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HOW DO ISLAND COMMUNITIES BALANCE DISASTER RESILIENCE AND WHAT CAN MAINLANDERS LEARN FROM THAT?

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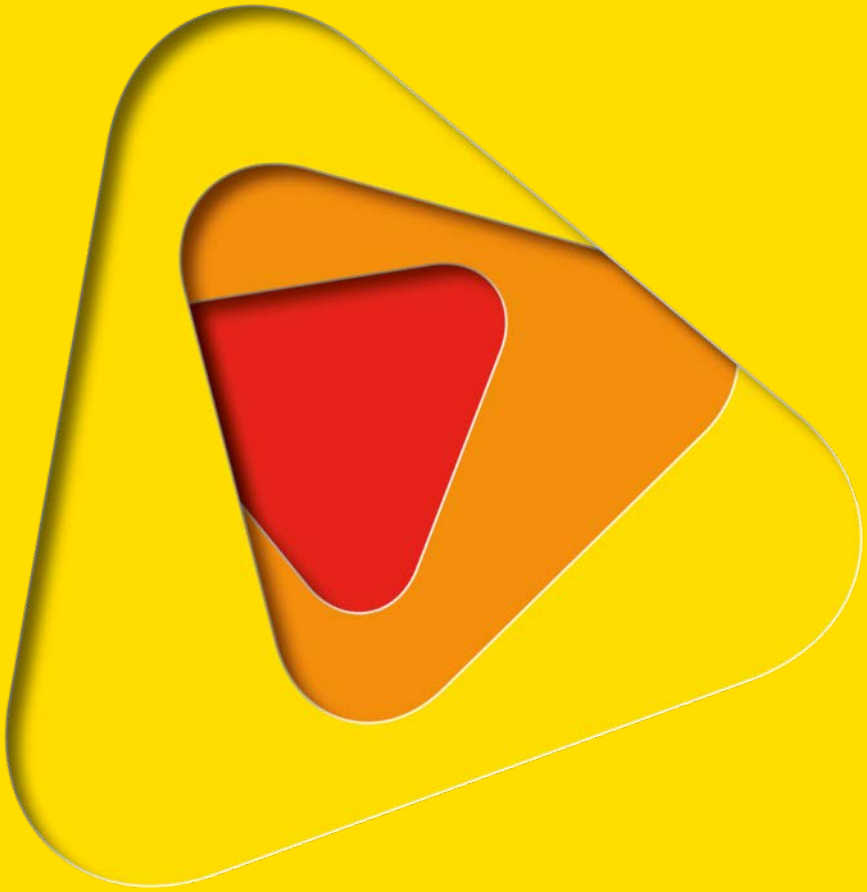

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ABSTRACT

This paper will look at the aspects of the character and balance of disaster risk reduction behaviour and resilience in island contexts focusing on the case study of Pulau Simeulue (Simeulue Island).

The paper is in four parts, each setting out a context for understanding the relevance of islands for disaster risk reduction. The first will introduce the case study of Simeulue and its relevance to our understanding of disaster risk reduction ('DRR'). The second section discusses the way in which islands have a special place in individual and community narratives and perceptions. It is argued that, far from being esoteric matters, the fact that we are capable of documenting different and deep-seated perceptions can lead to some wider lessons about mechanisms to build community resilience. The third section considers a biogeographic model of islands and the role they have played in the natural world, but also the how we have come to understand that world. Through a close examination of variability on and between islands we have come to a deeper understanding of biology generally. This context potentially lends itself to a wider understanding of DRR. Finally it will identify some of the specific properties of island communities that make them worthy of deeper consideration for a better understanding of DRR and growing community resilience in 'mainland' contexts.

ISLAND CASE STUDY: PULAU SIMEULUE

Pulau Simeulue is an island is 150 km off the south-west coast of Sumatra. With a total area just over 2000 km^2 its current population is 85,000. Simeulue is part of the Aceh Special Region and is predominantly a Muslim community, but given its remoteness and isolation it has been largely unaffected by the separatist conflict with the Indonesian government. Simeulue is located near the margin of the Eurasian tectonic plate and the subduction zone of the Indian/Australian plate. This results in the island and nearby areas being subject to regular earthquakes, and occasionally tsunami. The proximity to the source of the earthquakes meant that Simeulue was the first landfall for the Indian Ocean tsunami in 2004. Despite the proximity of the island to the source and the fact that a great deal of infrastructure was destroyed by the wave, only a handful of people died. In contrast, neighbouring mainland localities of similar size had tens of thousands of casualties.

The United Nations praised the community for Pulau Simeulue for maintaining their traditional knowledge and using that as the core of their disaster risk reduction strategy. The narrative regarding the success of the response to the 2004 tsunami revolves around the retention of knowledge of a similar event that occurred in 1907. This earlier disaster caused the loss of a great many lives with repercussions for generations in the small and isolated population. The story of how to recognise the conditions for a tsunami and what to do about it have been kept alive for the intervening one hundred or so years with everyone 'running to the hills'.

While this narrative is certainly true, it is not in a real sense an explanation of the success of the people of Simeulue. There are of course many other island communities who have strong local knowledge and rich traditions that include instances of disasters. There are other communities that are Muslim, agriculturalists, in remote areas, with little formal emergency management support from the central government. And there are many examples where these communities were devastated, or indeed obliterated by disaster.

Further, the fact of the maintenance of the local tradition is referred to, but there is no indication of how this information was maintained and transmitted effectively and accurately. Most societies struggle to maintain a clear message over a generation let alone 100 years. New information or perspectives invariably arise and old and new information contest for relevance in changing social and political contexts. The rise of technology during the period in question has had a profound influence in even the most remote parts of the world. Why did this not impact upon the maintenance of the story of tsunami on Simeulue?

In addition to merely transmitting the correct information over four generations, the Simeulue community managed to transmit the metadata about the importance to act upon the disaster narrative. To contextualise this one need only think about the response to a fire drill in one's workplace. The fact that all members of the workplace understand what is required does not necessarily translate into prompt or appropriate action. On Simeulue, 97 years after the initial disaster and despite the fact that earthquakes occur every year, everyone on the island stopped what they were doing and immediately made for the escape route.

There are a range of other specific areas of interest in the Simeulue story stemming from the fact that earthquakes occur every year and major earthquakes over 6.0MMS are also frequent. Despite the regular shaking, the community did not appear to suffer from 'warning fatigue' or complacency.

Seeking deeper answers to the questions raised by the case study of Pulau Simeulue has the potential to inform how agencies and communities work together to build resilience and strengthen DRR. While islands are actually physically separated from other communities and this informs perceptions and identity, all communities can be characterised as separate in some fashion. Thought might then be given to identifying how the mechanisms by which Pulau Simeulue kept itself alive might be adapted to other communities elsewhere.

POPULAR PERCEPTIONS AND THE ISLAND

While the ultimate objective of DRR must be a hard-headed attention to saving lives, there is a growing sense that building resilience requires emergency managers and planners to engage with the social, cultural and psychological forces that inform and influence human behaviour. These are the things that result in individuals and communities preparing for disaster and taking the appropriate response action when disaster strikes. Narratives are an important element of this understanding of what influences whether people prepare. With this in mind some consideration of the narrative of islands is presented to set some context for research into island DRR.

At a basic level islands are at once mysterious and remote but none-the-less desirable and attractive. In literature and popular culture they are isolated Edens that can be an idyllic vacation or a home of head-hunters. Their remoteness lends them an element of danger, from the risk of stranding to attack by locals and any trip to an island is an adventure. Islands are inexorably defined by their otherness, their inhabitants proud to differentiate from and remain wary of mainlanders. And this seems to be scalable, from small communities like Magnetic Island off Townsville, to the State of Tasmania to nation states such as the UK or Japan, there is a vigorously pursued island tribalism that mainlanders disrespect at their own peril.

Against this narrative risk islands are places filled with possibilities and have for centuries been a popular setting for fictions involving rare and wonderful creatures, people and events; from Robinson Crusoe to Gulliver in Lilliput. In the Crusoe story

the island is an exile but also a romance as the possibility is presented to the shipwreck survivor that he may do more than just survive, he may thrive grow and learn. This sense of the island as a haven for literate experimentation is taken to a logical extreme when a mad scientist wishes to conduct experiments that he knows would not pass even the lowest moral or ethical standards. In the Island of Dr Moreau, in an effort to improve on nature, the eponymous anti-hero instead makes monsters which are, fortunately, a long swim from the mainland.

This may seem a long way from the concerns of time-poor disaster managers or state authorities with limited budgets trying to make cost-effective investments to reduce disaster risks. But in the discussion of the nature of our understandings of islands the reader will recognise deep-seated perceptions that influence their own decisions and colour the way specific decisions are made about things like risk, necessity and capacity. That is, how do our perceptions of things affect our feelings of what risks (in going to visit an island say) exist, what things are necessary to minimise risks and what capacity an individual or community has to implement risk management measures.

BIOGEOGRAPHY AND THE ISLAND AS EXPERIMENT

Island biogeography has long been a source of fascination and insight in the natural sciences. Limitations on resource availability in island contexts and the lottery of the range of colonising species lead to a diversity of ecologies that reflect the nearest mainland but which are inevitably unique. Each of these separate creations appears as an experiment in ecology with adaptive radiations as colonising species diversify to take advantage of a range of newly available ecological niches. At the same time processes characterised as convergent evolution result in diverse colonising species adopting similar forms to take advantage of similar niches or cope with similar stresses. The diversity of unique flora and fauna range include adaptive radiations of flightless birds in New Zealand, marsupials in Australia, dwarf hominins in Flores and different giant tortoises on each of islands of the Galapagos.

Indeed, the Galapagos archipelago with its endemic but similar species of finches, iguana and tortoises led directly to the formulation of the modern understanding of evolution. That is, the close study of the unique ecology on different islands led to the most powerful explanatory tool available to modern biology.

The observation of islands and their ecology has also contributed to an understanding of a concept that might be described as ‘balance’. Over relatively long periods of time, ecological relationships became established that settled, more or less, into equilibrium states. In the modern era, the age of exploration and travel has led to the invasion of most islands by mainland (and sometimes other island) species with profound negative consequences for that equilibrium. Island communities have suffered the greatest extent of species loss as invasive species out-compete locals adapted for the specific conditions that pertained. Humans have been a part of this process, on occasions with catastrophic consequences. For example he denuding of Rapa Nui by the cult of the Moai led to the decimation of the population and the starvation of those who remained. Unable to escape or seek resources from outside, the inhabitants were forced to make radical cultural and economic changes in order to merely survive.

The biogeographical approach to islands therefore provides another context for understanding DRR and resilience. The unique arrangements put in place by local communities and the ‘balance’ that those solutions exhibit; the interplay between

culture, economy and natural hazards offer an opportunity to better understand the mechanisms for growing resilience. Conversely, the mechanisms of human agency that turn natural hazards into disasters can be teased out with greater clarity in island contexts that on the mainland. While it is not expected that the research will generate the 'most powerful explanatory tool' in DRR, it seems reasonable to expect more humble advances might be made.

ISLANDS AS CHARACTERS

Research into DRR in island contexts does seem to identify a range of traits that could contribute to DRR and may underpin the successful disaster response on Pulau Simeulue. Having said that, it must be recognised that there are many examples of island communities devastated by disasters. This includes island struck by the 2004 Indian Ocean tsunami. Famously tourist destinations such as Phuket do not seem to have benefited from being islands in any sense.

It is the case however that of the few examples of excellent DRR behaviour leading to the saving of lives, islands such as Simeulue feature strongly. Examples include Taiwan, Laingpetahi (Indonesia), the Andaman and the Solomon Islands, in addition to Pulau Simeulue. It has been suggested that, the factors that lead to the islands 'difficulties' also lead to adaptation and innovation. In character these communities in these studies tend to be:

- Small
- Remote
- Isolated
- Neglected / overlooked
- Doughty
- Self-possessed
- Resourceful
- Knowledgeable of local conditions

The Pulau Simeulue case study is seeking to tease out the degree to which these character traits are 'real' and what that looks like, or if they are perceptions and the extent to which it matters. Identification of the factors 'real' or 'perceived' which lead to DRR and community resilience from this island and others offers a real potential for disaster managers and agencies and communities to develop tools to assist the development of disaster resilience.

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