

INTRODUCTION

In 1987, the Pohnpei state legislature passed the Pohnpei Watershed Forest Reserve and Mangrove Protection Act in which close to 5,000 hectares (or 12,500 acres) of upland forest was set aside as a protected Watershed Forest Reserve. The purpose of this act was to halt the degradation of the interior forests from road construction and population encroachment as well as to protect the watershed and water supply for the island's population. However, when surveyors attempted to mark the boundary of this reserve, suspicious and angry villagers with machetes and guns turned them back.

With this single act, the story of watershed management on Pohnpei began and continues to unfold today. This case study analysis examines the evolution of watershed management on Pohnpei, from the difficulties of developing a management plan and educating the public on the importance of watersheds to the process of engaging in collaboration, including community-based natural resource management. It also attempts to extrapolate lessons learned from the challenges and opportunities experienced by those involved as well as develop recommendations concerning current challenges.

The case study analysis begins with this chapter, which outlines case study objectives, methods, and provides background to some of the issues discussed in the succeeding chapters as well as historical, geographic, and socio-economic information concerning Pohnpei.

In Chapter Two, the history of watershed management efforts will be outlined. This chapter will also identify significant crossroads for watershed management by examining how such transition points affected management efforts subsequently, the

factors that affected the decision-making process, and why these crossroads were considered significant. Successes and challenges will also be discussed in this chapter.

Chapter Three continues the report of interview results by focusing on lessons learned (e.g. what worked, what didn't, and why) and achievements, current challenges to effective watershed management, and future steps to be taken.

In Chapter Four discussion of successes and challenges continues in the context of organizational issues. Specifically, the roles and challenges facing involved parties and their participation in watershed management will be reviewed and analyzed.

Using a comparative case study approach, Chapter Five reviews similar collaborative and community-based cases and studies in the context of the specific challenges that are identified for watershed management at the end of Chapter Four.

Chapter Six concludes the watershed management case study analysis by summarizing overall observations through identification of six key factors for enhanced collaboration. Specific steps and recommendations regarding these six key factors are developed for the watershed management program to consider.

Methods

The case study analysis used multiple methods of personal observations, interviews, and document reviews while on Pohnpei during the months of May through July of 2002. Interviews were also conducted in Hawaii in August 2002. These methods were the basis of analysis for Chapters Two, Three, and Four. For Chapter Five, these methods were also supplemented by literature review on collaborative and community-based case studies. In addition, a local research steering committee, comprised of representative parties involved in watershed management (state agencies, non-profit

organizations, and traditional leaders), was organized to help determine objectives for the research as well as assist in implementation and final write-up.

Critiques of the methods mainly relate to limitations imposed by time and resources available during field research. They are as follows:

- The local research steering committee generated the list of interviewees. As such, information gathered during the interview process may be biased in representation as only those selected by the steering committee were interviewed. However, the steering committee considered parties at different levels of involvement and support (and non-support) to ensure a rounded list of interview candidates in order to provide insight from all possible angles and aid in developing a comprehensive understanding. The final list of interviewees was broadly representative of community members (including sakau farmers), municipal governments, non-governmental organizations, politicians, state agencies, traditional leaders, and U.S. federal agencies.
- The other issue regarding the interviews was use of two interpreters who were also employees of the state as well as The Nature Conservancy (TNC). There were concerns that interviewees would not feel comfortable or be forthright in their answers as a result. However, these concerns were outweighed by the fact that Pohnpeian society is tightly knit and personal relationships are a big factor in interactions. As such, using an interpreter that is not familiar to community members may have inhibited their answers and produced similar concerns over level of comfort and forthrightness. Therefore, the two interpreters were used because they were familiar to communities, despite their links to the state and TNC. Another issue concerning the interviews has to do with *Kanengamah*, a manner of behavior signifying reserve and restraint. Pohnpeian anthropologist Glenn Petersen notes that in Pohnpeian society management of the truth or a person's ability to conceal their knowledge, interest, or emotions from others to control the flow of information in the interest of maintaining power is prevalent (Petersen, 1993).¹ To balance this issue, interviews were focused on a diverse and broad range of people. In addition, at the beginning of each interview, the researcher explained that the research was independent and not sourced by the state or non-governmental organizations.
- Another concern regarding methods comes in the form of understanding the nature of communities in Pohnpei. Though the researcher attended community workshops and worked closely with Pohnpeians, due to logistical issues and constraints on time, the researcher was not able to spend quality time in

¹ Petersen himself noted this issue during his own experiences with conducting interviews on the island. He would often come across instances when people would contradict each other or even themselves with the information offered as well as other instances when an individual would share a critical piece of information or reflection only after months of interviewing.

communities. As such, full understanding of community mechanisms and workings was beyond reach of the investigator. However, attempts to address this shortcoming was done through talking with fellow researchers who had spent longer time periods on Pohnpei living with communities (e.g. PhD students, expatriates), reviewing anthropological studies on Pohnpeian communities, and speaking with Pohnpeians about the nature of communities. In addition, several interviews were conducted in villages after which lunches were provided and sakau ceremonies performed, allowing the researcher to step out of the interview role to talk with people informally at such social gatherings.

Geography

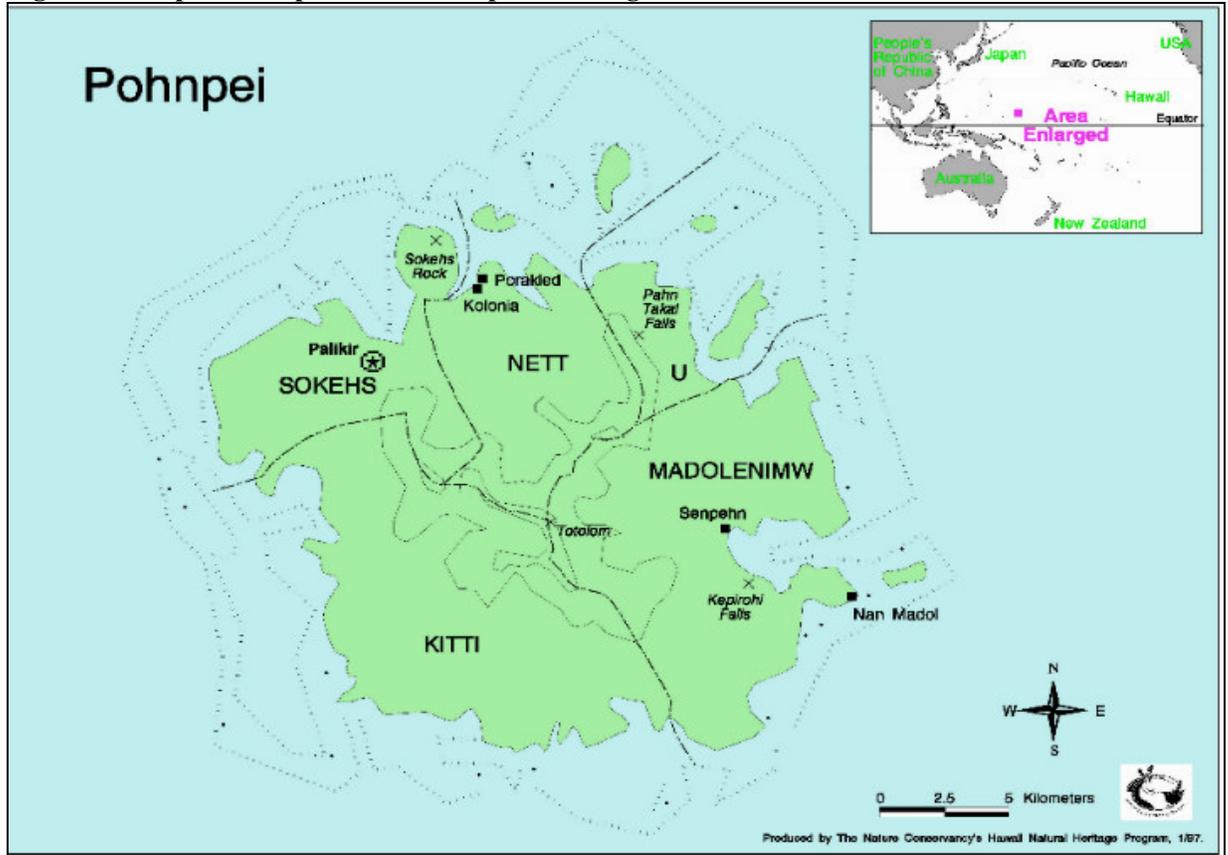
As one of four states comprising the Federated States of Micronesia, Pohnpei encompasses 129 square miles and is the third largest island in Micronesia.² It is 2,500 miles southwest of Hawaii, situated between Guam and Northern Australia, and east of the Philippines.

This volcanic island in the Western Pacific Ocean is considered a high island for it is mostly mountainous in terrain with deep valleys and ridges that are covered by dense, tropical vegetation in the form of rain forests found in the interior. These upland forests consist of a mix of broadleaf, swamp, and dwarf forests. Maximum elevation is 780 meters. Mangrove forests are found along the coastal areas of the island with vegetation consisting primarily of agroforest and grasslands due to human habitation. Off-shore barrier reefs form lagoons around the island, providing abundant grounds for marine life and fishing opportunities and livelihoods. Pohnpei experiences heavy rainfall throughout the year, with an average annual rainfall recorded at 194 inches. As such, the island is home to a number of rivers and waterfalls. The climate is tropical with average temperatures at 27 degrees centigrade. Pohnpei also experiences tropical typhoons as

² Pohnpei State also includes 125 islands and atolls. However, since the watershed management program focuses mainly on the island of Pohnpei, usage of the word *Pohnpei* in this case study analysis will refer to the island itself rather than the entire state.

well as periodic drought conditions that critically affect the groundwater available to its population of 38,000.

Figure 1. Map of Pohnpei with municipalities/kingdom divisions outlined



Source: The Nature Conservancy

Due to its relative age and isolation, the upland forests of Pohnpei house an incredible amount of biodiversity with high levels of endemism, making it one of the most diverse places in Micronesia. Of the 767 plant species that have been recorded on the island, 34% are native to the island's upland forests. 111 plant species are endemic to the island and 90% of these are found in upland forests. In addition, sixteen percent of the island's 50 bird species are endemic to the island (Dahl and Raynor, 1996).

Brief History

Though Pohnpei's history goes back as far as 500 AD, in understanding watershed management on the island, it is the recent history that has been most influential. The Pohnpei of today has been greatly affected by its over 150 year history of colonial rule, particularly property arrangements and displacement of traditional political governance systems. Each colonial regime instituted governance systems focused on supporting economic and strategic interests of the homeland. The result has been loss of control over lands by traditional leaders, co-option of lands by the state, and organization of lease and homestead programs for property distribution to Pohnpeians – all creating high levels of insecurity over land tenure for many Pohnpeians and leading to feelings of distrust concerning the state (Dahl and Raynor, 1996).

From 1886-1899, Pohnpei was ruled by Spain during the time of the spice trades. At the end of the Spanish-American War in 1898, Spain sold its interest in Pohnpei to Germany. As a result, from 1899-1914, it was governed by Germany, under whose administration traditional land use and ownership were changed dramatically as the Germans instituted individual ownership of land by deed and inheritance by primogeniture in order to promote agricultural production (traditional land inheritance systems were matrilineal). The effects of German land reform can still be seen today in the form of confusion over land ownership between the state and individuals as well as traditional leadership versus state authority over certain areas. Under German rule, the production of copra (the dried oil-bearing meat of the coconut) for trade was also developed. From 1914-1945, Pohnpei came under Japanese control. During this time period, state or public land increased greatly as the Japanese considered all unused or

untitled lands state property. Forced sales were also conducted in which land was given to Japanese settlers or used for military purposes. Pohnpei also experienced great growth in terms of development. The Japanese, seeing Pohnpei as a resource for its war efforts, built sugar cane factories and developed mining, fishing, and agricultural industries. They also invested in infrastructure such as roads and creation of towns with hospitals, local stores, and schools. However, this development was quickly laid to waste at the end of World War II when Pohnpei was heavily bombed.

After the war, Pohnpei came under the Trust Territory of the Pacific Island, created by the United Nations in 1947. The United States took on the role of Trustee for the territory from 1947-1986. State lands under administrative rules set in place by the Japanese remained the same during the U.S. Trust Territory years. Additionally, leases obtained during Japanese rule were considered defunct by the Trust Territory government and reverted to public domain, with leases obtained during German occupation considered legitimate. The Trust Territory administration also instituted a major land registration program and conducted land surveys to assist with land disputes. During this time period, the responsibility of the United States toward Pohnpei, along with Chuuk, Yap, Kosrae, Palau, the Marshall Islands, and the Northern Mariana Islands, was promotion of economic development and eventual self-sufficiency and governance of these islands. However, the years under Trustee administration proved these objectives to be secondary to the U.S. need for securing Pohnpei as a strategic base of operations for its military forces in the Pacific. As such, the financial assistance that was provided to Pohnpei was not directed toward building self-sufficiency capacity (which was greatly mismanaged), but toward securing the island for U.S. defense purposes. One

consequence of the Trusteeship period was the establishment of a U.S. system of democratic governance over the traditional governance structure of chiefs and kingdoms (discussed later under *State and Municipal Governance Structures*). This shift in governance systems has created tension between traditional leaders and the state, the effects of which will be revealed in subsequent chapters.

Another consequence of U.S. Trusteeship was growing financial dependency on U.S. subsidies. In 1979 Pohnpei joined with Yap, Chuuk, and Kosrae to form the Federated States of Micronesia (FSM) to become a sovereign country with a constitution and national and state governments. In 1986 the U.S. transferred governmental functions, in accordance with the UN Trusteeship Agreement, to the FSM thereby allowing the FSM (and through it Pohnpei) to become truly independent for the first time since 1886. However, relations between the FSM and the U.S. continued in the form of a 1986 Compact of Free Association in which the U.S. provided funding over a period of fifteen years to help the FSM build governance capacity, infrastructure, and economic development in exchange for military rights and use of the island as a strategic base. This funding would be decreased every five years in order to promote gradual development of self-sufficiency at the end of the fifteen year period. However, similar to the Trust Territory days, the result of this Compact has not been self-sufficiency for the FSM, but continued dependence on U.S. aid as the public sector grew to meet the needs of executing Compact funded projects and initiatives. As a result, the public sector remains the largest employer in the country. This shift in the economy toward public sector development also created a move from a subsistence economy (traditionally agriculture and fishing) to a cash economy as more people were drawn into government

jobs and related activities (e.g. restaurants, grocery stores, gasoline stations, etc.) that sprang up to meet the needs of this new class. Youth are particularly impacted by the cash economy as traditional subsistence lifestyles are rejected in favor of the benefits of a cash economy. In addition, Pohnpei is home to a large number of foreign nationals, mostly Americans along with Australians and Japanese, who are employed as teachers, lawyers and Peace Corp volunteers. The existence of such a large ex-patriate community adds to the growth of the cash economy as stores also cater to their Western lifestyle needs and subsist on their dollars for imported goods. With minimal growth in the private sector and very little foreign investment, Pohnpei's dependence on dwindling U.S. financial assistance looms as a large challenge for the state and particularly for the watershed as commercial sakau cultivation becomes the only other income generating activity available to people.³

Pohnpei Today

Though the Compact expired in 2001, the FSM is in the process of renegotiating with the U.S. government to extend the Compact to provide additional funding for another twenty years. One of the biggest issues facing Pohnpei is how the economy as well as the state will continue to function without this subsidy. Pohnpei has no industry on which to base economic development and most of its private sector consists of services for domestic consumption (Micronesia Seminar, 2002). Though Pohnpei does export coconut related products, sakau, and pepper, these industries are decreasing and remain small given the dearth of available land for farming. As a result of these limited

³ Planting of sakau is the largest threat to the watershed areas, particularly as this plant has become a commercial cash crop. The role of sakau will be expanded upon later in this chapter.

economic employment opportunities, many Pohnpeians migrate out of the state for economic opportunities with an estimated 2,000 FSM citizens a year leaving the islands (Micronesian Seminar, 2002). In addition, according to a 2000 country economic review conducted by the Asian Development Bank (ADB), though Pohnpei experienced strong growth in the early Compact years, poor policy environment coupled with bad public enterprise investment has led to economic stagnation (Asian Development Bank 2000, 4). Foreign investment is also discouraged by the existence of “restrictions on land leases, uneven court enforcement of contracts, lack of tax incentives, and multiple bureaucratic requirements imposed on outsiders” (Micronesian Seminar, 2002). Other issues mentioned in the previous section (declining traditional ways, move toward cash economy, and problems with executing western style government) also remain.

However, despite the challenges outlined above, Pohnpei also faces opportunities. In 1995, the Asian Development Bank convened an economic summit in which it was recognized that state governments should be downsized, dependency on imports reduced, foreign investment laws and regulations changed to promote investment, and efforts at developing commerce, trade, agriculture, and tourism be made a priority.⁴ A set of objectives for various sectors was developed as well as plans to reach these goals. As such, the private sector in Pohnpei has seen growth, though slow, in the form of privatization of its telecommunications, public utilities, road-building, and construction. In addition, this economic summit, along with subsequent summits, created a mechanism in which donor aid could be better utilized to create self-sufficiency. Licensing of fishing

⁴ Challenges concerning foreign investment in Pohnpei are inadequate infrastructure and lack of skilled work force since education is only mandatory from grades 1-8. Advantages are that Pohnpei has a stable democratic government, its business laws are modeled after the U.S., it is close to major markets in the U.S. Pacific Rim, Australia, and Southeast Asia, has its security guaranteed by the U.S. military and has advanced communications such as internet and satellite capabilities.

fees to foreign vessels is also a potential income generator for Pohnpei as its waters are abundant with tuna.⁵ Tourism has also been identified as a potential growth industry since Pohnpei is home to World War II relics as well as Nan Madol, a world class archaeological site, and natural beauties such as coral reefs, rain forests, and waterfalls.⁶ Pohnpei, when compared to the rest of the FSM, is also fiscally disciplined regarding management and is the least dependent on external grants (Asian Development Bank 2000, 15).⁷

Another positive development for conservation is the stabilizing population growth (mostly attributed to emigration) the FSM has been experiencing. The years 1994-2000 experienced only a 0.4% increase in population on the island (Micronesian Seminar, 2002). Current population stands at around 38,000. With such stabilization of population, demands for road-building and housing should decline, thereby decreasing some pressure threatening watershed areas on the island.

In addition, though the traditional ways of life and governance have suffered from years of colonial rule, Pohnpei is experiencing a reawakening through a return to old customs and encouraging pride in traditions. Efforts at reviving mechanisms of traditional governance systems originate both from the watershed management program as well as global movements in natural resource management recognizing the important role of indigenous knowledge and systems. During the time period in which this research

⁵ Issues of sustainability of these tuna populations must be considered in order to estimate continued future viability of licensing fees as an industry.

⁶ In the author's opinion, given what was experienced during field research, tourism as an economic industry for the state has a long road ahead as infrastructure development (tap water must still be boiled for use in household cooking and drinking) and facilities of hotels and amenities require further improvement before Pohnpei can compete with similar destinations such as Bali or Palau, which also have excellent diving and hiking opportunities and amenities. In addition, the heavy rains experienced daily on the island may prove problematic for tourism development.

⁷ However, external grants still make up to 68% of government revenue.

was conducted, a region-wide conference of traditional leaders took place on the island. Traditional leaders from Palau, the FSM, the Marshall Islands, and others discussed issues such as natural resource management, integrating traditional governance systems with Western governance systems, and strengthening traditional customs and cultures in the face of globalization.

State and Municipal Governance Structures

State. Pohnpei is one of four states that comprise the Federated States of Micronesia.⁸ Pohnpei has a constitutional government with an executive, judicial, and legislative branch. The executive branch is led by a governor, elected every four years, who is responsible for administering the law and government services. The legislative branch (unicameral) is made up of 21 senators, elected by their districts, and is the law-making arm of the government. The judicial branch includes district courts and is given the responsibility of interpreting the laws. The state has several agencies or departments that deal with education, economic development, agriculture, environmental regulation, lands and so forth. With regard to natural resource management, the state has authority over the conservation and management of terrestrial and inshore marine resources out to 12 miles from the reef. The Division of Forestry and Marine Surveillance is under the Department of Lands.

Municipal. The five municipalities are based on the existing five traditional kingdoms of Madolenihmw, U, Kitti, Nett, and Sokehs. Introduced during the U.S. Trust Territory years in 1948, municipalities are governed by elected chief magistrates as well

⁸ As a comparative reference to the U.S. system, the Federated States of Micronesia and Pohnpei State are parallel in terms of relationship and governance responsibilities to the U.S. federal government and the 50 states.

as elected councilors to the legislative body.⁹ Given the overlap of this system with the traditional kingdoms, in order to be effective, the chief magistrate must work closely with the Nahmwarki as responsibilities and roles coincide. This can similarly be said of elected councilors and village chiefs (Hughes, 1969). In the past, the position of chief magistrate was often filled by individuals who were also traditional leaders, but today this dual role of authority is uncommon in Pohnpei.

Traditional Political Governance and Community Structures

Five traditional kingdoms exist on the island: Madolenihmw, U, Kitti, Nett, and Sokehs. Each kingdom is governed by two chiefs, the *Nahmwarki* and *Nahnken*. The Nahmwarki is the paramount chief while the Nahnken serves as his chief adviser and administrator. There also exists a state-wide traditional council of paramount chiefs as well as municipal traditional leader assemblies known as *Pwihn en Wahu*. Prior to colonization, Nahmwarkis held ownership and management responsibilities of all lands within their kingdoms. These kingdoms are divided into *kousapws* (or villages), which in turn are governed by village chiefs, *Soumas en kousapws* (Hughes, 1969). These soumas report to and are governed by the Nahmwarkis. Villages are usually made up of families or a group of people with close kinship ties that live and work in the area and are bound to the leadership of a soumas. There are over 200 villages island-wide with populations in each ranging from 50-300.

The relationship between traditional leaders and communities revolve around tributes, feasting, and redistribution of goods. This system strongly affects natural resource use patterns (as will be discussed later in the *Sakau* section). Though their

⁹Similarly, municipalities can be considered as equivalent to U.S. cities or counties in which the chief magistrate is the mayor and has similar governance roles and responsibilities.

authority is not based in law, traditional leaders maintain their leadership role and influence through the granting of titles and feasts. Communities serve their chiefs through tribute and labor and in return, titles, settlement of disputes, and chiefly consent are provided (Dahl and Raynor, 1996). Traditional leaders also redistribute tributes received back to the community as a sign of their authority. Redistribution enforces the binding of communities to traditional leaders and legitimizes their leadership. In this way, though traditional leaders rule within communities, the reciprocal nature of the relationship serves as a checks and balance system for both. As such, traditional political governance is based on inter-personal relationships and reciprocity. In addition to the distribution of titles, a traditional leader's authority rests on his ability to listen and meet the needs of his community as well as on his humility and wisdom (Petersen, 1982).

A majority of the population live in coastal villages and in Kolonia (the capital). Almost all households engage in subsistence agriculture based on agroforestry, with a few also involved in animal husbandry (e.g. poultry and pigs). Agricultural products include sakau, breadfruit, coconut, banana, and yam. Communities in Pohnpei are fairly homogenous and cohesive as a majority of the island's population are native Pohnpeians. Given this fact, Pohnpeian's emphasize consensus and relationships in the functioning of communities. Other populations on the island consist of neighboring islanders (e.g. Kosrae, Chuuk, Yap) as well as outer islanders. As a result of colonization, most Pohnpeians are Christians.

Figure 2. Governance Structures: Government, Traditional, and Other

Government	Traditional	Community and Private Sector
<p>FEDERAL</p> <p>Federal Congress</p> <p>President</p>		
<p>STATE</p> <p>Governor / Lt Governor</p> <p>Legislature</p> <p>Government Departments</p> <ul style="list-style-type: none"> • Resource Management and Development (Lands, Agriculture and Forestry, Tourism, Marine and Coastal Resources) • Environment Protection Agency • State Planner • Education • Foreign Investment Board 	<p><i>Mwoalen Wabu</i> (Council of Paramount Chiefs)</p>	<p>NGOs - The Nature Conservancy, Conservation Society of Pohnpei, MIC etc</p> <p>Education and Research - Marine Environment Research Institute of Pohnpei (MERIP)</p> <p>Church</p> <p>Businesses</p>
<p>MUNICIPAL</p> <p>Local Government</p> <p>Legislature</p> <p>Judiciary</p> <p>Executive</p> <p>Boards (Health, Land, Sports, Development Advisory, Resource Management)</p>	<p><i>Nanmwarki Nahnken</i> (Paramount chiefs)</p> <p>Higher titles <i>Nanmwarki</i> line – <i>Wasabi, Dauk, Noabs</i> <i>Nahnken</i> line – <i>Nablainiv, Nabnsauririn, Namadan idehd</i></p>	<p>Community-Based Organizations – Women’s groups, youth groups, Church groups, Resource owners</p>
<p>SECTION</p> <p>Councilors</p> <p>Representatives</p>	<p><i>Soumas Palendal</i> (Village chiefs)</p> <p><i>Kaun en pwihn</i> (Section chief)</p> <p>- various titles in <i>Nanmwarki</i> line and <i>Nahnken</i> line</p>	<p>Community members</p> <p>Youth groups</p> <p>Churches</p> <p>Community Conservation Officers</p> <p>Local business</p>

Source: Chatterton, 1999

Sakau

Sakau, or *Piper methysticum*, is a type of pepper plant that is used both as a traditional agroforestry crop as well as commercial cash crop. The roots of the plant are used to make a narcotic beverage that is at the heart of Pohnpei's culture and social fabric. Sakau was formerly only enjoyed by traditional chiefs and nobility, however, due to weakening traditional systems as a result of colonization and transition to a cash economy, sakau is now prepared and enjoyed by all Pohnpeians.¹⁰ The commercialization of sakau has proven the largest threat to watershed areas on the island as sakau production requires clearing of forest canopies as direct sunlight is required for growth. Additionally, upland forests are targets for sakau cultivation because the richer soils and moist environment promote fast growth of the plant (Dahl and Raynor, 1996). Between 2,500 and 5,000 hectares (or 6,000 and 12,000 acres) are planted for sakau, generating approximately \$5 million a year for the 5,000 people who grow it annually (Hunnam, 2000). Most of the demand is domestic. Clearing of upland forests for sakau has led to destruction of habitat for wildlife, decreasing endemic plant species, loss of water catchments, and increased soil erosion which has resulted in decreasing water quality and downstream sediment accumulation impacting mangrove forests, lagoons, and coral reefs.

¹⁰ It is still considered a sacred drink however as people must close their eyes when the sakau cup is raised to the lips to drink. The receiving of the cup is also done in a sacred way with the hands crossed, a mannerism reserved when receiving anything from traditional chiefs.



Figure 3.
Sakau plant

Source: The Nature Conservancy

In addition to the commercial aspect of sakau cultivation, sakau also serves several critical roles in traditional Pohnpeian culture and society. As one of the traditional crops offered to traditional leaders during tributary feasts, sakau serves two purposes. Sakau represents the worth of a Pohnpeian in that it reflects the labor and diligence of a person in farming and producing the crop. As such, the offering of sakau as a tribute shows traditional leaders the worth of that person, and that person is often rewarded with an honorary title that elevates a commoner within the social structure (Petersen, 1976).

Sakau is also required in social activities such as gatherings (particularly for weddings, funerals, and feasts) and any activity involving the presence of traditional chiefs. The gift of sakau represents both the wealth and status of the individual. Another use of sakau is in conflict situations. Conflicts, particularly face-to-face conflicts, are generally avoided. However, if a conflict situation cannot be avoided, a ceremony (*tomw*) is performed. Senior family members and heads of clans will be involved, with sakau serving as a facilitation mechanism. If the situation involves a wrong doing, the offender's family (e.g. senior members) will, in addition to preparing it, offer sakau and ask forgiveness from the wronged family.¹¹ In most cases (even crimes such as murder), transgressions are forgiven and never mentioned again. If the wronged family decides not to accept the offering of forgiveness, then the transgression shifts to the responsibility of the wronged party. However, in most cases, the Soumas or Nahnken can override the wronged party to accept the apology and offer of forgiveness (pers. comm.).

Finally, sakau is also used as a form of social bonding as the drinking of it occurs in group settings with family members and friends. Sakau is a daily occurrence in villages where families pound and prepare the drink for everyday enjoyment and appreciation of the day's activities and work.

¹¹ If sakau is not available, then green coconut (*uhpw*) can also be used as an offering.

Figure 4. Traditional preparation of sakau with coconut cup¹²



Source: The Nature Conservancy

Definition of Terminologies and Usage

Throughout the case study analysis, certain frameworks and approaches to natural resource management will be used. The most commonly used concepts and representative terminology are outlined below:

¹² Sakau is prepared by first cleaning the roots of the plant, then pounding the roots on a stone table using pounding stones until the roots are mashed into fibrous materials. The roots are then strained and squeezed with hibiscus bark to produce a glutinous brown liquid. A coconut cup is used to pass around the drink.

Co-management as an approach to natural resource management is “power-sharing in the exercise of resource management between a government agency and a community or organization of stakeholders” (Warner, 1997). Co-management usually entails a formal, legal agreement between communities and governments in managing areas.

Another approach to natural resource management involves increasing participation of all parties in the process. One approach to such participatory management is *community-based natural resource management* in which the participatory approach focuses on “human development; respect for traditional or local knowledge; community empowerment...partnership and genuine dialogue between community stakeholders and representatives of institutions such as government departments, NGOs, and funding agencies” (Warner, 1997).

Collaboration is another way of engaging in natural resource management. Within the U.S., development of the collaborative approach has resulted in response to a declining sense of trust in governments; reduced sense of individual responsibilities and civic engagement as institutions and organized interest groups have taken over decision-making roles; fewer resources available to effectively manage natural resources; and gridlock as a result of top-down regulatory approaches and competing interests resulting in conflict. Components of a collaborative approach include involvement of multiple parties and building relationships between these groups (particularly those that have been isolated from decision-making processes); collection of high-quality information as a basis for making decisions and to address uncertainties in natural resource management; are usually place-based and encompass large ecosystem areas that encourage long-term

visioning; builds a sense of ownership and responsibility through decentralized decision-making and consensus building; and creates a process to generate means to get the work done (including capacity building). Key factors in successful collaborations include: building on common ground; creating new opportunities for interactions among parties; employing an effective and meaningful collaborative process; focusing on problems in new ways; fostering ownership and commitment; recognizing that partnerships are based on people and not institutions; having proactive and entrepreneurial behavior; and mobilizing support and resources for activities (Wondolleck and Yaffee, 2000).

Additionally, throughout the analysis, different terms will be used interchangeably. Examples are: communities and villages; parties, stakeholders, groups, and entities; state and the Division of Forestry; traditional chiefs and traditional leaders (e.g. Nahmwarkis, Nahnkens, and Soumas en Kousapws); and participatory management and collaboration/collaborative approaches.