Institution:	University of Northumbria at Newcastle
Unit of Assessment:	17 - Geography, Environmental Studies and Archaeology
Title of case study:	Improving Human Resilience through Disaster and Development Research

1. Summary of the impact

The Disaster and Development Network (DDN) researches and facilitates the implementation of disaster risk reduction strategies to improve community resilience in the poorest communities of Southern Africa and South Asia. The DDN aims to initiate life-saving health policies and disaster risk reduction strategies through local engagement and policy intervention. This Case Study focuses on the way interventions based on DDN research have been implemented at local level, exemplified through community resilience-building in Bangladesh, Mozambique, Nepal, Pakistan and Zimbabwe. DDN research has impacted the United Nations Hyogo Framework for Action, the latest international strategy for disaster reduction.

2. Underpinning research

Since its foundation at Northumbria in 2004 DDN staff, led by Professor Andrew Collins, have published 66 peer-reviewed journal articles, 22 books and book chapters and 51 policy reports. DDN research focuses on how people in marginalised locations can control ecological and socio-economic risks. The risks, frequently thought to be a result of climate change, resurgent pathogens or physical instability, have also been found to be exacerbated by intersecting socio-economic vulnerability and local systems of governance. DDN research projects funded by DFID, ESRC and NERC elaborate, in practical terms, the research paradigm of disaster risk reduction through enhanced community resilience.

- Since 2004 the aim of research in **Bangladesh** [3.4, 3.7, 3.9, 3.11] by Collins *et al.* has been to identify how health strategies make a community resilient to disasters. The participatory research investigation interviewed over 600 households in a disaster-vulnerable population. The research concluded that community self-organisation, sense of security and health attributes can define resilience to disaster. Risks to health can be reduced by improving local management, allowing communities to play a major role in identifying and managing risk.
- Work in **Mozambique** [3.3, 3.7] since 2004 focused on risk perceptions in relation to cholera and infectious diseases. Findings suggest risk perception is dependent upon visible contamination, individual cognition and local context. A lack of infectious disease intervention by community members and local institutions devalues individual motivation to combat the risk of cholera. Community involvement in local governance was proven to facilitate collective control and responsibility.
- In **Pakistan and Nepal** underpinning research since 2004 [3.6, 3.8] addressed the impacts of environmental hazards in the Himalayas and coping strategies in the experience of disasters. In Nepal, in-depth interviews were conducted with members of local risk and resilience committees, while wider community preferences for risk reduction were examined through a questionnaire survey. The research demonstrated the viability of community-based disaster risk reduction approaches and concluded these are more successful when embedded in local government structures. Further research has shown that while it is difficult to overcome natural causes it is possible to reduce the “anthropogenic landscape” effect of human activities that contribute to landslide and other risks.
- In **Zimbabwe** ongoing work since 2004 [3.1, 3.10, 3.11] has focused on water supply, the importance of children in disaster risk reduction and rights-based approaches. Participatory action research and semi-structured interviewing within local communities suggested the importance of local communities taking charge of operational and maintenance issues associated with water supply and natural resources management. Similar participatory approaches were used to investigate the involvement of children in disaster risk reduction programmes. Research conclusions included that the role of children is critical in building disaster-resilient communities, particularly in Africa where increasing numbers of children are orphaned by HIV and AIDS.

This body of work began when Collins, who has been in post throughout the REF 2014 period, established Disaster and Development studies at Northumbria in 2000, focusing on interventions in Mozambique and Bangladesh. Dr Jones, who leads the research effort in Nepal, joined Northumbria as a Senior Lecturer in Geography in 2003. Dr Manyena, the lead researcher in Zimbabwe, worked at Northumbria from 2004-2013. PhD students Edgeworth (PhD awarded 2010) and Aryal (PhD awarded 2011) and PDRA Ray-Bennett (2007-2010) have also contributed to this body of work whilst in post at Northumbria.

3. References to the research

Selected peer-reviewed publications:

[3.1] Manyena, S.B., Mutale, S.B. and Collins, A.E. (2008) 'Sustainability of rural water supply and disaster resilience in Zimbabwe', *Water Policy,* 10, 563-575. http://dx.doi.org/10.2166/wp.2008.066

[3.2] Collins, A.E. (2009) *Disaster and Development*, Routledge Perspectives in Development Series, London. http://www.routledge.com/books/details/9780415426688/

[3.3] Williams, L., Collins, A.E., Bauaze, A. and Edgeworth, R. (2010) 'The role of risk perception in reducing cholera vulnerability', *Risk Management*, 12, 163-84. http://dx.doi.org/10.1057/rm.2010.1

[3.4] Ray-Bennett, N., Collins, A.E., Bhuiya, A., Edgeworth, R., Nahar, P. and Alamgir, F. (2010) 'Exploring the meaning of health security for disaster resilience through people's perspectives in Bangladesh', *Health and Place,* 16, 581-589. http://dx.doi.org/10.1016/j.healthplace.2010.01.003

[3.5] Collins, A.E. (2013) 'Applications of disaster risk reduction to migration influenced by environmental change', *Journal of Environmental Science and Policy,* 27:S1, pp. S112-S125. http://dx.doi.org/10.1016/j.envsci.2012.10.005

[3.6] Jones, S., Aryal, K. and Collins, A.E. (2013) 'Local-level Governance of Risk and Resilience in Nepal', *Disasters,* 37, 442-467. http://dx.doi.org/10.1111/disa.12006

Examples of research grants consolidating this theme:

[3.7] DFID awarded to Collins (2002-2006) *Infectious Disease Risk Management in Mozambique and Bangladesh (IDRM)*, **£360,000** and Collins (2007-2010) *Infectious Disease Risk Reduction (IDRR – Delphe 2.77) in Mozambique and Bangladesh,* **£90,000**

[3.8] DFID / British Council awarded to Collins (2006-2009) *People Centred Hazard and Vulnerability Mitigation in Disaster Risk Management in Nepal*, Delphe, **£85,000**

[3.9] ESRC awarded to Collins (2007-2009) *The Meaning of Health Security for Disaster Resilience in Bangladesh: a health security framework for disaster risk reduction*, RES-167-25-0241, **£238,000**

[3.10] DFID awarded to Collins and Manyena (2007-2010) *Zambezi Valley Advocacy Project, Zimbabwe*, Civil Society Challenge Fund Grant CSF0415, **£460,000**

[3.11] DFID/British Council awarded to Collins and Manyena (2010-2013) *Disaster Education for Community Resilience in Zimbabwe and Bangladesh*, Delphe 734, **£90,000**

[3.12] NERC awarded to Jones (2013-20) *Earthquakes without Frontiers: A Partnership for Increasing Resilience to Seismic Hazard in the Continents*, **£33,484** (total value £2.44 million)

4. Details of the impact

DDN research has impacted on community organisations' and local government working practices in relation to disaster and risk management in Southern Africa and South Asia, and through this impacted upon the lives of people residing in these disaster-prone regions. The shift to disaster prevention through community action has had clear impact in each project country cited here:

- **Bangladesh:** The research led to health being highlighted as core to community-based disaster resilience, an approach adopted by multiple organisations working in Bangladesh. For example, the International Centre for Diarrhoeal Disease Research (ICDDR,B) directly combines health

security and community based disaster risk reduction activities in its target communities **[Corrob. 5.1]** as a result of the ESRC supported DDN project on Health Security for Disaster Resilience [3.9].

- **Mozambique:** The first of two concurrent DFID research projects revamped a water and food monitoring laboratory in the second city, Beira, and transferred pathogen monitoring technology from Bangladesh to Mozambique, establishing regular south-south-north exchanges and in-country capacity-building. The emphasis on informing and establishing monitoring and intervention systems brought establishment of a risk management department within local government in Beira, Mozambique, for cholera warning and monitoring. State authorities recognised the benefits of people-centred disaster risk reduction through the formation of risk committees. The impact of the research was that a sub-area of Beira City under the influence of one of the most successful committees was cleaned by local residents and diarrhoeal diseases declined from an estimated several thousand cases per year to less than 50 in the year following the implementation of this strategy **[Corrob. 5.2]**. Government departmental capacity was improved, a module was introduced into the medical degree of the local university programme (2008 to present) and the project attracted and informed an international cholera vaccine trial and subsequent consortia studies on cholera there. Incidence of cholera and other diarrhoeal diseases reduced significantly in this area as a result of these actions.
- **Nepal:** Following the research on disaster risk management in Nepal, one risk committee in eastern Nepal instigated a road safety programme and a zero-energy initiative using land fill sites. In direct response to the finding that risk committees are more effective when integrated into local government, the committee was incorporated into municipality structures. This influenced the entire Government of Nepal National Strategy for disaster risk reduction to adopt the risk and resilience approaches advocated through this work **[Corrob. 5.3]**. The process of this research also established a disaster management and sustainable development centre at Kathmandu University, Nepal and led the Government of Nepal to jointly host with DDN two international seminars on disaster risk reduction and the 2009 Dealing with Disasters International Conference in Kathmandu. This focused on “Resilience through Local Governance”, the focus subsequently being acknowledged in Policy Platforms of the United Nations Hyogo Framework for Action.
- **Pakistan:** The DDN research directly guided the establishment of Pakistan’s first disaster and development-focused centre at Peshawar University **[Corrob. 5.4].** Most significantly, DDN research led to the establishment of a framework through which the Peshawar group, supported by Government of Pakistan, now implements integrated social, geophysical and fluvial studies of disaster reduction amongst local communities in conflict and environmental hazard zones, such as nearby Swat Valley.
- **Zimbabwe:** The DDN instigated Zimbabwe’s first disaster and development programme of research and postgraduate studies at Bindura University. In collaboration with Basilwizi Trust it established community advocacy groups in northern Zimbabwe. Through community-based groups in the Zambezi Valley Advocacy Project the research implemented systems of learning for constitutional rights. This was applied to management of fisheries and wildlife resources. The outcomes were presented to three Government Ministers in the project’s national level workshop attended by traditional leaders, Ministers and the DFID Zimbabwe Head. As a result the Tonga people of northern Zimbabwe are less harassed by corrupt officials, game poachers and illegal harvesting techniques on Lake Kariba, one of their main sources of food **[Corrob. 5.5]**.

International recognition of the work of DDN is demonstrated by the policy development work DDN affiliates have undertaken with impact on a range of organisations:

- An indicative example can be accessed as the bulk of Chapter two of the 2009 edition of the *World Disasters Report* produced by the International Federation of the Red Cross and Red Crescent Societies (IFRC 2009).
- Integrated disaster, development and resilience research has supported the global policy environment through inputs at the interim UN platforms for disaster reduction of 2007, 2009, 2011 and 2013 and additional DDN organised sessions of the Asian Ministerial Conference for

Disaster Risk Reduction **[Corrob. 5.1]**.

- The DDN was the only UK university research group accredited to partnership in the process of the Hyogo Framework for Action launched in 2005 by the United Nations as its International Strategy for Disaster Reduction. DDN will input to its revision in 2015 **[Corrob. 5.1]**.
- The DDN has also been recognised in the UK for its influence on Enhanced Learning and Research for Humanitarian Assistance (ELRHA), (£16 million; HEFCE, DFID, Welcome, SIDA) for which Collins, DDN Director, has been appointed to the Steering Group **[Corrob. 5.6]**.
- This research on community-centred and health-centred disaster risk reduction (DRR) is also highlighted in events such as the Global Risk Forum International Disaster Reduction Conference Series and One Health Forum at Davos for which DDN is an on-going partner institution **[Corrob. 5.7]**.

5. Sources to corroborate the impact

[5.1] Deputy Director of The International Centre for Diarrhoeal Disease Research (ICDDR,B), Dhaka, Bangladesh, corroborates impacts of DDN research on the organisation which now combines health security and community-based disaster risk reduction activities in its target communities.

[5.2] National Director for Science and Technology (formerly National Director for Environmental Health) for Mozambique, corroborates the impacts of DDN's lead of IDRM and IDRR on diarrhoeal disease reduction in Mozambique and increasing capacity in Government of Mozambique Central and Localised Authorities.

[5.3] Minister for Local Development, Government of Nepal Central and Localised Authorities, corroborates the impact of DDN research on the Nepal National Strategy for disaster risk reduction.

[5.4] Dean, Faculty of Life and Environmental Sciences, Peshawar University, corroborates the impact of DDN research on the establishment of the first disaster and development centre at Peshawar University.

[5.5] Director of the Basilwizi Trust, Save the Children Zimbabwe and Zimbabwe Government representatives each corroborate the impacts on management of fisheries and wildlife resources and the reduction in harassment experienced by the Tonga people.

[5.6] The ELHRA, UK, web page corroborates the statement that Collins has been appointed to the ELHRA steering group: http://www.elrha.org/steeringgroup/andrewcollins

[5.7] The International Disaster Risk Reduction web page corroborates the partnership role of the DDN: http://www.idrc.info/pages_new.php/Endorsing%20Partners/1150/1/1121