パプアニューギニアにおける予防的保存の改善

IMPROVING PREVENTIVE CONSERVATION IN PAPUA NEW GUINEA.

スターレン ジェトロ トゥルプル
STALEN Jethro Tulupul

1. Introduction.

Like many developing countries in the world, Papua New Guinea has its challenges that are affecting the heritage collections on irregular basis. The challenges that are faced by the museums has caused deterioration on the tangible heritage collections that are held within the museums.

This research is mainly about preventive conservation in museums in Papua New Guinea. As per the theme of the research "Improving preventive conservation in Papua New Guinea," this research outlines few prospects for identification of the needs for the improvements to be made for museums in Papua New Guinea. From this research, some solutions can be identified from literatures, museums visits in Japan, and interactions with museums professionals.

2. Research Purpose.

There are visual or physical evidences that indicates high presence of the agents of deterioration in the museums in Papua New Guinea. However, the visual evidences that are present within the museum buildings must be investigated with concrete results of proof through scientific approach of investigation. Through the investigation, those factors (agents of deterioration) that are affecting the collections can be known. The investigation will also reveal the state of the collections within the museums. With the results, there can be proposals about the type of approaches that can be taken to address the deteriorating state of the collections.

3. Research Methodology.

The methodology of the main study on the preventive conservation in the Papua New Guinea National Museum comes in 3 methods. This is basically the general setup of how the whole study program was carried out, however, there are different sections to this study that requires its own methodology. These type of surveys will be briefly introduced in this section. The 3 main methods of study includes:

(i) Literature survey: About 22 journals from various fields including Journal of Cultural Heritage (2), Building and Environment (1), Environment International (1), Atmospheric environment (1), Studies in Conservation (12), Oceania (1), Monographae Biologicae (2), Pacific Science (1), and Journal of Museum Ethnology (1) were reviewed in a period of 4 months.

(ii) Visits and Questionnaire: 3 Questionnaires were administered to 3 different museums (Edo Tokyo National Museum, Chiran Peace Memorial Museum, and National Museum of Japanese History).

(iii) Issues in Papua New Guinea National Museum and Art Gallery (Temperature, Relative Humidity and Pests). The issues in Papua New Guinea is the main highlight of the research as part of the scientific approach towards identifying the state of the collections and therefore the methodology is according to instruments used and the approach. The issues are referred to as Case Study 1 (Temperature and Relative Humidity) and Case Study 2 (Pests).

(1) Case Study 1 Methodology: Temperature and Relative Humidity.

Three (3) HoboPro data loggers were installed in 3 different locations of Papua New Guinea National Museum and Art Gallery (Storeroom 2, Exhibition space and Office area).

For this research discussions, the working data is for 12 months beginning from 1st April 2020 (2020/04/01) at 00:00 hours (12am) to 31th March 2021 (2021/03/31) at 23:00 hours (11pm). This will be the only data used in the discussion because it represents the data for 1 year (12 months).

(2) Case study 2 Methodology: Pests.

The sticky pest traps were installed in several targeted areas of the Papua New Guinea National Museum and Art Gallery (Storeroom 2, Exhibition space, and Office area). The sticky pest trap is installed parallel to the wall basically to determine the directions at which the pests are moving. The monitoring period of each pest trap has a maximum timeframe of about 3 months.

At the University of Tsukuba, the samples were observed using the Keyence Digital Microscope VHX-900 and the microscopic photographs were sent to the University of Tsukuba Entomology Laboratory for identification. The samples were sent to Fumakilla Pest Company based in Hiroshima for spider species identification.

4. Results.

(1) Results - Case study 1: Temperature and relative humidity.

Case study 1 results General results summary.

The results of the HoboPro data loggers indicated that there seem to be high RH all throughout the year. The atmosphere seem to be moist all throughout the year. The minimum average for the 3 locations is 67.68% which is above the standard environment for the tangible heritage collections in the museums. Basically, it can be assumed that there seem to be water vapour in almost 2/3 of the entire monitoring period.

The results have generally indicated to us that the internal environment is moist almost 2/3 of the monitoring period and that has given rise to a lot of issues associated with the damp environment such as mold, lichens, or even pests.

(2) Results - Case study 2: Pests.

The first sets of the results of the sticky pest traps comes from the photographic identification of the pest photos taken by the conservation laboratory microscope and sent to the University of Tsukuba's Entomology Laboratory for pests/ insects identification. The second sets of the results comes from the Fumakilla Pest Company in Hiroshima. However, the second set of results are only for spiders and not for other pests/ insects.

(i) First sets of results.

The pests that were identified on first set of result includes booklice, termites, millipede, springtail, black garden ants, fly, geckos, etc.

(ii) Second sets of results.

There are about 3 different species of the spiders identified so far. The 3 species are (Microneta formicaria, Phocus phalangioides, Termitidae).

Spiders' significance: Some spiders can live indoors if there are sufficient insects for them to eat, indicating housekeeping/pest control are inadequate. Other spiders may enter from outside especially in autumn, indicating poor building proofing (Notton 2018).

5. Conclusion.

The findings of this study has clearly indicated to us that the collections at the Papua New Guinea National Museum and Art Gallery is in a very bad state. As we noticed in the case the studies, about 2/3 of the entire survey period has indicated moist atmosphere in the microclimate (Case study 1). We also noticed that there is still evidence of live pests in the building that are living within the collections or are moving inside the building from the external environment (Case study 2). Because of those results, we make proposals or recommendations for the Papua New Guinea National Museum to take into consideration.

6. Recommendation

There are some recommendations or 'propositions' where Papua New Guinea National Museum needs to consider in the short term and in the long-run for the collections to be well preserved. Some of those propositions includes the Integrated Pest Management System (IPM), museum's buildings or walling refurbishment, overhauling of the Humidification/Ventilation/Air Conditioning (HVAC) System, and the improvement on the micro-environment.

References

Notton, D.G. 2018. Identifying insect pests in museums and heritage buildings. 2nd Edition. The Natural History Museum, London.