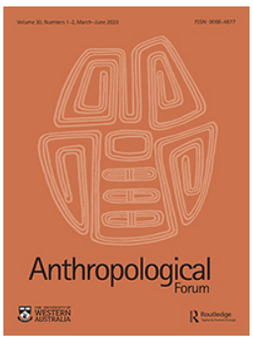

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Disaster as Opportunity? Cyclone Pam and the Transmission of Cultural Heritage

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ABSTRACT

Culture, by its very nature, is always at risk of change – whether through transformation, destruction or redefinition. So how might culture be said to be particularly at risk in the context of 'natural' disasters, and how are disasters 'naturalised' or incorporated under the terms of different cultural regimes? An earlier focus on the impacts to built or tangible heritage is increasingly being balanced by a concern for the transformations wrought by disasters in the intangible heritage of communities. Through the recent event of Cyclone Pam in 2015, and a case study of the World Heritage site of Chief Roi Mata's Domain (CRMD), we explore the ways in which repetitive natural hazards have shaped culture and tangible and intangible forms of heritage in Vanuatu. We focus in particular on the issue of cultural transmission at CRMD and its relationship to natural hazards through the device of a 'disaster biography'. Risk can also carry with it the prospect of opportunity, and our paper seeks to understand how opportunity might be present in post-disaster reworkings of culture and heritage.

KEYWORDS

Disaster; cultural heritage; intangible heritage; transmission; cyclone

The Mutual Constitution of Disaster and Culture

While it is widely acknowledged that disasters are defined by culture – that disasters are understood as such under culturally specific terms – the possibility that cultures are constituted by disaster has been less thoroughly explored. Disasters are typically portrayed as threats specifically to cultural heritage – both to the fabric and integrity of tangible forms of heritage, and to the practice of intangible forms; but to the extent that all cultures are formed and reworked through centuries of exposure to cycles of natural hazards and recovery, disasters are woven into the fabric of most forms of cultural heritage. The tangible and intangible expressions of the cultural heritage of any community – its landscape, its built environment and its knowledge and practices – reflect this mutual constitution of culture and disaster (Oliver-Smith 1999, 25, 28).

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Our approach to the relationship between disaster and cultural heritage focuses in particular on intangible expressions of heritage, as '… the practices, representations, expressions, knowledge, skills – as well as the instruments, objects, artefacts and cultural spaces associated therewith – that communities, groups and, in some cases, individuals recognise as part of their cultural heritage …' (UNESCO 2016, Section 2.1), redressing the imbalance created through past emphasis on the impacts of disasters on built and other tangible forms of heritage. Western property relations and the influence of the built heritage of Europe on UNESCO's flagship institution of World Heritage have powerfully structured the conception of heritage disaster risk as being registered primarily through its material impacts, which are more immediately visible and available for enumeration; UNESCO's own guidelines for the management of disaster at World Heritage sites have remained resolutely focused until very recently on the tangible elements of heritage (UNESCO 2010). Intangible heritage – often referred to in the disaster literature as local or indigenous knowledge (Shaw, Sharma, and Takeuchi 2009) – has been recognised rather belatedly in the form of UNESCO's 2003 Convention for the Safeguarding of the Intangible Cultural Heritage (UNESCO 2016). Redirecting our focus from the tangible to intangible serves to shift attention away from the impacts to heritage of the immediate event of disaster and towards longer-term processes of cultural transmission – processes which incorporate, amongst other things, strategies that serve to mitigate the effects of disaster.

The setting for our analysis is Chief Roi Mata's Domain (CRMD), a World Heritage cultural landscape on the northwest coast of Efate in the Republic of Vanuatu. CRMD remains one of very few World Heritage sites globally where ownership, management and interpretation remain vested in an Indigenous custodial community, with support from staff of Vanuatu's leading national cultural institution, the Vanuatu Cultural Centre (VCC) (Wilson et al. 2012; on the Cultural Centre, see Regenvanu 1999). A long-term engagement with practical matters of cultural heritage management, initiated in 2005 with the process of preparing a dossier for World Heritage nomination and continued after the successful inscription of the site in 2008, has involved close and ongoing collaboration between the local community of Lelepa and Mangaliliu (Lelema) villages, the VCC and international researchers, each of these constituencies being represented amongst the authors of this paper.

Although our emphasis in this paper is on the longer duration of disaster history and cultural transmission, it was the devastation of much of Vanuatu along with CRMD by Cyclone Pam in March 2015 that gave rise to the conversations discussed here. In particular, we draw on a series of discussions about the impacts of Cyclone Pam on the heritage of CRMD, including the community's own assessment of damage during the days immediately following the cyclone; the national Post-Disaster Needs Assessment report, which provided a rapid appraisal of the likely cost of impacts across a wide range of sectors, including 'culture'; a UNESCO Emergency Assistance-funded programme aimed at assessing the impacts to CRMD specifically, and clearing the site of debris; and a community workshop on the safeguarding of intangible cultural heritage in the context of disaster risk, initiated by the International Research Centre for Intangible Cultural Heritage in the Asia-Pacific Region (IRCI). Collectively, these different but overlapping conversations converged on a consensus about the impact of Cyclone Pam, in which the substantial material damage to modern infrastructure was seen to be partially offset by limited impact to the

ancestral locales. Further to this, community custodians expressed the view that the cyclone had also presented them with an important opportunity to rethink management of the site, and the conversations increasingly turned to questions of the longer-term relationship between disasters and the transmission of cultural practices and values.

To further explore these relationships, we first provide some context on the scale, frequency and distribution of natural hazards and other triggers of disaster in Vanuatu, before turning to the World Heritage site of CRMD and its specific 'disaster biography'. Further detail on the experience of Cyclone Pam at CRMD and the ensuing series of cultural heritage conversations then provides a platform for reflection on the mechanisms through which tangible and intangible forms of cultural heritage are transmitted and transformed over time and across the watersheds of successive disasters. In conclusion, we identify some of the ways in which, for all the damage and distress they leave in their wake, disasters can also generate moments or spaces – opportunities – for reflecting on and reaffirming cultural practices and heritage.

Disasters 'Natural' and 'Un-natural' in Vanuatu

The South Pacific nation of Vanuatu offers an impressive range of the geological and climatic conditions for precarity. The archipelago of Vanuatu runs along the margin of – and is itself formed by – a major subduction zone which regularly produces significant earthquakes. The two largest recorded earthquakes, both estimated at 8.4 on the Richter Scale, took place in 1901. Although certain portions of the archipelago, such as the Banks Islands and Efate, are a frequent focus for major earthquake events, others such as Tanna and Erromango appear to be relatively free; however, earthquakes of all sizes have been recorded along the full length of the country (Siméoni 2009, 145–149). Most of the tsunamis recorded for Vanuatu have local rather than trans-Pacific origins, deriving from slips within the deep trench running parallel to the archipelago along its western face (Goff et al. 2011); their effects are felt throughout the archipelago but are largely concentrated in areas adjacent to trench sections in the Banks Islands and the southern half of Vanuatu (Siméoni 2009, 150–153).

Vanuatu also lies at the intersection of several cyclone corridors (Vanuatu Meteorological Service 1994; Siméoni 2009, 139–144). Cyclones traverse the entire archipelago, passing generally from east to west (at all latitudes but more often in the north) or from north to south, often along much of the length of the country. Between 1959 and 1987, 10 major cyclones ranging in intensity from Category 2 (with 154–177 km/h winds) to Category 5 (with winds greater than 249 km/h) struck Vanuatu; if Category 1 cyclones are included, cyclones are experienced somewhere in Vanuatu on average once every one to two years.

To complete this catalogue of potential major hazards, a chain of 10 large and active terrestrial and submarine volcanic vents runs down the centre of the Vanuatu archipelago; additional volcanoes have been active historically over the period of human occupation of the region (Siméoni 2009, 154–167). Individual volcanoes tend to pose a threat to residents of the immediate area or island, which have been devastated historically by events such as the Ambrym eruption of 1913 (Moreau and Aurora 2020). But Vanuatu has also hosted one of the three largest eruptions globally of the past 2000 years, when the island of Kuwae was torn apart in 1452 CE, leaving the remnant islands of Tongoa and Epi; the event is

very clearly recalled in local oral tradition, and frequent eruptions from the submarine vent of Karua serve as a reminder of the continued presence of the volcano today (Robin, Monzier, and Eissen 1994, Calandra 2020).

Less dramatic but no less devastating for local livelihoods in Vanuatu are irregular cycles of flooding and drought, often accompanied by landslips and fires, respectively. Historically, the more damaging instances of flooding and drought appear to be linked to regional El Niño–Southern Oscillation (ENSO) weather patterns (Murphy, Power, and McGree 2014; Li et al. 2013), though uncertainty persists over the likely change to these patterns under the conditions of global warming (Collins et al. 2010) and the extent to which vulnerability to ENSO fluctuations is a function of failures in preparedness (Kelman 2019).

Partly as a consequence of this wealth of hazard potential, Vanuatu consistently features as the country with the highest risk rating in the world. At 36.28%, Vanuatu is the only country in the World Risk Index, calculated annually by the United Nations University Institute for Environment and Human Security, with a risk ranking above 30% (Bündnis Entwicklung Hilft 2017). Risk is classically calculated by multiplying exposure to natural hazards by vulnerability (assessed in terms of infrastructure, living conditions, economic circumstances and nutrition); additional factors contributing to the World Risk Index rating are a country's coping capacity (preparedness, social security and governance) and its capacity to adapt to climate change and the impending threat of hazards. While Vanuatu's exposure to natural hazards is not in question, many would contest the focus of the World Risk Index on state capacity in a nation where community autonomy and self-reliance remain vital to rural livelihoods (Rousseau and Taylor 2012).

However, all of Vanuatu's disasters triggered by natural hazards are dwarfed in terms of their scale and impact by the decidedly 'un-natural' disasters associated with European contact during the nineteenth and early twentieth centuries (see also Moreau and Vincent 2020). From at least as early as the onset of regular visits to Vanuatu by Western ships in the 1820s, most communities in Vanuatu became exposed to a devastating series of epidemics which continued to take a profound toll over the next hundred years. Losses to disease varied considerably from island to island but were further exacerbated by labour migration, heightened conflict and political instability; in certain islands, over 90% of the population estimated for 1820 had been lost by 1920 (Kirch and Rallu 2007; see especially Spriggs 2007 on Aneityum in southern Vanuatu, where the population of the 1920s was less than 6% of the minimum estimate for 1830). In many areas, these population losses then paved the way for land transfers to Western traders and missionaries, followed by the concentration of surviving communities in larger coastal settlements, which further increased their risk of exposure to epidemics. No discussion of contemporary threats to cultural transmission in Vanuatu can be conducted without an awareness of this earlier and deeper context of loss to 'un-natural' disasters.

A Disaster Biography for CRMD

As a framework within which to explore the long-term cumulative implications of successive disasters, natural and un-natural, for the transmission and transformation of cultural heritage, we propose the notion of a 'disaster biography' (Wilson and Ballard 2017; see also Oliver-Smith 1999, 30 on the 'life history of a disaster'). Disaster biographies can take several forms: as the biography of a community or place or even a cultural practice or

artefact, set against a historical series of disasters; or as the biography of a single disaster, understood through multiple perspectives, contexts and time frames. Here we take a longitudinal perspective on an individual event and location, set within the *longue durée* of previous events and understood within their wider environmental and social contexts. Only through this deeper and broader frame for analysis is it possible to appreciate the complexity of factors that come into play in assessing the impacts on cultural transmission of a single disaster event. An excellent example of such a study is John Campbell's historical treatment of response to cyclones in northern Vanuatu from 1873 to 1988, in which he tracks deterioration in the traditional disaster relief networks of marriage and exchange that served to spread cyclone risk across a chain of islands, and the consequences of their gradual substitution by state responses (1990).

CRMD is Vanuatu's first World Heritage site, inscribed on UNESCO's World Heritage List in 2008. The site is a cultural landscape focused on the three ancestral locales of Mangaas, on the mainland of Efate; Fels Cave, on nearby Lelepa Island; and the island and fringing reef of Artok (also known as Retoka or Hat Island), together with the stretch of sea that enables travel between these locales, and a surrounding Buffer Zone (Figure 1). Together these three principal locales anchor a cultural landscape that hosts the material proofs of local oral narratives about the remarkable deeds of the last holder of the chiefly title of Roi Mata, who lived and died in the late sixteenth century (Garanger 1972; Guiart 1973; Wilson, Ballard, and Kalotiti 2011).

More than four centuries later, stories of the life of this last Roi Mata are still told, including details such as the location of his residence and the surrounding yards of the named chiefs of his court, the occasion of his death at Fels Cave, and the sequence of events that comprised his funeral celebrations (Republic of Vanuatu 2007). These oral traditions, documented by anthropologist Jean Guiart in the 1950s, guided archaeologist José Garanger in his excavation of each locale during the 1960s, and it is this convergence of oral tradition and archaeological proof which is celebrated by the inscription on the World Heritage List of much of Roi Mata's former domain. As a cultural landscape, CRMD integrates past and present expressions of tangible and intangible cultural heritage with the history of the local environment, and positions the custodial Lelema community, from the villages of Lelepa and Mangaliliu, at the heart of decisions about its management and its future. The injunction that World Heritage sites should be safeguarded for an unspecified number of 'future generations' (UNESCO 1972, Article 4) presents a particular challenge to site managers, for whom risk reduction is thus an open-ended program.

The cultural landscape of CRMD has been strongly shaped by the experience of past disasters. Each of the natural hazards listed for Vanuatu has been experienced locally: cyclones, drought and fire, flood and landslips and earthquakes at least once per decade on average, significant tsunamis less frequently, but volcanic eruptions perhaps only once (the Kuwae 1452 CE event). Prior to Cyclone Pam in 2015, cyclones similar in scale had been recorded for Efate in 1867, 1879 (twice), 1909, 1911, 1932, 1940, 1959 (Amanda), 1963, 1977 (June), 1987 (Uma), 1992 (Betsy) and 1993 (Prema) (Vanuatu Meteorological Service 1994); the more recent named cyclones now serve as some of the most important temporal markers in local history. Early missionaries recorded the dispiriting task of rebuilding mission stations and churches that were repeatedly flattened and, along with other observers, noted that the larger cyclones were often followed by droughts which threatened the recovery of food crops (Michelsen 1934, 198–211). The

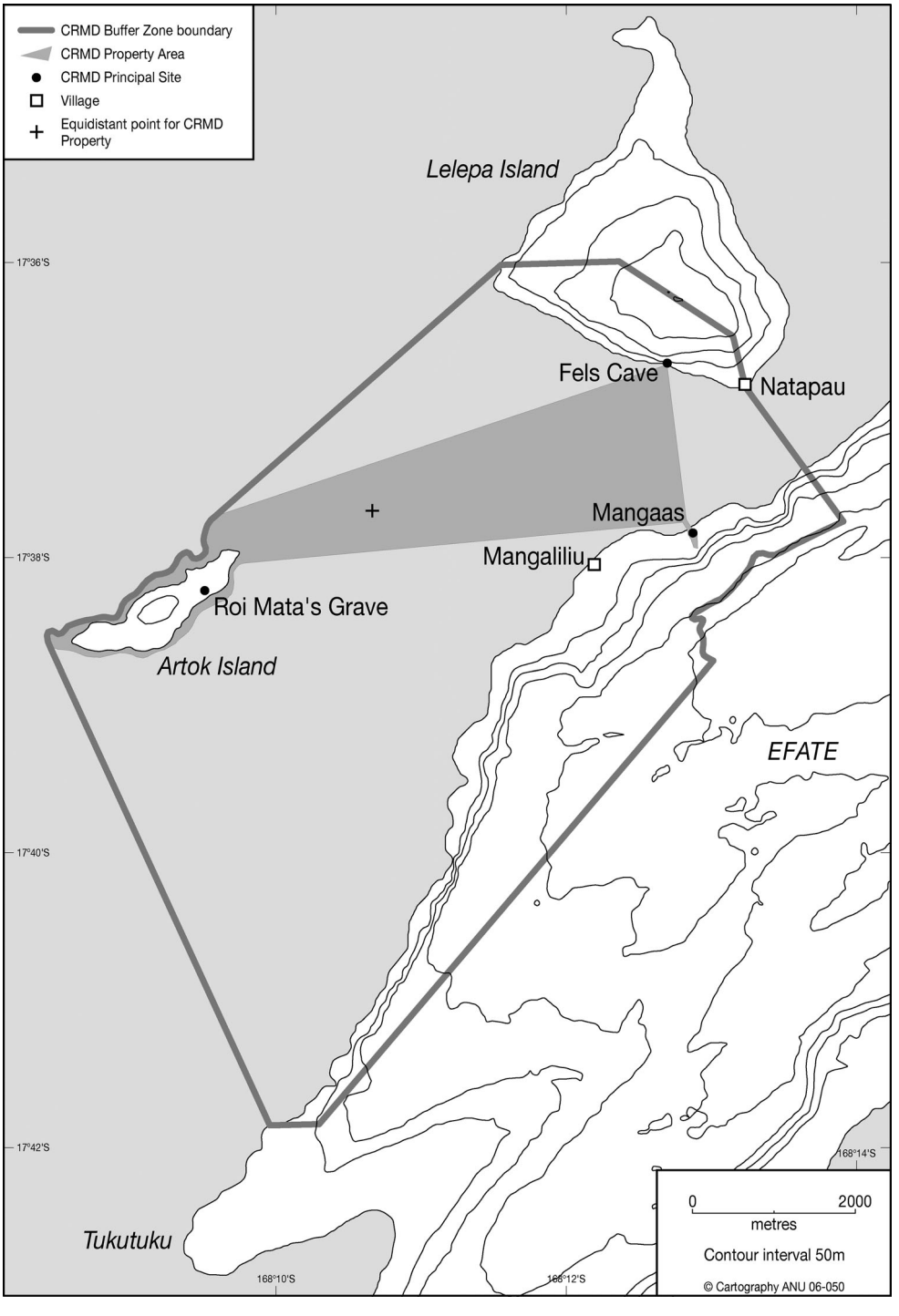

Figure 1. The World Heritage site of Chief Roi Mata's Domain, Vanuatu (CartoGIS, Australian National University).

two largest recent earthquakes in the Lelepa area took place in 1950 and 2002. The 1950 event triggered a tsunami which washed clear over Roi Mata's burial location on Artok Island and entirely removed the large beach in front of Lelepa Village on which the community's ceremonial dance ground and cluster of upright drums had stood since the time of the last Roi Mata. The 2002 earthquake, which measured 7.2 on the Richter Scale, destabilised the ceiling and entrance of Fels Cave to the point where future visits remain uncertain.

Different forms of evidence for pre-1820s settlement patterns in CRMD and on Efate more generally, including abandoned sites, early photography and maps, satellite imagery and oral traditions, suggest that the distribution of the population across the landscape formerly played a key role in mitigating the impacts of these hazards (Guiart 2014; Bedford, Siméoni, and Lebot 2018). A fairly even spread of small hamlets over much of the interior as well as the coastline served to distribute certain forms of risk more widely. Early ancestral sites, such as Roi Mata's residence at Mangaas and his burial ground in the yard of the resident chief of Artok Island, were positioned in the lee of points or headlands and sufficiently above sea level to avoid substantial damage. Coastal settlements such as Natapao on Lelepa were reinforced by massive seawalls of coral blocks, though these were not rebuilt or maintained after the 1950 tsunami. Other than these walls, material infrastructure was rarely monumental in central Vanuatu (Ballard and Wilson 2012), and the fate of the early mission buildings indicates why this should have been so. Historically, houses were made from a materials that were easily procured and replaced from within the local domain, and construction styles were well suited to withstand both high winds and seismic events (Christie 2017).

None of these traditional mitigation strategies was capable of resisting the un-natural disasters that unfolded from the 1820s. Lelepa Island stands at the main entrance to Havannah Harbour, quickly recognised by European navigators as the best harbour in the archipelago and thus the principal destination for visiting ships until the rise of Port Vila as the capital in the early twentieth century (Cawsey 1998). Devastation of the local population long preceded the arrival of the first missionaries and settlers in the late 1860s, due both to disease and heightened conflict (e.g. Spurway 2004); the graves at Samoa Point of some half of the Polynesian mission teachers landed in Havannah Harbour from the 1840s testified to their own losses – until these graves were themselves destroyed by subdivision development in 2006 (Kaltal 2006).

Named settlements and chiefly titles, along with the estimates of early visitors, suggest that the population of Lelepa and the adjacent Efate mainland that constituted Roi Mata's domain may have numbered 2000 or more; the earliest estimate of the Lelepa population was of 1000 in 1889, almost certainly already depleted over the previous half-century (Miller 1987, n.d., Monnier 1995). The last interior Efate settlements around Havannah Harbour were abandoned in 1897, the survivors joining Lelepa and other island or coastal villages; but by 1899 the augmented population of Lelepa counted only 150, and by 1913 there were only 250 indigenous residents in the wider Havannah Harbour area, including Lelepa. Only after 1920 did the population slowly rebound, and today the Lelema population numbers just over 600. In contrast to this catastrophic population decline, few if any deaths in the Lelema community could be clearly ascribed to any of the natural hazards experienced in living memory, covering at least the period since the Second World War.

Material heritage has also suffered since the 1820s, ranging from the abandonment of traditional settlements and domains in the interior and along much of the coastline of Efate; the subsequent sale of almost all of the surrounding lands leading to physical destruction of much of the evidence of earlier settlements; mission proscription on traditional ceremonies and their paraphernalia, including weapons, slit drums and dance costumes, most of which were not produced during the twentieth century; and the relinquishing of traditional sailing canoes in favour of modern boats (Facey 1981, 304, Hickey 1999). When the Second World War washed up on the shores of Havannah Harbour, much of the traditional and early settler landscape around Samoa Point was bulldozed in the construction of an airstrip and a massive military base, and the sacred island of Artok itself was shelled and used for practice landings by the United States Marines (Garrison 1983). Finally, large-scale sale of land on Efate during the post-Independence period has now exceeded the extent of land alienation during the colonial period, effectively cantoning Indigenous communities within restricted village areas and their immediate surrounds, and denying access to traditional sites; the Lelema area remains one of the largest areas of land on Efate still under Indigenous control (McDonnell 2016).

What this thumbnail sketch of a disaster biography suggests is that cultural heritage at CRMD – tangible and intangible – has been shaped over centuries of interaction with natural hazards and that only the most exceptional events would pose a profound threat to the cultural landscape or to the continued transmission of knowledge, practices and materials. Much more serious as a risk for cultural transmission has been the cumulative disaster of dislocation from ancestral land, relentless and traumatic population loss and religious or administrative proscription of ritual and other cultural practices. Across Efate, Presbyterian missionaries went so far as to impose their own candidates for chiefly titles, including those on Lelepa, disrupting the traditional matrilineal transmission of rights in favour of patrilineal connections; this effectively created the conditions for competing claims to titles and land, which have contributed significantly to the boom in land sales since Independence.

Despite this history of challenges to cultural transmission, members of the Lelema community were able to communicate very precise details of the sixteenth-century cultural landscape of Roi Mata to Guiart in the 1950s and Garanger in the 1960s, including the hierarchy and function of long-extinct chiefly titles and the exact locations of burials and residential yards. Drawing on local memories supplemented by archival materials and early photographs and animated by a widespread revival of interest in customary practices, the present-day community has been able to renew the production of artefacts such as slit drums and incorporate them within the performance of dance and other ceremonies not practiced since the nineteenth century (Ballard 2013).

The intensity of discussion around cultural heritage and its transmission and transformation, with and within the Lelema community in the context of its management of the World Heritage site, renders CRMD something of a privileged location for exploring the relationship between natural hazards and cultural transmission. The arrival of Cyclone Pam in March 2015, as the first major 'natural disaster' to affect CRMD since its inscription on the World Heritage List in 2008, provided a trigger for the particular round of conversations described here.

Assessing Cyclone Pam at CRMD

Tropical Cyclone Pam struck the archipelago of Vanuatu from 12 to 14 March 2015 as a Category Five event, with winds gusting at over 300 km/h affecting 166,000 people on 22 islands. The cyclone claimed at least 11 lives, destroyed 17,000 buildings, displaced 65,000 people, wiped out food gardens and compromised the livelihoods of approximately 80% of Vanuatu's rural population; damage costs were estimated at approximately USD 500 million or 64% of Vanuatu's gross domestic product (Government of the Republic of Vanuatu 2015, ix, see also McDonnell 2019; Calandra 2020; Wentworth 2020). The eye of the cyclone passed just 60 km to the east of Efate, inflicting the worst storm damage in local living memory. At CRMD, the Lelema community and their cultural landscape were directly impacted by winds estimated at up to 270 km/h.

Communication from the Lelema community resumed within a matter of days, when Richard Matanik, Chairman of the community's Lelema World Heritage Committee, was able to get a message to Brigitte Laboukly, World Heritage officer at the VCC, describing the extent of the cyclone's impact. There had been no deaths or serious injuries in the community, but the damage to housing and food gardens by wind, rain and landslides was extensive, water sources were blocked or polluted, fallen trees blocked access both by road and foot, and boats had been lost. Laboukly then made her way across the broken landscape of Efate to CRMD on 23 March, visiting each of the three main locales with Matanik, and taking photographs which powerfully communicated the extent of the damage (2015). Access had been cut to some of the CRMD locales – by landslips in the case of Fels Cave, and by felled trees on the land access route to Mangaas – which were also covered in storm debris, infrastructure such as toilet facilities had been destroyed, and the boat of the locally owned Roi Mata Cultural Tours business had been lost, together with its engine.

The next form of assessment was a national Post-Disaster Needs Assessment or PDNA. PDNAs are now the established State Party mechanism for assessing damage and loss across a range of sectors (productive, social and infrastructure) in the wake of disasters and are used by governments and the international community as a rough, interim baseline to guide long-term recovery and reconstruction programmes (IRP/UNDP 2014). In the aftermath of Cyclone Pam, the culture sector led its own assessment, which fed into Vanuatu's PDNA (Government of the Republic of Vanuatu 2015). Given the short time frames within which PDNAs are conducted (within one month after the event), damage to tangible cultural heritage tends to provide an expedient if imprecise proxy for recording impacts to those aspects of culture that are less readily identifiable or assessable, such as intangible heritage (Patry 2012). CRMD was one amongst a number of cultural heritage places or buildings assessed, including the VCC complex and facilities, the *nakamal* of Vanuatu (traditional community meeting houses that can also serve as refuges during cyclones), and historic buildings and churches.

Following the report by Brigitte Laboukly, an application was submitted to UNESCO by the VCC for Emergency Assistance to undertake a detailed post-disaster assessment of the site – the first such request from a World Heritage site in the Pacific Islands – and the assessment was conducted jointly by the Lelema World Heritage Committee and VCC with Meredith Wilson and Chris Ballard from 16 to 26 April 2015. The assessment report confirmed the Lelema community's initial assessment of minimal damage to traditional locales but substantial destruction of the associated modern infrastructure

(Vanuatu Cultural Centre 2015). Access was restored to each of the locales, which were also cleared of debris, and monitoring points previously established through the site management plan process were checked. The slit drums standing at Roi Mata's dance ground at Mangaas, felled by debris during the cyclone, were stood back up and rededicated in a moving ceremony led by the late Chief Kalkot Murmur, which affirmed the persistence of the values of the cultural landscape (Figure 2).

During the period of the UNESCO assessment, the Lelema World Heritage Committee conducted a community-wide survey of cyclone impacts, with the assistance of a former Australian volunteer at CRMD, Alison Fleming. A total of 209 respondents, representing almost every family in the Lelema community, described their preparations for the cyclone, their experience of the event, the damage sustained to housing, health, food and water supply, and the longer-term impacts to local livelihoods (2015).

Finally, in October 2016, a workshop sponsored by IRCI at Lelepa and Mangaliliu provided an occasion for the Lelema World Heritage Committee and community members,

Figure 2. The late Chief Kalkot Murmur re-consecrating the standing drum at Mangaas, Chief Roi Mata's Domain, April 2015 (Meredith Wilson).

together with Wilson and Yoko Nojima, to reflect on the role of intangible cultural heritage in mitigating the effects of disasters such as Cyclone Pam, as well as the threat posed to transmission of this knowledge by natural hazards. As the immediate threat of the cyclone receded, the conversations at these assessments turned increasingly from a concern about the impact on tangible materials and livelihoods to a focus on questions of the social conditions for disaster, and the long-term transmission of cultural heritage; the collective substance of these conversations is summarised here.

Disaster and the Transmission of Cultural Heritage at CRMD

Conversation and reflection about cultural heritage is an established practice at CRMD, but Cyclone Pam represented a particular watershed – a moment in which to reckon the full cost of the loss between events of traditional knowledge about managing the risk of cyclones, as well as an opportunity to rethink the broader mission of the World Heritage site from a local perspective. Max Kalsong, an active participant in this process, opened up this forward-looking conversation with the remark that '*Saeklon Pam hemi karem wan bikfala win be hem i karem sam opotuniti tu*' – Cyclone Pam brought with it strong winds, but it also brought opportunities. Opportunity in the context of disaster is often identified with state or other top-down forms of intervention (Zhang and Barrios 2016), including the injunction to 'build back better' (Fan 2013); but it can also refer to new forms of collective agency on the part of those most affected (Archer and Booyabancha 2011), or to the unequal sense of opportunity afforded to individuals depending on their socio-economic circumstances (Madianou 2015, 7–8). Here we focus on the space opened up by the cyclone for the discussion of change and continuity in local practices and critique within the CRMD community of shortcomings in its own preparedness and response.

A common feature of reactions to Cyclone Pam across central Vanuatu was the observation that communities had been ill-prepared for a disaster of this magnitude. A nationwide disaster preparedness programme introduced in 2014 by CARE and early warning text-message systems put in place by the National Disaster Management Office (NDMO) had proved effective (Handmer and Iveson 2017), but there was disappointment that traditional self-reliance measures had been found wanting on this occasion. As Richard Matanik observed on Lelepa, cyclones in Vanuatu are like El Niño cycles; radio announcements and awareness programmes have instilled a sense of alarm about or even fear of cyclones and El Niño events, yet both are naturally recurring phenomena for which customary (*kastom*) measures had always been available and usually sufficient. As a community that has long prided itself on its reputation as the last settlement in Efate to accept Christianity but also the origin point for the New Hebrides Cultural Association, later the Vanua'aku Pati which led the country to Independence, questions of autonomy and leadership have a particular salience in the Lelema community.

A recurrent theme of these conversations at CRMD, and one echoed strongly around central Vanuatu, was the failure of traditional community leadership to mobilise and educate in preparing for cyclones, to galvanise communal rather than individual responses, and to effectively coordinate post-cyclone recovery programmes or host the post-disaster feast of *tutmanfam ngorrkintak*, which celebrates the community's survival.

The vacuum created by this lack of local leadership was quickly filled – but inevitably only partially and seldom adequately – by national and international NGO interventions, further fuelling a sense of helplessness amongst communities.

Traditional risk management strategies, such as maintaining wild yam (*nalo*; *Dioscorea nummularia*) or cyclone-resistant taro varieties in garden or bush areas, husbanding seed reserves, reinforcing yam vines with wild cane and removing stems from cassava and other crop plants immediately before a cyclone, observing the *namru* practice of suspending harvested food from the roofs of houses, or building cyclone-resistant roofs, have declined considerably and are practiced only by certain individuals or families – perhaps partly because Efate had not experienced a major cyclone since Prema in 1993. By 2015, almost 60% of respondents at Mangaliliu village said they had no stored cuttings or seeds with which to regenerate their gardens, and fewer than 20 people in the two communities were still planting the traditional staple of *Dioscorea alata* yam in their gardens; instead subsistence patterns had shifted to a heavy reliance on rice and sweet potato, bought with the proceeds of wage labour or the sale of fish. Post-cyclone disruption to wage-earning as well as transport and market opportunities thus hit certain families particularly strongly.

No-one advocated for a return to *kastom* strategies alone, as traditional measures were felt to be inadequate for a community no longer wholly resident or reliant on its traditional domain; rather the challenge appears to be how to reinvigorate certain *kastom* practices that were evidently critical for risk management, and especially in maintaining food supply both immediately following a major cyclone and during the months before jobs resumed and replanted gardens begin to yield. The need for a community-level disaster management plan was expressed, integrated with a disaster risk management plan for CRMD in which the local management of risk reduction is foregrounded but articulated with national initiatives.

Running through each of these conversations was a growing body of observations and opinions on successes and failures in the transmission of disaster knowledge, opening out in turn to commentary on broader issues of cultural transmission, in the past, present and future. While there is an extensive literature on instances of local knowledge being used to mitigate the effects of disasters (Dekens 2007), there has been much less written on the ways in which that knowledge is embedded within other domains of knowledge and practice, and how it is transmitted between generations and from one event to the next. How is knowledge of this nature communicated over time, and what are the factors that contribute to knowledge loss or, conversely, its revival in the context of natural hazards?

Cultural transmission is defined most simply as 'the emergence, acquisition, storage, and communication of ideas and practices' (Cohen, quoted in Ellen and Fischer 2013, 2). Knowledge, under this definition, is not a reified set of scripts for cultural practice but an emergent property endlessly in the process of being transmitted. Though individuals are 'always the vectors of acquisition and transmission' (Ellen and Fischer 2013, 3), cultural transmission operates at multiple scales, from the micro (personal and interpersonal) to the middle-range (institutional) and macro (culture historical) levels. The same forms of knowledge can appear in multiple, overlapping knowledge domains (ritual, agricultural, etc.). This is especially true for disaster mitigation knowledge, because it is a classic complex domain of knowledge, distributed and dispersed across multiple other domains of knowledge (subsistence, house-building, weather, etc.); and yet it is only sporadically invoked and seldom, if ever, assembled or referred to as a discrete body of knowledge.

Disaster mitigation strategies range from the mundane, such as crop management techniques, to the trans-generational, such as settlement location. At CRMD, the planting of particular crops such as wild yam is a long-standing practice; wild yam is no longer part of the daily Lelema diet, but it endures strong winds and its cultivation was formerly a standard practice, inculcated over centuries of enduring losses to more preferred crops following cyclones (Lebot, Malapa, and Abraham 2017). More subtly, the careful positioning of ancient settlements that are now the World Heritage locales of Mangaas and the Artok burial, which have survived successive natural hazards, reflects centuries of observation by local communities. This is long-term transmission of an effective disaster mitigation strategy. Both the processes and the structures of transmission of this knowledge are recursive (Ellen and Fischer 2013, 43) – they derive from the experience of disasters even as they then shape responses to future disasters.

The kind of model required to fully grasp the complexity of cultural transmission at these various scales and over time is what Ellen and Fischer advocate for, rather obscurely, in the form of 'some kind of agency-context meta-model' (2013, 43). At CRMD, a locally generated framework that addresses this challenge of comprehending transmission and the relationship between tangible and intangible forms of heritage over the longer-term is referred to under the rubric of 'People, Place and Story': People, as the agents of cultural transmission both individually and collectively; Place, as the material environment including the landscape, resources and artefacts; and Story, as knowledge and the intangible (Wilson and Ballard 2017). These three modalities are brought together or articulated through dynamic acts of performance or practice (gardening, dance, crafting, etc.) set within a cultural landscape. People, Place and Story has value as a simple mnemonic that prompts consideration of the tangible and intangible, the relationships between them, and their articulation in daily practice; but it is also a means of integrating and comprehending issues and factors in the transmission of cultural heritage as diverse as the role of champions, funding, external networks, community consensus, education, the vibrancy of local language, and external pressures on land – all of which contribute to the conditions for disaster mitigation and the viability of local customs.

Disaster as Opportunity?

We are still too close to the event of Cyclone Pam to be able to isolate and understand the full scope of its impact on cultural transmission, which will continue to play out for some years to come. Certain themes have emerged strongly through the series of conversations described above, which have also identified further questions and challenges. Will Cyclone Pam spark some revival of interest in traditional mitigation strategies, and contribute to debates about the need to revisit the customary roles of community chiefs? How might new or revived strategies play out, such as the post-cyclone investment by some individuals in more diversified gardens, plans for pre-cyclone season community workshops and water quality assessment training, or changes to the tourism offerings associated with the World Heritage site? How will Cyclone Pam come to feature in individual and communal narratives that trace trajectories of change in local community and cultural heritage management regimes? And how will the ongoing 'un-natural' disaster of land sales in the Havannah Harbour area continue to impact on local articulations of People, Place and Story, the transmission of cultural knowledge and the viability of cultural heritage?

Major breaks in cultural transmission occur when one or more of the three modalities of People, Place or Story is profoundly disrupted – through the catastrophic loss of population, alienation from ancestral lands and loss of material culture, or loss of critical cultural faculties such as traditional language or practices. The analytical tools which we introduce here – the disaster biography and the People, Place and Story rubric – enable communities to narrate their own experiences and to develop appropriate strategies in dialogue with outsiders. For the Lelema community, these strategies appear likely to contribute to a forward-looking management plan that attempts to integrate both disaster and heritage concerns within a broader plan for cultural transmission which acknowledges the centrality of livelihoods.

A focus on cultural transmission – on the long-term viability of cultural knowledge and practices – offers a different perspective on the assessment of impacts from disasters. Certain kinds of disaster are more visible to states and international agencies, especially those that involve dramatic natural hazards, immediate mortality, and tangible damage to infrastructure, monuments or property. At CRMD, damage from Cyclone Pam to modern infrastructure, gardens and water supply was certainly substantial but it was ultimately surmountable. Because natural hazards have played a significant role in the historic constitution of cultures in Vanuatu, they do not necessarily pose the threat to cultural transmission that their visible damage might imply. Instead, the impacts of these kinds of disaster on cultural transmission are dwarfed by the less heralded but more profound disasters of colonialism, loss of population and loss of lands.

Whatever the nature and scale of their material destruction, natural hazards appear to represent watersheds in the reproduction and transmission of knowledge about mitigation strategies – temporal markers and opportunities that allow communities to engage in self-assessment and to gauge for themselves the trajectories of change in the recall and efficacy of that knowledge, and that require other observers to reconsider their own understanding of the relationship between disasters and transmission. In this way, the Asian and Aceh tsunamis of 2004 and 2005, the most deadly of recent disasters, have also provoked serious reconsideration of traditional mitigation strategies (McAdoo et al. 2006), new scientific research into the frequency of tsunamis of this scale (Monecke et al. 2008), and the reinterpretation of historical texts that are now understood to document earlier tsunamis (Reid 2015). Similarly, the aftermath of the 2011 Tōhoku earthquake in Japan saw a revival of local festivals and performing arts not practiced in decades, which played a critical if contested role in the rehabilitation of affected communities (Kimura 2016), as well as a renewed commitment on the part of engaged researchers (Takakura 2016). Under certain conditions, we conclude, it seems that disasters triggered by natural hazards can provide communities with watershed moments or spaces for reflection about the pace and trajectory of social and environmental change, and researchers with critical points of entry to conversations and understanding about the transmission and transformation of cultural heritage.

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