

Case Study: 'Resilient Pastoralism: Towards Sustainable Futures in Rangeland' (Grant Reference NE/P01626X/1)

1. Introduction: 'Resilient Pastoralism: Towards Sustainable Futures in Rangelands'

The '*Resilient Pastoralism: Towards Sustainable Futures in Rangelands*' (RP) project formed part of a suite of projects funded under the Global Challenges Research Fund's (GCRF) '*Building Resilience*' call. At the heart of the RP project was a critical approach to the concept of 'resilience' itself and a concern to better understand its meanings from the perspectives of local stakeholders, in this case pastoralist communities in Kenya and Mongolia. Our approach thus challenged established and normative understandings of resilience, that may work to conceal differing power, agency and aspirations of local actors.^{i,ii} The project further focused on pastoralists' information requirements in relation to risks and hazards (of both slow and sudden onset, and natural and man-made varieties), in order to support moves towards and realisation of these locally meaningful manifestations of resilience. As part of our interdisciplinary approach, with the core project team including human geographers, anthropologists, remote sensing specialists and livestock production/ systems specialists, we paid particular attention to the role of new remote sensing (RS) capabilities and datasets (e.g. Copernicus Sentinel 2) therein, and their intersections with arts and humanities-based research methods, approaches and outputs.ⁱⁱⁱ Specifically, we aimed to facilitate pastoral resilience-building through making important contributions to understanding pastoralist user needs, & through trialling, developing & evaluating new data products with users, thus enhancing knowledge translation, research uptake & impact in the future. Co-production of knowledge was thus central to our concerns. As a concept, this remains subject to debate and to multiple definitions.^{iv} Reed *et al.*'s (p.41)^v definition of co-production of knowledge as a 'collaborative process by which academic researchers or other stakeholders work together to disclose and create new knowledge' underpins our approach and understanding. However, in the following analysis we also unpack this further through attention both to diverse rationales or logics for co-production^{vi} and to the challenges posed by its enactment.

In the RP project we focused on addressing the following questions in relation to carefully selected case study sites in each of the two case study countries of Kenya and Mongolia:

- i) What are diverse stakeholder/ cultural meanings of environmental change & resilience?
- ii) What information requirements do pastoralist communities have in relation to environmental risk that are appropriate to their livelihoods & would help them build locally meaningful & culturally appropriate & desirable forms of resilience to both short & longer term shocks?
- iii) To what extent have previous projects/ donor initiatives delivered these & been taken up by pastoralists & policy makers?
- iv) How can new datasets & innovative methods & approaches be used to develop richer understandings of pastoral resilience, facilitate uptake & ultimately support pastoral resilience & policymaking in the future?
- v) How can these lessons be scaled up nationally & through organisations such as the World Initiative for Sustainable Pastoralism (WISP), taking into account both different cultural scenarios & different types of pastoral environments?

Our specific objectives, linked to the above research questions were:

- to provide new understandings of pastoral resilience from genuinely interdisciplinary & local/indigenous perspectives;
- through attention to cultural meanings & contexts of resilience, histories & understandings of human-nature relationships, & innovative methods, integrated with new remote sensing datasets, to enhance understanding of barriers to & thus to enhance uptake of research data in the future, supporting positive/locally desirable dimensions of resilience;
- to examine & test ways to enhance relevance of datasets & outputs to pastoralists & policy-makers, including through their critique of newly available remote sensing datasets and co design of desirable outputs;
- to derive comparative insights into pastoral resilience across diverse countries & pastoral systems.

It was considered imperative that in-county research teams included both academic and NGO/indigenous partners, in order to facilitate mutually respectful and beneficial ways of co-working and knowledge production with participating indigenous, pastoralist communities. Particular pastoralist communities were not named in the original RP research proposal document; rather the mutual identification and agreement of fieldwork sites and community partners was seen as an integral to the first stage of the project, and facilitated through the Kenyan NGO Indigenous Livelihoods Enhancement Partners (ILEPA). In this case study report we focus specifically on our work in Kenya wherein, following initial RP workshops and field visits in Kenya in spring 2017, pastoralist community members from Oltulelei, Ilkimati, Iloshoron and Oludokulupuoni villages in Enkutoto Group Ranch, Narok District, Kenya agreed to collaborate with the rest of the project team.

We pay particular attention here to the research collaboration between these local pastoralist partners, the UK-based University of Leicester (UOL) team and the Kenyan Maasai NGO ILEPA, the latter of whom have worked extensively with Enkutoto and other Maasai communities over a number of years. The role of the in-country academic CO-Is from Egerton University, Kenya, is also acknowledged and commented on below where pertinent to the issue of best practice in indigenous/ non-indigenous research collaborations.

Overall, our project approach and methods sought to develop new interdisciplinary and locally co-produced knowledges and outputs, through collaborative working between UOL, ILEPA and local pastoralist partners from the outset specifically to a) critique and shape map products from RS to best fit user needs; b) to integrate these outputs with insights into local resilience-based needs and practices, through visual and oral methods, as well as more traditional interviews and focus groups. These oral and visual methods took the form of 'Resilience Stories', grounded in indigenous oral traditions and produced through mutual, repeated discussions with local pastoralist community co-researchers. In some instances these took the form of mobile/ walking stories, with memories and reflections prompted as pastoralists' walked through, experienced and shared their landscape with ILEPA, Egerton and UOL researchers. Where deemed appropriate by the resilience storyteller, these narratives were also supported by photographs and video clips. A second visual approach/ method was also central to our approach: PhotoVoice. PhotoVoice is a participatory, visual tool, which has emerged especially in Participatory Action Research (PAR) as a way to allegedly empower and give voice to

communities.^{vii} Although not without its critics, it is designed not only to facilitate locally-led identification and representation of key issues, but to support knowledge development and exchange, critically through bridging the gap to policymakers and enabling community-led change (*ibid*). The PV output from the project is available via the RP project website.^{viii}

During the RP project our wider network of stakeholders included local government actors in case study regions, particularly those with responsibilities for rural/pastoral development; national level policy makers; leaders of relevant key donor projects at both national and local level (e.g. World Bank Regional Pastoral Livelihoods Resilience Project (RPLRP) in Kenya), and other NGOs working with pastoralist communities (i.e. in addition to ILEPA). These groups were engaged with throughout the project, from the initial in-country workshops to final reporting. Our work was delivered through four work packages. WP1: desk-based development of draft pastoral resilience framework and sample RS datasets; WP2: In country workshops and field visits for co-evaluation and design of final methods, frameworks, and final agreement on fieldwork sites; WP3: fieldwork; WP4: analysis and co-production of outputs.

The following reflections are derived from discussions between ILEPA and UOL both during and in the aftermath of the RP project and also from a 2 day in-country workshop held in Narok district Kenya in October 2018. The workshop was designed specifically to inform this case study through mutual reflection and discussion on RP and research encounters more widely. It was attended on the first day by Enkutoto Group Ranch members and RP participants, and joined on the second day by representatives of the Narok County Government Department of the Environment, by local community-based organisations (CBOs), and by conservancy and conservation bodies. The following discussion reflects the key themes raised in this two day meeting, and in discussions during the RP project.



2. Key Challenges and the RP Approach

2.1 Ensuring Equitable Partnerships

Key challenges and RP approaches and best practice are examined below according to themes of 'research design', and 'co-working and decentring power'. These themes suggest the temporalities of the research encounter, wherein co production of knowledge involves successive stages of co-design, co-working and co-dissemination.^{ix}

Research Design: The overall management of the RP project was designed to facilitate equitable partnerships from the outset. However, the parameters within which this could be achieved were constrained by aspects of the funding call. Specifically, the time available between publication of the call and proposal submission precluded in-country co-development of the proposal directly with local pastoralists, although detailed co-development did of course occur remotely between the UK-based Principal Investigator (PI), the in-country academic leads and Maasai NGO partners (ILEPA). Here, as throughout the project, ILEPA acted both as research partners and also as intermediaries with the local community. Nonetheless, direct face-to-face four-way engagement between the PI, ILEPA, Enkutoto pastoralists and Egerton University would have been the optimum approach to ensuring equitable partnerships from the outset. The lack of funding for preparatory work with local community members, something that would help to place them much more centrally as genuine co-researchers and critically as research *designers* from the outset, also posed a constraint. As part of this best practice case study, the workshop held in October 2018 with members of the Enkutoto Group Ranch highlighted pastoralists' concerns that relatively little of the perspectives of local communities and their needs and interests, as articulated by themselves rather than inferred by others, are typically captured at the design stage of research projects, wherein framing and goals of research funders may take precedence. These comments were not directed specifically at the RP project, but rather reflected local pastoralists' history of engagement with successive research and donor projects, both national and international in origin, and a growing sense of research fatigue.

In RP we developed best practice within these constraints in a number of ways. One was through the earliest possible post-award discussions with local pastoralist communities and through setting a pattern of wider stakeholder engagement, as facilitated initially by a 2 day workshop in Nairobi in March 2017. This aimed to engage diverse stakeholders in developing innovative approaches to resilience and in highlighting key interdependencies, drivers of risk, knowledge translation issues and barriers to be focused on during the RP fieldwork phase (WP3). The workshop was attended by officials from the Ministry of Livestock and Ministry of Agriculture in Kenya, as well as the Commissioner for the National Land Commission, researchers from Egerton, Nairobi and Eldoret Universities, representatives from IUCN, the World Bank RPLRP project and a number of pastoralist NGOs. Following directly from this, the RP team drew on insights, presentations and discussions to a) narrow down selection of case study sites and b) to develop methods. These activities were further supported by a detailed briefing by Kimaren (ILEPA) to the rest of the team on policy, social and economic contexts in Narok district, the area provisionally identified as a case study site. Field visits and meetings were then undertaken in the Enkutoto Group Ranch, critically with and through ILEPA as both a key research partner and trusted intermediary for local pastoralists. These visits were designed to enable mutual discussion of the research outline and methods of the planned RP work, its purpose and potential utility in relation to local pastoralists' interests and priorities. Following these meetings, members of three villages in Enkutoto Group Ranch, as specified above, agreed to take part in the project.

These early stages of the project presented diverse challenges for differently positioned actors. For the PI, these included the requirement to negotiate diverse interests and perspectives in a very short period of time. Final decisions about case study sites and methods were left open as long as possible, as outlined above, to try to maximise the prospects for equitable partnerships and to incorporate fully all the insights from WP2 workshop and discussions. However, these activities in themselves were time consuming and meant that there was only limited opportunity for further significant revision, once initial visits to the Enkutoto community had been made. ILEPA concur that there was considerable and deliberate effort made in the RP research design to provide opportunities for local pastoralist actors to shape the approaches to and tools for research activities and data collection. However, this would have been improved by involving group ranch representatives from Enkutoto a little earlier in the planning phase. The project duration (9 months) was felt to be too short to accord significant opportunity for group ranch members to digest and reflect at the desired length on the objectives of the study and their potential role in the project's early stages. According to ILEPA, the value of analysing concepts for intellectual clarity and understanding remains somewhat distant for pastoralist participants, given their frequent non-exposure to formal education, and typical concerns with interventions that respond to their more immediate needs. This disjuncture can contribute to a sense of research fatigue, which longer opportunities for reflection and discussion in these early design stages would have helped to obviate.

Co-Working and Decentring Power. In attempts to realise and develop best practice, the RP team was organised such that the PI retained overall management responsibility, but with a significant degree of autonomy for in-country teams throughout. These were led by the in-country academic CO-Is, with the intention that they would work with the NGO partners in delivering specific activities, as set out and agreed by the whole team under the series of work packages. This management approach was considered both as practically, but also as ethically and epistemologically essential, through explicit emphasis on local expertise, knowledge and cultural awareness of the in-country teams. However, such 'multiple layering' of research work focusing on indigenous communities can raise unforeseen effects and difficulties. From the perspective of ILEPA, it seems difficult for in-country academic institutions with minimal history and culture/exposure of working with indigenous peoples to develop the necessary rhythm in time to optimize the realisation of desired research outputs, embedded in the co-production of knowledge. Where indigenous peoples' organisations with the requisite capacities to support research work exist, it may be optimal (results and cost-wise) for UK institutions to work directly with them as partners in the future. However, GCRF and other funders' requirements make this difficult, where the emphasis remains on inclusion only of academic partners as CO-Is. Practical problems in including NGOs/ non-academic partners in standard JeS application forms further suggest a hierarchical approach which seems to run contra to funders' stated commitment to more genuinely equitable partnerships.

A further challenge was encountered in that some of the more innovative methods, such as PV and Resilience Stories, were unfamiliar to local academic researchers and could not always be adopted quickly. The research approach and politics underlying them, i.e. the desire to decentre knowledge production and specifically to acknowledge that 'expertise is widely distributed', as discussed further below, also proved challenging.^x Kimaren from ILEPA argues, 'mainstream researchers/academia out of the "higher institutions of learning" must be (genuinely) willing relinquish the lofty position of experts and assume the position of co-producers of knowledge with indigenous knowledge-holders'. As discussed in the October 2018 workshop and summarised in Section 2.2, the RP project approach and methods did much to develop best practice in this area, but such practice is yet to become entrenched more widely and also

struggles to overcome some of the contextual and funding-oriented constraints highlighted above. In seeking to realise equitable partnerships it must also be noted that the ways in which these are defined and understood are locally and culturally specific, with externally-derived and imposed notions often running contra to established hierarchies of power and status in community and village settings.

Equitable partnerships with indigenous communities also necessitate agreed strategies and commitments to knowledge sharing and mobilisation (see Section 2.3, below). A key comment to make here is that co-producing and mobilising knowledge should also include input into the ways such knowledge is reported and represented. Again both timescales and budgets can make this problematic. Under the RP project, fieldwork insights such as draft Resilience Stories and PV narratives were cross-checked with their pastoralist producers prior to final analysis and incorporation into outputs, but scope for community members to check and comment further on drafts of these outputs was precluded by the constraints highlighted above.

2.2 Knowledge Creation and Diverse Knowledges

Key challenges and RP approaches and best practice are examined below according to themes of 'research contexts', 'methods, practices and responsibilities' and 'outputs'.

Research Contexts. One issue framing attempts to ensure more equitable approaches to knowledge creation and diverse ontologies is the wider GCRF discourse on the role of UK expertise and actors in addressing development challenges. Noxolo (p.343)^{xi} argues that this may be seen as running contra to attempts to decolonise knowledge and its production where, according to her analysis, knowledge is presented 'as something to be extracted and applied' to resolve development challenges and with UK expertise at the forefront (*ibid*). While such claims are contentious, it does indeed seem to be the case that there is currently no scope for indigenous or even wider Global South *leadership* under the Building Resilience and other GCRF calls, and that UK expertise and knowledge thus remains privileged. According to Van der Hel's (2016), three-way categorisation of the logics underpinning co-production of knowledge, namely the logics of accountability, of impact and of humility, such approaches appear to reflect the former two logics, wherein co-production is a route to enhanced responsiveness and uptake of research, but may not admit of diverse knowledges on an equal basis.

Methods, Practices and Responsibilities. The RP project approached knowledge creation through methods designed to elicit and recognise indigenous knowledges, with the methods adapted locally to fit indigenous norms and practices in relation to knowledge creation. The research methods adopted were, for example, informed by the inclination of local pastoralist indigenous participants to share their knowledge systems and perspectives in the form of stories. This was recognised and appreciated in the October 2018 workshop, wherein ILEPA researchers observed that during the RP research it was very evident that pastoralists were passionate about their way of life despite the myriads of challenges facing them, not least intensified climate variability. ILEPA researchers further observed that pastoralist community co-researchers, given the right environment and research tools such as Resilience Stories and PhotoVoice, demonstrated immense knowledge of their livelihoods, ecosystems services and local adaptation strategies.

For the pastoralist community members themselves the PhotoVoice methodology was appreciated as a useful participatory approach that enabled them to capture and interpret data informed by their daily experiences and by social memory. In addition, the community found the methodology liberating in the sense that the camera was in their hands, and operated within their daily livelihoods and practices. Ultimately the methodology helped to demystify



narrative/stereotypes that pastoralist communities have limited capacities to operate or engage with technology-oriented data collection tools. In the history of field-based research involving communities (particularly indigenous communities) and development practice, technology has often served as an instrument of exclusion rather than inclusion. The rapid uptake and appropriation of mobile phone and other technologies by communities presents a different yet positive narrative here. In the RP project, Resilience Stories were particularly appreciated for helping provide a long-term view of pastoralist resiliency experiences, thereby providing the historical and contextual dynamics for the PhotoVoice outputs. Thus these key methods were both insightful and complementary. Local pastoralists' involvement in critiques of sample RS mapping products during RP and in setting out requirements for optimum products in the future provided a further route for co-production of knowledge and outputs.

Challenges experienced herein related partly to practical technological challenges: these more innovative, inclusive methods, whilst welcomed by pastoralists and by ILEPA, also proved frustrating in that access to power for the various technological gadgets (phones, video cameras etc.) could not always be sustained. Most of the indigenous pastoralist community members, in Kenya as elsewhere, are still located in remote regions, often at the periphery of state-supported infrastructural systems including telephone networks, roads and electricity. Such constraints must be sufficiently accounted for in project design.

Other challenges relate to the time commitment often demanded by these methodologies, which typically exceed those of more traditional interviews or surveys, and take time from other work, whilst also producing fatigue. A further challenge is that the emotional demands placed on local communities by participating in knowledge production are rarely given sufficient attention. Enkutoto participants highlighted that by its very nature 'development-oriented' research inevitably touches on issues related to daily livelihoods dynamics and coping strategies. Whilst much appreciated for the reasons outlined above, Resilience Stories and other inquiries into the challenges and impacts of climate variability on occasion triggered less than pleasant memories of loss and pain associated with drought. When not linked to any immediate, meaningful and practical redress, this poses challenges of ethics and responsibility for the wider research team. Such challenges may be obviated at least to some extent by closer, direct engagement with local pastoralists from the outset in designing the shape and goals of the research encounter, thus enabling further discussion and reflection on the emotional demands of participation.

For ILEPA, more innovative methodologies and fulfilling responsibilities associated with co-ownership of research data also placed additional demands on their time, resources and relations of care and responsibility with and to local community members. Such intermediaries provide the critical link between research institutions and the indigenous communities they work with, often necessitating tapping into their social capital to provide 'soft landing' to research institutions, as well as acting as translators and guides. Thus their role must be deliberately and carefully considered, to avoid situations where they may be left struggling with research-triggered expectations amongst local communities after research initiated elsewhere has been completed. In the case of the RP project, pastoralist participants commented that the research outputs under the RP project were not only shared back to the community but were shared in the indigenous language of the participating community. This approach was lauded as a first and a best practice that should not only be sustained but improved and replicated by other projects in the future. The

RP approach granted the community an opportunity to review and ultimately own and make the requisite use of the co-produced knowledge products. This is a really important success and example of best practice. However, given the budgets and timescales available, some of the translation activities and finalisation of outputs necessitated unpaid time dedicated to the work by ILEPA and UK team members.

A final point on this issue is the extent to which innovative outputs of the type described continue to lie outside the norm of academic publishing practices and requirements in the UK. Whilst they are being increasingly sought as part of and even evidence of research impact, their transfer to mainstream academic research, challenging the hegemonic research paper model, is still only partial at best. This creates challenges and dilemmas for UK-based PIs and, more importantly, continues to constrain the wider recognition of indigenous knowledges and voices.

2.3 Knowledge Mobilisation, Use and Research Impact

As highlighted above, the visual and narrative methods employed in the RP project were welcomed by local community members and co-researchers as a step towards decentring knowledge production and enabling local knowledges to be developed and articulated in culturally appropriate ways. However, and despite the widespread and growing emphasis on the role of arts and humanities research in relation to development challenges in current UK funding streams, often through development of such visual and non-traditional methods, there is to date very little understanding of how resultant outputs are actually deployed and taken up both by communities themselves and by policymakers. Pastoralist workshop participants in October 2018 highlighted that local level resiliency is not well complemented or supported by current policy provisions in Kenya (both at county and national level). Pastoralists in Kenya are still often seen as errant land users, who overstock, overgraze and consequently degrade the environments they live in. Local level indigenous knowledge adaptation strategies and practices are rarely acknowledged in policy circles, least of all promoted. Community-policy-research interface is weak if not totally disconnected and very few linkages exist between communities and policymakers, creating a significant gap between what policymakers are doing and what the community think needs to be done. In this respect the RP outputs provided valuable points of leverage to develop conversations between pastoralists and local policymakers and within the context of key domestic policy agendas and donor projects, such as the World Bank RPLRP, representatives of which attended all workshops during the main RP project. However, and despite the interdisciplinary nature of the RP project, it was notable that policymakers zeroed in particularly on technical products and maps produced through RS and were less certain how to use visual and narrative outputs. This appears to necessitate a degree of mutual learning which is typically given insufficient emphasis, with the production of visual or otherwise innovative outputs often seen as an end in itself. In RP the involvement of key policymakers from the outset and work to identify specific points of policy leverage and collaboration went some way to addressing this gap, but the issue of the optimum use and uptake of innovative outputs and training of policymakers in this remains, as does sustained support for indigenous communities in using these outputs, beyond the end of often short research project periods.

The need for structured mechanisms of knowledge sharing and collaboration were also raised by local pastoralist communities, rather than the somewhat ad-hoc project-by-project basis that tends to prevail. Specifically, they called for establishment of a research coordination and knowledge hub at the county level, as a regulatory space, one for holding researchers accountable for their research work and one which could act as a knowledge repository to ensure information and knowledge exchange into the future.

Finally, knowledge exchange with other pastoralist communities was felt by Enkutoto participants to offer an important opportunity for learning and developing strategies for policy influence. In the RP project, such exchanges were undertaken, but by the in-country academic leads, who each had the opportunity to visit each other's countries and institutions, rather than by pastoralists themselves.

3. Opportunities and Future Directions: Development of Best Practice

A number of key lessons for best practice in indigenous engagement, research partnerships and knowledge mobilisation can be distilled from the above:

3.1 Ensuring Equitable Partnerships:

- Involvement of local, indigenous communities as research designers from the outset, e.g. prior to submission of a research proposal, as well as throughout the main research phase, is key. Consideration should be given to extending this to involvement/consultation of indigenous representatives (e.g. from organisations such as ILEPA) in design of specific funding calls as well as individual research projects, where these are targeted at issues pertinent to indigenous problems and agendas. In-depth involvement of indigenous community members as research designers from the outset is especially challenging in short duration, foundation building projects, where the development of working relationships may be one of the goals of the project, rather than preceding it. Nonetheless, this is a significant area for development of best practice and one that has a number of implications:
 - Sufficient time must be available between issuance of calls and closing dates to enable greater engagement of indigenous partners at the community, not just the NGO level, in research design;
 - Two stage funding processes, where small sums are available to prospective projects that pass the first phase for face-to-face co-production of the research design with in-country and indigenous partners, would be very valuable in facilitating this process;
 - It needs to be easier for indigenous partners to be named as researchers and CO-Is in UK development-oriented research, and to work more directly with UK partners;
 - Steps need to be taken to enhance mutual willingness to embrace decentring of expertise. Sensitisation and training by indigenous peoples' organisations of all partners in the early stages of the research design is an important step to achieve this. However, there is a potential issue here around the imposition of externally-derived ideas and meanings of equitability on local researchers and contexts, which require care and sensitivity to mediate. Again, time and support to explore this challenge and agree acceptable meanings and compromises at the research design phase would be invaluable.

3.2 Knowledge Creation and Diverse Knowledges

- Recognition and emphasis of communities' as holders of a wealth of knowledge and ability to use technology is essential for all team members and as part of genuine co production of knowledge and outputs. However, given the points raised above,

thinking in terms of 'negotiated knowledge production' rather than co-production may create more scope for sensitivity to local norms and contexts;

- Adoption of innovative visual and narrative methods can be a vital step in sharing and production of knowledge, although these must be adapted to local contexts and the emotional and practical demands of these methods recognised and compensated;
- The intermediary position of Indigenous NGOs and organisations requires further attention and sensitivity, where they may be left to deal with unduly raised expectations;
- Sharing of outputs in local languages is a must, yet still does not always happen: RP was noted as being the first to provide outputs in Kiswahili and in the local language, Maa. This must become a standard part of all research practice;
- Contracts with indigenous communities, for example through the suggested research coordination/ knowledge hubs, should be a pre-requisite and should set out specific deliverables and local benefits, such as training, job or study opportunities from the outset. Ideally, if the recommendations of the above are taken on board these could form a required part of a Stage 2 proposal, rather than or in addition to the general Letters of Support, which often fail to come from the community level. Even when they do, they are not always indicative of equitable involvement in development of the research proposal.

3.3 Knowledge Mobilisation and Research Impact

- Deliberate and sustained interaction between the community, policymakers, development actors and academia during and after the research is essential for adjustment of ideologies and approaches. Policy and attitudinal change and uptake is a long term challenge. Funding mechanisms could better support this by allowing small blocks of funding to be retained for follow-up work over the longer term (within a defined timescale) after the completion of the main body of a project, rather than this vital work relying on the project team securing new grants, which do not always materialise. This is further complicated in the case of the Building Resilience call by the absence of a specific major funding stream to follow on from this foundation building work, leaving many newly developed partnerships, methods and approaches in limbo.
- Some form of specific training/ debate with/ for policymakers on how outputs of innovative methods can be best used is essential; this remains a missing step in many projects, where the production of such outputs can seem an end in itself;
- Direct knowledge exchange between pastoralist groups should be facilitated, with less emphasis on solely academic exchanges.

4. Conclusions

The key points and lessons learned from this case study are summarised by theme in Section 3, above and in relation to the main concerns of this case study. These latter comprise i) approaches to developing equitable partnerships; ii) co-creation of knowledge and the role of innovative/visual methods therein, and iii) the ways in which these approaches and methods

have facilitated knowledge mobilisation and impact. Through careful attention to different stages of the research process our case study has shown how aspects of best practice which have previously been recognised, notably local community members' involvement in initial research design, continue to prove problematic to translate into practice. As in RP, many projects that embrace co-production of design engage with local NGO partners and intermediaries, but rarely directly with community members themselves at the initial design stage. This can in part be explained by a number of structural and practical factors, notably the short term horizons of many funding calls and the absence of small blocks of funding to support co-development of full proposals for projects that pass the initial phase of a funding call. The continued insistence on only academic partners as CO-Is also continues to marginalise those outside academia and suggest that logics of accountability and impact underpin calls for co-production of knowledge, rather than logics of humility.^{ix} While much can be done to compensate for and work within these constraints, as in the case of RP, they cannot fully be overcome without changes in the above.

Once projects have commenced, unsurprisingly the creative use of methods that fit with indigenous norms of knowledge sharing and mobilisation and create space for articulation of diverse perspectives are integral to best practice and co-production. However, the emotional and time demands these place on participants are not always acknowledged and appreciated. Ideally these issues should be debated at the design phase, and in the context of compensating benefits to the community as co-researchers. More open discussions about commitments to decentring knowledge production and expertise amongst the in-country project team is also needed to avoid imposition of external norms, whilst finding locally acceptable ways to move towards more equitable strategies and practices.

Some form of specific training/ debate with/ for policymakers on how outputs of innovative methods can be best used is essential; this remains a missing step in many projects, where the production of such outputs can seem an end in itself. It was evident from RP that policymakers are still unsure how best to utilise such products and may seek to disembed the more familiar technical aspects from interdisciplinary projects' outputs. Changing funding rules to enable small portions of project funding to be held back for longer-term periodic follow up and engagement would be an important step forward in facilitating impact and uptake of indigenous knowledges, where these are best expressed through innovative and visual methodologies.

References:

- ⁱ Mullenite, J. 2016. Resilience, political ecology, and power: convergences, divergences, and the potential for a postanarchist geographical imagination. *Geography Compass* 10/9: 378-388.
- ⁱⁱ Simon, S. and Randalls, S. 2016. Geography, ontological politics and the resilient future. *Dialogues in Human Geography* 6(1):3-18.
- ⁱⁱⁱ Further details of the project team and RP outputs and activities are available via the [project website](https://www2.le.ac.uk/departments/geography/research/projects/resilient-pastoralism) (<https://www2.le.ac.uk/departments/geography/research/projects/resilient-pastoralism>).
- ^{iv} Miller, C. and Wyborn, C. (in press). Co-production in global sustainability: histories and theories. *Environmental Science and Policy*.
- ^v Reed, M. and Abernethy, P. 2018. Facilitating co-production of transdisciplinary knowledge for sustainability: working with Canadian biosphere reserve practitioners. *Society and Natural Resources* 31(1): 39-56.
- ^{vi} Van der Hel, S. 2016. New science for global sustainability? The institutionalisation of knowledge co-production in Future Earth. *Environmental Science and Policy* 61:165-175.
- ^{vii} Pearce, E., McMurray, K., Walsh, C. and Malek, L. 2017. Searching for tomorrow- South Sudanese women reconstruct resilience through PhotoVoice. *Journal of International Migration and Integration* 18(2):369-389.
- ^{viii} 'Resilient Pastoralism' Project Team. 2017. 'Representing 'Resilience': Stories and Images from Kenya and Mongolia'. Available online at <https://www2.le.ac.uk/departments/geography/research/projects/resilient-pastoralism/documents/pastoralism-photo-book>.
- ^{ix} Van der Hel, S. 2016. New science for global sustainability? The institutionalisation of knowledge co-production in Future Earth. *Environmental Science and Policy* 61:165-175.

^x Vogel, C., Scott, D., Culwick, C., and Sutherland, C. 2016. Environmental problem-solving in South Africa: harnessing creative imaginaries to address 'wicked' challenges and opportunities. *Society and Natural Resources* 98(3): 515-530.

^{xi} Noxolo, P. 2017. Decolonial theory in a time of recolonization of UK research. *Transactions of the Institute of British Geographers* 42(3): 342-344.

External Websites and Video Links:

1. Video keynote presentation made by Stanley Riamit Kimaren, Director of ILEPA at the GCRF Building Resilience workshop, London 2018.

https://drive.google.com/file/d/1pHcehu8vJD7XytKuHHKYQnwiTqZby_KL/view.

2. Video by ILEPA researcher at October 2018 workshop in Kenya. https://drive.google.com/file/d/1dl-OneBlpJ-Nn049DHTLn1QOmg3RuFL/view?usp=drive_web

3. Invited blogpost for UK Collaborative on Development Research (UKCDR). <http://www.ukcdr.org.uk/what-does-resilience-mean-for-pastoral-communities/>).