



JCIC-Heritage

2010 Survey for International Cooperation  
Japan Consortium for International Cooperation in Cultural Heritage

**Survey Report on the Present State of Nan Madol,  
Federated States of Micronesia**





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Japan Consortium for International Cooperation  
in Cultural Heritage



## Foreword

1. This is a report on the fiscal 2010 survey conducted by the Japan Consortium for International Cooperation in Cultural Heritage in regard to the archaeological site of Nan Madol in the Federated States of Micronesia.

2. The following members were responsible for writing each of the chapters of this report.

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Editor: Tomomi Haramoto, Japan Consortium for International Cooperation in Cultural Heritage



## **Preface**

The Japan Consortium for International Cooperation in Cultural Heritage (JCIC-Heritage) collects information in various forms to promote Japan's international cooperation on cultural heritage. Under this scheme of information collection, a cooperation partner country survey was conducted in the Federated States of Micronesia (FSM) in fiscal 2010, as presented in this report. It was conducted in response to a request from the UNESCO Apia Office, to provide a foundation of information that would facilitate the first steps toward protecting Nan Madol, the largest cultural heritage site in FSM.

Cooperation partner country surveys are one of the primary activities of JCIC-Heritage's initiatives for international cooperation. They particularly focus on collecting basic information to identify fields of cooperation and their feasibility in a relevant partner country. As of fiscal 2011, cooperation surveys have been conducted in Laos, Mongolia, Yemen, Bhutan, Armenia, Bahrain, and Myanmar, and have effectively assisted Japan's role in international cooperation. The recent survey in Micronesia is also already being linked to international cooperation efforts, with local workshops being held and resulting in historical achievements based on proposals derived from the survey.

We hope this report will help promote Japan's international cooperation on cultural heritage in the future, as well as help promote initiatives for protection of Nan Madol.



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## 1. Overview of the Survey

### 1-1 Survey period

February 17 – 25, 2011 (actual stay in Micronesia: Feb. 18 – 23)

### 1-2 Survey members

Osamu Kataoka (Professor, Kansai Gaidai University)

Tomo Ishimura (Researcher, Nara National Research Institute for Cultural Properties)

Tomomi Haramoto (Research Fellow, Japan Consortium for International Cooperation in Cultural Heritage)

### 1-3 Survey background

Nan Madol belongs to the island of Pohnpei in the Federated States of Micronesia (FSM). It is the ruins of a megalithic culture, composed of 95 small to large artificial islets made of basalt and spread over a rectangular area approximately 1.5 km by 0.7 km. Its construction is said to have begun around 500 A.D. and continued to around 1600 A.D., with royal palaces, temples, royal tombs, and residential districts integrally forming a city complex. Gradually created over a long period of time in history, Nan Madol is considered an important reference for unraveling the history of the Pacific region, and is said to have high academic value. As the largest cultural heritage site in FSM, it is also a precious tourist resource. However, notwithstanding its extremely high significance in terms of academic value and as a tourism resource, no full-scale initiatives have been implemented to date to protect the ruins.

Within the Oceanic region, to which FSM belongs, there are only five UNESCO cultural heritage sites as of 2011 (including one that is a mixed site). Even among the countries in the region, FSM is particularly eager to have Nan Madol inscribed on the World Heritage List, as it has no sites on the list at present. The UNESCO Regional Office in Asia and the Pacific, acknowledging that international support is needed to protect and inscribe the site on the World Heritage List, approached the Japan Consortium for International Cooperation in Cultural Heritage (JCIC-Heritage) regarding the possibility of its cooperation in sending a Japanese survey team to assess the present state of the Nan Madol, as no surveys have so far been conducted regarding its condition and the framework required for its protection. In response to this request, JCIC-Heritage sent a survey team to Micronesia to conduct a survey of Nan Madol in fiscal 2010.

### 1-4 Survey objective

Assessment of the present state of Nan Madol, including its preservation condition and the status of policy framework

### 1-5 Survey agenda

There were two main agenda items in the recent survey: (1) inspection of the present state of Nan Madol—overall inspection and survey of the present state of each artificial islet; and (2) interviews with relevant parties.

(1) Survey of the present state of Nan Madol

- Overall inspection of the entire ruins
- Survey of the present state of each artificial islet (detailed documentation using diagrams, videos

and photos)

- A. Structure of the artificial islets (inner, outer, surface structures, etc.)
- B. State of damage (collapse, weathering, etc.) and identification of causes (kinetic load, vegetation, reutilization, human damage, etc.)

(2) Interviews with relevant parties

Interviews were held with various institutions in FSM, government institutions in Pohnpei, and local residents.

**1-6 Record of activities**

Date	Venue	Action	Name of interviewee or islet surveyed
Feb. 18 (Fri.)	Colonia	Interview	<ul style="list-style-type: none"> <li>• FSM Historic Preservation Office (HPO)</li> </ul>
Feb. 19 (Sat.)	Madolenihmw	Interview	<ul style="list-style-type: none"> <li>• Nahnmwarki</li> <li>• Representative of a local NGO (Nan Madol En Inmw Incorporated)</li> </ul>
		Islet inspection	<ul style="list-style-type: none"> <li>• Inspection only of Nan Dawas and a few other islets due to rain</li> </ul>
Feb. 20 (Sun.)	Madolenihmw	Islet survey	<ul style="list-style-type: none"> <li>• Nan Dawas</li> <li>• Pahnwi</li> <li>• Other</li> </ul> <p>Survey of the islets on the open ocean side using a boat</p>
Feb. 21 (Mon.)	Madolenihmw	Islet survey	<ul style="list-style-type: none"> <li>• Pein en Kitel</li> <li>• Karian</li> <li>• Pahn Kedira</li> <li>• Idehd</li> <li>• Other</li> </ul>
Feb. 22 (Tue.)	Colonia	Interview	<ul style="list-style-type: none"> <li>• Pohnpei Tourist Bureau</li> <li>• JICA Micronesia Office</li> <li>• Japanese embassy in Micronesia</li> </ul>
		Information collection	<ul style="list-style-type: none"> <li>• Micronesian seminar</li> </ul>
Feb. 23 (Wed.)	Madolenihmw	Islet survey	<ul style="list-style-type: none"> <li>• Final confirmation survey of the entire site</li> </ul>
		Debriefing session	<ul style="list-style-type: none"> <li>• FSM HPO</li> </ul>

## **1-7 Reason for conducting a survey of Nan Madol**

FSM and Japan have a historical relationship that dates back to 1914, when Japan governed FSM as part of the southern islands under the League of Nations Mandate until 1945. For this reason, there are many Japanese descendants in FSM, and Japanese influence can be seen in the food culture and language in Micronesia. In the context of this relationship between the two countries, there is a strong expectation of cooperation from Japan, and assistance has been provided on numerous occasions for FSM's nation-building and economic development efforts. A wide range of sectors have benefited from Japan's cooperation, namely the environment, education, economic infrastructure development, health and hygiene, and marine processing sectors, but there had been no opportunity to provide cooperation for cultural heritage conservation. However, Nan Madol has not only been recognized as an important part of the historical heritage that the citizens of FSM inherited from their ancestors, but it has also been recognized as the largest tourism resource in the islands and an important aspect for future tourism development. Furthermore, since Japanese researchers, including survey team member Mr. Osamu Kataoka, have accumulated a significant number of studies on Nan Madol, there was an awareness that if there was any country capable of efficiently preserving the ruins, it would be Japan. As a result, JCIC-Heritage agreed to send a survey team to Nan Madol based on the understanding that Nan Madol is a site that merits future cooperation, and that it could make a meaningful contribution to protecting the ruins by conducting a survey.



## 2. Overview and Present State of Nan Madol

### Introduction

The ancient city centre of Nan Madol is a precious asset not only to Pohnpei and Micronesia, but to all of humanity as it possesses a unique history and significant built heritage. To this end, UNESCO has recently assessed its worth by placing it on its tentative list of World Heritage sites. Aside from its singularly important heritage value, it fits firmly within the definition of a site complex, and is the largest in Micronesia. The centre has an intricate and multivocal history, as it was built continuously over a period of roughly 500 years, through the establishment, glory and finally, the collapse of the Saudeleur Dynasty, that ruled the islands for centuries until it was invaded by competing political elements from elsewhere on Pohnpei, or from nearby Kosrae island. After the disintegration of the dynasty some 500 years ago, the city fell to ruin, and was thereafter exposed to a multiplicity of natural and cultural influences, transforming it into the unique historical, and legendary, monument it is known as today.

The objectives of this survey were: (1) to assess the state of preservation of the ruins and identify the nature of any damage and other problems through careful observation of the structures and surrounding environment; (2) to clarify future issues toward proper preservation of the ruins and the local environment; and (3) to contemplate creating a conservation organization and a system for the establishment and implementation of short and long-term preservation measures.

### 2-1 Geography and environment of Pohnpei

Pohnpei is home to the ancient city of Nan Madol that lies within the Caroline Islands in Micronesia at 6°54' north latitude and 158°15' east longitude. Along with the state of Yap and Chuuk to its west, and the state of Kosrae to its east, the four states including Pohnpei make up the Federated States of Micronesia, with the capital city of Palikir located on Pohnpei Island. Pohnpei itself is divided into five municipalities, namely Sokehs, Nett, U, Madolenihmw and Kitti (Figs. 1 and 2), and also governs eight neighboring atolls including the Pakin and Ant Atolls.

Pohnpei is the third largest volcanic island in Micronesia, after Guam and the Babeldaob Island of Palau. Mount Nahnalaud, the highest mountain on Pohnpei, that soars to an elevation of 789 meters above sea level, is the second highest peak after Agrihan among the Northern Mariana Islands. The mountainous island also boasts eleven mountains that rise to elevations over 600 meters, including the 700-meter-class Ngihneni Mountain and DolenWelik Mountain. Geologically, the island is located east of the Andesite line, and is mainly formed of basalt.

The pentagon-shaped island measures 23 kilometers at its widest and has an area of 334.2 km<sup>2</sup>, of which 81% is occupied by mountains, 14% by mangrove swamps, and a mere 5% by flat terrains (Office of Planning and Statistics, 1979). The inland area is characterized by dense forests, rugged mountains, and as many as 42 rivers that flow into the fringing reefs, including the Kiepw, Senipehn, and Kitti Rivers that flow northward, eastward, and southwestward, respectively through Mount Nahnalaud's ridges and extend to the coast. A barrier reef with channels in twenty locations and an extensive lagoon with 23 small islands almost completely surround Pohnpei except around the island of Temwen. Pohnpei has a tropical rainforest climate, characterized by high temperatures (annual average: 27°C), high humidity (annual average: 85%) and abundant rainfall (annual: 4,875mm). Northeast or east trade winds become prominent during the months from December to May (NOAA, 1990).

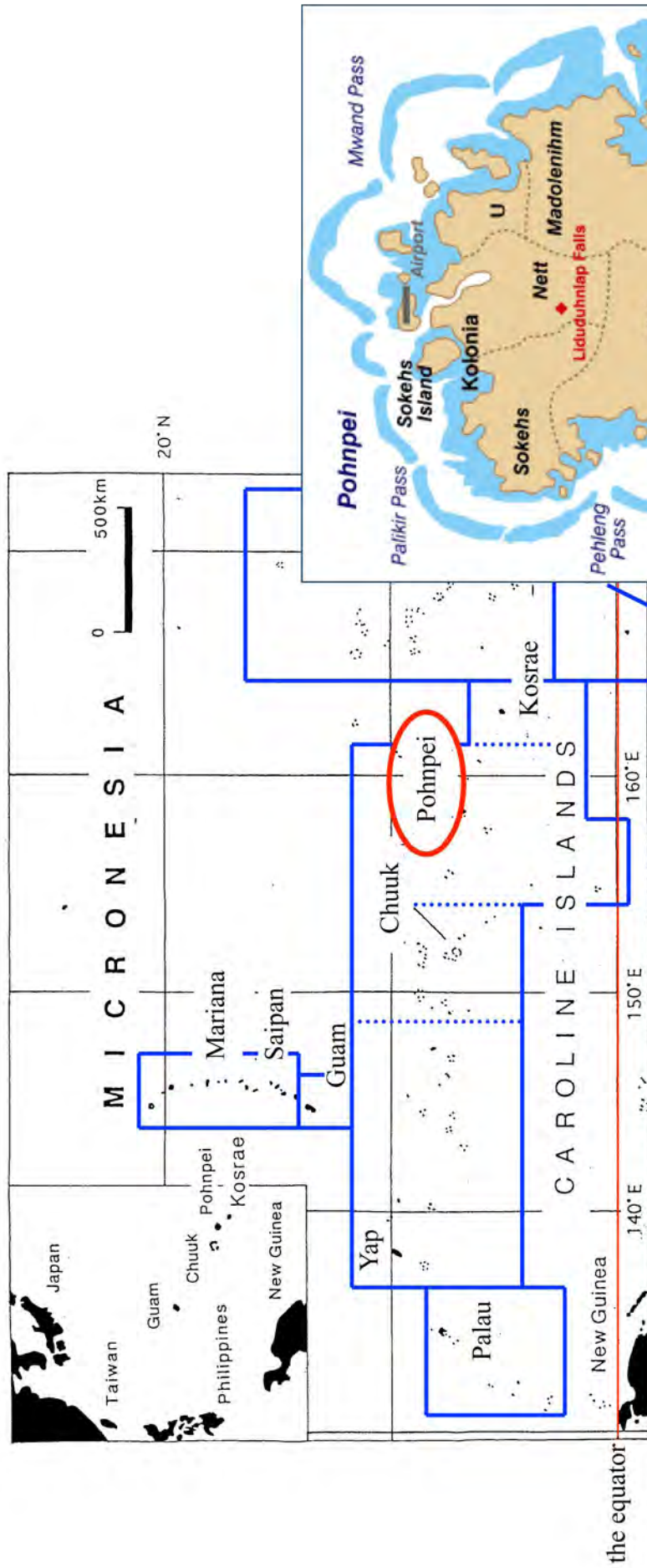


Fig. 1 (above) Location of Pohnpei Island in Micronesia

Fig. 2 (right) Location of the Nan Madol ruins



## 2-2 Brief history of Pohnpei

The first peopling of Pohnpei occurred at least 2000 years ago. The history of Pohnpei's discovery by Europeans is said to date back to the voyage made by a Spanish explorer named Pedro Fernandez de Quiros in 1595, who also discovered the Ant Atoll at the same time (Hezel, 1979), although another Spanish explorer, Alvaro de Saavedra, may have spotted the island in 1529. Thereafter, records show sporadic "rediscoveries" of Pohnpei, including the discovery by James F. O'Connell (1836), who drifted to the island after a shipwreck accident in 1826 and stayed until 1833, and by Pyedor Petrovich Lutke (1971), a Russian captain of the *Senyavin* who landed on the island in 1828. The actual year in which O'Connell claims to have landed on Pohnpei, however, poses many uncertainties, and the credibility of his account has been questioned and debated (Riesenburg, 1968). Western contact with Pohnpei increased rapidly from around 1830, accompanying an increase in whaling activities, and in 1852, the Honolulu Branch of the Boston Mission began sending Christian missionaries, preachers and doctors to the island. The mid-1880s saw an intensification of colonization policies by major powers, and in 1886, Pohnpei and the expansive Caroline Islands were colonized by Spain. In 1899, Spain ceded the Micronesian islands to Germany after its defeat in the Spanish-American War, and the islands remained under German rule until 1914. After the First World War, German colonies above the equator were confiscated under a League of Nations Mandate, and Japan assumed control of the Micronesian islands. After the Second World War, they became part of the Trust Territory of the Pacific Islands under U.S. administration in 1947. Thereafter, in 1979 the islands were named the Federated States of Micronesia and became an autonomous nation in free association with the United States in 1986, thus putting an end to the trusteeship, and finally developing into the independent nation that it remains today.

## 2-3 Overview of the Nan Madol

The Nan Madol site complex lies in the intertidal zone of a reef flat along the shores of Temwen Island located in the southeastern part of Pohnpei (Fig. 3; Photo 1), and refers to the ruins of a megalithic city complex composed of 95 small to large artificial islets in a rectangular area approximately 1.5 km by 0.7 km (Fig. 3). The vast area of Nan Madol is divided into the northeastern area named "upper" Nan Madol (MadolPowe), where priests resided, and the southwestern area of "lower" Nan Madol (MadolPah), where the paramount chiefs, the Saudeleur, lived and conducted rituals and political affairs (Hambruch, 1936: Fig. 4).

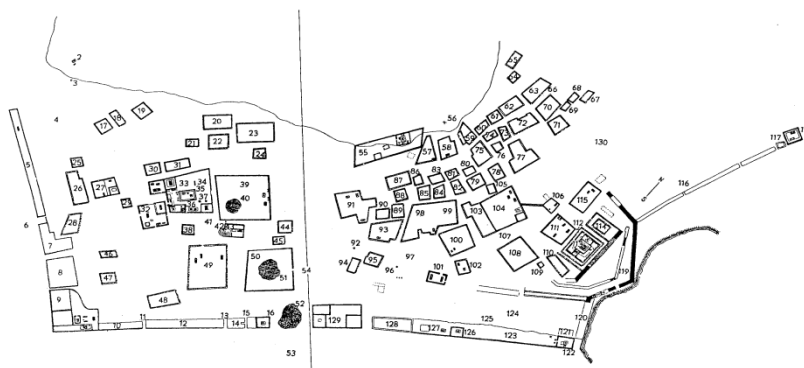


Fig. 4 . Sketch map of Nan Madol by Hambruch (1936)



Fig. 3 The Nan Madol ruins at the foot of Temwen Island



Photo 1 Satellite photo of Nan Madol and surrounding area

The artificial islets of Nan Madol range in area from 160 to 12,700 m<sup>2</sup> (Hambruch, 1936; Ayres, 1993), and were commonly composed of a lower part, made by creating a wall of 0.5 to 5-ton basalt columns stacked to a height of 1 to 2 meters, and an upper part comprising structures such as houses and tombs (Fig. 5). On some islands, the inside of the enclosure surrounding the island is filled with tons of coral and covered with soil, while on other islands, the coral masses remain exposed. On Pahnwi islet, for example, massive basalt boulders measuring almost 3.5 meters in diameter, some weighing up to 90 tons, are stacked to a height of roughly 10 meters in the southwest corner of the island with enclosures that are filled with huge amounts of coral.

The names, functions, and purposes of each artificial islet have been passed down through oral history among Pohnpei's traditional inhabitants and have been recorded by various researchers (Bernart, 1977; Hadley, 1987; Panholzer and Mauricio, 2003). For example, according to oral tradition, the islet of UsenDau in upper Nan Madol served as a residential sector for priests and the Nahmwarki who ruled after the Saudeleur Dynasty. Nan Dawas islet is composed of three burial facilities within a double enclosure of basalt columns stacked to a height of roughly 8 meters. This area served as the burial ground for successive chiefs of the Saudeleur Dynasty. Meanwhile, the islet location of PahnKedira in lower Nan Madol was the residence of the saudeleur chiefs who ruled the islands, as well as the seat of religion and politics.

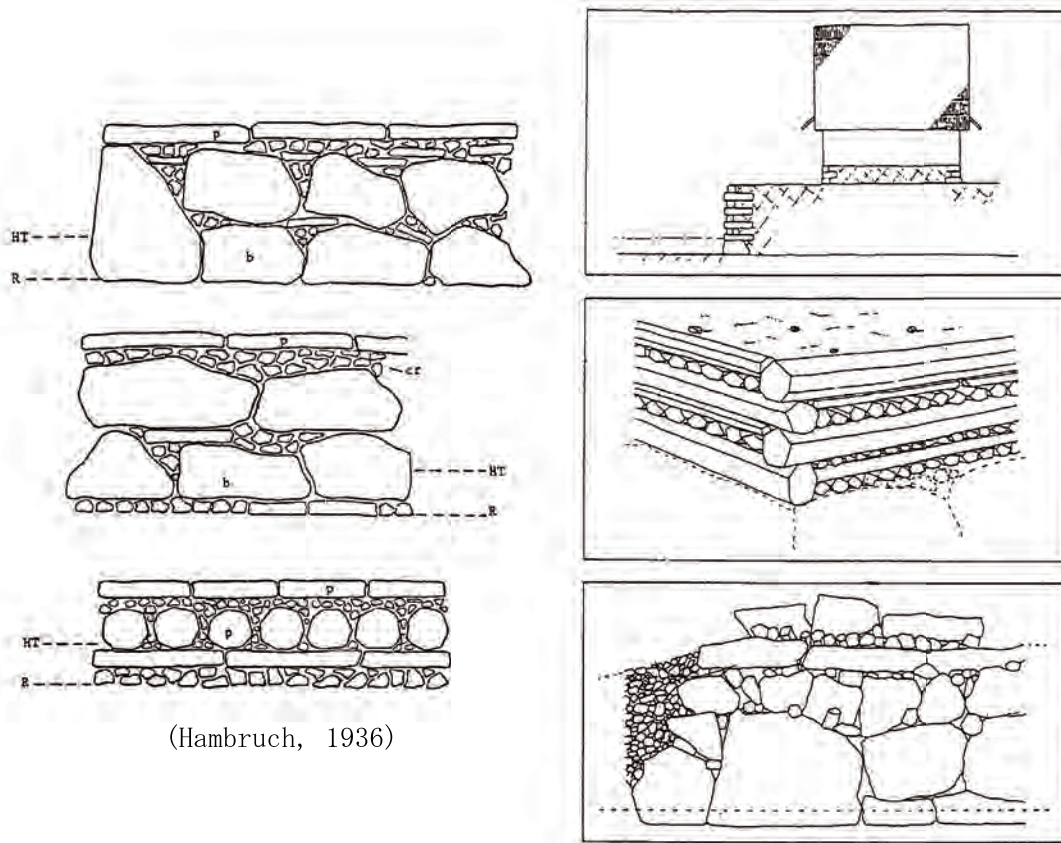
Archaeological studies to date (Athens, 1980; Ayres, 1985, 1990) have found that the location of Nan Madol has been inhabited from as early as 2000 years ago, and that construction of the artificial islets began around 500 A.D. Judging by the commencement of construction using basalt columns (Ayres *et al.*, 1983) and the beginning of religious rituals in Idehd islet (Athens, 2007), it is believed that the Saudeleur system was formed sometime between 1000 to 1200 A.D. According to oral tradition, the Saudeleur Dynasty was conquered by Isokelekel, a legendary warrior from Kosrae Island located 480 kilometers east of Nan Madol, around 1500 to 1600 A.D. (Ayres, 1990; Bath and Athens, 1990). Isokelekel established a new political system that was presided over by a chief called Nahmwarki, who became the first Nahmwarki, (the subsequent word for "chief" in Pohnpei due to his legendary status). After the collapse of the Saudeleur Dynasty, Nan Madol steadily fell into ruin, but some of the artificial islets were occasionally reused, a practice that probably helped contribute to its relatively adequate preservation into the modern era.

## 2-4 Research history

Centuries of history have witnessed the tides of change in this remote region, marked primarily by increasing whaling activities near the island of Pohnpei, Christian missionary activities, and colonial rule by Spain, Germany, Japan and the United States. As a result, visitors and researchers from these countries have provided records, relating directly to Nan Madol, in the form of travelogues and ethnographies. This has created both positive and negative consequences, as Nan Dawas islet, in particular, became a popular excavation destination, as well as a popular looting site.

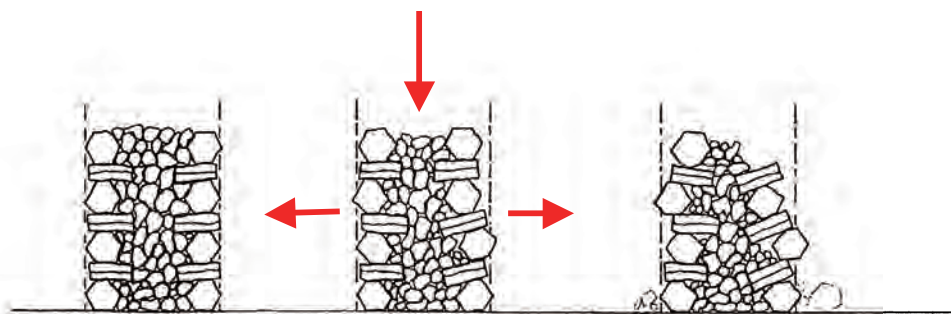
Early antiquarian and, later, more stringent archaeological work began with Gulick (1857) whose initial work documented the ruins, followed mainly by Kubary (1874), Sarfert (1913), Christian (1899) and then to Hambruch (1936), who vigorously conducted archaeological excavations of burial places and collected artifacts. Hambruch, in particular, documented all collected artifacts in great detail, and drew a sketch map of the entire Nan Madol city, that is still frequently used today. During the period under Japanese Mandate, Hasebe (1915), Yawata (1932, 1959), and Muranushi (1942) conducted excavations at Nan Madol, although only mere fragments of their findings were disclosed. In-toh (1999) compiled a database of all artifacts deposited in universities and research institutions collected by Japanese researchers from archaeological sites in Micronesia, along with any documentation of shell artifacts collected from Nan Madol.





(Hambruch, 1936)

(Ayres, 1993)



(Ayres, Haun and Mauricio, 1983)

Fig. 5 Structure of the artificial islets and typical example of collapsed perimeter wall, showing part of the pattern of natural deterioration and change.

During the period under the trusteeship of the United States, the Smithsonian Institute was the first to conduct an archaeological excavation at Idehd in 1963, and announced several radiocarbon dates (Radiocarbon, 1968). After the latter half of the 1970s, studies of Nan Madol advanced as part of the United States' cultural property protection policy. Saxe, Allenson and Loughridge (1980) conducted a verification survey in 1978 of the scope of the Nan Madol site after its registration as a designated monument in 1974. In addition, they surveyed not only Temwen, but also a larger area included in the Madolenihmw Municipality. In their report, they discussed specific preservation measures for the Nan Madol site and measures for improving access for visitors, and emphasized the need for immediate restoration and archaeological surveys of Nan Dawas and UsenDau (Saxe *et al.*, 1980). Meanwhile, Ayres *et al.* (Ayres, Haun and Severence, 1981; Ayres and Haun, 1980) conducted archaeological excavation and survey on the islands, including the Awak region of the U Municipality and the Ant Atoll of Kitti Municipality, in order to gain knowledge about prehistoric settlement and subsistence patterns.

The years from 1980 to 1990 were marked by full-scale archaeological studies of Nan Madol, conducted mainly by Athens (Athens, 1980, 1985; Bath and Athens, 1990) and Ayres (Ayres, 1993; Ayres, Haun and Mauricio, 1983) in order to shed light on the early settlements of Nan Madol and the rise and fall of the chiefdom system. Ayres *et al.* (1983), who conducted reconnaissance of the 71 artificial islets of Nan Madol, indicated that the early settlements and the chiefdom system were intricately related to the collapse of the ancient city, and called for the urgent preservation and improvement of Pahnkedira and UsenDau. At the same time, Bath (1984) conducted comparative studies of the Sapwtakai site in inland Kitti, and Ayres and Mauricio (1997) of the Salapwuk site complex.

After the 1990s, an archaeological excavation was conducted in the Ant Atoll located roughly 9 km southwest of Nan Madol (Gapilaud, 2001), but Nan Madol itself was not excavated at this time. The excavation of Nan Madol by Kataoka (2005, 2006, 2007; Kataoka, Ono and Nagaoka, in prep.) in 2005 was the first in fifteen years since the excavations by Athens and Ayres, and the first in 75 years to be conducted by the Japanese. During the latter half of the 2000s, an archaeological survey was conducted at Metipw and Dolopwail situated 4 km north of Nan Madol across Madolenihmw Harbour, to gain a better understanding of the Saudeleur Dynasty, that ruled the entire island of Pohnpei from Nan Madol, as well as the structure of the local community (Kataoka, 2009, 2010, 2011; Kataoka, in prep; Kataoka and Nagaoka, in prep.).

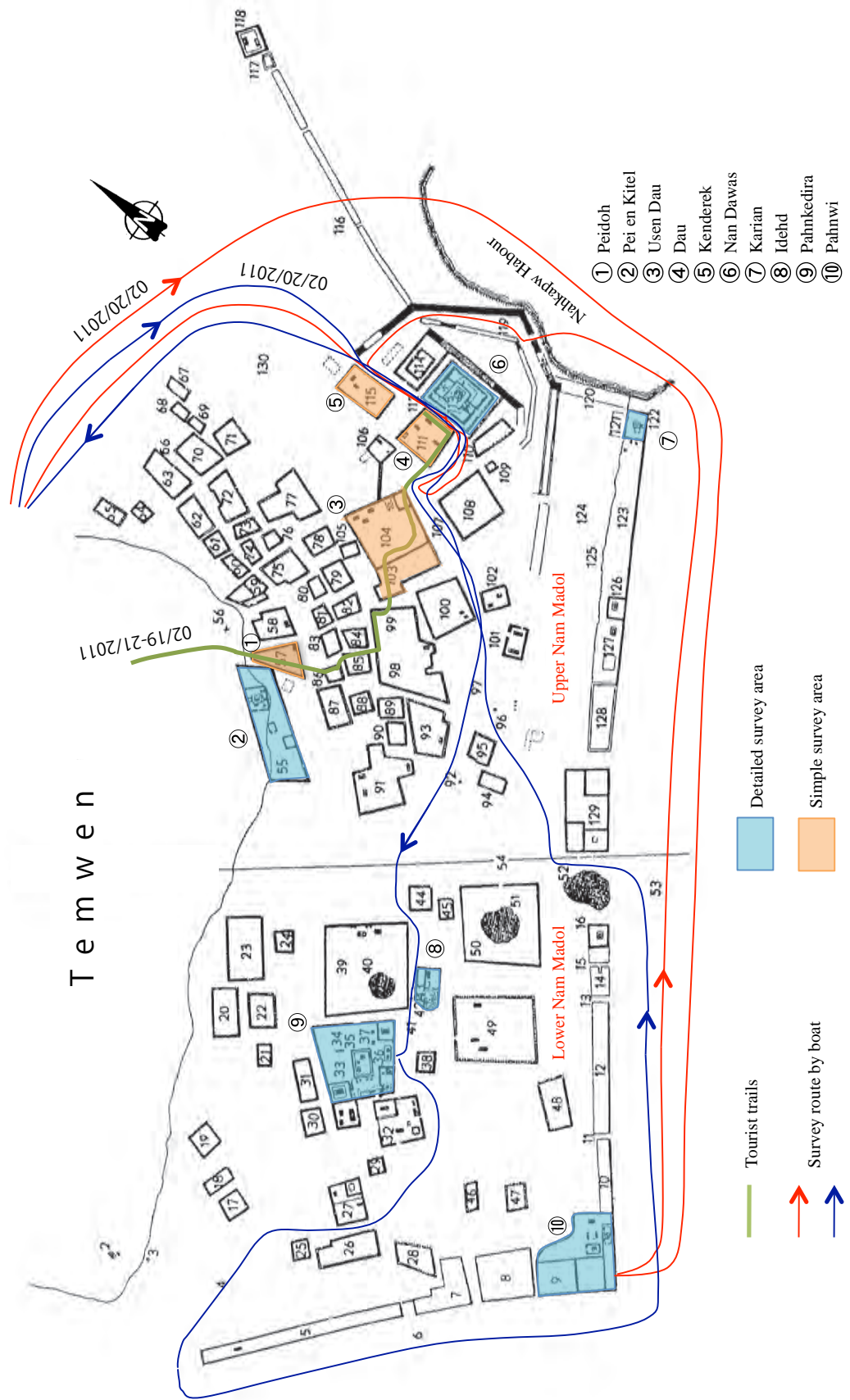


Fig. 6 Survey areas and routes



## 3. Present State of Nan Madol

### 3-1 Survey method

Our recent visit to Pohnpei only allowed us a limited time to survey the present state of Nan Madol, because our agenda also included joint briefings and meetings with the federal and state historic preservation offices and with NPO Nan Madol En Ihmw Incorporated, whose objective is to preserve the traditional Nahnmwarki chief system and the ancient city of Nan Madol. To make the best use of our limited time, we selected a number of islets from among the 95 artificial islets of Nan Madol that we judged were most important based on oral tradition and existing archaeological study reports. During low tide, we traveled along tourist trails, and at high tide, we traveled by boat. At the selected islets, we carried out detailed surveys, and while traveling along the trails or by boat, we carried out simple surveys as was reasonably possible (Fig. 6). Relying mainly on visual observation, we recorded the present state of the islets on copies of the same ground plan created by Athens (1980, 1985) and Ayres (1985, 1993; Ayres *et al.*, 1983), and recorded details on digital camera and video.

### 3-2 Survey result

Based on the objectives of this survey, Nan Madol can be roughly divided into four areas: (1) the artificial islets from Nahkapw Bay along the reef on the open ocean side (from Nan Mwoluhseito Pahnwi); (2) the group of artificial islets bounded by the artificial islets mentioned in (1), and up to Temwen Island; (3) the channels intersecting the artificial islets; and (4) the group of artificial islets along the coast of Temwen (the group of northwestern islets of upper Nan Madol, including Peidoh).

Area (1) is directly susceptible to the ebb and flow of the tide, as well as to the waves and the wind. For this reason, the bottom sand of the reef has accumulated along the seawall, and many parts of the islets display signs of collapse caused by waves and dense vegetation. Furthermore, large trees on the islands that have fallen due to strong winds and dry weather have caused the stone elements of the islets to collapse or loosen. In Area (2), almost all islets are covered by a dense growth of vegetation including trees of various sizes. The roots of the trees are causing the stone elements to loosen, and trees that have withered and fallen are causing the basalt boulders of the perimeter wall to collapse or are otherwise causing serious damage to the islets. In Area (3), climate changes that have occurred after construction of the islets and the tourist trails created in recent years have changed the water level and flow of the waterways, and have turned the soil to silt in many places, thus allowing mangrove trees to flourish and their roots to inflict adverse effects on the ruins. In some waterways, withered mangrove trees are causing silt and sand to accumulate and are creating a vicious cycle of destruction. In Area (4), soil and sand that are running off from Temwen Island due to tide action and rainwater are accumulating around the islets, choking the flow of water in the waterways and forming mud lakes and swamps.

Below, we discuss the present state of the ruins that were surveyed and the main factors causing damage.

#### ① Peidoh (Figs. 7 & 8 / Photo 2)

Peidoh is the first set of ruins along the tourist trail that begins at the foot of the slope of Temwen leading from the site of the Silbanus residence. It is 2,350 m<sup>2</sup> in area. The tourist trail that passes through the ruins was converted from a community road that the residents of Temwen previously used in their daily activities. The channel between Pei en Kitel to the west and Pwileto to the east has turned into swamps and mud lakes due to the runoff of soil and sand from Temwen originally caused by rain and tidal action.



Fig. 7 Location of Peidoh and Pei en Kitel



Photo 2 Expansion of swamp lands on Peidoh



Fig. 8 Present state of Peidoh



Fig. 9 Present state of Pei en Kitel



Photo 3 Collapse of the northeast outer wall



Photo 4 Ground subsidence around the entrance in the northwest outer wall

According to an informant, the U-shaped structure (meeting house) standing on a high peak in the southwest corner of the islet was constructed sometime around the 1900s. As it was apparently made using the original basalt boulders of the ruins, the displacement of the basalt boulders might have been a factor in the damage of the prehistoric ruins that are seen today.

## ② Pei en Kitel (Figs. 7 & 9 / Photos 3 & 4)

Pei en Kitel is characterized by an enclosed burial place occupying the center of a 9,000-m<sup>2</sup> area. According to oral tradition, Isokelekel, who is said to have conquered the Saudeleur Dynasty and became the first Nahmwarki, is buried here. Among the 95 artificial islets of Nan Madol, it is the only islet that was created half on Temwen Island and half on the fringing reef. The islet and its surrounding area are covered by lush vegetation, including large trees, and the southwestern area is a vast wetland. The outer wall has collapsed in many places, with the northeast wall displaying an especially serious state of collapse.

In addition to the bowing, distorting, and collapse of the outer wall due to deadloading (structural stress applied under its own weight), the weakening of the ground has caused the northwest enclosure to lean heavily to the southwest where the ground has turned into a swamp, while the southwest wall of the tomb leans heavily to the southeast. The southwestern part of the northwest wall is also partially damaged due to a community trail built by the residents. In addition to the above, the inside of the tunnel-like entrance created in the centre of the northwest wall and part of the ceiling of the stone chamber of the tomb have also collapsed.

## ③ Pahseid and UsenDau

A boundary wall made of basalt columns separates the two areas, but it has been partly dismantled where the tourist trail was built to cut across the wall. Pahseid is 3,200 m<sup>2</sup> and UsenDau is 7,200 m<sup>2</sup> in area, and are both covered by lush vegetation. A dating of 760 A.D. has been reported based on the carbon dating of the bottom carbide layer of UsenDau (Ayres *et al.*, 1983).

## ④ Dau (Figs. 10 & 11 / Photos 5 – 7)

Dau, which dates back to 1000-1250 A.D., encompasses an area of 5,100 m<sup>2</sup> (Kataoka, Ono and Nagaoka, in prep.), and is covered by lush vegetation. A tourist trail, apparently built using the stone elements of the ruins in some places, runs around the margin of the entire islet. The basalt columns of the stonewall has collapsed. The east side of the islet, in particular, has severely collapsed, not only due to deadloading, but also because the main tourist route to Nandauwas passes through this area. Large trees that have recently fallen lie abandoned on the north side of the stonewall.

The paved stone structure occupying the centre of the north end of the ruins was said to be built during the period of Spanish rule, with a high probability that large quantities of stone elements of the prehistoric ruins were diverted for its construction.

## ⑤ Kenderek (Figs. 10 & 12 / Photo 8)

Built in 1400 A.D. (Kataoka, Ono and Nagaoka, in prep.), Kenderek has an area of 3,300 m<sup>2</sup>, that is entirely covered by a jungle with large trees and lush vegetation. Based on visual observation made as reasonably as possible from the boat, the northern area along the northeast wall was found to be submerged. The paved stone structure occupying the centre of the north end of the ruins was built during the period of Spanish rule, and like at Dau, large quantities of stone elements of the ruins were probably diverted for its construction.



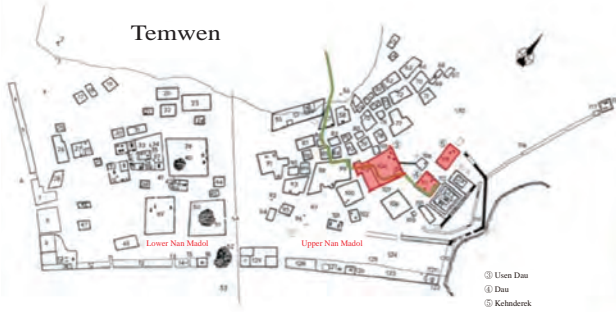


Fig. 10 Location of Dau and Kenderek



Photo 5 Visitors on the artificial islet of Dau seen from Nan Dawas

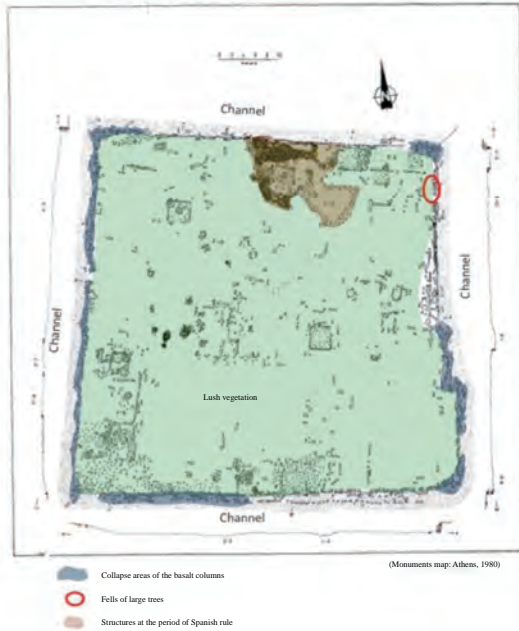


Fig. 11 Present state of Dau



Photo 6 Felled trees abandoned near the east stonewall



Photo 7 Collapse of the northeast corner of the stonewall on Dau



Fig. 12 Present state of Kenderek



Photo 8 Dense trees and shrubs on Kenderek

## ⑥ Nan Dawas (Figs. 13 & 14 / Photos 9 – 19)

Nan Dawas was built 800 years ago (Ayres, 1993) with an area of 3,400 m<sup>2</sup>. It receives the largest numbers of tourists as it is one of the most representative ruins of Nan Madol, and is regularly weeded, beautified, and cared for by the Visitors Board. There are seven places in the outer wall of the double wall enclosure stacked to a height of eight meters that display severe collapse and crumbling toward the inside of the enclosure. In particular, the severe collapse of the south side of the outer wall near the southern stone chamber is attributed to the growth of banyan trees (*Ficus microcarpa*) (Saxe *et al.*, 1980).

The massive basalt boulder at the bottommost layer of the outer wall in the southeast corner shows prominent cracks caused due to deadloading and weathering. Meanwhile at the top, the long basalt columns at the four corners are in danger of falling, causing them to accompany the collapse of the surrounding elements, because they are placed in a way that makes them project outward. Of the terrace structures built along the inside of the inner and outer walls, the southeast corner of the outer wall and the southwest corner of the inner wall were found to be bowed and distorted from deadloading. The central stone chamber and northern stone chamber are in a state of relatively good preservation, but the ceiling of the southern stone chamber is partially collapsed. The inside of the central stone chamber has been excavated by Hambruch and Yawata, and does not retain its original appearance.

## ⑦ Karian (Figs. 15 & 16 / Photos 20 – 22)

Karian occupies an area of 1,150 m<sup>2</sup>, and has a tomb surrounded by high walls in the centre of the islet. Due to its close proximity to Nahkapw Bay, it is directly affected by the waves, and the perimeter wall on the open ocean side has also been severely damaged. The waves have adversely affected not only the basalt columns of the perimeter wall, but also the corals inside it, leaving them exposed and subject to collapse. The basalt columns in the southeast corner, in particular, are projected outward as a result of the collapse, and are in imminent danger of falling. Additionally, the coral-paved structure on the northeast side is strewn with drifted rubbish that is spoiling the scenery, but there are also concerns about the huge standing dead tree near the centre of the northeast wall, that could collapse and destroy the ruins.

On the southwest side of the enclosure, the ceiling of the tunnel-like entrance is partially collapsed. The inside of the perimeter wall is full of vegetation, and the roots of large trees are tangled within and around the stone elements of the two stone chambers in such a way that they may “strangle” the structures to destruction. Part of a rusted shipwreck is found on the south side of the ruins, and a drifted oil tank remains abandoned on the south side of the islet.

## ⑧ Idehd (Figs. 15 & 17 / Photo 23)

Built between 1200 and 1300 A.D. (Athens, 1985), Idehd occupies an area of 1,310 m<sup>2</sup>. Because of its relative low elevation, the area around the stone wall on the north side of the ruins is submerged in the waterway. Athens (2007) noted that part of the basalt columns of the stonewall are missing because the ruins were left unfinished. The walkway, constructed in recent years, was made by laying down parallel basalt columns and stretching roughly 15 meters inland from the existing dock.

The western half of the islet is covered by trees and other vegetation, and the summit of the mound measuring about 15 meters in diameter and rising to a height of 2.6 meters is a forest of large trees. Soil and coral gravel from the mound have run off into the waterway on the south side, fully covering the stone wall and turning the water in the waterway to silt. This could be attributed to the effluent over time, to the construction of the mound, or to the excavation of the mound by Saxe (Saxe *et al.*, 1980) and Athens (2007).

The perimeter wall made of stacked basalt columns on the southeast side of the ruins has completely collapsed.



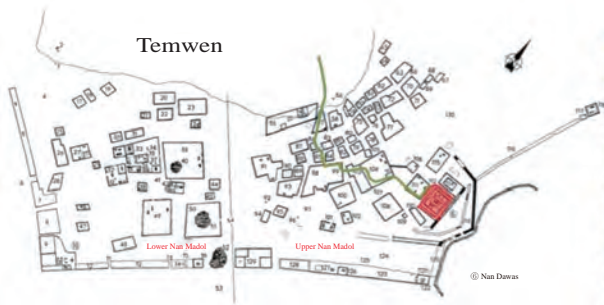


Fig. 13 Location of Nan Dawas



Photo 9 Entrance to Nan Dawas

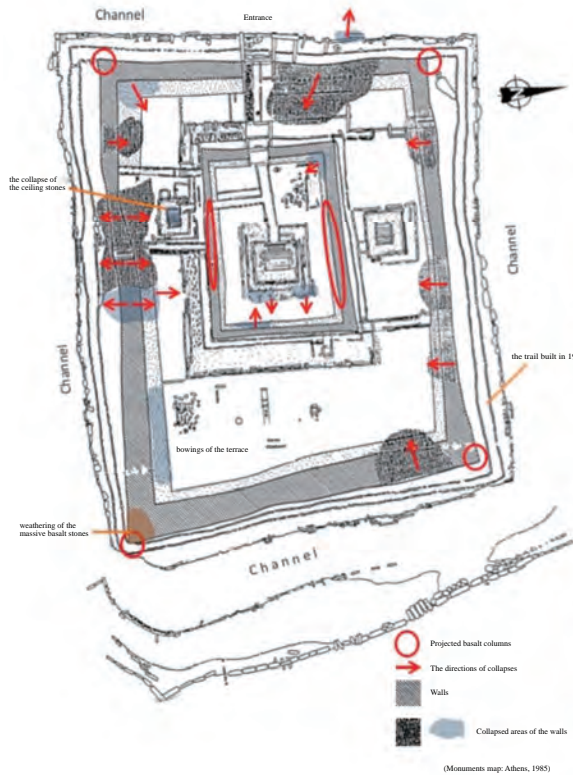


Fig. 14 Present state of Nan Dawas



Photo 10 Nan Dawas seen from Dau



Photo 11 Dense trees and shrubs around the northwestern area



Photo 12 Northwest corner of the outer wall



Photo 13 Northeast corner of the outer wall



Photo 14 Southeast corner of the outer wall



The north side of the entrance built in the east wall has also collapsed, and the peak of the southern half is covered with dense vegetation. The inside of the enclosure on the south side is rather low, and is now occupied by a mud lake. As the ground in this area was prepared using filling soil, the load of many years and effects of the tide and rain have probably caused the ground to subside and eventually give way to mud lakes.

## ⑨ Pahnkedira (Figs. 18 & 19 / Photos 24 & 25)

Pahnkadira is one of Nan Madol's most important ruins along with Nandauwas. It leaves behind a rich oral tradition as the place of residence of the chiefs of the Saudeleur Dynasty and as its centre of politics and religion. The main scope of our survey included the 9,830-m<sup>2</sup> area of the artificial islet where structures that served as temples and the residences of the chiefs were built, excluding the annex (2,020 m<sup>2</sup>) on the southwest side. Ayres *et al.* (1983) believe the islet was constructed in two phases, the first from 900-1100 A.D. and the second from 1300-1500 A.D.

The corners of both ends of the stone wall facing the south waterway have largely collapsed, and large trees and lush vegetation cover the entire ruins. In fact, the central area on the north side is so dense with withered trees that even walking through the area is a laborious task. Moreover, thick vegetation has taken over the ruins of what is believed to be a temple in the centre of the islet, making it impossible to enter the ruins, not to mention delineate the outline of the structure.

The walls around each structure are bowed, distorted or collapsed under its own weight. Basalt columns at the tops of the north and west walls around the residential ward in the northwest corner of the islet are missing. However, since they are nowhere to be found in the vicinity, they may have been reused to build other islets and structures. The unfinished stone wall standing in an area adjacent to the northwest side of a temple ruins may have been one of the diversion destinations. Both sides of the entrance in the south wall and the top of the southeast corner of the east wall display rampant growth of birds' nest ferns.

## ⑩ Pahnwi (Figs. 18 & 20 / Photos 26 – 30)

Pahnwi, built in 1250 A.D. (Ayres, 1985), is composed of a square-shaped artificial islet and a rectangular artificial islet facing the open ocean in the southwest corner of Nan Madol. Our survey focused on the square islet that occupies an area of 7,700 m<sup>2</sup>. Massive basalt boulders are stacked to a height of 10 meters in the southwest corner of the islet. Those facing the reef have clearly collapsed and are crumbling due to the effects of vegetation and wave action. Because large amounts of sand are deposited along the wall due to the ebb and flow of the tide, the local residents have taken to removing the sand. As this removal of sand is considered one of the causes of the wall's collapse, the Nahnmwarki prohibits any collection of sand in this area today.

The inland area of the islet is lush with trees and vegetation, including sea poison trees (*Barringtonia asiatica*, or *wi* in the local Pohnpei language), whose roots are so intricately tangled with the stone elements of the structures that they are loosening the elements out of alignment. Incidentally, the name of the islet, Pahnwi, means "under the *wi* tree" (Ayres *et al.*, 1983). In our survey, we verified the provenience of a row of basalt columns excavated by Ayres in 1984 (1985), as well as the remains of residences centred on a fire pit and the remains of tombs, and examined the state of preservation of the ruins. As a result, we found severe crumbling of the tomb enclosure toward its interior.

## ⑪ Land bridges between the artificial islets (Fig. 21 / Photos 31 – 36)

Land bridges connecting the artificial islets were made using basalt boulders diverted from the ruins, and extend over the waterway like a jetty. Due to their structural design, they have caused changes to the original water flow and volume, and are seriously impacting not only the surrounding environment, but also the waterways around all islets.



Photo 15 Collapse of the perimeter wall on the north side of the entrance



Photo 16 Collapse of the entrance and perimeter wall seen from the inside



Photo 17 Collapse of the north perimeter wall seen from the inside



Photo 18 Crack in the massive basalt boulder in the southeast corner of the outer wall



Photo 19 Collapse of the basalt column around the opening of the central stone chamber

There is a strong possibility that these changes are causing silt accumulation throughout the islets and promoting the growth of mangrove trees and other vegetation that are ultimately damaging the ruins and spoiling the scenery.

## ⑫ Artificial islets on the open ocean side (Photos 37 – 41)

The artificial islets in Nahkapw Bay and on the open ocean side have suffered the impacts of wave and wind damage over many years. Sediment in fill from land subsidence, and the movement of coral gravel from the islets by wave and tidal action have contributed to the collapse of the basalt boulder walls. The mangrove trees growing inside and outside the islets, and the collapse of standing dead trees and other large trees due to strong winds are also factors related to the collapse of the stone walls, enclosure walls and the ruins themselves.

## Summary

The survey of the present state of Nan Madol was designed as a primary survey aimed at gaining an understanding of the state of preservation and the causes of damage of the major ruins through visual observation, and to identify future issues and directions for their preservation.

The results of the survey indicated that damage to the ruins was mainly caused by a combination of factors, that include:

- (1) the diversion of soil and stone elements of the ruins for other purposes (i.e. natural movement; cultural reuse) over a long period of time up to the present;
- (2) dense tree growth;
- (3) destruction of structures to accommodate the construction of tourist trails, and the growth of mangrove forests as a result of increased silt in the waterways caused by changes in water flow;
- (4) trampling and movement of stone elements by visitors; and
- (5) sheerweight (dead load) of the ruins themselves over time.

As shown in Fig. 22, the Nan Madol ruins as we know them today are a product of the complex impacts of diverse natural, cultural and artificial factors that have affected the islets since their construction 1500 years ago. The construction of the islets took some 1000 years, slowly spreading from the foot of Temwen Island toward the fringing reefs in the direction of the open ocean. Additions and modifications were made to some of the islets, probably by diverting the stone elements of the original structures. Because the ancient city fell to ruin and was left abandoned for years after the fall of the dynasty, the structures on many of the islets have been subject to extensive damage from various natural factors, such as the rampant growth of vegetation, the accumulated load of the structures over time, and changes in water level, tide, water flow, rain and wind caused by climate changes. In addition to natural vegetation, coconut trees (*Cocosmucifera*), breadfruit trees (*Artocarpusatilis*) and other such fruit trees were grown on large islets such as Pei en Kitel, Dau, and Pahnkedira, where the ground was prepared using filling soil (Ayres *et al.*, 1983).

Ayres *et al.* (1983) report that the collapse and crumbling of the ruins are mainly the result of (1) accumulated load





over the years, (2) changes in waves and tidal levels, (3) the dense growth of vegetation, and particularly large trees, (4) human action and activities, and (5) the effects of marine organisms and terrestrial animals. However, at the time of their survey, the tourist trails had not yet been constructed, so no mention is made about that issue. There is no question that the tourist trails that were constructed in recent years to connect the artificial islets are bringing serious cultural and natural impacts to the ruins. In other words, not only did the diversion of stone elements and soil that were used in the initial construction of the ancient city lead to the destruction of the ruins, but the construction of land bridges across the islets clogged the waterways, caused changes in the water flow, accelerated the accumulation of silt, and promoted the secondary growth of mangrove forests and other trees. Furthermore, because the trails made it possible for visitors to travel to multiple islets from Temwen Island by land, visitors to the islets increased and brought an entirely new set of problems resulting in the collapse, bowing and distortion of the ruins by trampling on the enclosure walls, terraces and other structures and by moving the stone elements.

Based on the findings of this survey, an essential part of ensuing tasks will be to create an overall map of Nan Madol and an accurate ground plan of all artificial islets as a priority, and to plot the following conditions on the maps as basic reference for future preservation of the ruins:

(1) Present state of the ruins (damage, etc.):

-establish measures for urgent restoration and improvement of danger areas and measures for the permanent preservation, protection, and restoration of the ruins through detailed observation of each artificial islet.

(2) Soil and vegetation on the islets, in the channels, and the surrounding areas:

-clarify the relationship between the soil and vegetative growth and the necessity and methods of deforestation.

(3) Waves and the water flow during the rise and fall of the tide around the ruins and in the channels (water volume, direction, and force).

Assess the state of damage of the ruins on the open ocean side, the impacts of the accumulation of silt in the channels and the growth of mangrove trees and other vegetation on the ruins, and in particular, shed light on the changes in the water flow mechanism caused by the tourist trails.

(4) Annual rainfall, winds, and light:

-assess the past and present state of weathering of the basalt boulders and corals composing the ruins.

In terms of taking steps toward full inscription on the UNESCO World (cultural) Heritage List, it is necessary to formulate phased and specific short-term, medium-term, and long-term survey schedules based on a master plan. Needless to say, the cooperation of the local Historic Preservation Offices, NPOs, and local communities are indispensable to achieving this objective.





Fig. 18 Location of Pahnkedira and Pahnwi



Photo 24 Withered trees in the southwestern area of Pahnkedira



Fig. 19 Present state of Pahnkedira



Photo 25 Withered trees on a structure made of stacked basalt columns



Fig. 20 Present state of the tomb area on Pahnwi



Photo 26 Stonework in the southwest corner of Pahnwi



# Micronesia



Photo 27 Dense growth of trees around the stonewall facing the open ocean



Photo 28 Collapse of the stonewall and the sedimentation of sand



Photo 29 Collapse of the stonewall and the sedimentation of sand



Photo 30 Dense shrubs around the burial grounds

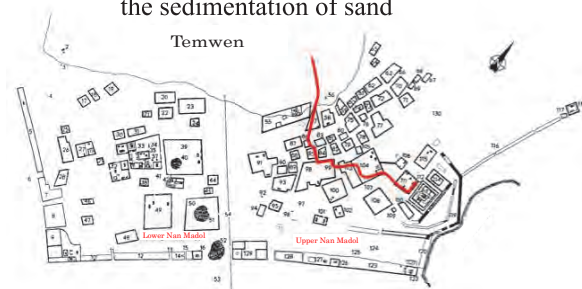


Fig. 21 Location of tourist trails



Photo 31 A trail and land bridge between the artificial islets



Photo 32 Accumulation of silt near a land bridge



Photo 33 A trail and land bridge between the artificial islets





Photo 34 A land bridge jetty between the artificial islets



Photo 35 Mangrove trees in the waterway



Photo 36 Mangrove trees in the waterway



Photo 37 Entrance to Nan Madol and a grove of trees



Photo 38 Entrance to Nan Madol and a grove of trees



Photo 39 Stonewall and lush vegetation on the artificial islets facing the open ocean

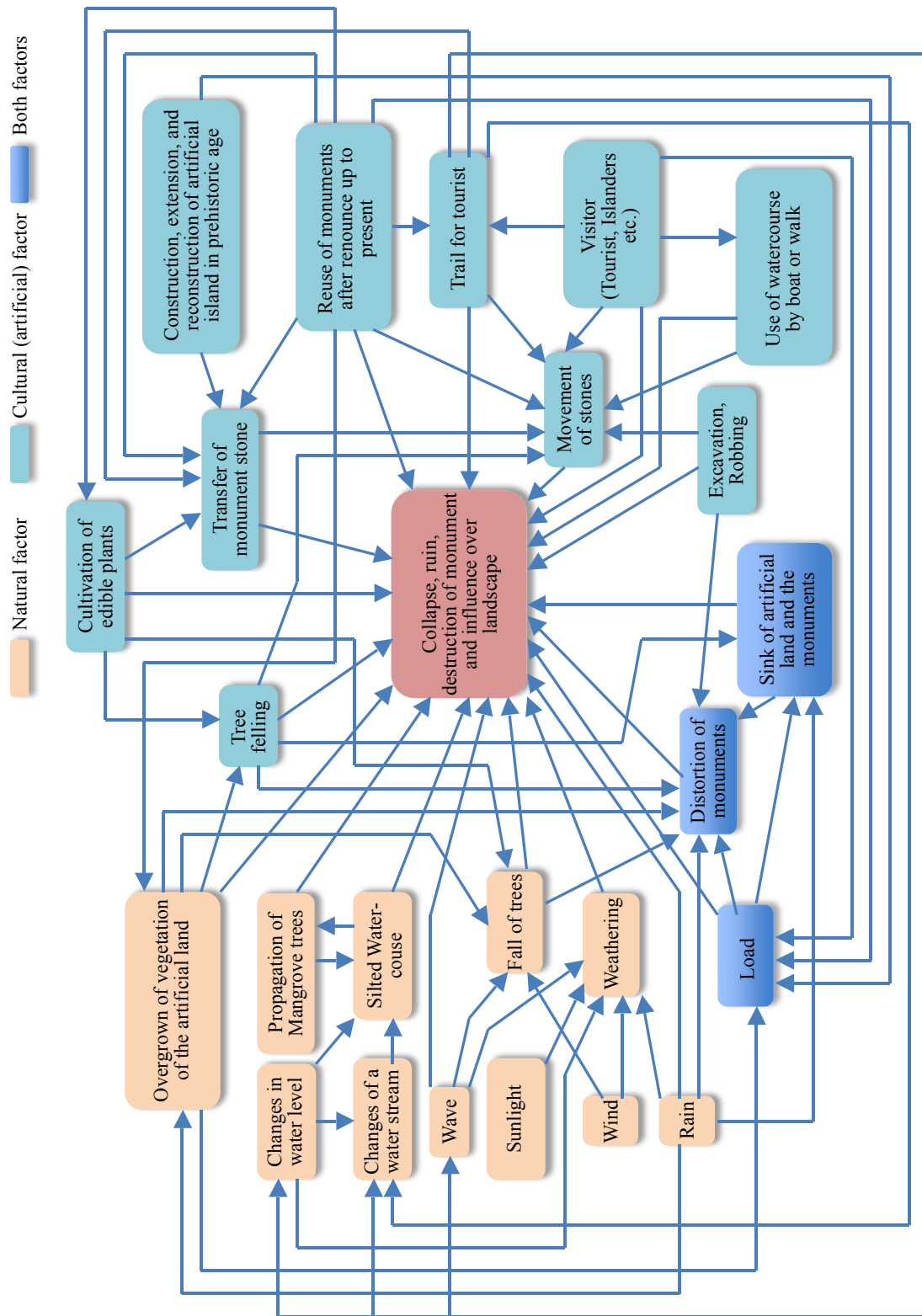


Photo 40 Lush vegetation on the artificial islets facing the open ocean



Photo 41 Lush vegetation on the artificial islets facing the open ocean

# Micronesia



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## 4. Protection Framework

### 4-1 Local survey results

#### Cultural heritage protection framework

The government of FSM is composed of three independent branches of power under the president, who is the head of state: judicial (supreme court), legislative (FSM government assembly), and administrative (executive body). The FSM Constitution acknowledges the customary interests of the traditional chief known as the Nahmwarki, adopts a governing system that grants administrative power not only to the federal government but also to the state and community governments, and stipulates that states shall have their own constitution. Under this system, Nan Madol is administratively protected by the federal government and the state government of Pohnpei, as well as customarily protected by the Nahmwarki.

#### (1) Government

The Office of National Archives, Culture and Historic Preservation (NACH) is an administrative institution of the federal government in charge of supervising legal and administrative activities relating to the protection of cultural heritage, culture and history, and the Historic Preservation Office under it is responsible for cultural heritage protection (FSM HPO). There are also Historic Preservation Offices (HPO) at the state level, which coordinate the protection of cultural heritage in each state. The FSM HPO and the HPO in Pohnpei, where Nan Madol is located, work in close cooperation with each other, as was observed throughout the course of this survey, but both HPOs are in need of more manpower. NACH, on the other hand, receives a budget from the FSM government, as well as receiving financial aid and human support from the US National Park Service. At the time of this survey, two experts from the US National Park Service were working at NACH. In regard to artifacts excavated from Nan Madol, there were no museums to preserve, exhibit and disclose them to the public.

Other institutions are involved in the preservation of Nan Madol as a tourism resource, including the FSM Department of Resources and Development and the Pohnpei Department of Land and Natural Resources.

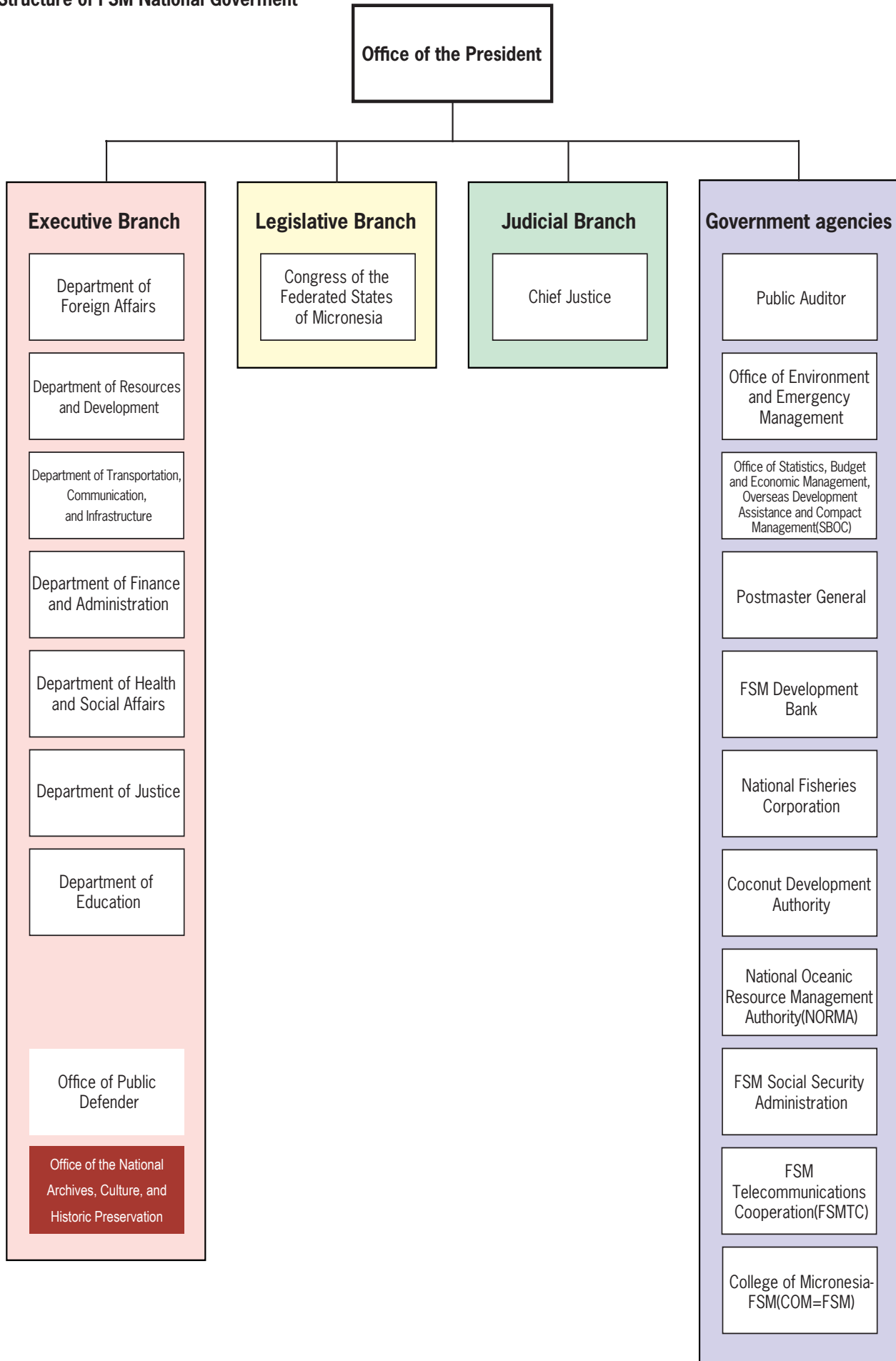
#### (2) The Nahmwarki and local residents

Nan Madol is not only significant as a cultural heritage, but it has religious significance as well. In this region where numerous oral traditions have been handed down through the generations, local residents who have inherited and carry on those traditions today continue to preserve places that served as centers of political administration and religious worship in ancient times. It is the local residents, not the government, who collect admission fees from tourists to the islets at present.

Locally, the Nahmwarki and Nan Madol En Ihmw Incorporated, an NGO composed of local residents, are involved in the protection of Nan Madol. For instance, when conducting an excavation or other types of surveys at Nan Madol, it is still today necessary to follow tradition and provide details of the survey to the Nahmwarki in the Madolinehmw district and obtain his permission. In this survey as well, we met with the Nahmwarki and members of Nan Madol En Ihmw Incorporated prior to entering the site to explain the overview of our survey and obtain their permission.

There are a number of individuals who were granted permission to own part of the land on the islets by the government at the time of German rule in the early 20th century. In fact, the land around Pei en Kitel is still owned by

Structure of FSM National Government



Mr. Masao Hadley, and the entrance to the trail used for tourism purposes is located on the Mr. Hadley's land. To access the islet by land and explore it on foot, visitors need to pay a three-dollar admission fee (trail usage fee) to Mr. Hadley.

### (3) International cooperation

With respect to international cooperation in general, the United States is FSM's greatest benefactor, because FSM had been under the mandate of the United States for some time in the past. Japan also has a strong relationship with FSM and is the country's second largest benefactor after the United States, as it had ruled FSM for thirty years until 1954. In recent years, Japan launched a project for expansion of Pohnpei International Airport and aided the development of other important infrastructure. Following closely behind Japan are Australia and China. China, in particular, has been keen to provide aid to FSM in recent years, because of the rich fishing ground within FSM's exclusive economic zone.

Micronesia and Japan have a deep historical relationship, such that the Japanese language and Japanese food can be found throughout the country and there even exist shrines built during Japan's rule. Most of the people have a friendly attitude toward Japan, having received Japanese language education during Japan's rule or having relatives in Japan. JICA's cooperation activities are also highly appreciated, and trust in Japan's international cooperation runs high.

Regarding cooperation on the cultural heritage at Nan Madol, as mentioned earlier, the US National Park Service provides financial and human support. In FSM, where human resources are few, foreign archaeologists dispatched to the FSM HPO play an extremely important role. Japan, for its part, provides cooperation through the Asia/Pacific Cultural Centre for UNESCO (ACCU) by inviting a number of individuals to Japan to receive individual training in order to cultivate specialists in the protection of ruins. In the tourism sector, tourism experts and other specialists from JICA are dispatched to the Department of Resources and Development and the Tourism Department. However, no cooperation from any country has been provided for preservation of Nan Madol, as the local framework for preservation cooperation had yet to be established. In view of FSM's historical relationship with Japan and Japan's assistance to date, requests for assistance in the protection of Nan Madol and for tourism promotion can be expected to increase in the future.

### (4) Tourism development

Some 20,000 foreigners visit FSM every year. American visitors account for the largest segment at roughly 40%, followed by Japanese visitors, who account for approximately 20%. A significant number of visitors also come from European and Asian countries. In addition to tourists, many visitors are people in the marine products industry who come to FSM on business. Many people in the fishing industry who fish bonito, tuna, and other species, also come to FSM lured by the rich fishing grounds surrounding the islands. Among Japanese tourists, almost half visit the surrounding islands to commemorate the war dead. To most tourists, FSM is an ideal destination for marine activities such as diving and surfing. Eco-tourism is also becoming a feature attraction in recent years. There are no major sight-seeing spots other than Nan Madol at present, but the country is hoping to increase the number of tourists from Japan and other countries by developing the site and having it inscribed on the World Heritage List. In this respect, it also expects to see increased usage of Pohnpei International Airport, which was expanded with aid from Japan.

## 4-2 Future issues

There are roughly three groups of stakeholders in the protection of Nan Madol: the government, the Nahmwarki

and NGOs, and partial landowners. As matters stand, each group acts independently of the others in collecting fees, cleaning the site, constructing trails, and otherwise managing the ruins. This situation poses certain issues for promoting systematic protection of the site, as discussed below.

#### (1) Information sharing among stakeholders

With each stakeholder acting independently of the others, there seems to be a lack of sufficient sharing of information among the groups. Possibly due to this lack of information sharing, some local residents harbor a sense of distrust toward the government and are concerned that the government will deprive them of their stake in the land and the ruins. The absence of a framework for sharing information among the three parties and consolidating their efforts to protect the site as one is perhaps the greatest issue in considering future protection measures. Cooperation among the government, the Nahmwarki and landowners is indispensable to developing and attracting more tourists to the site.

#### (2) Establishment of an admission fee collecting system

The admission fee system is confusing to most tourists, because it is not something that has been established based on discussion and agreement between the government and local residents. Tourists must pay three dollars to the Nahmwarki to enter the site by boat, three dollars to Mr. Masao Hadley to use the tourist trail that begins on his land, and a host of other admission fees to local residents in various places. Local residents seem to have concerns that the government will deprive them of their right to collect admission fees and take away their earnings. To protect this site and draw more tourists in the future, it is necessary to establish a proper admission fee system and appropriately distribute and utilize the earnings for the benefit of protection activities.

#### (3) Explanation to local residents

Nan Madol has been excavated by many archaeologists from foreign countries to date, and many of its artifacts have been taken away from the site. For this reason, local residents are extremely leery of foreigners excavating and making off with artifacts from a site that is the resting place of their ancestors. In fact, prior to this survey, the Nahmwarki said he would grant us permission for the survey as long as no excavation would be performed. The fact that the results of most surveys conducted by foreign excavation teams have not been properly passed on to local residents seems to have planted the seed of distrust toward foreign excavation teams in local residents. In effect, they have been deprived of the opportunity to complement the history that they know through oral tradition with history based on scientific research. In light of this understanding, it is necessary to make sure local residents are given sufficient advance explanation even in cases of international cooperation when some type of task is required for protection of the site.

It appears that the FSM HPO has plans to organize the study results that have already been submitted to the FSM government by foreign excavation teams. Therefore, after organization, such materials should perhaps be made available to local residents in some form in the future, so that residents could use them to learn more about their history.

#### (4) Personnel shortage

With a population a little under 36,000, Pohnpei has extremely few people who engage in cultural heritage protection and conservation. Both the federal and state HPOs have few members on staff, and are incapable of undertaking large-scale conservation and restoration projects as matters stand. To develop human resources in cultural heritage protection, many personnel have been offered training in Japan and other foreign countries, but some have taken em-



ployment in a different occupation after returning to FSM. Under this situation, gathering the necessary personnel is expected to become a major issue before international cooperation can be provided for protection of Nan Madol.

## (5) Development of tourism infrastructures

At present, no large hotels or lodging facilities exist near Nan Madol that could accommodate a large number of tourists at once. Moreover, since there are neither guides, official pamphlets nor information panels to provide tourists with appropriate descriptions about the history and value of Nan Madol and its traditions, most tourists simply take a tour around Nan Dawas, the central ruins of the site, and do not take the time to visit the other islands. To prevent confusion arising from an increase in tourists and to accurately communicate the true value of Nan Madol, it is urgently necessary to develop tourism infrastructures.

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## 5. Proposal

Based on this survey, we have presented an overview of the present state of the Nan Madol ruins, and have discussed the framework of the Federated States of Micronesia for preserving the site, as well as the results of interviews with relevant stakeholders. When considering the ruins as cultural heritage that is intimately associated with the history and traditional culture of the island of Pohnpei, it is extremely important to avoid development for the sake of tourism, but to promote measures for maintaining this heritage in a sustainable manner while respecting the living culture of the local residents. Such preservation initiatives will not bear fruit overnight, but require a long-term perspective. They must also be backed by the voluntary cooperation and approval of each local resident, in addition to receiving economic and political support from the national and local governments.

A serious concern regarding the preservation of the Nan Madol site is that, despite its outstanding value, no proper management plan exists for their protection. Having a proper management plan is not only an important prerequisite to having the site inscribed on the UNESCO World Heritage List as expected in the future, but it is also indispensable as a foundation for receiving international aid for its preservation. Based on this awareness, Japan could provide effective international aid for preservation of the Nan Madol ruins by offering counsel and cooperation in the formulation of the management plan.

The management plan for preservation of the ruins should include considerations for the following items:

- legislative, regulatory and contractual measures for protection;
- boundaries for effective protection;
- the buffer zone;
- management systems;
- sustainable use.

For the first item, Japan could cooperate by consulting with the national or local governments that are legally responsible for management of the ruins in order to confirm the state of existing legislative measures and provide advice regarding any correction or supplement that may be needed.

For the second item, an accurate map of the ruins must be drafted to establish the scope of the ruins that needs to be protected. Toward this end, Japan might consider offering technical transfers of survey and documentation methods (e.g. traverse survey and plane-table benchmarks, and total station equipment [theodolite; EDM]), and providing other relevant technologies (e.g. establishment of reference points according to the GPS geodetic reference system).

For the third item, a buffer zone needs to be established around the ruins to restrict any development initiatives that may adversely affect the ruins. Toward this end, it would be necessary to conduct an environmental survey of surrounding areas to assess the state of forests, mangrove trees, and rivers, and evaluate the potential impacts that development initiatives in the surrounding areas could have on the ruins.

The fourth item refers to the establishment of management systems that would specifically define measures for



protection of the ruins. It should be noted, however, that circumstances surrounding each islet vary according to its cultural and environmental contexts, such that in many cases, management systems are not only the responsibility of relevant government officers, but are also closely associated with voluntary protection activities of local residents and their long-standing cultural customs. The formulation of management systems must therefore take this diversity into consideration and include the following elements at the very least:

- a) agreement among all stakeholders;
- b) establishment of a planning–execution–monitoring–evaluation–feedback cycle;
- c) involvement of collaborators and stakeholders;
- d) necessary funds;
- e) capacity building measures;
- f) a clear and transparent plan document.

Japan could consider providing advice and cooperation for the above items toward the establishment of proper management systems.

The fifth item refers to the need to consider methods for the culturally and environmentally sustainable utilization of the ruins. Japan could provide advice and cooperation in preparing a sustainable tourism plan that takes into consideration the cultural and environmental aspects of the ruins.

Formulating a management plan that satisfies the above requirements may be an ambitious goal, but input and support from Japanese cultural heritage specialists and archaeologists can help to achieve these recognizable goals through a practical approach, as proposed below.

#### Implementation of a management plan formulation workshop

In order to formulate a proper management plan, it is necessary to create a consensus across all stakeholders concerned with the ruins. Through the recent survey, we were able to verify that all stakeholders, including the national and local governments, landowners, and local community, acknowledge the outstanding value of the ruins and wish to protect them. At the same time, however, it also became evident that communication channels and cooperative relationships among the stakeholders have yet to be established. Therefore, we propose to invite all stakeholders to take part in a workshop oriented toward formulating a management plan based on consensus-building efforts.

The workshop would focus on the following issues:

- importance of creating a management plan (lecture by a specialist from Japan);
- overview of the UNESCO World Heritage Convention and the inscription process (lecture by a specialist from Japan);
- assessment of the state of conservation of the ruins (all participants);
- sustainable tourism (lecture by a specialist from Japan);
- discussion and preparation of a report (all participants).

Japanese cultural heritage experts would lecture on the first and second issues and explain the necessity of achieving a consensus across all stakeholders.

With regard to the third issue, all participants will make an actual visit to the ruins to document and evaluate their present state of conservation. Through this task, they would be encouraged to mutually share opinions about what is needed to preserve the ruins.

For the fourth issue, an ecotourism and heritage tourism specialist will be invited to give a lecture about sustainable tourism, to increase awareness about the adverse impacts that tourism-related development could have on the ruins. Additionally, the specialist can discuss ways to promote understanding about the importance of protecting the ruins in a sustainable manner through proper distribution of the resources acquired from tourism.

With regard to the fifth issue, the objective of the discussion would be to further strengthen consensus-building efforts among stakeholders. The overall objective of the report would be to acquire feedback from the workshop.

The workshop will be held in a venue in Kolonia or Nan Madol over a period of approximately a week with the attendance of about 5 to 10 participants preferably from each stakeholder group.

This workshop would make a significant contribution to satisfying a number of the requirements needed for the formulation of a management plan. It would also be instrumental in creating a consensus across all stakeholders, this being perhaps the most important of all requirements for the preservation of the Nan Madol ruins.

\* Following the proposal above, the workshop entitled "Consultation on the Safeguarding of Nan Madol" was held during the period between 23<sup>rd</sup> and 26<sup>th</sup> November, 2011 at Kolonia and the Nan Madol site in Pohnpei State, Federated States of Micronesia. It was supported by the Japan Foundation, Japanese Funds-in-Trust to UNESCO and Japan Consortium for International Cooperation in Cultural Heritage.





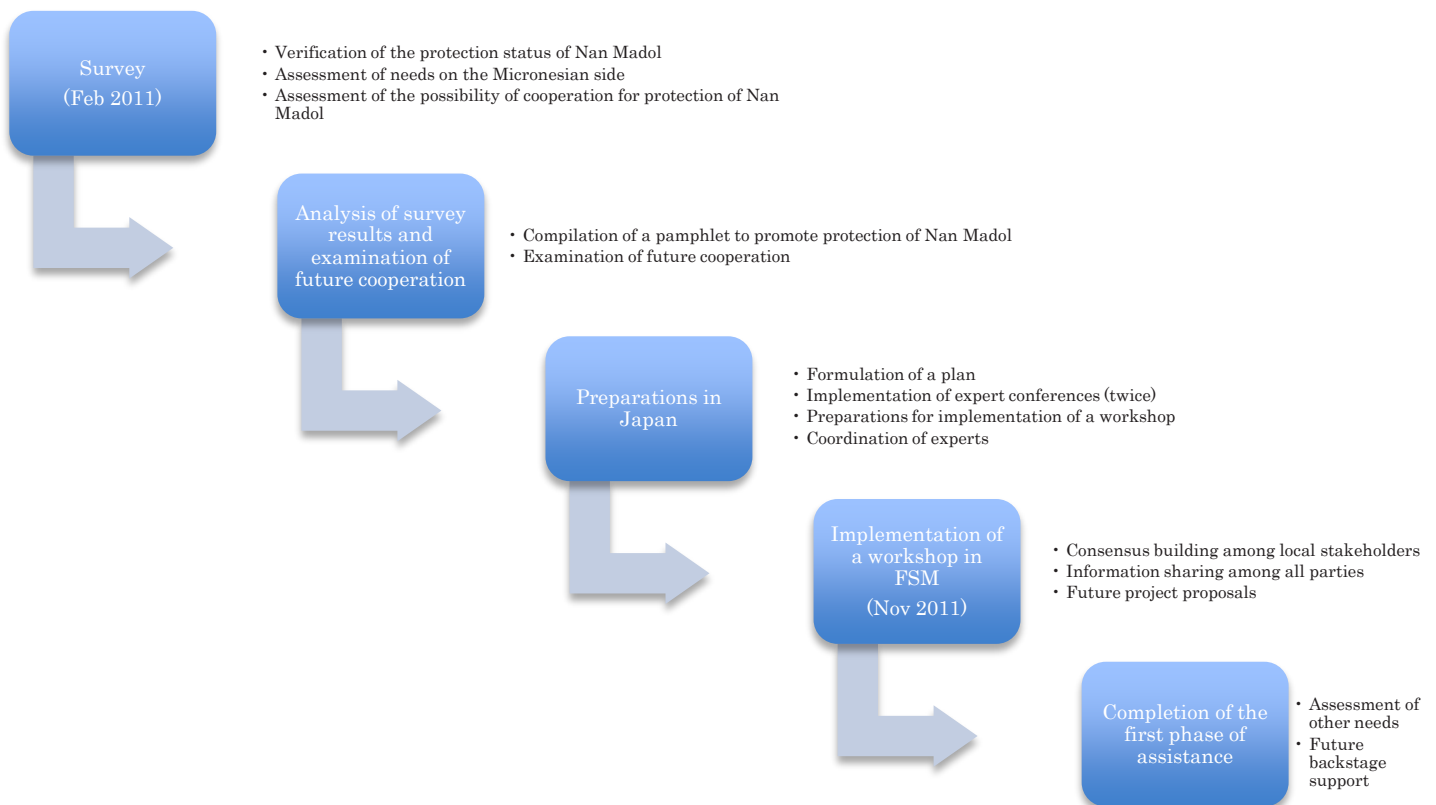
## 6. Subsequent Cooperation (FY2011)

### <Workshop Report>

At JCIC-Heritage, we have continued our cooperation in response to the request of FSM, based on proposals derived from the results of this cooperation partner country survey. As a result, certain achievements have been made, and local initiatives for protection of Nan Madol have made steady progress. As a supplement, we introduce the cooperation we have extended based on the results of the fiscal 2011 partner country survey.

As proposed in light of the survey results, the formulation of a management plan based on a consensus of all local stakeholders is of foremost importance in the effort to protect Nan Madol. To help the stakeholders achieve consensus, we judged that a workshop needed to be held, and hosted expert conferences on two occasions prior to implementation of the workshop in November. Also as part of our cooperation, we compiled pamphlets such as this as requested by UNESCO and FSM, to accurately communicate the present state of Nan Madol to local residents and to acquire international cooperation from other foreign countries.

### <FY2011 cooperation by JCIC-Heritage>



The workshop was held from November 23 to 26, 2011, in a conference hall in the Yvonne Hotel, located in Colonia, Pohnpei. It focused on three main objectives: (1) to gather all stakeholders; (2) to share information on the present state of protection of Nan Madol among all stakeholders, and (3) to provide an understanding of future efforts that need to be made by each stakeholder.

In addition to JCIC-Heritage, a Japanese experts team, the FSM HPO and UNESCO (UNESCO/Japan Funds-in-Trust) co-sponsored the workshop and fulfilled their respective tasks. First of all, JCIC-Heritage planned and organized the workshop based on survey results and conclusions drawn from the two expert conferences that were held. We also arranged matters requiring liaison and coordination with FSM and UNESCO. The Japanese experts team was headed by Mr. Tomo Ishimura, who was also one of the survey members in Feb 2011, and included experts on tourism and forestry (mangrove) and a photographer to document the workshop. Their participation in the workshop was funded by the Japan Foundation. The costs for implementing the conference in FSM were covered by a contribution from UNESCO/Japan Funds-in-Trust. UNESCO sent IUCN experts to the workshop to help with getting Nan Madol inscribed on the World Heritage List. The FSM HPO undertook the overall arrangement of the conference and urged the attendance of all stakeholders. JICA experts who had been dispatched to the Department of Resources and Development also attended the workshop as an observer.

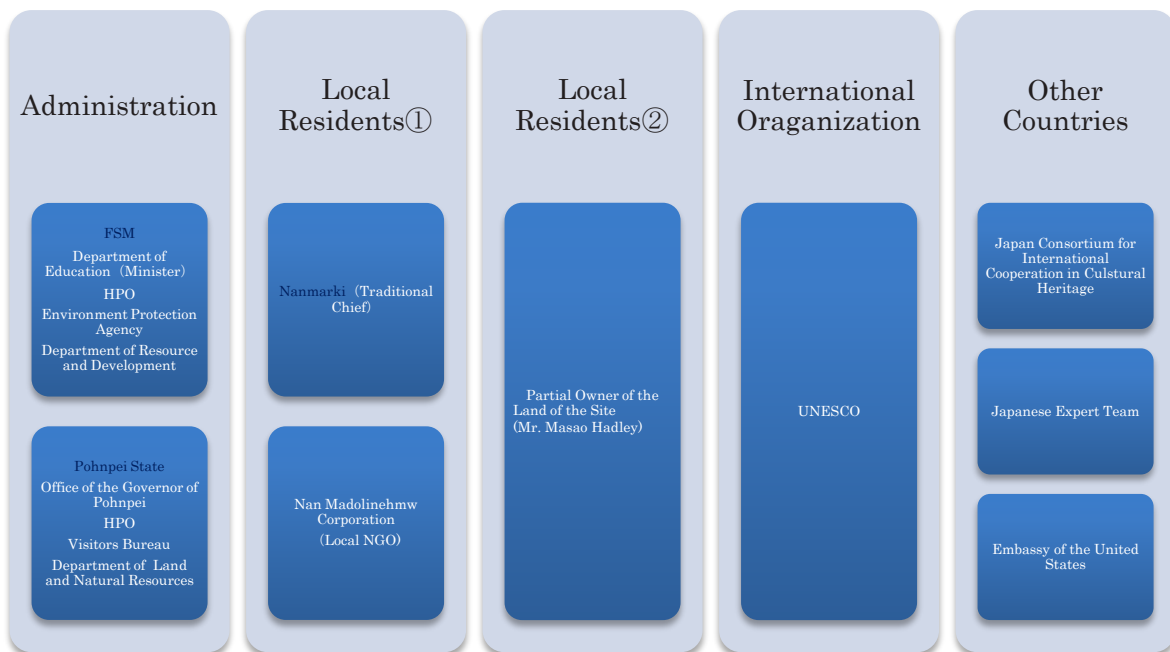
## <Workshop sponsors and roles>



# Micronesia

## <Principal workshop participants>

The workshop was attended by all three principal stakeholders: the Micronesian side, represented by education ministers and other government officers related to protection of Nan Madol from both the FSM and Pohnpei governments; local residents, represented by the Nahmwarki and NGO leaders; and landowners who own part of the land of the site. Furthermore, UNESCO attended as the principal international institution concerned, and JCIC-Heritage and the Japanese expert team participated as representatives from Japan. The Deputy Chief of the American embassy in FSM also lent his presence and expressed strong interest in protecting Nan Madol.



## <Participant>

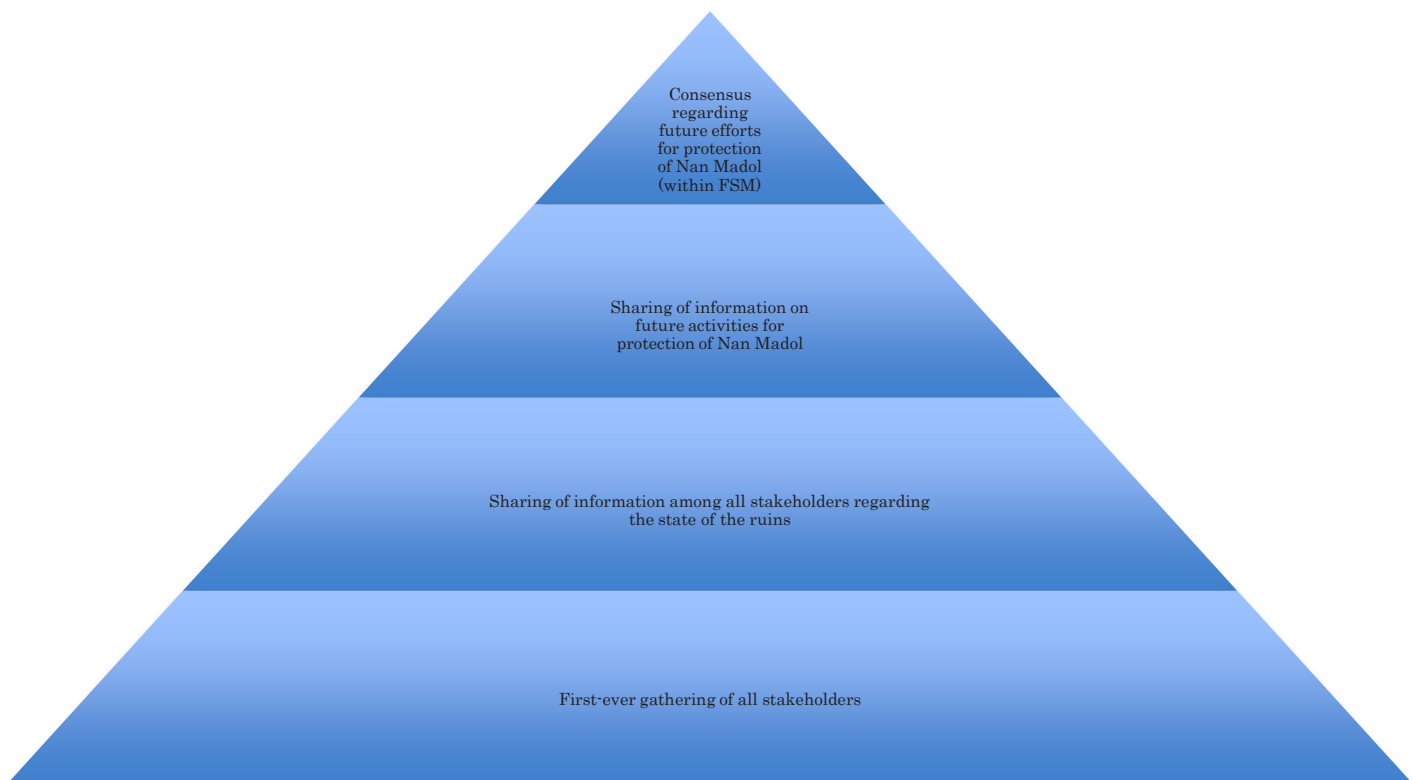


## <Content and results of the workshop>

The workshop was held over a period of four days. The first two days were spent in the conference room, where experts and members from relevant institutions explained the state of Nan Madol and the procedures required for protecting the site and inscribing it on the World Heritage List. After sharing the necessary information, all participants made an actual visit to Nan Madol on the third day and verified the state of the ruins. On the final day, the participants discussed the future implementation of activities based on previous discussions, and all stakeholders signed an agreement pledging to cooperate in future activities, before bringing the workshop to a close.

The workshop was extremely meaningful in the sense that by bringing together all stakeholders, it allowed everyone to share information, gain proper understanding of proposals put forth by experts from in and outside FSM as well as tasks needed in future activities, and to mutually verify their concurrent commitment to move forward their initiatives for protection of Nan Madol. The fact that there was no such consensus among the stakeholders had been the greatest impediment to protecting Nan Madol. However, now that a consensus has been achieved, activities for protection of the ruins and inscription of the site on the World Heritage List are expected to advance steadily.

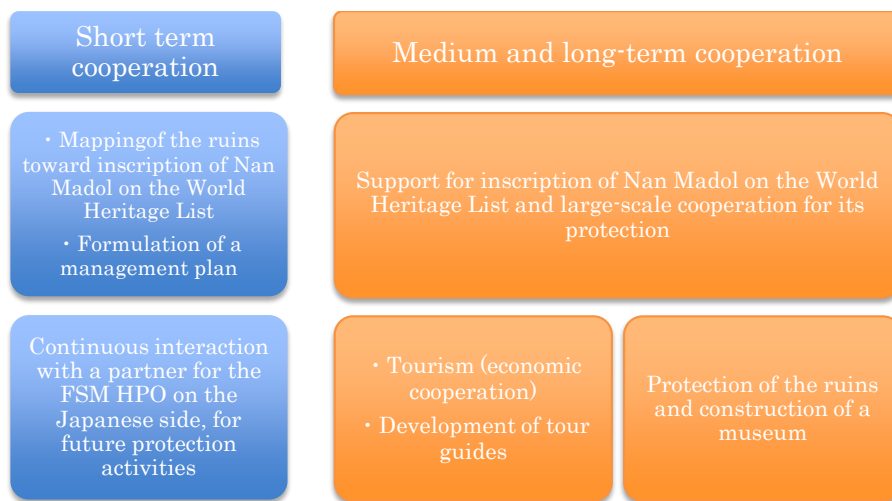
## <Results of the workshop>





## <Requests from the Micronesian side regarding future activities>

FSM seeks future support from the international community on several issues as it pursues its effort to protect Nan Madol and have the site inscribed on the World Heritage List. First of all, in the short term, FSM needs assistance in making a new, accurate map of Nan Madol, as the map currently in use is extremely old, and it also needs to formulate a management plan for protection of the ruins. At the same time, it needs a partner on the Japanese side to provide continuous advice on such activities. Over the medium to long term, it is seeking cooperation with regard to protecting the ruins, constructing a museum for the safekeeping of excavated artifacts, and developing tour guides for Nan Madol.



## Conclusion

This cooperation partner country survey conducted in the Federated States of Micronesia specifically aimed to assess the state of protection of Nan Madol in terms of its present condition and institutional aspects, and consisted of a status survey by archaeologists and interviews with relevant institutions and local residents. Based on the results of the survey, the current state of the ruins and impediments to implementing protection activities were analyzed, and various proposals were presented to the local authorities. While the site itself exhibits a number of problems, such as the collapse of buildings and overgrowth of vegetation, it was considered particularly necessary to share information and reach a consensus among the multiple stakeholders before any activities could be implemented to address these problems. This proposal was readily accepted by the FSM and UNESCO sides and promptly implemented, indicating that this survey has fulfilled its role to a significant extent.

Traditional customs are deeply rooted in Micronesian society, as can be seen in the special authority granted to the traditional chief called Nahnmwarki. Without an understanding of this culture, no survey activities could have been efficiently implemented. In this regard, we owe the successful completion of this survey to the cooperation of Mr. Kataoka, who has been studying Nan Madol for more than twenty years.

Even before this survey, each of the local stakeholders was aware of the need to cooperate with the others to protect Nan Madol, but their mutual distrust prevented them doing so. JCIC-Heritage and UNESCO's involvement just when the stakeholders were feeling that their mutual distrust was itself a problem facilitated a discussion among the stakeholders at the ideal timing. In this sense as well, it can be said that this survey was extremely timely.

This survey achieved a certain measure of success, judging by subsequent progress that has been made. The Japan Consortium for International Cooperation in Cultural Heritage hopes to continue to be of assistance to international cooperation by Japan by implementing surveys as one of its priority activities for promotion of Japan's international cooperation for cultural heritage.

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