DISASTER RESILIENT HERITAGE: REPORT POST EROSION MONITORING AT THE ARCHAEOLOGICAL HERITAGE OF NIAH NATIONAL PARK'S CAVES COMPLEX A UNESCO WORLD HERITAGE SITE

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ABSTRACT

In 2025, the Archaeological Heritage of Niah National Park's Caves Complex, recently inscribed as a United Nations Educational, Scientific, and Cultural Organization (UNESCO) World Heritage Site, had been hit by two natural disasters. Prolonged days of raining caused a flood event, subsequently followed by erosion. The flood event damaged infrastructure that comprised the customer service centre, accommodations, walkways, and trail that played an important role in safety and mitigating tourism impact. The core archaeological zones such as Traders' Cave, Great Cave and Painted Cave remained unaffected by the flood event. However, the erosion is putting the archaeological site and its fencing at risk. Thus, this event increased the risks towards the integrity of the archaeological site and indicated that the current condition of infrastructure is vulnerable to impact from natural disaster. This article serves to share the implementation of a disaster risk management plan by Sarawak Forestry Corporation, Sarawak Museum Department and relevant agencies. It describes the preparedness immediate response, and post-disaster recovery strategies.

Keywords: flood, surface erosion, Niah Caves, UNESCO World Heritage, disaster risk management plan, rescue archaeology

INTRODUCTION

On 31st July 2024, Niah National Park was officially designated as a UNESCO World Heritage Site under the name The Archaeological Heritage of Niah National Park's Caves Complex. This prestigious recognition marks a significant milestone in Malaysia's efforts to preserve its rich archaeological heritage, while also affirming the site's global importance in history and culture.

The Archaeological Heritage of Niah National Park's Caves Complex is the second UNESCO World Heritage Site in Sarawak and the fifth in Malaysia. The designated boundary aligns with that of the national park, ensuring comprehensive protection of both its archaeological and ecological treasures. This recognition strengthens conservation and management efforts, safeguarding the site's invaluable cultural and natural heritage while fostering continued research for future generations.

Sarawak Forestry Corporation (SFC) & Sarawak Museum Department (JMS) are government institutions responsible for implementing legal provisions in managing this UNESCO World Heritage site. SFC functions as the main coordinator while JMS is responsible for the preservation of cultural heritage. In the Integrated Conservation Management Plan (ICMP), there is a Disaster and Risk Management Plan (DRMP). The 2010, World Heritage Resource Manual: Managing Disaster Risks for World Heritage defines three critical stages of risk management: before disaster (preparedness), during disaster (response) and after disaster (recovery) (Figure 1).

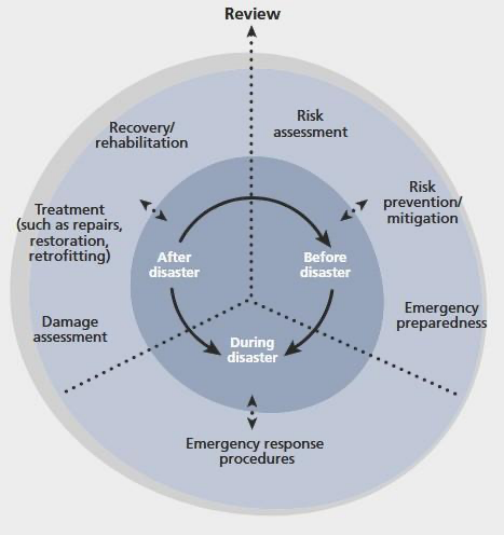

Figure 1: Disaster Risk Management Cycle (Source: World Heritage Resource Manual : Managing Disaster Risks for World Heritage)

A disaster risk management plan (DRMP) for the Archaeological Heritage of Niah National Park's Caves Complex was prepared as required by the World Heritage Convention adopted in 1972. It acts as a supplement to the Integrated Conservation Management Plan where it details the concept and methodology in managing disaster inside the heritage site in Niah National Park. In accordance with the DRMP, flooding has been identified as one of the natural hazards with low risk of impact. The impacts of flooding include altering access routes to caves,

trails and archaeological sites. In addition, flooding would also damage the infrastructure and consequently increase risk to the archaeology. At the end of January 2025, Niah National Park and its surrounds were hit by a major flood (Figure 2). The large number of rainy days that occurred since the beginning of November 2024 (Sarawak Tribune, 2025) have resulted in a significant frequency of fallen trees along trails that had led to a major damaged path walk infrastructure in January 2025 (Figure 3). The rain concluded with a massive flood that subsequently caused erosion inside the Great Cave (Sarawak Forestry Corporation, 2025).

Figure 2: The Niah National Park compound flooded (Photo: M Sherman, 2025)

Figure 3: Pathway submerged underwater (Photo: M Sherman, 2025)

Erosion at the mouth of Great Mouth has been previously reported through archaeological studies. It is referred to as the guano mass movement that occurred between 37,000 and 35,000 years ago (Dykes. A, 2016). Five scenarios were proposed for the West Mouth guano flow: (1) shear failure due to saturation in water; (2) shear failure due to seismic disturbance; (3) shear failure due to seismic disturbance and (partial) saturation; (4) shear failure due to excavation or erosion lower part of the slop; and (5) flow failure of the guano due to surface wetting or hydrocollapse (Dykes. A, 2016). This event is critical in the stratigraphic interpretation at the Great Mouth, as are the related human activities at that time. The landslide event at the mouth of Great Mouth this time is a phenomenon that can generally alter the original stratigraphy and subsequently the integrity of this world heritage site.

THE OBJECTIVE OF THE STUDY