

**Impact case study (REF3b)**

<p><b>Institution:</b> University of Leicester</p>
<p><b>Unit of Assessment:</b> UoA17 Geography, Environmental Studies and Archaeology: Geography</p>
<p><b>Title of case study:</b> Delivering sustainability: natural resource management for social and ecological benefit</p>
<p><b>1. Summary of the impact</b> (indicative maximum 100 words)</p> <p>Effective, equitable natural resource management poses increasingly complex challenges for policymakers and local communities in the context of climate change, population growth and potentially conflicting agendas on biodiversity conservation, livelihoods and economic growth. Leicester research on socio-ecological, culturally appropriate approaches to environmental governance and sustainability has been integral to:</p> <ul style="list-style-type: none"> <li>• The development of evidence-based policy and practice on land use, tenure, conservation and pastoralists' livelihoods in <b>Mongolia</b>, by i) empowering herders to communicate with newly-elected government officials; ii) input to policymakers and donors and iii) enhancing herders' understanding and implementation of collaborative management.</li> <li>• Improved water access amongst marginalised communities at Lake Naivasha, <b>Kenya</b>, with tangible impacts on water poverty and well-being, through i) rehabilitation of infrastructure, ii) environmental education and capacity building and iii) new strategies for sustainable development across the Naivasha basin.</li> </ul>
<p><b>2. Underpinning research</b> (indicative maximum 500 words)</p> <p>This case study is underpinned by Leicester research on, and support of participatory approaches to natural resource management, environmental governance and sustainability. Innovative theoretical research has been practically applied within specific projects to achieve substantial impact.</p> <p><b>In Mongolia</b>, post-Soviet transformations in natural resource management, pastoral community organisation and land tenure have created critical policy and livelihood concerns. The burgeoning mining economy adds further challenges. Since 1999 Dr Upton has conducted innovative research on land rights and tenure and the social and spatial organisation of post-Soviet pastoralism, supported by multiple grants of £4000-£235,000.<sup>(1-3)</sup> Key resultant publications identify the limitations of state, donor and community-led land reforms and institutional transformations, herders' strategic constructions and reworking of customary rights and their resulting livelihood impacts.<sup>(A1,2)</sup> Recent major projects (e.g. Leverhulme Trust: 2010-2012) have contributed enhanced knowledge of the sustainability and efficacy of (donor-driven) herder groups, cultural environmental values and implications for conservation and livelihoods. Other recent work, with scholars at the National University of Mongolia through the Open Society's <i>Central Asia and Caucasus Research and Training Initiative</i> (CARTI) and with environmental activist groups, offers critical insights into mining impacts on herding-based livelihoods and cultures, and the emergence of localised anti-mining resistance.<sup>(3-4, A3)</sup> Collaborative links with the Mongolian Academy of Agricultural Sciences and leading in-country environmental NGOs have been further developed through Darwin Initiative funded work (2012-2015) which is generating innovative theoretical contributions to debates around valuation of ecosystem services. These ideas are now being applied practically; both to enhance local livelihoods and to facilitate realisation of conservation goals, including through national commitments to the Convention on Biological Diversity (CBD). Upton's Darwin project is recognised by Mongolia's Special Envoy for Climate Change, Ministry of Environment and Green Development, as '<i>one of the pioneering studies which is looking at prospects for carbon sequestration in Mongolian rangelands...</i>' (D. Dagvadorj, 2013).<sup>iv</sup></p> <p>Since 2009, Upton has further developed these research agendas through a productive collaboration with Professor David Harper (Department of Biology, Leicester). Harper's 25 year</p>

track record of ecological research at **Lake Naivasha, Kenya** have been brought together with Upton's established work on issues of resource governance, institutional and community development, to examine links between ecohydrology, ecosystem services and political ecology, supported by funding from both academic and commercial sources. Specifically, Upton and Harper currently lead a team of researchers, including their former PhD student Ed Morrison, in the project '*Sustainable water and roses from Naivasha*', funded through the Swiss COOP retailer (2012-2014). Here Leicester's applied research on ecosystem services, values and socio-ecological systems is linked to their community-based education and capacity building activities and practical interventions in improved water infrastructure, to deliver enhanced resource use and livelihood solutions. Published outputs are amongst the first to analyse local ecosystem service values and perceptions, their implications for livelihoods and for restoration of papyrus wetlands.<sup>(A4)</sup> Morrison has recently completed an ESRC/NERC funded PhD through cutting edge research on the social and ecological dimensions of papyrus restoration. Complementary research through the ESPA funded East African Great Lakes Observatory (EAGLO) project (2010-2012) has enabled Upton *et al.* to provide further new, policy-oriented insights into non-economic valuation of ecosystem services, trade-offs between ecosystem services and their changing livelihood contributions across diverse stakeholder groups at Naivasha.<sup>(A5)</sup>

### 3. References to the research (indicative maximum of six references)

#### *Research Articles, Chapters and Reports*

The work was supported by the following Grants. Upton was PI for the first four. (1) British Academy: '*Development and Change: Institutional Innovation and Mongolian Pastoralism*', (2006); (2) Leverhulme Trust: '*Community, Place and Pastoralism: Nature and Society in Post-Soviet Central Asia*'. £151,000 (2010-2012) (Leverhulme Country report for Mongolia available at [link](#)); (3) Darwin Initiative: '*Values and valuation: new approaches to conservation in Mongolia*'. £235,000 (2012-2015); (4) RGS/IBG: '*Mining and Resistance: New Struggles on Mongolia's Pastoral Commons*' (2007-2008); (5) Swiss COOP funded research; £172,000 (CO-I); (6) ESPA Programme Framework Grant (ESRC/DFID/NERC) for East African Great Lakes (EAGLO) project (2010-2012), Harper (PI), Upton (CO-I); UOL £25,000.

<sup>A1</sup>Upton, C. 2008. Social capital, collective action and group formation: developmental trajectories in post-socialist Mongolia. *Human Ecology* 36: 175-188. DOI: <http://dx.doi.org/10.1007/s10745-007-9158-x>.

Output and continued research supported by Grants 1, 2 and 3.

<sup>A2</sup>Upton, C. 2009. 'Custom' and contestation: Land reform in post-socialist Mongolia. *World Development* 37 (8): 1400-1410. DOI: <http://dx.doi.org/10.1016/j.worlddev.2008.08.014>.

Output and continued research supported by Grants 1 and 2.

<sup>A3</sup>Upton, C. 2012. 'Mining, resistance and pastoral livelihoods in contemporary Mongolia'. In Dierkes, J. (Ed). *Change in democratic Mongolia: social relations, health, mobile pastoralism and mining*. Netherlands: Brill, pp. 223-248. DOI: <http://dx.doi.org/10.1163/9789004231474>.

Output supported by Grant 4.

<sup>A4</sup>Morrison, E.H.J., Upton, C., Pacini, N., Odhiambo-K'oyooh, K. and Harper, D.M. 2013. Public perceptions of papyrus: community appraisal of wetland ecosystem services at Lake Naivasha, Kenya. *Ecohydrology & Hydrobiology* 13(2): 135-147.

DOI: <http://dx.doi.org/10.1016/j.ecohyd.2013.03.008>. Output supported by Grants 5 & 6.

<sup>A5</sup>Upton, C. Harper, D., Morrison, E. *et al.* 2013. Ecosystem Services and Livelihoods for the African Great Lakes: Overview and Case Studies. Report for ESPA EAGLO project ([link](#)). Output supported by Grant 5 & 6.

**4. Details of the impact** (indicative maximum 750 words)

Effective, equitable natural resource management poses increasingly complex challenges for (inter)national policymakers and local communities in the context of climate change, population growth and potentially conflicting agendas on biodiversity conservation, livelihoods and economic growth. Local participation, knowledge and environmental justice are increasingly seen as integral to sustainable solutions and trade-offs between multiple goals, but their realisation through policy and practice remains a major challenge. Leicester research is making important contributions here in diverse geographical contexts:

**A. Mongolia: Shaping the debate on environmental and pastoral development issues**

Since 1999, Dr Upton has worked collaboratively with herding communities from across a 600,000km<sup>2</sup> area of central and southern Mongolia and with government officials, policy makers and international donors, to explore critical issues in livelihood and ecosystem sustainability and appropriate policy responses.

Key stakeholders including government officials, herding communities and donors, have been brought together to debate critical issues such as land legislation, collective action, mining and development. Associated workshops and activities have created new interfaces and forms of knowledge exchange between rural resource users and policymakers, through mapping, participatory video-making and workshops, notably at the end of project Leverhulme workshop.<sup>i,ii</sup> The significance of this and earlier underpinning research is in enhancing herders' understanding of working as community groups, barriers to collective action and ways in which these may be overcome, shown by revival of collective activities post-project.<sup>i,ii</sup> According to local governors, these workshops and other research activities have helped to share valuable knowledge on pasture management, community development and implementation of government policy. Project outputs are also informing further development of policy on herders.<sup>ii</sup> As one local governor stated '*The (Leverhulme) research project ... was very successful and helped us and our local people...it will help us to develop an efficient policy on animal husbandry...*'<sup>ii</sup> Processes of participation and community engagement are being further enhanced through identification of 'ambassador herders', who will work with other herding communities to spread learning outcomes from Upton's projects. In addition to academic papers, Upton's publications have been cited in project and policy-oriented reports in-country.

As well as being supported by Mongolia's Special Envoy for Climate Change, the current Darwin Initiative work is recognised by the Mongolian Ministry of Nature, Environment and Green Development as '*significant in bringing new approaches to biodiversity conservation by valuation of ecosystem services and efficacy of PES (payment for ecosystem services) schemes...it is important to develop conservation practice and policy in Mongolia... I fully support the efforts of Dr Caroline Upton.....*' (D. Enkhbat, 2011).<sup>iii,iv</sup> This clearly highlights the reach and significance of the project which is the first to link herders' groups in Mongolia to the voluntary carbon market, through development of an innovative tri-partite Plan Vivo certificate, incorporating soil carbon sequestration, livelihood benefits and cultural/ biodiversity values.

**B. Addressing water poverty and promoting well-being; Lake Naivasha, Kenya**

Leicester's participatory research involves local water user groups, women's groups and pastoralist communities in collaborative work on ecosystem services, capacity building and livelihood security across the Lake Naivasha catchment, from where 70% of Kenya's cut flowers are exported, providing livelihoods for at least 100,000 people. Over recent years, serious degradation of the lake and wider basin have raised national and international concerns over its capacity to sustain livelihoods and ecosystem service functions into the future.

In 2009 Harper was invited to address a consortium of European retail flower buyers to advise on how they could sponsor sustainable water use, livelihoods and ecological restoration activities at Naivasha. Subsequently Upton and Harper led projects funded by two supermarkets (Swiss COOP, 2012-2014; German REWE 2011-2013), collectively delivered through the Leicester-initiated Naivasha Basin Sustainability Initiative (NBSI). The significance of this research include a)

behavioural changes in terms of sustainable resource management, water use and conservation practices amongst local stakeholders,<sup>vi,vii</sup> and b) reductions in water poverty amongst the most marginalised communities.<sup>vi,vii</sup> Its reach extends to influencing new national strategies for sustainable development in the basin, notably the Imarisha Naivasha ('Arise Naivasha') *Sustainable Development Action Plan 2012-2017* (SDAP, 2012), 'Imarisha' being supported by the Kenyan government and the Prince of Wales' International Sustainability Unit. Imarisha produced its 5-year Sustainable Development Action Plan (SDAP) in 2012, funded by Asda, Sainsburys, Tesco and M&S. Imarisha was further awarded (September 2013) 400,000 Euro by GIZ, the German Development Agency, partly to organise knowledge transfer from the scientific community to the Naivasha stakeholders (November 2013). In 2013, Imarisha, in partnership with WWF with 900,000 Euros Dutch Government funding launched the Integrated Water Resource Action Plan.<sup>v</sup>

Research workshops have brought together decision-makers with community members across the basin to facilitate development of consensual planning and governance solutions.<sup>v</sup> Environmental education workshops designed, developed and led by Leicester, have trained over 100 'Water Ambassadors' and 'Water Friendly Farmers' from marginalised communities on wise water use and resource management. Training evaluation returns show that trainees rate these as excellent.<sup>vi</sup> Project beneficiaries further state, *'The projects we have completed in partnership with NBSI have all been very successful and enlightening...after attending the Water Friendly Farmers training workshop.. our thinking was greatly and positively challenged and now we have implemented most of the ... techniques on our own farms'* and *'ever since some of our Youth Group members and I attended the Water Friendly Farmers training workshop we have implemented a lot on our small piece of land... this has caused our neighbours to come and learn from our success...'*<sup>vi</sup> Significant improvements in knowledge amongst workshop attendees and reductions in water poverty are evident.<sup>v,vi</sup> The introduction of ecosystem services-based assessments and valuations have provided a valuable tool in planning (Morrison *et al.*, 2012, cited in SDAP, 2012). In addition to citing key papers by the Leicester team, the SDAP repeatedly highlights the contribution of Leicester/NBSI work to sustainable lake management and livelihoods and identifies them as one of the Critical Research Organisations operating in the basin.<sup>vii</sup>

**5. Sources to corroborate the impact** (indicative maximum of 10 references)

**A. Mongolia: Shaping the debate on environmental and pastoral development issues**

<sup>i</sup> Contact details for Professor Nyamaa Nyamsuren, Mongolian State University of Agriculture.

<sup>ii</sup> Supporting statement from soum governor, Bogd soum, Bayankhongor aimag.

<sup>iii</sup> Supporting statement from Director General for the Department of Environmental Protection and Natural Resources Management, Ministry of Environment and Green Development.

<sup>iv</sup> Supporting statement from Special Envoy for Climate Change and Chairman of Climate Change Coordination Office, Ministry of Environment and Green Development, Mongolia.

**B. Addressing water poverty and promoting well-being; Lake Naivasha, Kenya**

<sup>v</sup> Contact details for Chairman of LaNaWRUA (Lake Naivasha Water Resource Users Association)

<sup>vi</sup> Supporting statement from Community Leaders, Mariba WRUA community self help groups, Lake Naivasha.

<sup>vii</sup> Contact details for Chairman of Imarisha Naivasha and Sustainability Manager, Finlays Flowers.