlier career colleagues, providing guidance and structured support. The scheme now includes staff from other Scottish institutions, providing a pool of experienced support for colleagues at all career stages.

**Postgraduate Research Support and Training:** Our doctoral students thrive in an inclusive research culture which provides opportunities for training and independent impact. Students regularly contribute to research group meetings, mix with staff at daily coffee and social events and are supported by the nested structure of a disciplinary setting, within a wider Graduate Community of Social and Health Sciences (part of ISSR and led by **Hall**). Co-located within each discipline, students are provided with dedicated office space with personal computing and have access to the same research facilities as staff.

Year	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	Total
<i>PhDs awarded</i>	3	3	7	7	7	6	7	40

There were no research-based professional doctorates awarded in the assessment period.

Exemplifying our commitment to support, Associate Director of the SGSSS **Hall** was part of the team that successfully bid for the Scottish ESRC Doctoral Training Partnership (DTP), established in 2016. **Searle** is the pathway representative for Human Geography, Environment and Urban Planning. As a partner institution, UoA14 secured 12 PhD Studentships (from thematic streams including 'collaborative', 'advanced quantitative methods', and 'interdisciplinary'). SGSSS studentships give access to advanced training, internships and transdisciplinary cohort-building events, including the annual SGSSS Summer School, which is open to all our PhD students.

Recognising that students arrive with a diverse range of cultural and educational backgrounds all PhD students undertake a training needs assessment when they first arrive (including identifying support for disability needs, emotional and physical well-being). Within the framework of the University's Researcher Development Policy, the ISSR Graduate Community facilitates and supports students (using the ESRC Postgraduate Training Guidelines) to access appropriate social science training within the four Schools and across the University. Both the School and the Graduate Community support students to attend external training courses and PhD students can also take modules delivered as part of the ESRC-recognised MSc in Social Research led by Geography. Those PhD students funded through NERC Doctoral Training Centres (three students, co-supervised with Civil Engineering in the NERC Oil and Gas Centre for Doctoral Training) undertake additional training delivered by external agencies and industry.

Two exemplars characterise the vibrancy of our doctoral student community and their integration into the research culture in UoA14:

- i. In 2014, doctoral researchers in Geography co-developed the conference '*Facing the Future*', an international PhD and ECR conference, with facilitation by the International Futures Forum and supported by CECHR. Subsequent conferences held at other institutions have all built upon Dundee's foundation of an interdisciplinary meeting where links between learning and practice are central to the aims of the conference.

**Unit-level environment template (REF5b)**

- ii. PhD researcher **Mukherjee** developed a pioneering solution for disaster resilient floating homes allowing families in developing countries to survive natural disasters by maintaining sustainable livelihood options. The project won the UN Office for Disaster Reduction (UNDRR) RISK Award 2019 and received a Commendation in the 'Research Project of the Year: Arts, Humanities and Social Sciences, THE, 2019'.

During restrictions imposed by COVID-19, the Graduate Community adapted to provide online asynchronous training, as well as maintaining regular contact with students to sustain progress and well-being. Despite these measures, some students will experience delays to their research and so all students have been offered an automatic extension to their studies if required.

**Equality and Diversity:** Equality, diversity and inclusion (ED&I) is a lens of research for UoA14 staff, including disability (**Hall**), refugees (**vanBlerk, Cutler, Hall**), race (**Mains**), gender and age (**vanBlerk** and **Smith**). It is also a key focus of the School of Social Sciences support for teaching, scholarship and research. The School ED&I Committee, led by **Halliday**, has representation from across UoA14, including **Searle, Costa Santos, Stjepanovic, Onyango** and PhD student **Mukherjee**. This ensures unit-specific ED&I matters are represented and feed into School-level research strategy, with **Halliday** sitting on the School Management Group. The ED&I committee chooses an annual focus area for targeted work: in 2019-20 this was female promotion and delivered a targeted action plan around promotion of female staff and established a School-level support network. The committee led a successful School-level application for a Bronze Athena Swan Award in 2020 having developed a robust action plan to deliver change with respect to gender equality. In this REF cycle two of the three personal chair promotions have been awarded to female staff, including the first female professor of Geography at Dundee (**vanBlerk** in 2015). The ED&I committee contributes to the University application for the Race Equality Charter and in 2021 will focus on research student engagement with particular attention on our BAME students due to COVID-19 and the Black Lives Matter movement. **Mains** is working with partners in the Black Atlantic Research Dundee network on decolonising the University curriculum and gaining institutional support for research on legacies of slavery in the institution and Dundee more widely. The ED&I committee is represented on the University Disability and LGBTQ+ staff and student support networks. Work is ongoing within UoA14 to improve equality of access for field-based research, addressing specific needs (e.g. disability), with measures such as financial support and the inclusion of specific welfare information in first aid boxes.

All staff within the UoA have completed mandatory Equality and Diversity training, a series of modules relating to equality, diversity, unconscious bias and stress in the workplace, as well as training in postgraduate supervision, research data management, IT and cybersecurity. Additional optional modules are available through the OPD programme that delivers workshops on a range of well-being, administrative and professional behaviour topics. Individual's training needs are formally reviewed at annual OSaR meetings.

This REF submission was prepared in accordance with the University's REF Code of Practice. Outputs were selected and attributed by the UoA14 Planning Group with the aim of optimising the overall quality profile. All UoA14 Planning Group members completed EDI and information security training modules, and REF-specific training in equality & diversity including unconscious bias training. The resulting selection of outputs exactly reflects the gender balance in our staff profile, with 39% of outputs selected from female staff, who make up 39% of Category A staff. From a pool of draft Impact Case Studies, the Planning Group (informed by internal and external reviewers) recommended case studies to be taken forward for submission in REF2021.

### 3. Income, infrastructure and facilities

**Research income:** Our UoA14 research strategy emphasises the importance of excellence with impact. To achieve this, we pursue collective advantage through collaboration with leading research groups and organisations, internationally and nationally. This builds on the strategy set out in REF2014 prioritising engagement with UKRI and EU-funding calls ensuring our research is “primarily orientated towards academic agendas using rigorous methods approved by the peer review process”. In this, we show a strong trajectory, with increases in research funding from UKRI, EU Horizon 2020, Government and the UK Charity sector, and a rise in total research income to in excess of £5.4m, representing a substantial increase in funding from all sources. A step-change from previous REF/RAE is greater participation of UoA staff in large national and international consortium projects, such as the NERC Consortium *GloboLakes* (**Cutler** and **Rowan**), and *Arctic Tsunamis* (**DawsonS**) projects, *NORDFORSK* (PI **O’Neill**, **Mendel**), H2020-funded *Multi-Use in European Seas* (MUsES) (**Onyango**) and *Enhancing cooperation between law enforcement agencies and citizen-community policing* (**O’Neill**). Of the 235 applications for funding 102 have been awarded in this REF cycle, representing a success rate of 43%.

The infrastructure to support our research strategy is made up of administrative support at School and University level, as well as UoA-specific and University investment (REF5a) in physical infrastructure, data access, software and staff training.

**Administrative Infrastructure for Research:** The University provides dedicated support to staff for preparing funding proposals through its Research and Innovation Services (RIS). Additionally, RIS supports bids relating to the Global Challenges Research Fund and facilitates access to SFC-GCRF funds, supporting UoA14 researchers (**Hall**, **vanBlerk**, **Cutler**, **Geddes**, **Halliday** and **Morel**) with both pump-priming and larger project funding for research relating to the Sustainable Development Goals. Nine awards made in the period demonstrate the leading role that UoA14 staff make in undertaking ODA-related research. The networks and collaboration fostered through this funding have leveraged further opportunities. For example, the SFC-GCRF project “*Displaced communities, environmental degradation & sustainable livelihoods in East Africa*” has built links with key Government stakeholders/NGOs in Uganda, leading to the award of the UK Space Agency IPP3 project *Anti-trafficking using Satellite Technology for Uganda’s Sustainability* (ASTUS) (**vanBlerk** and **Cutler**).

At School level, there is leadership in research strategy from the Associate Dean for Research (**vanBlerk**) and administrative support for research with a dedicated research administrator and finance officer. At UoA level, support for staff engaging in research is managed through the research groups and OSaR, with training relating to research project management, grant writing, ethical research, risk management and other aspects of best practice delivered by the School, ISSR and OPD.

**Research data management and software:** SafePod® enhances our infrastructure to securely manage and store data, whilst the UoA has invested in a new GIS and Data Visualisation facility with state-of-the-art processing and software capabilities for geospatial data analysis and visualisation, qualitative analysis and specialist architectural design. This is complemented by a department licence to access daily high spatial resolution global satellite imagery from a constellation of over 140 satellites via the PlanetLabs platform. Access to online data platforms is curated through the Library and Learning Centre, who provide regular training to all staff and students in data access and management and support the preparation of data management plans for research applications. Additionally, all UoA staff and researchers benefit from institutional

access to Idox RESEARCHconnect, a comprehensive service for alerting staff to funding opportunities.

**Physical Infrastructure and Facilities:** Targeted investment in the research infrastructure has provided a well-founded laboratory and fieldwork resources that support research in both research groups. The Environmental Diagnostics Laboratory houses specialist equipment for radiometric dating and tracer-based research (e.g. Ortec low energy gamma spectrometers for environmental radioactivity applications, surface area instrumentation for soil/sediment particle characterisation and Olympus x-ray fluorescent analyser for geochemical elemental composition of sediments). Field-based research is supported by access to equipment such as a Sontek Acoustic Doppler Current Profiler (ADCP) to determine streamflow, ISCO samplers and fully submersible spectrometers to measure water quality, Leica dGPS, UAVs to acquire high spatial/temporal resolution imagery and field-portable spectroradiometers for reflectance and fluorescence measurements. Investment in staff/student training to accompany this equipment has been provided by the School (e.g. Civil Aviation Authority drone pilot qualifications for five researchers). Researchers are also supported through loans of equipment/data acquisition and training through successful applications to NERC facilities for field spectroscopy (FSF), airborne remote sensing (ARF), radiocarbon dating (NEIF) and cosmogenic isotope dating (CIAF) to in excess of £100k since 2014. Social science research is supported with access to electronic recording devices, tablets for survey, digital cameras, terrestrial laser scanner and 3D printing facilities within dedicated studio spaces for planning and design of urban spaces. Additionally, UoA14 research regularly features in events held in a dedicated public exhibition space within the School (the Lamb Gallery). All facilities are managed by dedicated support staff, including laboratory and studio managers, GIS and field-equipment technicians (3.5 FTE).

In addition to campus-based infrastructure, staff in UoA14 (led by **Black** and **Spray**) have been instrumental in developing and operating long-term river catchment-based research platforms in Scotland (Eddleston, Feshie, Talla) and Iceland. Eddleston is Scotland's principal living laboratory for policy-focused Natural Flood Management (NFM) research and is a partnership involving Scottish Government, Scottish Environment Protection Agency (SEPA), BGS, Scottish Borders Council and more than 20 landowners. The work is heavily based on empirical observation (with substantial investment in instrumentation) and stands in contrast to most NFM research which depends on model outputs. The research platform has underpinned complementary projects involving collaborators (including PhD studentships) at BGS, Edinburgh, Newcastle, UCL, Catalunya and Geneva, spanning ecosystem service valuation, surface water-groundwater coupling, interception and infiltration processes. Similar principles of a research platform underpin monitoring in the Feshie catchment (carbon fluxes and snowmelt hydrology) and Virkisjökull Iceland, (climate-glacier-runoff-groundwater coupling in a retreating glacier system), involving collaborators from Edinburgh, Newcastle, Glasgow, Leeds/NCAS, Lancaster, Southampton, CEH and funding from NERC, BGS, Scottish Natural Heritage and landowners.

Consistent with the University's 'OneDundee' ethos our researchers are encouraged to seek access to state-of-the-art infrastructure available elsewhere in the institution (e.g. experimental flumes, geotechnical centrifuge and micro-CT scanner in Civil Engineering). Collaboration with strategic partners such as the James Hutton Institute provides access to experimental agricultural facilities, while access to resources/expertise is promoted through reciprocal 'pooling' arrangements across Scotland through membership of SAGES and MASTS, meaning institutional investment does not duplicate large capital investment at other sites, thus enlarging the resource base for staff.

<b>4. Collaboration and contribution to the research base, economy and society</b>
--

UoA14 staff have multi-scale collaborations that boost our research creativity and impact (Table 2). Highlights provided here are elaborated further throughout this section. At a local level, we are uniquely connected to the city and its wider environs through strong links with the council, public agencies and community-based organisations; nationally, staff collaborate with Scottish Government, play leading roles in learned societies, including the Royal Scottish Geographical Society with representatives from local to national, as well as participating more broadly in RGS-IBG and BSG speciality groups (e.g. Quantitative Methods Research Group secretary **Geddes**). Our research strategy encourages and facilitates building and engaging in national and international networks, including with others at leading Universities across the UK and globally, and has resulted in a range of successful collaborative funding bids.

*Table 2: Exemplars of collaboration, engagement and/or impacts at local, national and international scales, contributing to aim (iii) of our research strategy.*

<i>Project (PI)</i>	<i>Partnership / audience</i>	<i>Engagement and/or impact</i>
<i>Environment Futures</i>		
Assessing the effectiveness of Scotland's flood warning service ( <b>Black</b> and <b>Geddes</b> ).	Scottish Environmental Protection Agency (SEPA)	Eight key recommendations made on enhancing the content, delivery and status of messages issued from SEPA's 'Floodline' flood warning service
Climate change adaptation (i - <b>Rowan</b> ) and mitigation policy (ii- <b>Onyango</b> )	ClimateXChange policy team; Scottish Building Standards	(i) Indicator and monitoring framework adopted by Scottish Climate Change Adaptation Programme and UK Adaptation Sub-Committee. (ii) Proposed greenhouse gas reduction targets and methodologies for ascertaining compliance, to inform NPF4 under formulation (National Planning Framework).
Eddleston Natural Flood Management project ( <b>Black</b> and <b>Spray</b> )	Environment Agency (EA); SEPA; EU via INTERREG	Evidence-based contributions to SEPA's Flood Management Handbook and Environment Agency's Working with Natural Processes Evidence Directory. Technical guidance, briefings and workshops to Scottish Ministers, Secretaries of State and European research consortia.
Multi-Use in European Seas (MUSES) ( <b>Onyango</b> )	EU Governments; Blue Growth Sector	Adoption of MU (Multi-Use) concept into marine spatial planning strategies and policy; e.g. Multi-Use Community of Practice in the Netherlands and Belgium
<i>Social Futures</i>		
Evaluation of Dundee Hubs and substance misuse plan ( <b>Searle</b> , <b>Smith</b> )	Dundee City Council	Report accepted by the Dundee Alcohol & Drug Partnership, with recommendations made to the Public Social Partnership project. Findings supported an application for funding by Dundee City Council to the national Drugs Deaths Task Force.

Evaluation of Police and Fire reform in Scotland ( <b>Fyfe</b> )	Police Scotland; Scottish Fire and Rescue Service; Her Majesty's Inspectorates of Constabulary and Fire and Rescue in Scotland; Scottish Govt.	Evidenced-based changes to the policy and practice of reform of police and fire services in Scotland including a 'lessons learned' report for Scottish Government on the implications for wider public service reform; and establishment of a European knowledge exchange network of policy makers, practitioners and researchers for the sharing of information about the processes of police reform.
Knowledge Transfer Partnership: Scottish & Southern Electricity Networks (SSEN) ( <b>Hall</b> )	SSEN and vulnerable customer community	Recommendations changed company's approach to customer vulnerability, with changes to staff training; re-shaped organisation structure and community support; included learning from the KTP in Ofgem submission. Now used by the company across the UK to manage response to power outages. Project awarded 'Outstanding' by Innovate UK
Measuring what matters: Planning Outcomes Research ( <b>AlWaer</b> )	Royal Town Planning Institute; Kevin Murray Associates (KMA)	Commissioned report, handbook and innovative online toolkit for the Royal Town Planning Institute (RTPI) to gauge how planning delivers on the explicit aspirations of planners for placemaking and its social, economic and environmental value.
Unity ( <b>O'Neill</b> )	EU Crime Prevention Network; EU Agency for Law Enforcement Training	Provided evidence and guidance in the development of a best practice 'toolkit' for community policing in the EU, accessed over 1500 times on the EUCPN website; policy paper "Community-oriented policing in the European Union".
Youth Transitions in Protracted Crises ( <b>vanBlerk</b> )	Academic and NGO partners in Uganda and Jordan	DFID Commissioned report on impacts on refugee youth in the MENA region and a case study within the Inter-Agency Standing Committee guidelines of the Compact for Young People in Humanitarian Action, United Nations Population Fund.
Evidencing Violation of Children's Rights in Brazil ( <b>vanBlerk, Mendel and Fyfe</b> )	The Oak Foundation; Terre des Hommes	The Oak funded World Cup project received significant media coverage from the BBC, STV, & Times Higher and fed into the Terre des Hommes Children Win Campaign which resulted in changes to policy when organising major events by the International Olympic Committee.

**Collaborations and partnerships:** To promote collaboration we actively lead and contribute to the management of several external-facing research centres, including *SIPR* and the *UNESCO Centre for Water Law, Policy and Science (CWLPS)*:

*SIPR*: Established in 2007 and led by **Fyfe** until 2017 (**O'Neill** became a Co-Director in 2018), *SIPR* is a collaboration between 12 Scottish universities, the Police Service of Scotland and the Scottish Police Authority. It connects c.100 academic staff and research students across Scotland conducting high quality and independent research co-produced with the police. As Director of *SIPR*, **Fyfe** provided strategic leadership, including evidence-based contributions to national policing bodies in the UK and Internationally. *SIPR* has positioned Scotland as the hub of an

## Unit-level environment template (REF5b)

international KE network. As an Executive Member and Co-Director, **O'Neill** has responsibilities for future strategic directions for research, impact and engagement. A 10-year review by the Scottish Funding Council, concluded that SIPR had “*exceeded its original ambitions, creating significant value for its stakeholders. It has been an exemplary investment in the extent of its success to date and it has significant potential to further enhance its impact*” (SFC Report, Ref.:SFC/CP/01/2017).

*UNESCO Centre for Water Law, Policy and Science (CWLPS)*: Water, environment and consequences of climate change have long been a research focus at Dundee, recognised with the establishment of the UNESCO water centre in 2004. The siting of the Centre within the School of Social Sciences, led by **Rowan, Dawson** and Hendry (Law), capitalises on the strength of water-related research in Dundee that straddles Geography, Law and Urban Planning. The Centre’s work is characterised by a strong development focus, examining ways in which legal, institutional and policy frameworks at national and international levels can be used to improve water management in developing countries. Nationally, the Centre maintains close links to both the Scottish Government’s HydroNation programme (funding seven doctoral students) and the Centre of Expertise for Waters (CREW). **Rowan** is the national academic lead/advisor for both programmes.

A priority stated in our REF2014 submission was to build lasting international networks and partnerships. Support for this had led to flourishing global collaborations with staff working on successful externally funded projects with colleagues in Europe (e.g. Norway, Sweden, Finland, Germany, France, Switzerland, Portugal, Belgium), Africa (e.g. Nigeria, Uganda, Lesotho, Malawi, Ghana, Ethiopia), Asia (including China, Philippines, Malaysia), Australasia and Americas (including Peru, Brazil, Bolivia, Jamaica, New Zealand and Australia) and have resulted in prestigious visiting and external consultant appointments (e.g. Visiting Professorships UCT, South Africa; PUC-Rio, Brazil; Norwegian Police University College, Norway). A clear step-change has seen an increase in the numbers of long-term visiting researchers this REF period (8), demonstrating a growing reputation as an attractive research environment. For example, Prof. Rizzini (PUC-Rio, Brazil), Director of the International Center for Research and Policy on Children (CIESPI), was supported by a Leverhulme Visiting Fellowship to collaborate on research relating to children’s rights resulting in joint publications (e.g. **vanBlerk, Mendel et al.** 2019) and further funded projects. The UoA has successfully sought support from the ISSR Global Scholars Programme, welcoming researchers from New Zealand and Malaysia, and leading to joint publications (e.g. with **Cook, McColl et al.**, 2019; **Cody et al.**, 2020). A Royal Society of Edinburgh/National Science Foundation China exchange programme saw **Cutler** visit Hohai University, China (facilitated through research leave), with a reciprocal visit to Dundee focusing on remote sensing of monitoring muddy tidal flats. Through this developing collaboration a further visit from a researcher from Nanjing Normal University conducted joint research, producing co-authored publications. We also welcomed three ECRs to Dundee from Ghana, Zimbabwe and Lesotho, supported by the GCRF, and working in collaboration with **vanBlerk** focusing on street children’s livelihoods in Africa. Dr Emmanuel Akpabio (Uyo, Nigeria) received a Marie Skłodowska-Curie Actions Programme Fellowship entitled *Water, Sanitation and Hygiene in Africa: Understanding Policy into Practice* (WaSH-UPP) to work with **Rowan**, whilst **Mukherjee** received a one year Munich Re Foundation Fellowship to continue his doctoral research as a PDRA in our UNESCO Centre for Water Law, Policy and Science.

Our international partnerships are further strengthened by Memorandum of Understanding agreements with CIESPI (Brazil), and with Makerere University and the Office of the Prime Minister Uganda, facilitating collaboration and helping to ensure the outputs of our research are translated into policy-related actions. **vanBlerk** is an Honorary Professor at the Children’s Institute at the University of Cape Town (UCT), South Africa, whilst **Brown** holds an Associate Research



**Unit-level environment template (REF5b)**

Fellowship with the Center for European and Transatlantic Studies, Jean Monnet Centre of Excellence at Georgia Institute of Technology (USA). **O'Neill** co-leads Working Group 1 of the EU COST Action '*Po/Stops*', a network of over 40 organisations in 29 countries focusing on 'stop and search'. **Stjepanovic** is a Citizenship expert with the Global Citizenship Observatory (GLOBALCIT) and Robert Schuman Centre for Advanced Studies, Italy, updating citizenship legislation databases and providing analysis of new/amended citizenship laws. Established in 2012 and led by **AIWaer**, '*Place-making, Professionals and the Public*' is a participatory research project bringing together professionals and academics involved in planning and designing urban environments. The programme, a collaboration including the Academy of Urbanism, Scottish Government, RTPI, Sustrans, NHS Scotland, and Urban Design groups, has worked with interdisciplinary teams in Aarhus, Bilbao, Freiburg, Porto, Utrecht, and Ljubljana all facing similar problems to UK city contexts.

**Impact and Recognition:** We have submitted three impact case studies which demonstrate impact arising from research in national and international settings, as well as demonstrating a more diverse range of impacts and engagement in Table 2. Our strategy to support staff in maximising impact (Section 1) also asks staff to regularly reflect on the impact their research is having, with support from the School and ISSR available to those wishing to develop this further.

Recognition of the quality of our research and its impact has come from various sources. The project *Geographies of Missing Persons* (**Fyfe**) was awarded the ESRC Outstanding Impact on Society award. **Fyfe** also received the Distinguished Achievement Award from the Center for Evidence Based Crime Policy, George Mason University, Washington, 'For outstanding contributions in advancing criminal justice policy and practice through research' as well as a UKRI sponsored 'Game Changer' Bronze Research Impact Award for research on the governance of security for the Glasgow Commonwealth Games. **vanBlerk** was awarded the Stephen Fry Award for Impact and Public Engagement (2017), and the Market Research Society's President's Medal (2015) for Impact, and the same project also featured as an ESRC impact case study. Other awards include **AIWaer**, who was awarded the Reed and Mallik Ltd Journal Prize by the Institute of Civil Engineering (ICE) for the 'best paper' published in the *Journal of Urban Design and Planning* in both 2014 and 2016, and was recently awarded the National Research Award 2020 for the Energy and Industry Sector by the Ministry of Higher Education, Research and Innovation, Oman.

**Contribution to society and the discipline:** Our research strategy encourages direct engagement and co-production with a diversity of organisations and stakeholders (Table 2) including Government and policy-oriented organisations. This has led to collaborative work with: national organisations (e.g. Police Scotland); the Scottish Government (e.g. **Fyfe** was appointed to the Scottish Funding Council's Research and Knowledge Exchange Committee, 2019; **AIWaer** was an invited advisor to Scottish Government charrette events in 2017 and 2018; and PhD researcher **Saidi** completed a 6-month Scottish Government Policy Internship, working with the Chief Scientific Adviser for Environment, Natural Resources & Agriculture); UK Government (e.g. DFID, Defence Science Technology Laboratory); international Governments (e.g. MoU with the Office of the Prime Minister, Government of Uganda); NGOs and other public bodies (Table 2 and Impact Case Studies). **Stjepanovic** regularly briefs newly appointed UNICEF ambassadors on the contemporary politics of countries of Eastern, Southeastern Europe and Caucasus, facilitated by SOAS, London.

We provide extensive service to the discipline and research community, including hosting of conferences, workshops (e.g. Architecture and Collective Life 2019) and networks (e.g. **Mains** co-founded the Black Atlantic Research Dundee network, researching the legacies of slavery). We

**Unit-level environment template (REF5b)**

undertake review work for high impact journals and a range of grant awarding bodies, including ESRC, NERC, Carnegie Trust for the Universities of Scotland, Wellcome Trust, as well as reviews for international funding organisations such as the Canadian, German, Australian and Czech research councils. Additionally, we have convened conference sessions at national and international meetings, including the European Society for Tropical Ecology; annual meetings of the RGS/IBG, the EGU and AGU, European Society of Criminology, Surveillance Studies Annual Conference, Housing Studies Association and European Network of Housing Studies. Our contribution to professional associations and learned societies includes committee service to the Councils of the Remote Sensing and Photogrammetry Society, British Geomorphological Society, British Society of Criminology, and Royal Scottish Geographical Society, as well as RGS/IBG speciality groups.

Almost half of submitted staff are editors and editorial board members of leading international journals (e.g. Children's Geographies; Social and Cultural Geography; IDPR; Health & Place; Journal of Intellectual & Developmental Disability; Hydrology Research; Scottish Geographical Journal; Frontiers in Cryospheric Science; Geomorphological Techniques; GeoHazards; Policing and Society; International Journal of Police Science and Management, International Journal of Law, Journal of Caribbean Geography). This engagement with the wider discipline ensures our own research is cutting edge and highly impactful, influencing policy and practice at all scales. Contributions to journals and the discipline base are encouraged in discussion at OSaR meetings and form an important criterion for promotion.

Finally, public engagement forms a key delivery of our research with contributions encouraged at public engagement events. UoA14 research projects were named in the University's successful application for a Gold Engage Watermark awarded in 2020. We make contributions to informal 'Café Science' and 'Café Arts' events, curate exhibitions in our dedicated exhibition space, contribute materials and talks as part of large exhibition events at galleries and museums (e.g. 'Polar exhibition' at Dundee's McManus Gallery (**Cook**) and 'Moving Jamaica' exhibition at museums in St Andrews and Dundee (**Mains**)), and UKRI and Royal Society public engagement events including the Dynamic Earth exhibition, Edinburgh (**DawsonS and Cook**). We are passionate about communicating our research to new generations through teaching, and more recently in educational video productions, such as the Geographical Association Silver Publishers Award winning *Time for Geography* tsunami knowledge booster series (**DawsonS, Cook**).