Report on the RENKEI Researcher Workshop: Developing Japan-UK Research Collaboration in Climate Change

Hosted by Newcastle University, 2 – 4 December 2019







Contents

Executive summary	4
Day One	5
Welcome addresses	5
Keynote: climate resilient infrastructure	5
Panel discussion	6
Setting the scene	7
Learning walk	9
Interactive session – speed collaboration in threes to generate research ideas	9
Day Two	11
Getting acquainted	11
Interactive sessions – developing collaborative research proposals	11
Funder talks	12
Day Three	14
Research proposals and pitches for seed funding	14
Changing behaviours and influencing policy	14
Reflections on the RENKEI workshop	15
Feedback from workshop participants	17



Executive summary

- 19 researchers from 5 Japanese universities and 17 researchers from 5 UK universities participated in the workshop. 47% of participants were female; 53% of respondents to the workshop survey identified themselves as early career researchers; each university sent at least one researcher from the social sciences or humanities.
- Presenters and panellists included representatives from academia, UK governmental committees and local governments, and funding bodies.
- Participants worked in seven groups to produce proposals for interdisciplinary collaborative research on the six sub-themes of the workshop:
 - Low carbon societies and green infrastructure
 - Future risks and adaptation in floods and water shortage
 - Future risks and adaptation in food production and security
 - Managing future risks and building resilience in urban areas
 - Future risks and adaptation in ecosystems
 - Future risks and adaptation in human health
- Seed funding of GBP 5,000 each was awarded to two research proposals, "Communitybased forest management under a changing climate in Japan: evidence through experimentation" and "Improved water management, a citizen science co-design approach".
- 60% of respondents to the workshop survey stated that they were "very satisfied" with the workshop overall; a further 37% were "satisfied". 73% considered that they had found potential collaborators for research and would follow up with them after the workshop.
- Funding agency priorities proved to overlap with many of the workshop research themes.
- Participants are encouraged to join the third RENKEI researcher workshop, which will be hosted by Kyoto University on 22 – 24 June 2020.





Day One

Welcome addresses

Jamie Gibbings, Acting Director, British Council Japan, addressed participants on behalf of the RENKEI secretariat, reminding them that climate change was not only a priority theme for RENKEI but also a key strategic area of science and technology collaborations between Japan and the UK identified by the then Prime Ministers of both countries in 2017. He encouraged participants to think creatively when developing their joint research proposals.

Professor Richard Davies, PVC Global of Newcastle University, welcomed participants to the host university. He introduced the history of the site, a former coal mine which is now home to one of the largest urban data collection projects in the UK, and about the importance of better data in order to make good decisions. He also talked about the need for universities, as large organisations, to work together internationally with governments, businesses, and others to address climate change and to share best practice.



Keynote: climate resilient infrastructure

Professor Richard Dawson of Newcastle University, a member of the Adaptation Committee, UK Committee on Climate Change, gave the keynote speech. The UK Committee on Climate Change provides independent advice to government on building a low-carbon economy and preparing for climate change. The UK's Climate Change Act (2008) mandates not only greenhouse gas mitigation, but also risk assessment and adaptation. A national climate change risk assessment is carried out every 5 years, and in turn informs national adaptation planning led by the Adaptation Committee. The six priority areas of risk and adaptation identified align closely with the RENKEI sub-themes.



Professor Dawson emphasised the importance of taking a systems-level approach to risk analysis. Infrastructure risks are interconnected, and so impacts can reach further than an initial extreme weather event, but reliance on ICT means that the connections may not be obvious until an emergency: he gave the example of a power outage in York making it impossible to call an ambulance in Newcastle, 120 kilometres away. He introduced some innovative solutions, such as the introduction of minibuses on demand which have actually made journeys faster by removing vehicles from the roads, and tunnels which can become flood storage devices if necessary.

Feedback from the participant survey:

- Very interesting opening talk that did an excellent job at describing the backdrop for the workshop.
- Very informative. I learned the current situation of UK in terms of adaptation for flood disasters.
- I learn a lot of perspective for climate policy especially adaptation strategy. The risks are almost same as Japanese cities.
- Enjoyable.

Panel discussion

Professor Suraje Dessai from the University of Leeds, a UKRI NERC (UK Research and Innovation Natural Environment Research Council) Climate Change Resilience Champion, and Professor Hayley Fowler from Newcastle University, Director of the ONE Planet NERC Doctoral Training Programme, discussed the ways in which research into climate change impacts policy-making at various levels. Aimee Nelson of Siemens was unfortunately unable to participate due to illness, but her presentation was shared with the participants.

Professor Dessai explained that his research interest was in characterising and representing uncertainty and feeding this into decision-making. With various system models and thousands of simulations, what is a robust decision, and how does complex, technical scientific information get used in decision-making?

UKRI's Strategic Priorities Fund, which seeks to drive an increase in high quality multi and interdisciplinary research and innovation which matches government and strategic research priorities and opportunities, has chosen "UK Climate Resilience" as one theme. GBP 18 million of funding is being provided by several research agencies and the MET Office to characterize and quantify climate risks and develop better spatial modelling capability. Another important research area is developing prototypes for the translation of climate knowledge into services which can be used by a wider audience.

Professor Fowler talked about the development of new modelling approaches to understand changing climate-related hazards around the world, for example to predict short-duration extreme rainfall. She also spoke of the need to address how we take blue-sky science through to policy



guidance and practice, mentioning the Climate Change Conventions which have been set up in some UK cities to address how to bring them to Net Zero while also adapting to climate change.

Feedback from the participant survey:

- Interesting to hear from both professors.
- More interaction might have been nice.
- I was not aware of some of the resources mentioned here and will likely use them in the future.
- Very informative. I learned the latest research activities for adaptations.



Setting the scene

Short presentations on each of the workshop sub-themes outlined the main research issues in each area:

Low carbon societies and green infrastructure

- How to make cities, in particular, more sustainable.
- Green infrastructure: network of natural spaces and corridors in urban areas.

Future risks and adaptation in floods and water shortage

- There are climatic factors, geomorphologic factors, and human activity factors
- Trade-off of demands in different zones (catchment, water-use area, floodplain). Watershed management is very important.



Future risks and adaptation in food production and security

- Inextricably linked with climate change. Big drops in food production are likely.
- We have to work in collaboration with breeders, since it takes 20 years to develop goodquality new seeds.
- We need climate-smart indicators to balance different factors in agricultural management.

Managing future risks and building resilience in urban areas

- More and more people live in cities, so vulnerability is concentrated.
- We need to think about both the city and its wider catchments (food, energy, water supplies must be resilient, too).
- This is not just about hazards, but about the resilience of different systems.

Future risks and adaptation in ecosystems

- Ecosystem services: food, materials, also cultural services such as recreation. How are these reduced in case of disasters?
- Ecosystem-based adaptation, including conservation, sustainable management, restoration.

Future risks and adaptation in human health

- Climate change influences human health in many ways, e.g. heat and cold, new infections, flooding, as well as disruption of health services, more expensive food.
- It is complex, since vulnerability depends on e.g. socio-economic status, age, pre-existing illnesses.
- We need to understand increased demand, existing strategies, and the different consequences of these.



Learning walk

The Newcastle Helix, the site of the workshop venue, is very heavily monitored as part of an urban data collection project in which 1,000 observations per second are collected across the city of Newcastle as a whole, with the aim of generating a body of data which allows researchers to understand interdependencies of scale.

Participants were taken on a tour of the site in which they saw some examples of this data monitoring, including landscaping features which serve as climate data collection devices and flood defences.



Interactive session - speed collaboration in threes to generate research ideas

In the last session of the first day, participants were put into small groups containing both natural and social scientists and asked to introduce their research and then brainstorm as many collaborative research ideas as possible, however far-fetched. The process was repeated several times, and prizes were given to the groups who came up with the most ideas!

Feedback from the participant survey:

- Very interesting and interactive for a short time!
- Great idea to open the event with.
- It was useful to hear about the research interests from as many people as possible.
- This is hit and miss. I think I prefer "slower" group work that follows.
- My favourite part of the workshop.







<u>Day Two</u>

Getting acquainted

At the start of the second day, each participating university briefly introduced its research and other initiatives in the area of climate change. For example, Kyushu University explained how its new campus was the first in Japan to observe the principle of zero net loss of biodiversity; Nagoya University introduced a proposal for a joint research project into "Technological Innovation, Future Energy, and Sustainable Development: A Competitive Study of UK and Japan"; Leeds University talked of its involvement with policy at international, national, and local levels; and several universities mentioned how they worked closely with citizens and local communities.

Interactive sessions - developing collaborative research proposals

The majority of the time on the second day was dedicated to interactive sessions in which participants worked together to come up with ideas for collaborative, interdisciplinary research and develop proposals to pitch for seed funding the following morning.

Participants were divided into seven groups to work on each of the workshop sub-themes (with separate groups working on "Low carbon societies" and "Green infrastructure" since the initial group was large). They were provisionally allocated to groups by the workshop organisers based on their research interests, with the opportunity to change groups if they so wished; however, few chose to do so. The sessions were guided by the moderator, Jon Turner of Edinburgh University, and participants were deeply engaged, continuing their discussions over their lunch of fish and chips, and into the evening. However, the deliberate decision was made not to record these discussions, in order to allow the participants to engage freely in debate; the outcomes can be seen in the research proposals.

Feedback from the participant survey:

- This was the most challenging yet so fun activity. Integrating different expertise into one team was the most memorable experience for me.
- This was fantastic and really pushed me out of my comfort zone.
- Brilliant we had very good discussions and built a strong team for future collaborations.
- Very intense session with lots of good ideas being generated.
- Very nice. We could discuss to make one research plan with colleagues having different backgrounds. To discuss with PhD students and early career researchers was a good opportunity to know more each other. It was good that PhD students and early career researchers took a lead of discussion and other researchers help to make a research plan.
- Enjoyed this activity overall, but wish more time was allocated to develop ideas further.





Funder talks

However great a research idea may be, it needs funding to move beyond the drawing board. RENKEI was able to provide limited seed funding to two of the projects coming out of this workshop, but the organisers also wanted to provide an opportunity for some major funding bodies to introduce their research priorities and funding schemes to participants. It became clear from their presentations that their priorities coincide with many of the RENKEI research themes in climate change.

Japan Society for the Promotion of Science (JSPS)

JSPS is the largest funding agency in Japan, and its remit includes advancing international cooperation. Funding is available for bilateral and multilateral research collaborations between institutions, as well as for fellowships for individual researchers. Postdoctoral fellowships allow early career researchers (within six years of graduation) to travel overseas for a period of between one month and two years, while invitation fellowships are open to more senior researchers. The application period for each is September – October. JSPS' website, JSPS.org, includes a research map as well as a list of research projects.

Wellcome Trust

The Wellcome Trust is known as a funding body in the biomedical sciences, but has recently expanded its remit to include "planetary health". The vision of this work is "a world in which the natural systems that support health are sustainable across generations, enabling health for all people". The first five-year phase of this work is coming to a close, and specific priority research areas for the next phase are currently being defined.

UK Research and Innovation's National Environmental Research Council (UKRI NERC)

The NERC aims to champion the importance of environmental solutions in contributing to clean growth; nurture a generation of researchers who take a systems approach to complex environmental problems; sustain UK international leadership and work internationally to tackle environmental challenges; and work with global partners. The Global Partnership Seedcorn Fund offers small grants of GBP 100,000 over two years to help build new international partnerships; the



next call for this will be February 2020. Meanwhile, a fund for international collaboration is currently working with Canadian partners on a large-scale project; there may be opportunities for RENKEI to propose a similar UK-Japan project. NERC prefers multiple partners to come together with a couple of ideas that span a couple of the priority areas in order to make applications, rather than receiving different ideas from multiple different partnership groups.

Feedback from the participant survey:

- Informative, especially the part that mentions specific future calls.
- Very useful to see the landscape (but bad luck about timing).
- Helpful information and pointers for how to potentially fund future collaborations, but it's always difficult to know if a call will be released that corresponds to your project.





Day Three

Research proposals and pitches for seed funding

The final day of the workshop began with presentations of their research proposals by each of the groups. The following proposals were presented; further details can be found in each of the presentations.

- Community-based forest management under a changing climate in Japan: evidence through experimentation (awarded seed funding)
- Improved water management: a citizen science co-design approach (awarded seed funding)
- To cultivate or to migrate: food security in a changing climate
- Metal contamination, rice and health in changing climate
- Outreach toolkit for linking university sustainability to wider communities
- Sustainable resource mapping
- Virtual twins: connecting co-developed transition pathways for resilience of low-carbon urban transport

All the proposals were of a very high quality and deserved to be pursued further. When making the difficult decision about the awards, the judging panel took into consideration the collaborative, interdisciplinary nature of the research, its originality and potential contribution, and the likely impact of seed funding. However, they emphasised that there would be further seed funding opportunities at the 2020 RENKEI climate change workshop in Kyoto, and encouraged participants to develop their proposals in the interim.

Changing behaviours and influencing policy

Professor Andy Gouldson of the University of Leeds, who chairs the Leeds Climate Commission, introduced its work. The Commission is one of the leaders of PCAN (Place-based Climate Action Network), which works with cities around the world to enable and implement projects to reduce climate impact. It started in 2010 with a project which forecast that Leeds could save £277 million annually by 2030 by exploiting only the cost-effective or profitable climate action options across the city. This changed the climate action narrative into a positive one. The Commission developed league tables of effectiveness of smaller actions that could be taken by both households and businesses, and local climate action has seen a 48% drop in carbon emissions since 1990, with projections that it will drop by 56% by 2050.



Leeds Climate Commission brings together key actors from across the city to build capacities for action; to guide and track the transition towards a low carbon, climate resilient future; to inform policies and shape actions amongst local stakeholders and decision makers; and to celebrate successes. With 24 commissioners and 40+ members drawn from across the public, private, and third sectors, it provides independent oversight and advice on climate action in the city, identifying potential barriers and solutions.

Adrian McLoughlin, Newcastle City Council Climate Change Advisor, talked about the steps being taken by local government in the city after declaring a climate emergency in April 2019. There is still a gap between the ambitious agenda laid out in the Council's declaration and the development of practicable strategies, particularly given limitations on staffing. However, public awareness is growing and the Council is more responsive to calls for climate action.

The Council is using a mixture of small scale technical innovations (home heating) and larger-scale projects (renovation of homes, hospitals, universities) identified to meet carbon reduction goals. Cities and local areas are given smaller-scope reduction trajectories and energy budgets to allow them to take responsibility for their own emission contributions. In this process, the Low Carbon Pathway tool is helpful to identify means of going beyond national policy to improve carbon emissions in local areas, since it allows for a comparison of strategies and carbon reduction plans currently in place with other cities in the UK to identify effective and practicable options.

Feedback from the participant survey:

- It was nice to bring in some local examples, and also helped people perhaps understand better the pressures local government deals with.
- It was really informative and new for me to know local government is very active to reduce CO2.
- I think it is good to hear what local government councils are trying, and how mitigation and adaptation scientists can help. We need more of this, and also adaptation/mitigation scientists to talk directly to us climate scientists. It will help force us out of own box.
- I wonder if there are any other models to explain changing behaviours than having models (showing numbers) and influencing communities through policies or committees. Coming from planning/policy discipline, everything looks so similar and feel we need a newer/innovative approach to explain about this.

Reflections on the RENKEI workshop

Participants were reminded that RENKEI prioritises the development of deep, ongoing collaborative relationships between researchers and institutions in Japan and the UK, with an emphasis on quality rather than quantity. As such, they were strongly encouraged to participate in the third RENKEI researcher workshop, which will be hosted by Kyoto University on 22 – 24 June 2020. The workshop will focus on will focus on further steps to generate research-related



outcomes and education collaborations, and explore ways of transferring the research results into policy and practice.

Finally, participants responded to a survey (the details of which are in the following section, "Feedback from workshop participants") and gave one-word reflections on the workshop.





Feedback from the workshop participants

Respondents

Participants responded to an online survey about the workshop during the final session. There were 30 respondents out of the 36 participants; 17 (57%) were from Japanese universities, and 13 (43%) from UK universities. Just over half considered themselves to be early career researchers.



23% of UK respondents had previously worked with Japanese universities, while just 12% of Japanese respondents had worked with UK universities. All of the latter had done so as part of a British Council programme. Just under a quarter of respondents had attended previous RENKEI events.











Perceived benefits from the workshop



Most respondents agreed that the workshop had helped them build new connections.

Respondents tended to agree that the workshop helped them better understand what type of climate change research was being conducted in other RENKEI universities; however, more of the Japanese respondents were ambivalent about this. This was perhaps due to differing expectations, or perhaps partly to the language barrier.



While the majority of respondents felt that they gained a better understanding of climate change issues for policy and industry, nearly a third were ambivalent or disagreed; again, Japanese respondents were more likely to feel this way. This could be due to the fact that presentations tended to focus on UK examples, which they may have felt to be less relevant.





Almost all respondents agreed that they benefited through meeting with researchers from different cultures.



Most also felt that they benefited from meeting with researchers at different career stages, though Japanese respondents were less likely to feel this way. Since the mix of career stages among participants from each country was roughly similar, this seems to be a question of perceived benefits rather than of the participant body.





Overall, around 70% of respondents from each country felt that their participation in the workshop would benefit their future careers, while the remainder were unsure.



Prospects for future research collaboration

65% of Japanese respondents and 85% of UK respondents identified common issues which they wished to pursue further with researchers from the other country, while 76% of Japanese respondents and 69% of UK respondents found potential research collaborators with whom they intended to follow up after the workshop. Given that generating collaborative research was the primary aim of the workshop, it can be considered quite successful.







What worked and what needs improvement

Respondents were asked to write what they liked most about the workshop and what they would most like to see improved.

Several respondents chose the opportunity to meet and interact directly with new people and to work together on research projects as their favourite aspects of the workshop.

- Meeting new people and friends, having inspiring ideas.
- Size and quality of participants and groups.



- I like the arrangement of the workshop. Face-to-face talking is a more direct way to know the latest research from other disciplines.
- Building the research projects was a fantastic day pushing boundaries and getting to know potential collaborators.
- The variety of interactions that were promoted through the carefully planned schedule. Also want to commend the supportive structure that was deployed to tease out the project ideas.
- Interactive nature and ECR engagement.
- Dynamic interaction.
- The positive atmosphere, friendliness and CC-related insights.

There was more variety among the suggestions for improvement, a sample of which are included below. However, a couple of points which were mentioned by several respondents were increased opportunities to engage with the posters and to involve early career researchers. These issues will be addressed in future workshop planning.

- Enjoyed hearing from the policy side but would be great to hear more about what the private sector is doing on climate change.
- Hear more from early-career researchers.
- Include 1 minute pitches for posters to ensure wider engagement with poster session.
- More focused agenda and topics setting so that very relevant researchers get together.
- The dating sessions were too short- we need more time to get to know colleagues for future collaborations.
- Perhaps aim higher about a larger project outline next time as the outcome. Have a good idea, write a one page outline, think about funding afterwards.
- An idea: I wonder if a future workshop could include a reader on a specific topic, and each researcher could submit a reading (either by them or someone else) to provoke thought before the workshop?
- Next time please choose some days warmer.

Final comments and suggestions

- I hope we will have opportunities to be engaged in the network, for instance, as alumni. I believe those who could participate in the next workshop and the following will be limited.
- I think we can do some field visiting to see the local efforts for climate change.



- It's a good idea to include more consideration of policy applications, community outreach and education.
- Keep them going we're building a really strong community!

