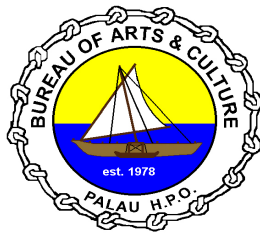


**International Training Course on
Disaster Risk Management of Cultural Heritage 2010**

Kyoto, Kobe, and Sasayama (Japan)
5th Cycle: 13th-26 September 2010

**Palau Report: Disaster Risk Management for
Bai ra Irrai (Traditional Chief's Meeting House)**



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September 2010

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INTRODUCTION

To date, the Bureau of Arts & Culture does not have guideline in place towards the effective measures to take aimed to disaster risk management of cultural heritage. The Bureau's office of the Palau National Register of Historic Places supervises the Palau Research Library which stores important documents, photos, tapes, reports from Palau and other regions of the Pacific. It is essential that the Palau Research Library establish a disaster risk management guideline for the proper disaster assessment, salvage, and preservation of its collections in the event of fire, flooding, or structure collapse due to typhoons.

In addition, the entire building structure that houses the Bureau of Arts & Culture, the Civic Center Building, is also prone to such disasters. Besides the Palau Research Library, other sections within the Bureau also contains valuable and sensitive information such as oral history documentation, archaeological database, survey equipments, artifacts, maps, and other numerous collections.

Other structures that are of significant importance to the overall Palauan architecture, design, form, shape, and so forth to the Palauan traditional culture does not have a disaster risk management plan. Now therefore, with the aid of this training course, the Bureau of Arts & Culture can gain valuable experience to help local state municipality develop their specified disaster management plan for their highly significant cultural heritage structures.

This report will use the example of the *Bai ra Irrai* which is a traditional Chief's meeting house that are located in various states throughout the Republic. These meeting houses are used by the traditional chiefs of the concerned village to discuss important social and cultural matters of their state and village. Each village has a bai structure. To date, there are only four traditional bai standing and in use by the village chief's.

The report outline will begin with the general geography of Airai State, describing the *Bai ra Irrai*, the actual structure, and then followed by the disaster management plan. Also included in this report are photos and maps to aid in visual orientation of the bai structure and other components.

B. Geography

Airai State is the southern most State located in Babeldaob island, including several limestone Rock Islands. Airai is bounded in the northwest by Aimeliik State and in northwest with Ngchesar State. Modern settlement concentrates along the south coast leaving large area in the interior uninhabited. At the southeast corner is a large and shallow Airai bay. Ngerikiil river with its tributary rivers including Kmekumel and Edeng rivers drained the southern interior of the State to Airai Bay. Ngerimel river which supplies water to Oreor drained the south-central area of Airai State. The east and the west parts of the State have short and steep drainages. The interior is covered with rolling hills predominantly covered with forest. The coastal area is covered with savannas and short vegetation. Thick fringe of mangrove swamps cover the coastal line. The limestone Rock Islands are located in the south coast of the State. The Toachel Mid channel separates Airai State and the rest of Babeldaob island from the Oreor State.

Under the Airai State constitution, the State is comprised of six regions. From east to west, these are Ngchesechang, Oikull, Irrai, Ngerusar, Ngeruluobel and Ngetkib. Ngchesechang region is the northern most part on the east coast. The region is drained by several rivers into Ngerngesang bay. The modern settlement of Ngchesechang consists few houses around the traditional village of Ngchesechang south of bay. Oikull region occupies the southeast part of the State including several limestone Rock Islands. Several villages in the region are still inhabited. Irrai region occupies south central area of the State and on the west side of Airai bay including several limestone rock islands. The modern settlement concentrates around the Irrai traditional village, Yelch and Ked areas. The Ngerusar region occupies the south central area of the State and west of the Irrai region. It contains most of the Rock Islands where many sites are located. The modern settlement occupies an area where the traditional village site is located at the intersection to the airport. Several houses dotted both sides of the road to Airai elementary school. The Ngeruluobel region is located at the west side of Ngerimel river. The modern settlement had moved to the coastal area below the traditional village of Ngeruluobel. Ngetkib region is the western most area of Airai State. Residential houses of Ngetkib are scattered along the road from KB bridge to Ngeruluobel area. Several houses dotted both sides of the dirt road that goes northwest at the intersection to the KB bridge.

Source: Olsudong, Rita et al. 1997 Draft: Inventory of Cultural Sites and Oral History in Melekeok and Airai States. Palau: Division of Cultural Affairs, MCCA. Pp 52

About the Bai ra Irrai

Bai ra Irrai (Traditional Chief's Meeting House) is the last remaining traditional style *bai* in Palau. It is presently listed on the Palau National Register of Historic Places (October 1989) as well as listed on the U.S. National Register of Historic Places during the Trust Territory era.

Bai ra Irrai was renovated in 1984. Several components of the old *bai*, said to be at least 180 years old by the village elders, were used in the new structure. The *bai* is 68 in length, 20 feet wide and 40 feet high and sits on a stone platform of basaltic boulders. Only ancient, traditional methods were used in the renovation, which included replacement of wood components, thatch roof and paint.

Bai ra Irrai was originally located on a stone platform in an area referred to as *Sebuu*, approximately 200 meters east of the present location. Oral history goes on to describe how long ago, the *bai* was dismantled and moved from *Sebuu* to its present site before western contact.

The relocation was precipitated by the sudden death of two or three village elders, which occurred in a rapid succession on different days, without explanation.

The stone platform directly west of the main entrance to the *Bai ra Irrai* is known as *Okeuid el Bad* (platform of 70 stones). German ethnographer Augustine Krämer referred in his report (*see appendix for map, fig.1*) to the meaning as “70 Strong Men”. On the platform’s center, one can find a boulder with a series of parallel grooves said to “*show the finger markings of a spirit*” – *Medechiibelau*. Directly northwest of the platform is the stone monolith said to be seating place or back rest for *Medechiibelau*, Irrai’s deity or spirit. The stone on top of the monolith is said to be *Medechiibelau*’s rooster.

One of the most predominant features of the *Bai ra Irrai* central area are the stone paths leading out of a central circle. *See photo below.*



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The Structure

Bai ra Irrai was constructed on an elevated stone platform with eight bad (sleepers) at its base. The largest bai known was constructed using ten bad. Historically, the preferred wood for bai construction was *dort* (*Intsia bijuga*, iron wood), a Palauan hardwood. Construction materials were usually collected throughout Palau and brought to the building site for the construction of the bai. Often, parts of the bai were actually built where the materials were found, and then disassembled for transporting to the actual building site. *Irrai Bai photo below*



Held together by joints, (though grooves and notches made by hand with simple tools) and lashing, the entire bai structure is secured without the use of a single nail, metal screw or peg. Bamboo shafts, beams and other woods are lashed atop of the main structure components for the roof's frame (*see appendix, fig 2*).

Thatching is made from bundles of nipa palms leaves (*teuechel*), *Nypa fruitican* and bamboo strips (*olukl*). Folded in half over hundreds of bamboo strips, the two materials were sewn together, using bamboo needles and fiber (*oluu*) obtained from the bark of *Ermall/Tebudel* (a type of hibiscus tree) and *Orredakl ra chelebachab/risel* a *chertochet* (a type of pandanus tree).

Significance:

The significance of the Bai ra Irrai which made it eligible for entry in the Palau National Register of Historic Places as well as the U.S. National Register of Historic Places are: (1) Associated with the events that have made a significant contribution to the broad patterns of Palauan history; (3) Associated with lyrics, folklores, and traditions significant in Palauan culture, (4) Embody the distinctive characteristics of a type, period, or method of construction, or that represent the

work of a master, and (5) Have yielded, or may be likely to yield information important in the overall history or prehistory of Palauan culture.

Proposed Disaster Management Plan of the Airai Bai

Objective:

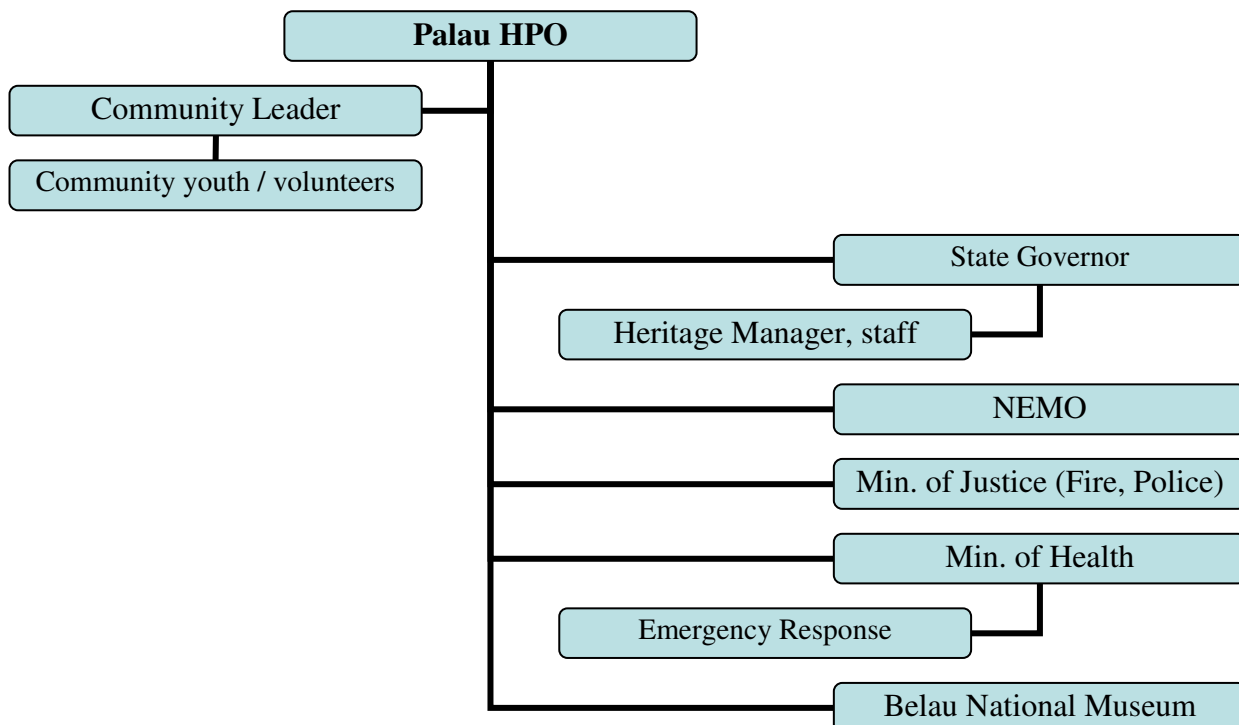
- To set up an effective DRM plan for the continuous safety, health, and preservation of cultural heritage property
- To ensure that local state government and community take proactive role in site management and protection

Target:

- The aim is to spread the awareness of disaster risk management and response for cultural properties through the efforts and cooperation amongst and between the local state governments, youth groups, tourism agencies, students, as well as the general public.

Responsible Agencies:

- Proactive agencies responsible for the immediate response during a disaster is as follows: Local community leader (on site first response) → immediate contact to Palau HPO and State Office → Palau HPO contact NEMO, MOJ, MOH, BNM



The *Irrai Bai* is constructed using local materials that are highly prone to fire. Any immediate response is highly necessary for the eradication of the fire otherwise the entire structure will disintegrate in less than an hour of intense burning. Heavy rain can cause a lot of damage to the structure. The thatch roofing can collapse to the interior of the *bai* causing all the beams to collapse as well. Other natural elements such as typhoons or heavy storm surges can also devastate the structure.

The following steps below will attempt to provide the essential procedures needed for disaster response incase such an event occur.

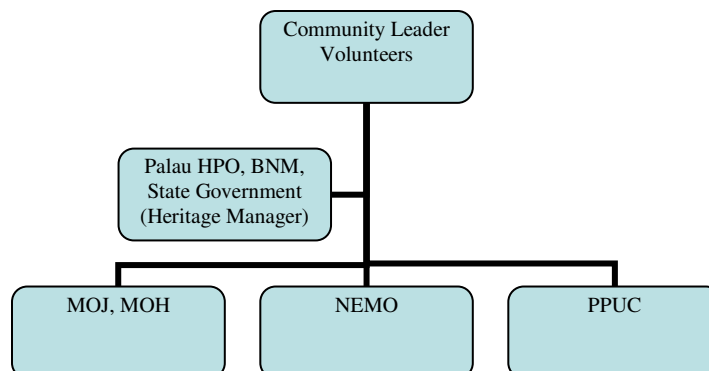
Disaster Response Procedures

► **Health and Safety** is the first priority in a disaster or emergency.

If the bai structure is currently in use during the time of disaster, the Airai State personnel or lead community group shall:

- ✿ Follow evacuation routes to clear the building either front of back entrance pending on the source of the disaster.
- ✿ Safe assembly area is the stone circle path in the left side of the structure.
- ✿ Staff personnel/community group will ensure that all visitors are evacuated safely
- ✿ Staff personnel/community group will maintain security of the structure and safety of all visitors by not allowing public inside until dangers are assessed.
- ✿ Wait! Ensure through proper authorities that all health/safety hazards have been cleared before entering structures

Communications Networking:



- ✿ Airai State Governor and *Ngarairrai* Chief will be the communications coordinators in an emergency. They will make appropriate calls and maintain communication with staff, other agencies, and community volunteers.

Documentation and Public Relations

- ✿ Take pictures and note to document damage to the building and collections
- ✿ Liaison with media and the public if needed

Collection Assessment and Salvage

- ✿ State personnel and designated staffs (from BAC) will be the coordinators for salvage of the collections.
- ✿ Evaluate extent/types of damage to materials and resources needed for response
 1. Document with photos, videos, notes
 2. Assess damage to structure, materials, and collections
 3. What type of emergency was it (i.e. fire, smoke, chemical, humidity, and flood?)
 4. What areas are affected?
 5. How much of the collections are damaged?
 6. What types of materials are damaged?
- ✿ Halt any further damage to collections or materials
- ✿ Set up dry “staging area” for salvage of materials
- ✿ Develop salvage procedures based on assessment of damage i.e. air dry, freeze, etc
- ✿ Maintain inventory of packed and moved materials.

Vulnerability (weakness)	Hazard (source)	dggdsg	Loss of Value	
No alarm / security system	Arson, theft, vandalism, looting, etc	Fire, structural damage	Community connection, economical loss, financial burden to state government – cost of repair and damage	authenticity, integrity, cultural environment and landscape, feeling
Wood structure itself	Rodents, animals, insects	Structural damage, collapse of member parts, fire, sparks, feces		
Maintenance / Management	Improper / poor electrical system	Spontaneous spark – fire		
Other agent of deterioration	humidity, erosion, typhoon, drought,	Structural damage and collapse, corrosion of roofing, molds, rotten members, etc		

Recovery Planning

Priority level	Recovery Activities	Actors	Human Resources needed	Financial Assistance
Immediate (high priority)	-inventory and documentation -preservation of surviving materials	-community members from concerned, state heritage office, assistance from Palau HPO	Local architect Historian Community elders from village	LOW – Local funding
Short term (medium priority)	-collection of oral history -design of new structure	“	Local architect and artist Community elder	MEDIUM – Local and National Government
Long term (low priority)	- Actual reconstruction (?)	“	Local architect, artists, craftsman, community youth groups, volunteers	HIGH – Local and National Government, US NPS, MEHP

Implementation Strategy

S. No.	Program / Project / Activity	Responsible Agencies	Roles and Responsibilities	Time Period
1.	Fire Hydrant	Public Works, MOJ – Fire Department, Donor Agency	Funding, Survey and install, training	2 months
2	Workshop / forum, signage, lighting	Palau HPO, BNM, State Government, MEHP	Site management, protection, education, training	Perpetual (1-2 states/year)
3	Development tourism friendly environment	State Government, Palau HPO, PVA	Information center, provide brochures, posters, personnel,	6 months
4	Emergency Drills	MOJ, MOH, NEMO, State Office, Palau HPO, Community	Provide training in a emergency drill – planning, protocol, assessment, recovery, etc	Twice a year
5	Maintenance Plan and Security	Palau HPO, State Government, Community	Provide regular maintenance, monitoring of site	Perpetual

Reference Cited:

Carrucci, Jim

1984 Archaeological Survey of the Bai-ra-Irrai Phase I

Ehrlich, Paul

1984 Koror: A Center of Power, Commerce, and Colonial Administration. Micronesian Archaeological Survey. Report Number 11. National Parks Service. Saipan

Krämer, Augustine

1919 Ergebnisse South Seas Expedition 1908-1910

Olsudong, Rita and Calvin T. Emesiochel

2004 Inventory of Cultural and Historical Sites and Oral History in Melekeok and Airai States: Vol. I: Inventory of Cultural and Historical Sites. Palau: Bureau of Arts & Culture

Snyder, David

1985 An Archaeological Survey of Koror State, Republic of Palau. Center for Archaeological Investigations. Illinois: Southern Illinois University

APPENDIX



Above photo shows modification within the interior of the bai which includes electrical wiring which is a possible hazard for fire.

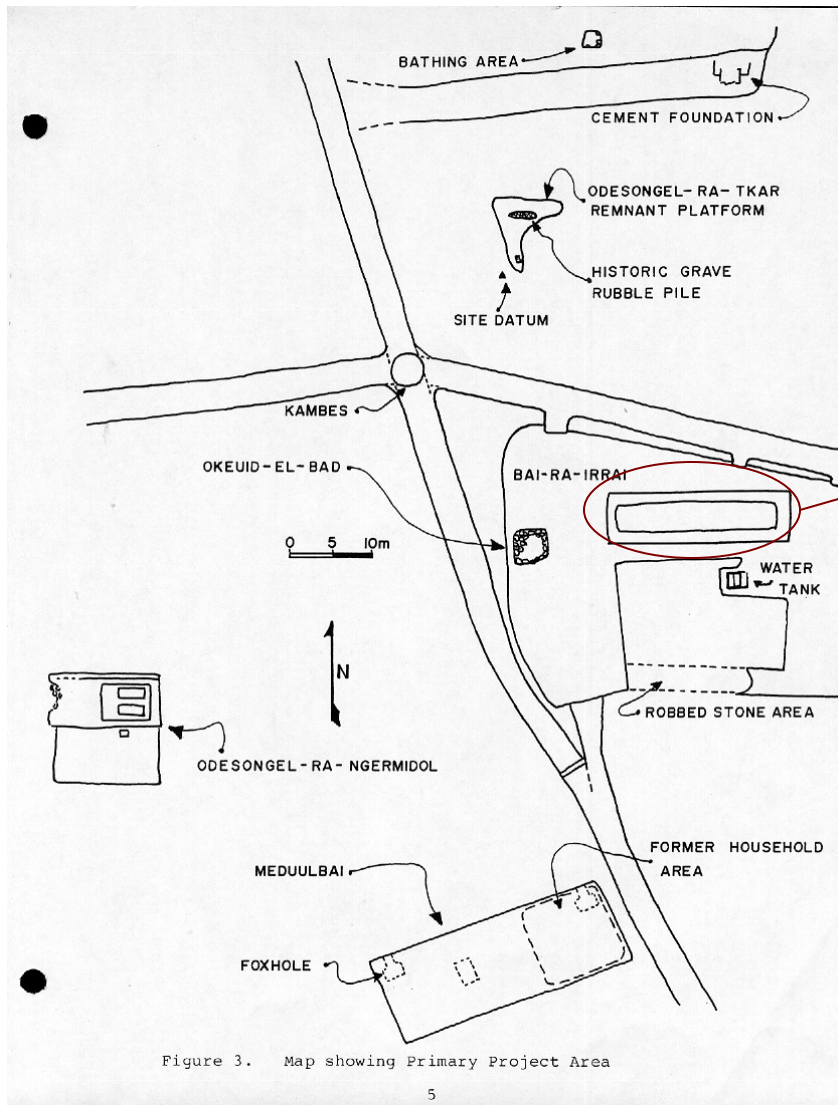


Fig 1: Map of structure area and its associated features. Note the KAMBES which is the circle resting place where the four stone paths merge out from.

Fig.



2: Roof thatching *Airai Bai*



Above Photo: Inside of the Bai contains a series of oral history collections carved in wooden boards as part of the structure. These oral history collections highlight different significant events and are highly important to the overall history of the state.