Section A

Institution: Durham University

Unit of Assessment: 15 Archaeology

Title of case study: Achieving accessible and resilient heritage: the work of Durham's new UNESCO Chair in South Asia

Period when the underpinning research was undertaken: Between 2009 and 2020

Details of staff conducting the underpinning research from the submitting unit:

Name(s):	Role(s) (e.g. job title):	Period employed:
Prof Robin A E Coningham	UNESCO Chair holder	2005-
Dr Mark Manuel	UNESCO Chair PDRF	2008-
Dr Chris Davis	UNESCO Chair PDRA	2015-
Dr Jen Tremblay	UNESCO Chair PDRA	2016-2019
Mr Duncan Hale	Archaeological Services Geophysicist	1999-

Period when the claimed impact occurred: Between August 2013 and July 2020

Is this case study continued from a case study submitted in 2014? N

Section B

1. Summary of the impact

Heritage sites in South Asia are critical social and economic assets. Working with national practitioners to safeguard heritage from unsympathetic development, extreme environmental hazards such as earthquakes, and from conflict damage, Durham's United Nations Educational, Scientific and Cultural Organisation (UNESCO) Chair and team have mobilised research to: 1. embed archaeological considerations into local decision-making processes on development; 2. build and deploy toolkits and training in response to environmental hazards and post-disaster contexts; and 3. share and shape best practice with government and heritage professionals, schools and the public. Together with UNESCO, national heritage agencies and NGOs in Nepal, Sri Lanka, India, Bangladesh and Myanmar, Coningham and team have made heritage more accessible to communities and more resilient to hazard through a shared awareness of risk.

2. Underpinning research

Robin Coningham has authored over 60 research articles and books on the archaeology and heritage of South Asia, while his field survey and excavations at 40 historic locations have elicited a fresh understanding of the South Asian past, and in particular the archaeology and heritage of early Buddhism [**R1**]. The award of the UNESCO Chair in Archaeological Ethics and Practice in Cultural Heritage in November 2014 is both an outcome of this research and the platform for the impact claimed here. Working with Durham's in-house commercial archaeology unit (ASDU) and South Asian governments and officials, the UNESCO Chair team has garnered funds of GBP1,203,331 from international and national agencies, religious organisations and private individuals (2014-2020). Since 2014, 26 training initiatives involving co-produced research and analysis, termed here 'field laboratories', have been delivered by the team on the vulnerable sub-surface archaeology of socially and historically significant sites, including the 'tentative' World Heritage Site (WHS) at Tilaurakot and across 2,000km^2 of the Greater Lumbini Area (Nepal 2012-), at the WHS of Kathmandu (Nepal 2015-), Jaffna Fort (Sri Lanka 2017-18), a key Dutch colonial Indian Ocean trading complex, and with impacts at the WHS of Bagan (Myanmar 2016-), among others across India and Bangladesh (Fig. 1).

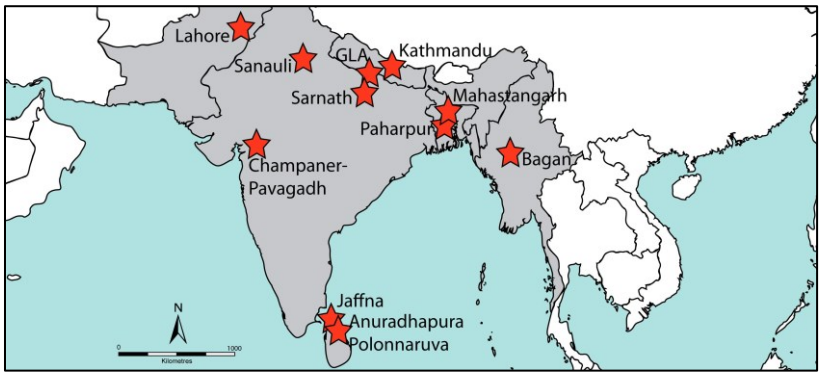

Figure 1. Location of selected UNESCO Chair Projects and Reports.

Building on the investigation of highly complex subsurface sequences at a single site, the Buddha's birthplace at the WHS of Lumbini (Nepal), between 2010 and 2013 [**R2**], the UNESCO Chair and team have since generated a step change in their methodological expertise. While the traditional focus of international and national heritage agencies had been primarily to protect clusters of upstanding monuments, the Durham team now work with officials and agencies to place equal emphasis on the significance of landscape and sub-surface archaeology under threat. For example, at the archaeological complex of Tilaurakot, identified by many as ancient Kapilavastu and the childhood home of the Buddha, the team has identified one of South Asia's best-preserved ancient urban forms, mapping the morphology of the core walled city (0.16km^2) and its industrial, residential and religious hinterlands (1.8km^2). The team then collaborated with the President of the International Council on Monuments and Sites (ICOMOS-Japan), UNESCO and the Head of the Planning Section of the Government of Nepal's Department of Archaeology (DoA) to co-develop methods and research protocols for risk-mapping, specifically in order to identify, zone and protect the landscape and sub-surface remains [**R3**].

One exceptionally challenging set of threatened monuments in this region is the historic pilgrimage sites of South Asia, which remain actively embedded in modern social and economic networks. Here, the UNESCO Chair team has investigated contemporary perceptions of, and engagement with, heritage. Many were found to be at risk, either inadvertently from damage by local populations, authorities and religious communities, or from growing footfall and resulting infrastructural development. At Tilaurakot-Kapilavastu, the team, with national and international agencies, worked to mitigate these threats by translating site-specific and landscape-based research results into designs for non-intrusive and reversible walkways, as well as training for practitioners through field laboratories, and broader risk awareness-raising opportunities for stakeholders, including for managers, residents and incumbents through heritage festivals and temporary exhibitions [**R3**].

In the aftermath of Nepal's devastating 2015 earthquake, Durham's risk-mapping methodology has significantly reinforced the land-use planning process for post-disaster infrastructure. During the reconstruction of one of the key medieval structures of UNESCO's Kathmandu Valley WHS, the Kasthamandap Rest House [**R4**], the Durham team partnered with the DoA and architectural and engineering specialists from ICOMOS-Nepal. Their archaeological investigations revealed ancient hazard-resistant architectural designs, such as monumental symmetrical foundations which minimise to and fro seismic motion and the presence of bracing walls which increase structural 'spread' [**R4**]. In addition, the team co-designed (with heritage agencies and first responders) a post-disaster archaeological methodology to protect, process and record building materials and artefacts from damaged and collapsed monuments. The team have successfully translated these post-disaster research methods to post-conflict environments, working in Sri Lanka with national and international agencies at Jaffna's Dutch fort to guide the location of new infrastructure through risk maps after the fort was damaged during the 1983-2009 Civil War [**R5**]. Through its 2017 GCRF-sponsored 'Heritage At Risk' conference in Kathmandu, the team mobilized its partnerships to design and implement region-specific methodologies and resolutions which safeguard vulnerable sites, and to benchmark and enhance the social and economic impact of heritage sites on resident audiences and raise the awareness of hazards [**R3**].

3. References to the research

[R1] Coningham, R.A.E. & Young, R.L. 2015. *The Archaeology of South Asia: From the Indus to Asoka, c.6500 BCE - 200 CE*. Cambridge University Press (pp.96-100 & 489-90). DOI: 10.1017/CBO9781139020633. Submitted for REF2021.
[R2] Coningham, R.A.E., Acharya, K.P. & Tremblay, J. 2019[2013]. Chapter 3: Archaeology and Site Interpretation. In UNESCO's *The Sacred Garden of Lumbini*: 50-103. 2nd revised Edition. UNESCO. *Co-authored with DoA.* Open Access version available unesco.org/ark:/48223/pf0000223986 Internally rated 2*.
[R3] Coningham, R.A.E. & Lewer, N. 2019. Chapter 12: Conclusion. In Coningham, R.A.E. & Lewer, N. (eds.). *Archaeology, Cultural Heritage Protection and Community Engagement in South Asia*: 165-85. Palgrave Macmillan. DOI: 10.1007/978-981-13-6237-8
Book submitted for REF2021.
[R4] Coningham, R.A.E., Acharya, K.P., Davis, C.E., Kunwar, R.B., Simpson, I.A., Joshi, A. & Weise, K. et al. 2019. Reducing Disaster Risk to Life and Livelihoods by Evaluating the Seismic Safety of Kathmandu's Historic Urban Infrastructure: enabling an interdisciplinary pilot. *Journal of the British Academy* 7(s2): 45-82. *Co-authored with DoA & President of ICOMOS-Nepal.* DOI: 10.5871/jba/007s2.045 Internally rated 2*.
[R5] Coningham, R.A.E. & Weise, K. 2019. Chapter 23: Ruins and Debris: Cultural Heritage Practice, Resource Management, and Archaeology. In Bicknell, J., Judkins, J. & Korsmeyer, C. (eds.): *Philosophical Perspectives on Ruins, Monuments, and Memorials*: 275-290. Routledge. *Co-authored with President of ICOMOS-Nepal.* DOI: 10.4324/9781315146133. Hard copy available on request. *"I consider this book to be highly important."* (p.383)…"*Robin Coningham and Kai Weise's* [contribution]…*is a brilliant ending to a stunningly important collection."* (p.386) James W. Mock, Review, *Journal of Aesthetics and Art Criticism* (2020).

4. Details of the impact

The award of a UNESCO Chair to Durham in November 2014 has offered an unrivalled opportunity for Coningham and team to translate their research into what UNESCO's World Heritage Centre calls "*an ambitious and methodologically innovative programme of heritage recording and protection addressing threats to archaeological assets*" [**E1**]. Change has been effected in:

(1) Archaeology and the development process

At a time when vulnerable sub-surface heritage within the Greater Lumbini Area is threatened by increasing visitor and pilgrim numbers (1.2 million in 2019) and an associated acceleration in construction projects [**E2**], Durham's UNESCO Chair and team have embedded archaeological considerations into the local decision-making processes on development. They began in 2014 by documenting the archaeological landscapes at pilgrimage sites using field-based and desk-top assessment of over 2.5km^2 and geophysical survey of over 0.6km^2, facilitating the production of a regionally-novel risk map, a tool which is now being used to steer landscape development. Updated since 2015, the map for tentative WHS Tilaurakot now covers 17 hectares of above- and below-ground archaeology and feeds into new strategies which fully take into account the archaeological landscape and "*has directly influenced the installation of non-intrusive and reversible infrastructure…on a landscape scale*" [**E2**]. This collaborative venture between the UNESCO Chair, the Lumbini Development Trust and the Government of Nepal in the Greater Lumbini Area is now recognised by UNESCO's World Heritage Centre as "*best practice for safeguarding sub-surface heritage assets,…for World Heritage Sites across South Asia where 'living heritage' is vulnerable*" [**E1**]. At Tilaurakot, for example, the President of ICOMOS-Japan noted its "*critical insights"* and "*real impact". "These have been critical toolkits for my team of planners and architects, to model the visitor experience at the site and underpin the process of zoning the land into core and buffer zones"* [**E3**]. As a result, the team co-designed protection measures at the site with ICOMOS-Japan and Nepali government officials in 2016, including non-intrusive walkways which reflect the ancient street plan and preserve the sub-surface remains from '*the very current risks to [their] preservation'* [**E2,3**]. When a larger landscape (17 hectares) of threatened archaeology within the hinterland around Tilaurakot was identified though the risk map methodology, it was purchased in 2018 by the Government of Nepal at the cost of 520 million Nepali Rupees (GBP3.3 million, 04-2020) to co-design "*core monument and*

buffer zones with you [Coningham] *in advance of WHS nomination"* [**E2**]. The President of ICOMOS-Japan further stated that "*this approach is providing us with critical insights which I acknowledge are directly contributing to the World Heritage nomination*" [**E3**]. The Government of Nepal's Department of Archaeology then commissioned the generation of the UNESCO Chair's risk maps ahead of future development work, such as the tentative WHS of 'Ramagrama, the relic of Lord Buddha' [**E1,2**]. The methodology has been adopted at the WHS properties of the 'Historic mosque city of Bagerhat' and 'Ruins of the Buddhist Vihara at Paharpur' in Bangladesh, Sarnath and 'Champaner-Pavagadh Archaeological Park' in India as well as at the newly inscribed WHS of Bagan in Myanmar where it is used to guide excavation, protection and landscape development [**E1,4**]**.**

(2) Responding to environmental risks and post-conflict scenarios

Heritage in South Asia is especially at risk from rapid-onset environmental hazards. Nepal's 2015 Gorkha Earthquake left over 9000 dead and damaged or destroyed at least 403 heritage buildings and monuments in Kathmandu, causing "*over $70M dollars* [USD70 million, 03-2020] *of damage to historic centres"* [**E5**]. In recognition of their regional expertise Coningham and the Durham team were mobilised for three years by UNESCO and the Government of Nepal to fill "*a very real skills gap in rescue archaeology and recording of collapsed monuments…"* [**E1**] and co-direct rescue excavations and archaeological evaluations there.

Durham was invited to review and strengthen the Government of Nepal's new Conservation Guidelines and the Director-General of Archaeology states that this "*directly led to my Department conducting post-disaster archaeological assessment at the Bungamati Temple, funded by the Sri Lankan Government, and within the Hanuman Dhoka Palace complex, funded by the Chinese Government*" [**E5**]. The Director-General also confirms that Durham's co-directed rescue excavations "*have successfully recovered evidence of historic indigenous knowledge about resilient design which had been lost*" [**E5**]. In a direct translation of Durham University research, mud mortars and the use of copper plates on structural timbers are now being incorporated into low-interventionist retrofitting projects and rebuild initiatives such as Kasthamandap temple: the former being more flexible and durable than stiffer modern materials, the latter acting as a damp course and termite deterrent [R4]. The President of ICOMOS (Nepal) states that "*These findings are directly feeding into the 200 million Nepali Rupees* (GBP1.26 Million, 04-2020) *reconstruction of the Kasthamandap*" [**E6,E7**-video-Raj Tiwari 26:49 to 33:13]. "*Your team were pioneers of post-disaster archaeological methods in South Asia, and these initiatives helped demonstrate that we needed to prioritise sub-surface heritage during reconstruction*" [**E6**].

Practitioner preparedness is a key factor in mitigating damage to heritage following earthquakes. A post-disaster handbook for first responders from the police and army, co-produced with the Government of Nepal, "*has translated this* [archaeological] *knowledge into accessible new guidelines on how to protect, process and record building materials and artefacts from damaged and collapsed monuments*" [**E5**]. Targeting engineers and architects, a 2018 Seismic Safety Workshop in Kathmandu improved understanding of integrated practices and strengthened skills [**E6**]. To raise community awareness of the risks to heritage, the team co-designed a temporary post-disaster exhibition in Kathmandu in 2017 which attracted 8,079 visitors over its four day run. The success of this engagement led directly to the invitation by the Government of Nepal Ministry of Culture to co-design and install Kathmandu's first permanent Earthquake exhibition in the Hanuman Dhoka Palace Museum inaugurated on the third anniversary of the 2015 Gorkha Earthquake, by H.E. the President of Nepal [**E5**].

Following the participation of four of their officers in Kathmandu post-disaster investigations in 2016, the Central Cultural Fund (CCF), who are responsible for the conservation, development and promotion of cultural heritage in Sri Lanka, invited Durham's UNESCO Chair to co-design and implement post-disaster training at Jaffna Fort, one of the largest colonial forts in Asia which had been badly damaged during the Sri Lankan Civil War [**E8**]. The team's established combined methods were used to generate risk maps for the fort and its surrounding landscape, influencing the placing of infrastructure. The Durham team trained

the full cohort of 22 officers from the CCF's Jaffna Office in 2017 on site and 91% stated they felt better equipped to protect heritage after a disaster [**E8**]. After graduating from the training, the officers successfully completed the clearance, recording and protection of the fort. "*Durham's UNESCO Chair has thus helped place Jaffna Fort on a sustainable trajectory to preserve, protect and promote its significant heritage for local and international communities*" [**E8**].

(3) Sharing and shaping best practice

The work of the UNESCO Chair and team in South Asia is championing skills and embedding awareness. Between April 2014 and July 2020 the UNESCO Chair and team have delivered 26 field laboratories engaging a total of 752 trainees across all programmes [**E9**]. This training is independently considered "*critical for the strengthening of practitioners' capacity for the development of heritage protection in South Asia*" [**E1**]. With funding from the Oriental Cultural Heritage Sites Protection Alliance, the team have mobilised 34 key government heritage practitioners supporting travel for officials from the Nepali government, the Sri Lankan Central Cultural Fund, Bhutan government and the Department of Archaeology National Museum and Library Myanmar, to the UK, Nepal and Sri Lanka for training by the UNESCO team [**E9**]. Of the 752 participants, all those that responded (208), affirm that their personal and professional skills have been enhanced by the training [**E9**]. Significant changes to working practices are evidenced: "*The exposure to these techniques in Nepal and Sri Lanka made me realise how we could improve our own excavations, and I now utilise these in Lumbini Development Trust excavations. This has saved time and money through a systematic and scientific approach*." [**E9**-Chief Archaeologist Lumbini DT].

Shaping best practice begins with local communities. In the Lumbini region this is embedded through work with 28 schools [**E2**]. Heritage protection-related competitions for schools during the annual festivals led to a request in 2018 for a 28-page Nepali-language 'heritage handbook' from the Ministry of Education that draws directly on Coningham's research. Co-designed with resident teachers, this resource is now used by 400 District Schools, with District Curriculum Committee Member Gunakar Ghore stating that *"the UNESCO Chair's education handbook has been a key resource for teachers like me to successfully integrate heritage into the school curriculum and make students aware of the risks to their heritage"* [**E2**].

Reach to global audiences has been beyond expectation. Using their research on the vulnerable heritage of South Asia's pilgrimage sites, the UNESCO team co-designed an exhibition held at the Fo Guang Shan's Buddha Museum in Taiwan in 2018 that drew in 992,989 visitors from 13 Asian and 10 European countries [**E9**]. 77% of the sample group interviewed by volunteers (2,432 visitors) stated that the exhibition had given them a much greater awareness of the risk to heritage in the Lumbini region [**E9**]. The content was translated to a temporary exhibition at the Shwedagon Pagoda in Yangon, Myanmar in November 2019, co-designed with the Government of Nepal and opened by H.E. the Nepali President during her State Visit. It drew in an estimated 60,000 visitors: 90% of the 300 interviewed by volunteers acknowledged new recognition of the potential damage to sites in the region from poorly-planned pilgrimage infrastructure [**E4**].

5. Sources to corroborate the impact

E1. Letter from the World Heritage Centre, UNESCO, Paris.
E2. Letter from the Director-General of Archaeology, Government of Nepal (GLA).
E3. Letter from the President of ICOMOS-Japan.
E4. Letter from the Director-General of Archaeology and National Museum and Library, Government of Myanmar.
E5. Letter from the Director-General of Archaeology, Government of Nepal (Kathmandu)
E6. Letter from the President of ICOMOS-Nepal.
E7. Video of interviews with participants in reconstruction of Kasthamandap.
E8. Letter from former Director-General of Central Cultural Fund, Government Sri Lanka.
E9. Letter from the President of the Oriental Cultural Heritage Protection Alliance (France/China).