

ASSESSING POHNPEI LAND USE PLAN AND IMPLEMENTATION STRATEGY

by

Carrie A. Hall

Internship Report

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TABLE OF CONTENTS

INTRODUCTION	1
BACKGROUND	3
Physical Setting	3
History	7
Social Setting	9
<u>Population</u>	9
<u>Schooling</u>	9
<u>Family</u>	10
<u>Religion</u>	10
<u>Social Setting</u>	10
Political Setting	11
Economic Setting	12
LAND USE PLANNING AND ZONING IN POHNPEI	14
Previous Planning Attempts	14
Why Past Attempts May Have Failed and a Possible Remedy	15
<u>Why Past Attempts May Have Failed</u>	15
<u>Why Community Involvement is Needed</u>	16
<u>Types of Community Involvement</u>	17
<u>A Possible Remedy</u>	19
Current Situation	21
Organization and Initial Structure For Planning.	25
LIKELY EFFECTIVENESS OF LUPZA IMPLEMENTATION	31
Evaluation Criteria	33
<u>Condition 1: Clear and Consistent Policy Goals and Objectives</u>	34
<u>Condition 2: Sound Causal Theory</u>	37
<u>Condition 3: Coherent Structuring of the Implementation Process</u>	44
<u>Condition 4: Commitment and Skill</u>	54
<u>Condition 5: Continuous Support from Constituency</u>	55
<u>Condition 6: Changing Socioeconomic Conditions and Political Support Over Time</u>	57
CONCLUSIONS	60
RECOMMENDATIONS TO IMPROVE PROGRAM EFFECTIVENESS	62
REFERENCES	65

LIST OF FIGURES

<u>Figure</u>		<u>Page</u>
1.	Oceania	4
2.	The Federated States Micronesia	5
3.	Pohnpei	6
4.	Government Structure Important to LUPZA	22

LIST OF TABLES

<u>Table</u>		<u>Page</u>
1.	Distribution of Employment by Sector 1990 - 1992	12
2.	How the Implementation of the Land Use Plan Meets the Hypothesized Conditions for Effective Implementation (modified from Sabatier and Mazmanian 1983).	38
3.	Extent to Which Implementation of the Land Use Plan Will Meet Goals and Program's Policies.	52

INTRODUCTION

The summer of 1995, I interned as a technical assistant with the Department of Land on the island of Pohnpei. The University of Oregon Micronesia and South Pacific Program sponsored the internship with funding from the U.S. Department of Interior, Office of Territorial and International Affairs. Two other technical assistants and I worked closely with several staff members from the Department of Land (DL) in forming a task force (TF) to develop a land use and zoning master plan. I had the opportunity to work closely with Emensio Eperiam and Charles Aiken developing the Conservation, Parks and Recreation, Culture and Tradition, and Tourism aspects of the plan. The TF also received vital feedback and support from municipal government counterparts.

On January 7, 1994, the Pohnpei State Legislature passed the "Land Use and Zoning Act of 1994, D.L. 3L-54-94." The law mandates that the State establish a planning commission to carry out the planning responsibilities established by the law. The commission is to create a land use and zoning master plan "to guide proper and sustainable land use during the present and future years of rapid development" with input from the municipal level of government (D.L. 3L-54-94). The law designates the Department of Land (DL) as the administrative arm of the Pohnpei State Planning Commission (SPC). The Director of the DL, Yasuo Yamada, applied to the University of Oregon for technical assistance and designated a TF to work with the SPC to provide support in formulating a master land use plan.

The product of my internship was a working draft of a land use and master plan for the SPC to review. The draft is to be used for creating a more comprehensive land use and zoning master plan. Attempts were made to incorporate input from federal, state, and local governments, NGOs, and interested public citizens.

The primary purpose of developing the land use and zoning plan was to lay out guidelines for future development. The first step in this process was to gather and

analyze existing planning documents and related laws and regulations. The land use and zoning plan strives to summarize and incorporate previous legislation and fill planning gaps. The second step involved contacting federal, state, and municipal government agencies to explain the development of a land use and zoning plan and to ask for their ideas and input. The third step was to begin working on a citizen outreach program.

Several attempts at comprehensive land use planning and zoning were made in the past but the plans were never implemented. Previous planning attempts have been carried out by foreigners with little or no local public input, and many citizens are only vaguely aware of what these plans contain. There have been many less comprehensive attempts to regulate land and resource usage focused on specific problems. One example is the 1987 "Pohnpei Watershed Forest Reserve and Mangrove Protection Act" which addresses the need to protect Pohnpei's watershed and mangrove area against encroachment and destruction and to preserve the water supply and health of the region's natural resources. Others include laws regulating the exporting and sale of mangrove crabs, bumphead parrot fish, and bait fish. Developing and effectively implementing a land use plan will continue the proactive approach to land use, preserving the quality of life and environment, and mitigating damage that has occurred from cultivating in the highlands, and from waste disposal, sewage, habitat destruction, and over-harvesting.

The success of this plan will depend on its effective implementation and reaching of desired goals. This can only be determined after the land use plan has been adopted and in effect for several or more years. In an attempt to analyze the likelihood of successful implementation without waiting many years, I will use the criteria developed by Sabatier and Mazmanian in their 1983 book "Can Regulation Work? The implementation of the 1972 California Coastal Commission."

BACKGROUND

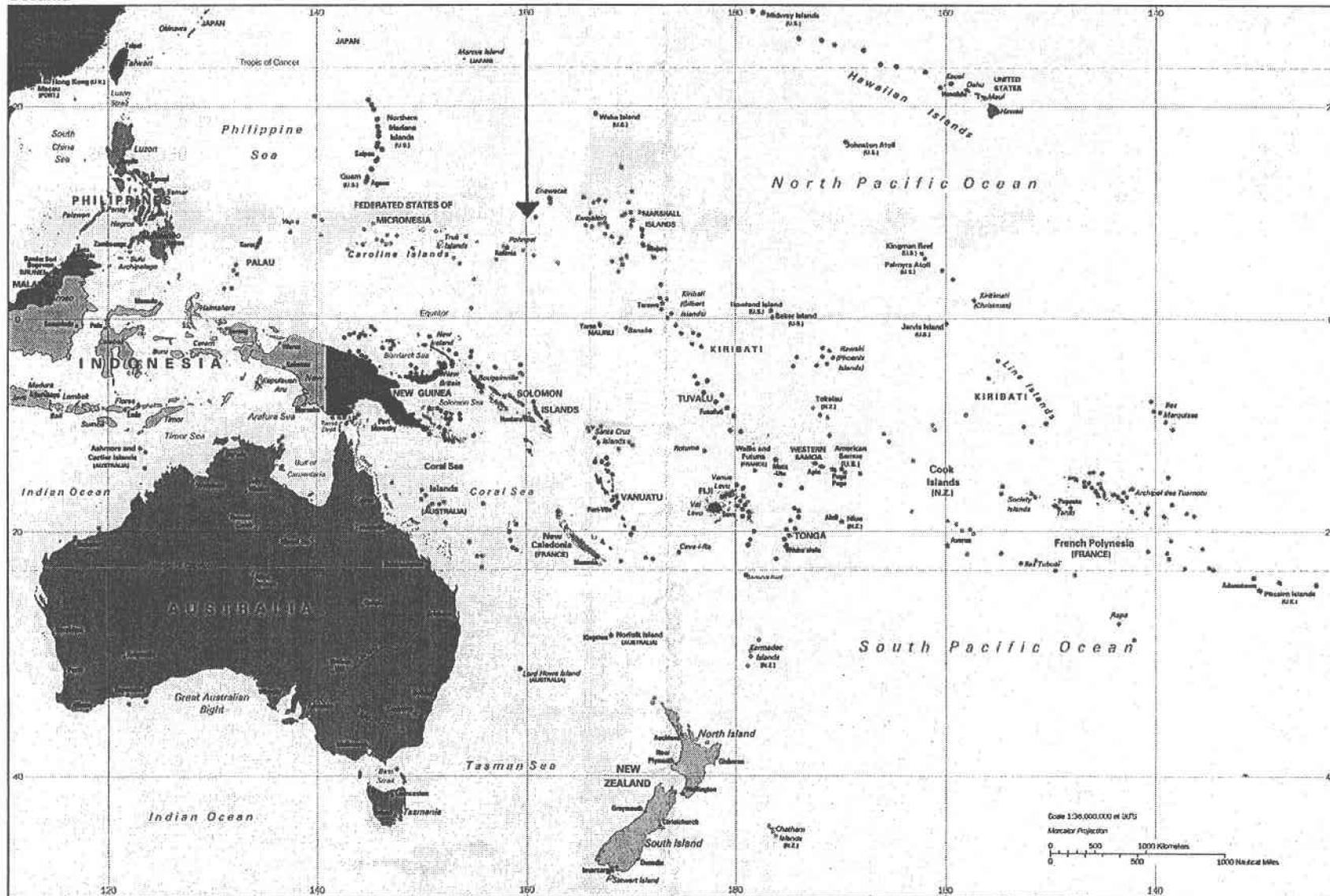
Pohnpei can be translated as "upon a stone altar," referring to a group of people who sailed from the east and came upon a small piece of land jutting from the sea. To the small piece of land they added mountains and valleys, rivers and reefs, and mangrove trees. They built a stone altar (pehi) at which they could worship their gods (Ashby 1983). This island, Pohnpei, is located in the South Pacific at 6°_ 54' north latitude and 158°_ 14' east longitude in the Eastern Caroline Island Archipelago (Figures 1 and 2). The island of Pohnpei is comprised of five municipalities: Uh, Sokehs, Nett, Madolenihmw, and Kitti and the town of Kolonia (Figure 3). The island state of Pohnpei includes the main island of Pohnpei and the outer atolls of Ngatik, Oroluk, Nukuoro, Kapingamarangi, Mokil, Pingelap, Ant, and Pakin. Pohnpei together with island states Kosrae, Yap, and Chuuk comprise the Federated States of Micronesia, an independent country since 1986.

Physical Setting

Pohnpei is an island of volcanic origin surrounded by a barrier reef. Pohnpei is comprised of 343 sq km of land area and a lagoon enclosed by a barrier reef which is nearly 181 sq km in area. The climate is similar to Hawaii, a tropical maritime climate which is "characterized by high temperatures, uniform atmospheric pressure, considerable cloudiness, and high humidity," and rainfall which varies from 10.2 m a year in the upland forest to 5.1 m a year on the coast (Ashby 1983). Ten rivers with numerous smaller tributaries serve as water sources for the island. The barrier island reef provides protection from storm erosion and creates a calm marine environment within the lagoon. The island is home to many species including over 600 plant species and the surrounding waters contain over 120 known species of fish. Mangrove swamps up to 5 km thick

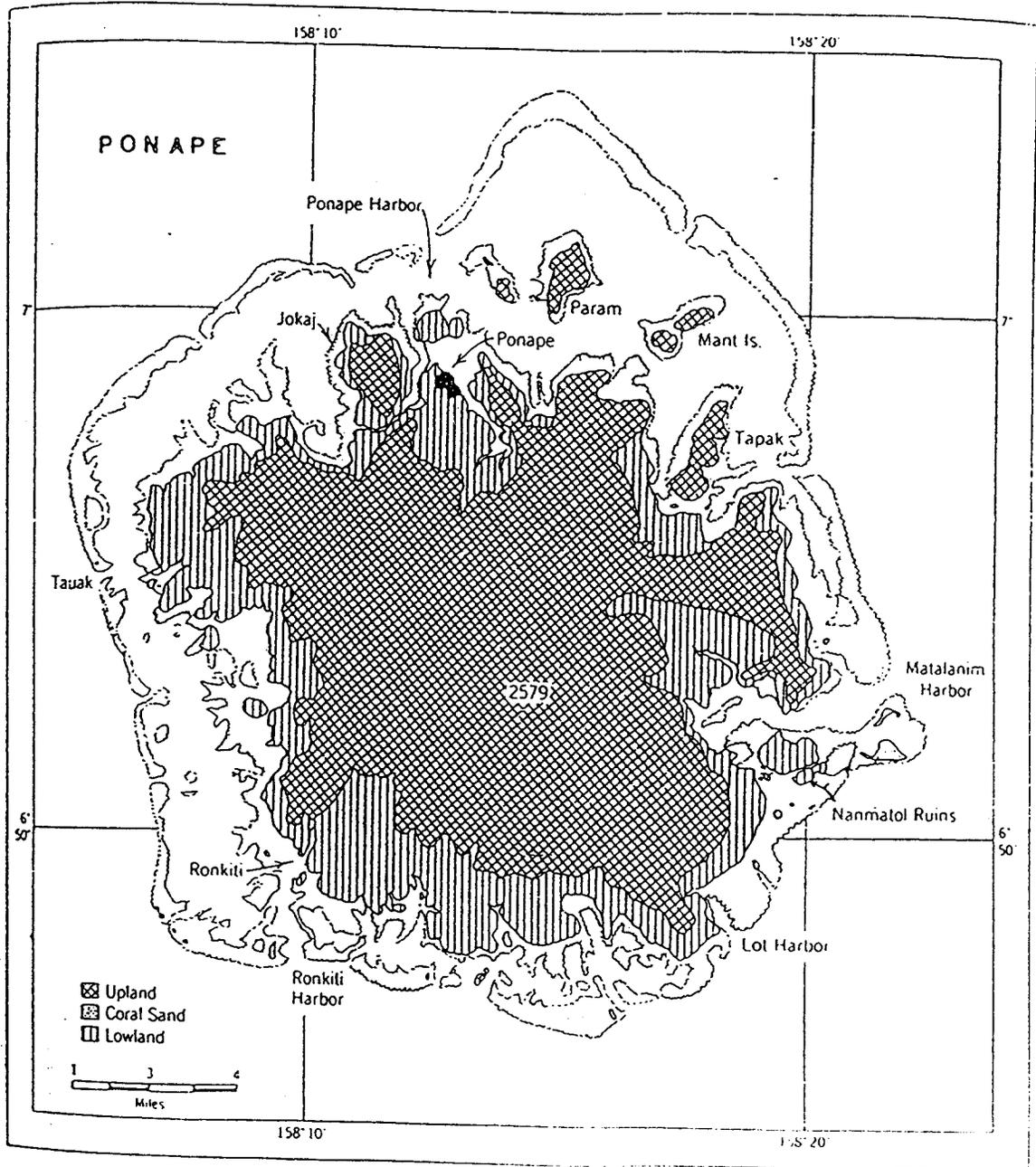
Figure 1. Oceania

Oceania



4

Figure 3. Pohnpei



line the island and provide erosion protection and habitat for many organisms including fish and clams. Mangroves comprise approximately 53 sq km of the total island area. The interior of Pohnpei is steep sloped rain forest that contains cloud fern and dwarf forest and many species unique to Pohnpei. In some areas, the steep mountain slopes fall straight down to the coast while in other areas, valleys reach far into the interior (figure 3). These gently sloping valleys provide the land most suitable for settling and farming. Most land in these valleys is already settled. On the island, about 156 sq km are under agro-forestry use, 138 sq km are steep sloped forest land, and 2.4 sq km are urban and built-up land (OBPS unpublished).

History

Pohnpeians divide their history up into four periods. The first period began with the founding and settling of the island between 250BC and 500AD. During the second period, the island was ruled by a dynasty of chieftains, the Saudeleurs, and split into three kingdoms. Under the Saudeleurs the islanders built the remarkable stone city of Nan Madol, the ruins of which can still be visited in Madolenihmw today. The third period began when a warrior Isokelekel brought his army of 333 warriors from the east and conquered the Saudeleurs. The island was then divided into five kingdoms which have become the five municipalities found on the island today (figure 3). The fourth period began with the regular visits of non-Micronesians around 1830 and continues today.

The western world divides Pohnpeian history into six periods. The first period is the prehistory period lasting till about 1830 when Europeans began to have regular contact with the island. During the Early Contact period, 1830 - 1886, Pohnpeians increasingly came in contact with whalers and missionaries. During this time, diseases such as small pox decimated the island population which dropped from 15,000 in 1830 to 2,000 in 1865. In 1886, the Pope granted Spain control over the Caroline Islands. During

this time Catholicism was introduced to Pohnpei but the Spanish did little else to change the customs and economy of the island during their occupation.

The Germans came to govern the islands in 1899. In 1905, a devastating typhoon hit the island, hitting the outer atolls especially hard. The Germans granted land on the main island of Pohnpei to residents of the outer islands of Mokil and Pingelap as there was no food left on their islands. The descendants of these immigrants still live on these land grants today. The biggest impact of the German government was the institution of land reforms in 1912. Before this time the Nahmwarkis, the traditional leaders of the kingdoms, controlled the land and water within the barrier reef. The Nahmwarkis were responsible for granting land and resource use rights to those in their kingdom and could revoke these rights. Nahmwarkis and lesser traditional leaders had the power and responsibility to decide what land could best be used for and enforcing restrictions on resource use. In 1912, the Germans decreed that land was to be held in continuous private ownership inherited by sons. They deeded the lowlands to individual Micronesians while the upland forest and mangroves remained in government ownership.

The Japanese came to occupy the island in 1914 and generally upheld the land reforms of the Germans. The Japanese government encouraged Japanese citizens to relocate to the islands to relieve population pressure on mainland Japan and grow agricultural products for consumption in Japan. By the end of WWII Japanese citizens outnumbered native Micronesians 2.5 to 1. At the beginning of their occupation, the Japanese concentrated on developing the agriculture and later building military installations. A school system that emphasized learning the Japanese language was implemented and many children attended elementary school. During WWII Pohnpei was bombed several times but there were few casualties. The mangrove swamps, dense vegetation, and shallow lagoon area made Pohnpei a bad choice for either a military base or an invasion. With the end of WWII, the United States was granted a strategic trusteeship of 2,000 islands, including the Caroline Islands, by the United Nations. The

United States government focused their efforts on the development of a school system and democratic institutions. In 1986, Pohnpei opted to join Yap, Chuuk, and Kosrae in forming the Federated States of Micronesia. The Federated States of Micronesia entered a 15 year Compact of Free Association (Compact) with the United States in 1986. The Compact of Free Association granted the United States military priority access in return for billions of dollars to fund the government of the Federated States of Micronesia during the coming 15 year period.

Social Setting

Population

In the most recent census (1994), the population of Pohnpei was 33,700. This is a rapid increase from the 1965 and 1830 pre European contact population of approximately 15,000. The current birth rate on Pohnpei is 2.9% and the population is likely to continue to grow significantly as over half the population is under the age of 16. The net growth rate of Pohnpei is 1.8% due to an out migration of the population to the United States and other countries. The population is projected to be around 54,000 by the year 2008 (Ashby 1983).

Schooling

Children are required to attend school through the eighth grade. After elementary schools exams are taken and those that pass, around 55%, go on to high school (Ashby 1983). After high school students can choose to continue their education at the College of Micronesia, a Junior college, located in Kolonia Town. Associate degrees can be

obtained in teaching, business management, nursing, and a few other fields. A small minority of Pohnpeians travel abroad to receive four year college degrees (OBPS 1985).

Family

Pohnpeians have a strong sense of commitment to family and community. Commitment to family extends not only to the immediate family but to the extended family which can be several hundred members. Family members are an important economic unit and work together to grow food, catch fish, and build homes. Family commitment has also carried over into the democratic government and bureaucratic system. Most elections are won based on kinship ties. It is expected that kin who are elected will pass on benefits to their families once in office (John Weilbacher pers. comm. 1995).

Religion

Most Pohnpeians belong to a religious organization and attend church regularly. The island is split almost evenly between Protestant and Catholic.

Social Setting

Respect for elders and for traditional social roles is very important in Pohnpei. Age is highly esteemed and those who are older garner more respect and are treated accordingly. People have a traditional status based on birthright or traditional status granted from the Nahmwarki. People of traditional high status must be addressed in high language which is very different from standard Pohnpeian and is usually only learned later in life. Many people do not feel comfortable conversing in high language

and will avoid speaking with coworkers who hold high traditional leadership roles. Therefore, when determining who and how to approach people with new ideas or problems, not only must people be treated with respect according to their government rank, but also according to their traditional place in society. This can make for complicated working relationships.

Pohnpeian culture discourages face-to-face confrontations. The island's population is small enough that people either know each other or know of each other. A conflict would be known throughout the island and could reflect badly on one's family. Because conflict is feared there is a hesitancy to engage in conflict and enforce land use and environmental regulations. The apprehension of conflict is intensified if the person being chastised is not only of a higher political rank but also, higher traditional rank than the regulator. On the other hand, if environmental regulations are accepted by the community as a necessary good, people would not ignore regulations for fear of censure from their family and neighbors.

Political Setting

The Federated States of Micronesia's government structure is closely based on the US model, although, the legislature is only composed of one house. Traditional authority and government authority have an evolving relationship. The government controls power through its distribution of Compact funds. Traditional political and economic systems are merged through service to the Nahnmwarki. This can be through gifts, communal work, competitive feasting, and (formerly) warfare. In return, the Nahnmwarki's bestow merit and title. Rank and status are enhanced through individual action and prestige competition has always been a vital part of the culture (Dahl 1993). These two institutions, modern and traditional government, compete for power, but they represent different values and employ different criteria for rating status. There is an ongoing and

evolving power struggle as Pohnpeians decide what measure of control traditional leadership and the newer western-style government will have over culturally important sites and many aspects of the natural environment.

Economic Setting

The economy of Pohnpei is based heavily on subsistence farming and government employment. Most people participate in some form of subsistence food gathering. As a whole the population receives about 40% of its household needs, by value, from subsistence activities including agriculture, agro-forestry, and fishing activities. About 50% of the active labor force is part of the monetary economy and earns wages. Within the monetary economy about 45% of the wage earners are government employees (OPBS unpublished).

The following table describes Pohnpei's approximate employment distribution and includes both subsistence and monetary employment. These estimates were calculated from an Office of Budget, Planning, and Statistics survey. The unemployment classification does not include Pohnpeians who work in exchange for a service or commodity, essentially bartering.

Table 1. Distribution of Employment by Sector 1990 - 1992

Sector	Percent Employment
Agriculture	25%
Fisheries	6%
Industry	9%
Government	24%
Other Services	11%
Unemployed	25%

(OBPS 1992)

The Pohnpei State Government is focusing on developing agriculture, fisheries, and tourism as means to increase the monetary economy. (OPBS 1992 and Tourist Commission 1993). It is becoming increasingly important to develop the monetary economy as the United States is likely to end or at least significantly decrease monetary support when the Compact of Free Association ends in 2001. Since WWII the United States government has contributed most of the money needed to run the government. The Federated States of Micronesia continues to receive the great majority of money needed to run the government from the United States through the Compact of Free Association. In 1992, the Pohnpeian State Government received over 20 million dollars of Compact money. The government is very concerned with developing other aspects of the monetary economy to provide a tax base to offset the loss of these funds in 2001.

LAND USE PLANNING AND ZONING IN POHNPEI

Previous Planning Attempts

There have been several attempts in the past to develop comprehensive land use plans and zoning ordinances for Pohnpei. In all attempts, there were problems that limited implementation and reaching the desired goals.

A team of architects and engineers from Hawaii drafted Pohnpei's first land use master plan in 1968. This plan envisioned Pohnpei's development on a 20-year time horizon. The 1968 plan addressed many of the same elements as those mandated in the 1994 Land Use Planning and Zoning Act (LUPZA), including transportation, public services and utilities, education, and historical and environmental influences. The 1968 plan laid out a master plan for Kolonia Town creating various land use zones including residential, school, civic center, commercial, industrial, hotel and resort, recreation, and conservation (Hawaii Architects and Engineers 1968). Kolonia's development followed some of this plan's zone designations and designs, but few were enforced.

In 1974, the Pohnpei District Legislature passed the same land use and zoning law that was passed by the Pohnpei State Legislature in 1994. A planning commission was appointed to begin work on a state land use plan but the task was never completed. The Pohnpei District Legislature did appoint a planning commission but it became too political and the land use issues too controversial for the commission to settle on a land use plan.

Two zones have been enacted through previous legislation. In 1987, the Transportation Zone Act designated land on Dekehtik Island to be used primarily for transportation. This zone is currently the site of the airport and boat docking facilities. The Pohnpei Watershed Forest Reserve and Mangrove Protection Act was also passed in 1987. This act calls for the protection of the watershed forest reserve, a 51 sq km tract of

land in the interior of the island, and management and protection of the mangrove forest. The Department of Conservation and Resource Surveillance (C&RS) is designated as the branch of government responsible for developing and implementing protection plans and enforcement.

After the Land Use Plan and Zoning Act of 1994 was passed a consultant from Australia, Robert Fischer, was hired to develop a land use plan for the island. Unfortunately, the plan was not completed due to lack of funds. Also, his plan was politically unpopular. Reasons for the plan's unpopularity included lack of input from Pohnpeians and classifications strictly based on land capability, not current or traditional usage, except for an area of land zoned resort/hotel in which Fischer is involved as part of a resort development scheme.

Why Past Attempts May Have Failed and a Possible Remedy

Why Past Planning Attempts May Have Failed

Land use planning attempts in the past may have failed because: 1) they addressed controversial issues that government agencies would rather ignore; 2) lack of manpower; 3) lack of political will to enforce regulations; 4) political conflicts between families and/or political conflicts between the traditional power structure and the newer colonial government; and/or 4) because they were plans designed by outsiders which failed to involve island communities in the planning process. I believe the biggest impediment has been that plans are written by outsiders with no community involvement and support.

Why Community Involvement is Needed

One of the most important steps that could be taken to ensure successful planning and implementation is involving all communities (stakeholders) on the island in the land use planning process. Community support could make land use planning a success, not just a dusty book on the shelf. A land use plan will require more regulations and rules than under the present system and will necessitate a change in the perception of private property rights, which are now considered absolute. People need to participate and believe land use planning is beneficial for them personally and for their family and community in order to adjust their attitude toward some government control.

With Compact funds running low, there is not enough money to successfully develop and enforce regulations if people choose to ignore them. By involving citizens in the planning process they will have developed and understood the regulations and, therefore, feel the plan belongs to them and be more apt to abide by the regulations. A case study of two islands off the coast of the Philippines, Apo and Sumilon, illustrates this point. White (1989) examined factors that led to successful management of a marine reserve in Apo and failure of a marine reserve near Sumilon. Both island communities saw an improvement in fish catch due to the existence of a marine reserve. The marine reserve near Sumilon was managed by the Silliman University while the marine reserve off the coast of Apo was organized and managed by the community. White (1989) concludes that the marine reserve in Apo was a success, for unlike in Sumilon "they were able to take credit for the reserve and its success, as well as the responsibility for problems which had arisen since its beginning."

Currently there are times when Pohnpei government enforcement agents feel hesitant to enforce regulations because violators are related or of higher rank. Community peer pressure and traditional leadership are very important factors socially in the small communities of Pohnpei. Traditionally in the Micronesian Islands, community

members have participated in decisions concerning resource allocation and management and agreed to abide by communally imposed measures designed to protect the resource. Community members were also committed to reporting infringement of agreed conservation and management measures and they participated in the performance of rituals designed to enhance resource productivity and longevity (Doulman 1993). Although many traditional management regulations have been lost under colonial rule, the force of community peer pressure and acceptance is still a strong determinant of actions.

Today, community peer pressure often leads to the degradation of natural resources. For example, the need to supply pigs and saku at competitive feasts to earn community respect is causing a decrease in lagoon water quality and land slides in the highlands. If communities participate in the development and accept the implementation of a land use plan, the strength of community peer pressure could be applied instead to following resource regulations that will protect the natural environment.

Types of Community Involvement

Community involvement can take several forms. The least interactive method of community involvement, if it can even be called such, is a government agency calling a meeting or in some way advertising to tell the community what they are going to do. The agency of management experts present what they are doing without asking for feedback. This can create bitterness with those being regulated and is not the most conducive approach to convincing people it is in their best interest to follow rules and regulations.

Another type of community involvement is soliciting public input at an earlier point in the process. Public input can be sought through mail surveys, phone surveys, public meetings, workshops, etc. This is an improvement over just explaining what is going to be done, but often the public is still upset with the end result. Often, the public

does not see how their input has gone through many steps and modifications to develop the final policy.

A third type of community involvement is to provide opportunities for communities to contribute throughout the planning process. According to Temple (1996), natural resource management is often hurt by inadequate efforts to increase people's awareness of the problem. Efforts are instead focused on how the regulations and permits are going to help solve the problem. The public is never asked to help identify problems, develop solutions, or actively participate in those solutions. In researching public involvement in US Forest Service decisions it was found that "public involvement must be considered at five stages of the decision-making process: issue identification, collection, analysis, evaluation, and decision implementation" (Lawrence and Daniels 1996). These stages of the planning process occur over time and can not be addressed in just one meeting, but require public participation early and continuously throughout the planning process.

Involving the general public in identifying problems, issues, and solutions is very important in a cross-cultural situation where many of the planners are foreign. The public should be the unique source of public values on which to base management goals. Goals should not be based on relative value judgments from another society. "There is widespread agreement in the literature that public involvement programs are not fully effective if public input is not actually used in the decision-making process (Lawrence and Daniels 1996).

These problems can be remedied by involving communities throughout the planning process. By involving communities at many steps of the way, people feel they have input into the planning process and they can see how their input is influencing policy. For example, during the development process of Somoa's coastal zone management plan, eight community meetings were held. Of the 83 people surveyed it was found that 76 people ranked public involvement as a concern that needed addressing.

Public involvement was tied with marine debris as the number one concern of the public. People were concerned about continuing contact with the coastal management agency and making meetings easy to attend (holding in communities), interesting, and beneficial to all involved.

The islands of the Pacific are a complex mixture of traditional cultural practices and modern western institutions (Templet 1996). In Samoa, traditional western-style outreach programs were unsuccessful and people appeared uninterested. The American Samoan Coastal Management Program (ASCMP) decided to incorporate the traditional decision making process into their plan. They carried on an outreach program at the traditional village level and involved village leaders in their wetlands management program. (TPBDC 1992). In Pohnpei, the traditional and modern western institutions mix to varying degrees in the countryside and Kolonia. By striving to work at the traditional community level, more people are likely to become involved in the planning process for they are working within a familiar structure and feel they have influence. Through working on the plan, citizens gain ownership. People generally take pride in their accomplishments and take care of what they own.

A Possible Remedy

A relatively new method of involving communities in planning is Participatory Rural Appraisal. Participatory Rural Appraisal (PRA) describes a growing family of approaches and methods that enable local people to share, enhance, and analyze their knowledge of life and conditions. In PRA, knowledge is shared and owned by local people. Participatory appraisal methods include mapping and modeling, transect walks, matrix scoring, seasonal calendars, trend and change analysis, well-being and wealth ranking and grouping, and analytical diagramming (Chambers 1994a).

PRA was chosen by the Watershed Steering Committee as the best way to involve communities in planning efforts which improve community welfare and develop boundaries for a core watershed area. Members of the Watershed Steering Committee and some employees of C&RS have already been trained in this technique. Participatory Rural Appraisal would be an excellent technique for involving the community at the traditional level in land use management.

This type of interactive oral and visual learning works much better than distribution of written material and lectures, more common to western-style planning. Many people on Pohnpei can not or do not feel comfortable reading and traditionally most information has been communicated orally or visually. Conveying information orally and visually will allow all citizens to learn about the LUPZA and contribute their ideas. Care should be taken to solicit the input of all citizens. A larger community group could, at times, break into smaller groups determined by gender and age to carry out discussions. This allows groups who are traditionally silent around older males to speak out and voice their ideas. The results of the different group discussions could be presented and discussed with the help of a moderator.

Trend and change analysis could be used to teach the younger generation about traditional regulations and the state of natural resources in the past. Older citizens should be encouraged to discuss land use and resource harvesting practices of the past. Many younger Pohnpeians are surprised to learn how resources, such as fish, were more plentiful and easier to harvest in the past (Raynor pers. comm. 1995). Hopefully, this knowledge will help the younger generation accept regulation of resources as a proven method to ensure a plentiful and continuing supply of resources.

In Micronesia, lessons learned from the development process indicate that spatial presentation of technical data is helpful in gaining acceptance by decision makers (Dahl 1982). Spatial representation of data could be presented to communities to help lead the discussion of land use issues. Maps could be made by communities of current land uses,

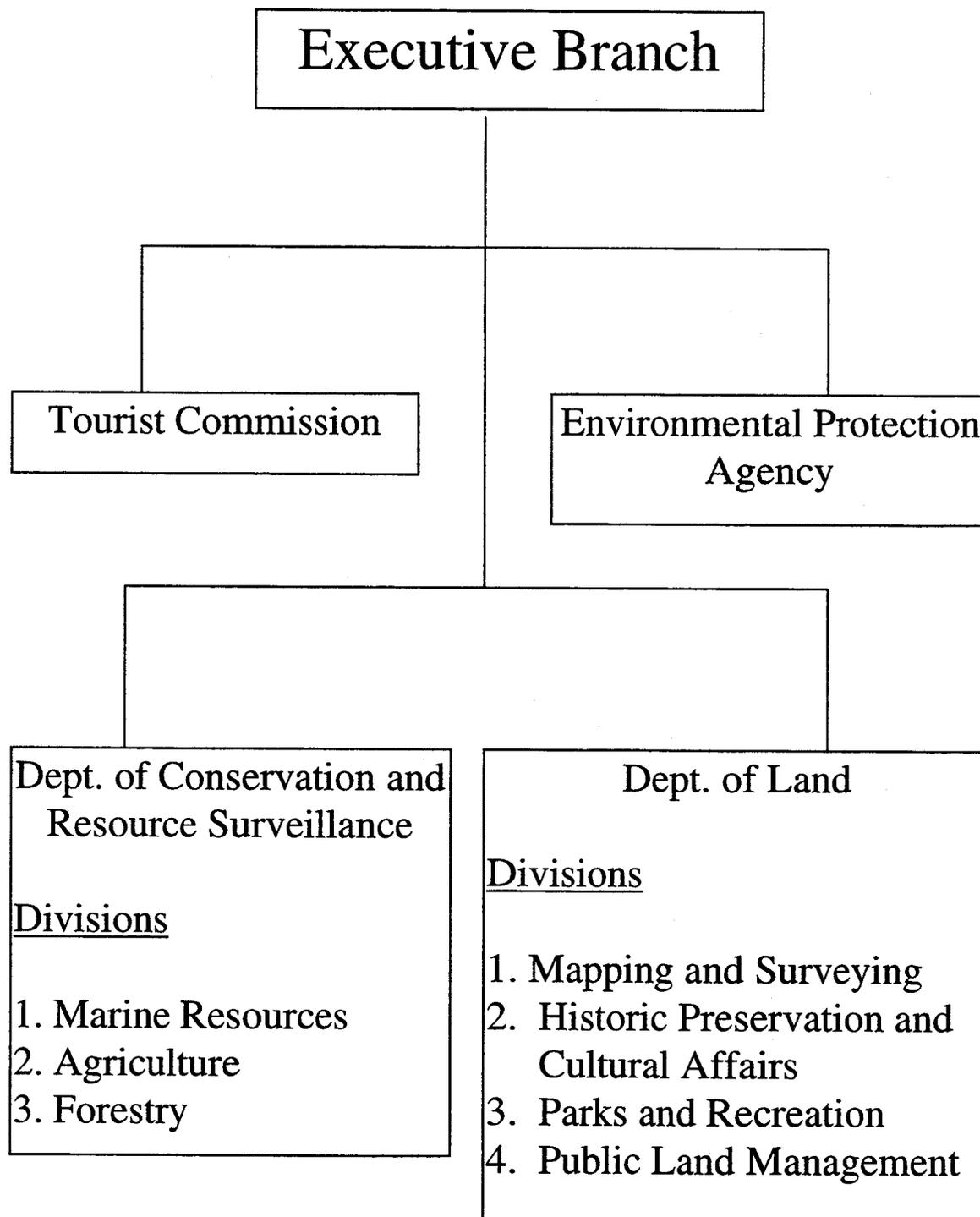
areas of pollution, land slides, etc. to enable people to see the overall picture of land use. No recent detailed maps of land use exist. Maps made by communities could be a valuable resource for government agencies as well as local communities.

Current Situation

Currently, there are a myriad of agencies involved in regulating land and resource use. Those state agencies most closely involved with the four goals of conservation, parks and recreation, tourism, and culture and historical preservation, are the Department of Land (DL), Department of Conservation and Resource Surveillance (C&RS), Tourist Commission and Environmental Protection Agency (EPA) (Figure 5). The DL houses the Divisions of Culture and Historical Preservation (C&HP), Mapping and Surveying, Management of Public Land, and Parks and Recreation (P&R). C&RS contains the Divisions of Forestry (FOR), Marine Resources (MR), and Agriculture (AGR). The Tourist Commission is responsible for promoting tourism abroad and has recently undertaken efforts to improve and develop tourist sites on the island. The EPA is responsible for regulating pollution on the land, air, and sea.

Presently, for land clearing or earth moving activity to occur a development permit must be obtained. The development permit application is filled out and submitted for approval to the EPA, DL, and C&RS. Each agency can comment on the application. The DL then has the power to approve the permit, to require changes, or to deny the permit. Development of a land use plan and zoning ordinances would give a clearer set of instructions on which to base permitting decisions. A land use plan and zoning ordinance could also give greater legal strength to the current permitting process. This could help solve some of the current problems: building without a permit, squatting and building on public land, no required access easements to a piece of property, and lack of development standards. The federal government would also be required to abide by

Figure 4. Government Structure Important to LUPZA



the land use plan and this plan would provide guidance for the distribution of international aid.

Currently, Pohnpei does not have serious land use problems or face eminent threats. However, there are some signs of increasing problems. Examples include: a rapidly growing population; large landslides in the forest highlands; trash from imported goods; increasing incidences of squatting on government land, particularly in the steep watershed region; decreasing water quality and fish catches in the lagoon; dramatic decreases in some species such as mangrove crab and bumphead parrot fish; and an increasing push towards development in light of reduced Compact funding. These growing problems and a desire to protect the island way of life led to the passing of the 1994 land use legislation in order to "guide proper and sustainable land use during the present and future years of rapid development" (D.L. 3L-54-94). It is hoped a land use plan can lay out guidelines and regulations for development in order to minimize problems and provide a means to enforce these guidelines through the court system and community support.

Recently, there have been a number of studies carried out to help in the land use planning process. The USDA Natural Resources Conservation Service facilitated a resource study of Pohnpei in 1995, describing each ecosystem, its importance, management concerns, and suggestions for addressing these concerns. A marine resource management plan and a forestry/mangrove plan are being developed. A watershed management plan and implementation methods using Participatory Rural Appraisal (PRA) are being refined by the Watershed Steering Committee, a group of government officials, traditional leaders, and the Nature Conservancy. C&HP has developed a list of historical sites to be preserved and has grouped these into priorities. Other related documents useful in plan development include:

- First Physical Development Plan Madolenihmw Municipality, Office of Budget, Planning, and Statistics
- First Physical Development Plan Kitti Municipality, Office of Budget, Planning, and Statistics
- Process of Creating an Existing Land Use Map, Micronesia and South Pacific Program
- Ponape Island Land Use Guide, Office of Budget, Planning, and Statistics
- Private Sector Development and Investment Prospect in Pohnpei State, East West Center
- Overall Economic Development Plan, Pohnpei State
- FSM Second National Development Plan 1992 - 1996, Office of Budget, Planning, and Statistics
- First State Development Plan, Office of Budget, Planning, and Statistics
- Pohnpei State Coastal Resource Management Program, Draft, Pacific Islands Network 1995
- Pohnpei State Mangrove Management Plan, U.S. Forest Service 1994
- FSM National Environmental Management Strategy, South Pacific Regional Environmental Programme, 1993
- Pohnpei Coastal Resources Management Plan, South Pacific Regional Environmental Programme, 1987
- Pohnpei State Historic and Cultural Preservation Planning, Micronesia and South Pacific Program
- Pohnpei State Parks System: Issues, Options, and Recommendations, Division of Parks and Recreation, 1992
- Pohnpei State Tourism Development Plan 1993 - 2001.

These documents are very useful resources for future planning efforts.

Organization and Initial Structure For Planning

The Land Use Planning and Zoning Act (LUPZA) mandates the creation of a land use and zoning master plan "to guide proper and sustainable land use during the present and future years of rapid development" (D.L. 3L-54-94). This plan is to incorporate the input of local governments and be completed within 5 years and submitted to the state legislature by 1999. The DL is the administrative arm of the Pohnpei State Planning Commission (SPC). LUPZA is an ambitious attempt to bring together and coordinate all planning and development efforts on the island to reach the goals of the mandate. Eight goals outlined in this legislation are:

1. Encourage the most appropriate use of land, both public and private.
2. Provide adequate open spaces about buildings for light and air.
3. Prevent undue concentrations of population.
4. Protect the health and welfare of Pohnpei residents.
5. Promote responsible and balanced development.
6. Preserve and enhance cultural and traditional values.
7. Conserve and protect the natural environment.
8. Assure adequate provision for community facilities and requirements.

(D.L. No 3L-54-94)

These goals are to be accomplished through the cooperative efforts of all state government agencies to develop a Land Use and Zoning Master Plan for the island of Pohnpei, and a comprehensive set of zoning and land use laws to implement the plan. The act requires that the Governor appoint a nine-member State Planning Commission (SPC). Seven members are nominated by the governor and must than be approved by the legislature. The other two members are the State Planner and Director of the DL. The duties of the planning commission are laid out in the legislation:

- Preparing and recommending for enactment by the Legislature a proposed Master Land Use Plan and subsequent amendments thereto.
- Prepare and recommend for enactment by the Legislature any subsidiary plans and development programs to assist the implementation of the master plan.
- Prepare and recommend for enactment by the Legislature zoning and land use control laws necessary for proper implementation of the master plan.
- Conduct a review of any matter submitted to it by a public officer or citizen regarding compliance with the master plan, zoning, or land use control laws in force in the master plan.
- Conduct an official review of the master plan and any related zoning and land use control laws at least once every two years for possible revisions.

(D.L. 3L-54-94)

After preparing the land use plan, the SPC is to hold municipal public hearings so citizens have the opportunity to comment on the plan. If changes are made the public will have the opportunity to comment again. After the plan is submitted to the legislature, the legislature will hold a hearing in each municipality. The legislature can then adopt the plan or return it for revision to the SPC.

The SPC appointment is a part-time position and members are paid by the day for meetings. They meet when necessary to review proposals. Many members also hold down other full-time jobs. The SPC adopted the Task Force (TF) and municipal government liaisons as a Technical Advisory Committee (TAC). The TAC was formed by the Bureau of Land; John Weilbacher, Chief of Administration and Management of Public Land; Emensio Eperiam, Chief of the Division of C&HP; Charles Aiken, Chief of the Division of P&R; Walel Elias, Division of Survey and Mapping; a liaison from each municipality and three technical assistants from the Micronesia Program, Kevin Parkhurst, Liz Caraker, and myself. The TAC was adopted to serve the purpose of

developing a land use and zoning master plan working draft, and hopefully to provide technical expertise in the future.

Each municipality was asked to appoint a member to work as part of the TAC as a liaison between the municipal and the state government. D.L. 3L-54-94 calls for municipal governments to develop their own plans in accordance with the state land use goals. It was hoped that creating a partnership early in the planning process would lead to greater coordination and development of municipal plans in accordance with state goals. Municipal governments are also under funded and understaffed. Through a close working relationship with the TAC and SPC, municipal governments could take advantage of state resources to carry out better planning.

The legislature initially designated \$65,000 dollars for the development of a land use plan. Much of this money has already been allocated to Robert Fischer for the creation of a zoning map of the island. Robert Fischer did not provide a comprehensive planning guide for the island as funds ran short. More money will be necessary in the future to carry out land use planning. Money will be needed to pay the salaries of those involved in planning both at the state and municipal level and for supplies. A very useful partnership could be formed with TNC who obtained a GIS system in 1995.

The TF set out several priorities in their work plan to achieve a rough draft of the land use planning and zoning act to submit to the SPC by the end of the summer. The first goal was to gather documents relating to land use planning including previous planning efforts, resource surveys, sectoral plans, census information, and related laws. The second goal of the TF was to ask for the input of government agencies at the federal, state, and municipal level to encourage an atmosphere of trust and cooperation. To reach this goal, the TF visited each municipal government and explained the task laid out in the land use planning legislation and the importance of municipal input. The municipalities were then asked to appoint a member of their government to work with the TAC as a liaison. These municipal government leaders attended TAC meetings and worked with

their respective municipal governments to begin the task of land use planning. The TF also strove to meet with all federal and state government agencies and inform them of the land use planning project being undertaken and to ask for their input.

The third goal of the TF was to involve communities in the land use planning process to facilitate trust and cooperation between the SPC and the people. There was some disagreement among task force members and municipal representatives as to the extent of community involvement desired; from just meetings to inform the public what was decided to community involvement and input at many steps in the process. We, the technical assistants from the U of O, strove to emphasize the importance of community involvement as a means to gain acceptance of the plan by the general public. Several municipal representatives attended Participatory Rural Appraisal workshops carried out by the Nature Conservancy and were very enthusiastic about the community involvement process. John Weilbacher, head of the TF and TAC was hesitant to involve communities for he was afraid they would suggest the involvement of traditional leaders in the land management process, an idea he strongly opposed. A more concerted community outreach effort began during the summer of 1996. The effort of the task force over the summer was three-fold: to promote the value and benefits of land use planning; to encourage different government agencies to work together in an attempt to coordinate future planning efforts and break down national/state/local barriers and interagency barriers; and to involve communities in the planning process.

Many agencies have overlapping jurisdictions and occasionally conflicts over jurisdictions occur. Towards the end of the summer the TF worked to help mediate jurisdictional conflicts between agencies in order to clarify who was responsible for carrying out activities recommended in the working draft of the land use plan (WDLUP). For example, Parks and Recreation and the Sport Commission often had disagreements over who was responsible for scheduling events and upkeep of playing fields. The two agencies sat down together and worked out a mutually beneficial arrangement giving

P&R more say in the scheduling of events and responsibility for the upkeep of sports equipment and areas (Elizabeth Caraker pers. comm. 1996). Working together to find mutually beneficial and agreeable solutions to problems will hopefully prevent political infighting and help agencies work together and coordinate their activities, especially with regard to land use planning.

D.L. 3L-54-94 calls for the categorization of existing uses, and development of land use goals and zoning ordinances for housing, commercial, agriculture, local community design, transportation, public services and utilities, subdivision, safety component, recreation, culture and tradition, tourism, and conservation. Goals, broad statements describing the desired ends for each issue, were developed by the TF. For the Pohnpei land use plan the following policy/goals for each issue were developed:

1. **Conserve and manage Pohnpei State's natural resources** to ensure their sustainability for future use.
2. **Preserve sites of cultural and historical significance** for the people of Pohnpei.
3. **Identify and develop suitable recreation sites** and other areas of scenic importance for the citizens of Pohnpei and visitors.
4. **Balance Pohnpei State tourism development objectives** between economic development and social, cultural, and environmental conservation.
5. **Develop an efficient and safe ground, water, and air transportation system** which strives to economically facilitate the movement of people and goods, and supports the overall development programs of the State and Municipal governments.
6. **Develop and maintain an efficient public services and utilities infrastructure** which serves the increasing demand for services and adequately supports the future development projections of the State and Municipal governments.
7. **Promote entrepreneurship according to sustainable land and marine resource use** through establishing and coordinating land use planning and zoning.
8. **Prioritize agro-forestry as a land use** in order to maximize local food production.

9. **Establish a suitable living environment for every low-income family of the State,** and alleviate and prevent overcrowded and blighted areas by providing safe, sanitary, and decent housing for all citizens of the State.
10. **Protect life and property** in the State of Pohnpei from natural disasters and hazards.
11. **Develop an orderly and efficient land subdivision process** which recognizes traditional and long-standing land-related processes, minimizes problems in maintaining records of land ownership, and works to clarify the land situation in Pohnpei.
12. **Set a standard of living for the rural residents** of Pohnpei State and plan communities to reflect these standards.

(Caraker, Hall, and Parkhurst 1995).

More specific policies and strategies to enact these policies were then specified for each goal. For each policy, there is text explaining how the current situation illustrates the need for this policy; how the policy can be applied to the SPC's evaluations of future land use developments, and strategies to guide future proactive measures relating to issues behind this element of land use. Where applicable the agencies responsible for implementing policies/strategies are stated. These goals and strategies were developed by the TF as a starting point in the hope that they would spark discussion among government agencies and communities and either be agreed upon or modified.

LIKELY EFFECTIVENESS OF LUPZA IMPLEMENTATION

Land use planning is the process of visualizing and then planning to achieve that vision. Three fundamental goals often listed as the reason for planning are equity, efficiency, and preservation of choice (Healy and Rosenberg 1979). Other goals often listed include livability, amenity, minimum harm to natural communities of plants and animals, optimum use of resources, and public involvement in the planning process.

Although these are worthy goals, there are many criticisms leveled at increasing government regulation, especially environmental and land use controls. Arguments raised against land use planning and zoning include the loss of personal freedom, economically inefficient utilization of resources, equity, particularly concerning adverse effects on lower and moderate income classes, and inability of regulations to achieve their statutory objectives (Sabatier and Mazmanian 1983). The first three criticisms are fundamentally questions of competing values and are value judgments. Other policies, based on value judgments that support increased regulation of the individual for the common good, have been implemented in the U.S. and other countries. Today, industries are regulated for the protection of consumers' and employees' health. Examples of protectionist regulations include regulations for automobile safety, water and air quality, and rent control. All are accepted by the public majority as a necessary good, overriding the subsequent loss of personal freedom. When economists claim inefficient utilization of resources they usually do not include nonmonetary benefits such as intrinsic value, beauty, existence value, the health benefits of clean air and water, and services that ecosystems provide such as water filtration and flood control in their economic analysis. If all these factors are included in economic calculations, land use planning is an economically efficient utilization of resources. Increasing regulations do not necessarily hurt lower and middle income classes. In a study of the effects of clean air policies and regulations it was found that the poor and moderate income classes benefited

disproportionately (Schwartz 1975). To address the fourth complaint, the inability of regulations to achieve their statutory objectives, it must be insured that regulations are written and implemented to best achieve their statutory objectives.

There has been a burgeoning interest in the development and implementation of environmental and land use plans in developing countries. The governments of many developing nations have passed legislation and allocated funding for the development and implementation of environmental and land use plans. Developed nations, the United Nations, and NGOs have lobbied the governments of nations and increasingly funded various efforts to develop and implement plans and policies to carry out the planning legislation. In many instances these plans and policies have not been implemented.

The challenge has not been "so much in the formulation and adoption of policies, plans, regulations and procedures of good quality to regulate the use and modification of coastal areas but in their effective implementation...The reality is that environmental plans and programs are piling up in a great many low income countries but that they have too often little or no discernible impact on the trends in ecosystem misuse and overuse that they were designed to modify (Olsen 1993).

For planning effort to be successful, plans must be implemented so that policy goals can be achieved. When writing legislation and plans, care must be taken to consider factors that will enable successful implementation. The evaluation of legislation and plans will allow shortcomings to be spotted and addressed to improve the chances of successful implementation. Ideally a statute or executive order "identifies the problem(s) to be addressed, stipulates the objective(s) to be pursued, implies a causal theory of the manner in which those objectives can be attained, and then "structures" the implementation process to reach its goals" (Sabatier and Mazmanian 1983). Implementation is the carrying out of a basic policy decision, usually made in a statute. Legislation and plans can be analyzed using criteria set out by Sabatier and Mazmanian to determine the likelihood of successful implementation. Statutes achieve their desired (actual) impacts if "(1) the policy decisions of the implementing agencies were consistent with those

objectives, (2) target groups complied with those decisions, and (3) the statute incorporated an adequate causal theory in which target group compliance would be sufficient to attain statutory objectives" (Sabatier and Mazmanian 1983).

Evaluation Criteria

Not only must legislation and plans and policies be approved, they must be implemented. The gap between policy development and successful implementation must be bridged. Sabatier and Mazmanian (1983) suggest six conditions that lead towards successful implementation of a law:

1. The enabling legislation or other legal directive mandates policy objectives that are clear and consistent or at least provides substantive criteria for resolving goal conflicts.
2. The enabling legislation incorporates a sound theory identifying the principal factors and causal linkages affecting policy objectives, and gives implementing officials sufficient jurisdiction over target groups and other points of leverage to attain, at least potentially, the desired goals.
3. The enabling legislation structures the implementation process so as to maximize the probability that implementing officials and target groups will perform as desired. This involves assignment to sympathetic agencies with adequate hierarchical integration, supportive decision rules, sufficient financial resources, and adequate access to supporters.
4. The leaders of the implementing agency possess substantial managerial and political skill and are committed to statutory goals.
5. The program is actively supported by organized constituency groups and by a few key legislators (or chief executive) throughout the implementation process, with the courts being neutral or supportive.

6. The relative priority of statutory objectives is not undermined over time by the emergence of conflicting public policies or by changes in relevant socioeconomic conditions that undermine the statute's causal theory or political support.

Each of these six conditions can be met to varying degrees. The strength in which each condition must be met to achieve policy objectives depends on several factors including "(1) the difficulty and expense of change required in target group behavior, (2) the predisposition of target groups toward the mandated change and (3) the diversity in proscribed activities of target groups" (Sabatier and Mazmanian 1983). In other words, the bigger the change, the less positive the attitude toward the change, and the more activities affected by the change, the more resistant people will be toward the change, and the more strength with which each of the six above conditions will need to be met. If a substantial change requiring 5-10 years of effort is sought, each condition is necessary, although with more tractable problems, it might not be necessary to meet each condition (Sabatier and Mazmanian 1983). Successful implementation of land use planning and zoning on Pohnpei would create a substantial change in the status quo and require continually adapting efforts.

Condition 1: Clear and Consistent Policy Goals and Objectives

Successful legislation sets out policies that are clear and consistent and criteria for determining how to resolve goal conflicts. Clear and consistent goals allow the success of programs to be easily evaluated, allow implementing officials to understand what they are to accomplish, and they provide a legal resource to supporters of these objectives (Sabatier and Mazmanian 1983). The Pohnpei Land Use and Planning and Zoning Act, D.L. No. 3L-54-94, sets out eight goals:

- to encourage the most appropriate use of land, both public and private;
- to provide adequate open spaces about buildings for light and air;
- to prevent undue concentrations of population;
- to protect the health and welfare of Pohnpei residents'
- to promote responsible and balanced development;
- to preserve and enhance cultural and traditional values;
- to conserve and protect the natural environment; and
- to assure adequate provision for community facilities and requirements.

To attain these goals eleven issues are to be addressed: conservation, parks and recreation, tourism, culture and tradition, transportation, public services and utilities, safety and hazards, commerce and industry, agriculture, housing, subdivision and local community design.

It was not the 1994 Pohnpeian legislature who developed these eight land use goals, but rather, American lawyers working for the Trust Territory Government, who copied them from American land use and zoning regulations of the 1970s. The Trust Territory Government first adopted the LUPZA in 1974.

The goals and areas to address in the legislation are not taken from studies and assessments of the island, although, a number of environmental and development studies assessing the current island situation and recommending future action have recently been published. For example, the recommended residential zonings are of three types; Residential 1 - single family residential; residential - 2 single family residential medium density; R-3 multi-family residential. These zones are irrelevant to the traditional Pohnpeian way of life. Several generations often live under one roof or families live clustered together in separate houses in compounds. D.L. 3L-54-94 has not been adapted to the different conditions in Pohnpei but instead follows a US model of planning and zoning. It will be up to the SPC, municipal government, state agencies, and citizens of Pohnpei to work together to develop a plan and zoning ordinance that is best suited to

their way of life and environment. It is probable that this would include changes in the goals and zones laid out in the original legislation.

D.L. 3L-54-94 does not state how to measure the achievement of goals either quantitatively or qualitatively. The legislation provides no criteria for resolving conflicting goals and priorities such as development versus conservation. The SPC has the responsibility for developing criteria by which to measure the success of reaching the goals and to determine how to resolve conflicts between goals by assigning priority to different criteria. The SPC should involve communities, municipal governments, and state agencies at this point to help determine what priorities are most important and how success should be measured. The goals and criteria should reflect islander values so the community can buy into the goals and support them.

Another weakness in the working draft of the land use plan (WDLUP) is that there was no effort to directly state how the eight goals fit into each of the eleven sections. At the time we felt that goals more applicable to the Pohnpeian situation could be designed through developing goals and strategies for the eleven issues laid out in the land use plan. Several of these eight goals, however, fall naturally into the eleven sections. These include preserving and enhancing cultural and traditional values, incorporated into the goal for the culture and tradition element, conserving and protecting the natural environment, part of the goal for the conservation element, assure adequate provision for community facilities and requirements, part of the parks and recreation goal. Three other goals are part of the four goals I worked on, but also directly relate to other goals: 1) to encourage the most appropriate use of land, both public and private; 2) to protect the health and welfare of Pohnpei residents; and 3) to promote responsible and balanced development. Direct measures of success for the eight goals and how to resolve differences were only partially defined through the development of the 11 goal sections.

For municipal governments to have their plans approved, they will need to develop plans consistent with the policy goals and objectives. State government agencies

will also, need to adapt their plans to meet the goals laid out in the land use plan. At the time the rough draft was written care was taken to investigate current goals and policies of state agencies. Plans written by state agencies tend to have a conservation tilt and are agreeable with the proposed land use plan. After the state legislature passes the land use plan, money from the federal government and outside aid agencies will need to be in agreement with the land use plan.

The LUPZA meets the requirement of clear and consistent policy directives (Table 2) to a moderate degree. The policy goals are qualitative and ambiguous with no set of criteria given for resolving conflicting goals such as promoting development or preserving culture and protecting the natural environment. The policy goals were not really designed specifically for the situation on Pohnpei.

These deficiencies can be remedied by developing unambiguous goals and criteria in the land use plan for resolving conflicts unique to Pohnpei. The legislature has left it up to the SPC to come up with guidelines to address potential conflicts. The SPC has begun a good effort to involve government officials and citizens in the planning process so the land use planning needs of Pohnpei can be better met. This effort should continue so that goals and criteria to resolve conflicts between goals reflect the values of Pohnpeians. There have also been many studies to reference and further clarify land use problems and strategies for improvement. The SPC can be effective in achieving the goals they develop if they periodically review the goals and the criteria and regulations and make changes as needed and also, if qualified people assist in structuring the implementation.

Condition 2: Sound Causal Theory

Legislation must not only lay out clear policy objectives but also accurately identify problems and what steps and changes in target group behavior must be made to

Table 2. How the Implementation of the Land Use Plan meets the Hypothesized Conditions for Effective Implementation (modified from Sabatier and Mazmanian 1983).

Conditions of Effective Implementation	Overall Assessment	Discussion
Cond. 1. Statue contains clear and consistent policy directives	Moderate	Policy goals are qualitative and ambiguous. No mechanism to resolve conflicting goals such as promoting development and conserving the environment.
Cond. 2 Statute incorporates sound causal theory identifying sufficient factors and target groups to attain statutory objectives.	Moderate	Municipalities to design plans and zoning ordinances. SPC to approve plans and carry out permitting process. Agency plans and national funding required to be in accordance with plan. Adequate causal theory not in statue but developed in recent analyses of island and WDLUP.
Cond. 3 Statue not only provides jurisdiction over target groups but also structures implementation to maximize probability of compliance from implementing officials and target groups.	High to Low	SPC is a new agency, focused on land use planning. At municipal level no planning positions are funded, likely to be responsive to local interests.
a. Assignment to a sympathetic agency	High to Low	SPC is a new agency, focused on land use planning. At municipal level no planning positions are funded, likely to be responsive to local interests.

b. Hierarchically integrated implementing	High to Low	SPC has final approval of plans. Unclear relationship between DL and SPC regarding approval of Development Permits. Unclear coordination with sectoral agencies and municipal government. Strong enforcement measures can be enacted to ensure compliance. Will require cooperation of Attorney General.
c. Decision rules supportive of objectives	Moderate	SPC responsible for formulating and implementing decision rules. Development Permit needed for land clearing and earthmoving.
d. Financial resources	Moderate to Low	Initial outlay of \$65,000 most spent. Will continue to need appropriations and Compact funds will run out in 2001.
e. Formal access to supporters	Moderate to Low	SPC meetings are open to public and public may comment. Plans to involve community and incorporate the public's input into the plan.
Cond. 4. Commitment and skill of top implementing officials.	Mixed	Support enthusiastic to low. Potential conflicts - enforcing regulations in face of strong community and family ties. Head of SPC has experience in public land management. No skills criteria for being appointed to committee.

Cond. 5. Continuing support from constituency groups and sovereigns

High to Moderate

Support of TNC, U of Oregon, and East West Center. Also nature based tourism enterprises. Need greater widespread public involvement and knowledge. Can build from Watershed Steering Committee's work.

Cond. 6. Changing socioeconomic conditions (and thus political support over time)

Uncertain

Highly dependent on natural resources for subsistence. Push towards economic sufficiency as compact funds decrease. Currently many projects floating including new airport, hotel and casino scheme but the government seems unwilling to plunge into high density tourist development. If nature based tourism develops strong conservation/preservation tilt.

reach the desired goals (Sabatier and Mazmanian 1983). The WDLUP sets out eleven goals. For each goal a set of strategies was developed. The strategies were laid out to address specific land use problems and are based on studies carried out by various agencies and communication with Pohnpeian residents that identified problems and possible solutions. These strategies are set up as guidelines to zoning land in a manner that will allow the land use goals to be achieved.

State agencies will need to develop and coordinate their own plans with the goals of the land use plan. The state government owns a significant amount of land on Pohnpei including the upper watershed area and the mangrove forests surrounding the island. They also have management responsibility for marine resources from the shore to three miles out to sea. It is assumed that state agencies are the experts in their respective areas and are best able to regulate access and prevent over-harvesting of fish, for example. Under the LUPZA individual agencies will continue to manage their respective resources. Unfortunately, state agencies are limited by lack of staff, baseline information, and enforceable regulations. Even if these conditions were all met, there are still many scientific unknowns in resource management.

These shortcomings could be, at least, partially remedied through involving the public. Interested citizens could carry out resource studies and gather baseline information. Elders could be contacted regarding traditional resource regulations that were in place and successful in the past. Involving citizens in the management of resources is also a great method to encourage the following of regulations.

Municipal governments are responsible for developing land use plans and submitting them to the SPC for approval, assuring that they meet the goals of the land use plan. Planning at the municipal level will hopefully allow for more citizen and community involvement. Communities can feel they contributed to the land use plan and the plan belongs to them. Transportation around the island is difficult and time consuming, holding meetings at the community and municipal level will enable many

more people to attend. A weakness to this approach is that municipal governments do not currently have funding for planning and have fewer personnel trained in planning issues than state agencies. D.L. 3L-54-95 does not specifically state that citizens are to have input into the planning process but leaves the door open for community involvement at the municipal level. Involving citizens in planning is an excellent opportunity for people to help develop and draw the zoning maps for their community and desired future development.

For land use planning efforts to be successful it will be important to coordinate the plans of state agencies and municipal governments. Currently, there is no official process for addressing conflicts before the plan reaches the final submission stage. The TF strove to involve municipal members of the TAC with different state agencies in discussion and it is hoped dialogue between state agencies, municipal governments, and the SPC will continue throughout the planning process.

Marine resources are a very important part of island life and an essential part of most Pohnpeian diets. The land use plan can help protect the marine environment by regulating land use practices such as minimizing the destruction of mangroves, the impacts of dredging, and pollution entering the lagoon. The LUPZA does not give the SPC the ability to regulate marine resource harvests. Coordination with MR and development and implementation of a marine resources management plan will be essential to prevent over harvesting of marine life as the population of Pohnpei increases.

The WDLUP strove to detail jurisdictions and the state agencies responsible for implementing plan tasks. As a TF we worked with agencies to smooth out jurisdictional conflicts. For example, a memorandum of agreement stipulating the allowed level of development must be signed by C&HP and any other agency involved before development of a historical/cultural site can occur. This is to prevent facilities being erected and then torn down after being deemed inappropriate, as happened previously at Nan Madol.

There could be problems with the SPC fulfilling their duties. There is certain amount of subjectivity in reviewing each case for changes to zoning. The land use plan was laid out so that each goal contains a set of criteria to be considered when establishing what land is designated for or if changes or modifications should be made to a zone. Some flexibility is necessary, but too much makes the land use plan and zoning ordinances meaningless. The SPC must be willing to say no to requests that are not in agreement with the plan despite family ties and political pressure. They have the authority to set fines and fine people if rules are broken and must be willing to use this power to enforce land use restrictions.

Condition 2, incorporation of sound causal theory rates an overall assessment of moderate (Table 2). LUPZA designates the SPC to develop a master land use plan. Municipal governments are to prepare plans and zoning ordinances for their municipality in accordance with the master plan. The SPC will then approve the plans or send them back for revision. Once the master and municipal plans are accepted by the legislature all agency plans and national funding will be required to be in accordance with the plan. The SPC also, has the power to regulate development through the development review permit.

Success of land use planning will require coordination between various state agencies. There is no official coordination mechanism in place but the SPC could work to help coordinate and approve the various plans. LUPZA does not contain adequate causal theory but analysis of current land use problems and solutions can be found in recent published studies regarding the island and the concerns and solutions of citizens can be obtained through public involvement. WDLUP strives to include these identified problems and solutions.

Condition 3: Coherent Structuring of the Implementation Process

According to Sabatier and Mazmanian (1983) a statute must give implementing agencies sufficient power over target groups and structure the implementation process to maximize the probability that target groups will perform as desired. They break down their analysis into five categories: assignment to a sympathetic agency; adequate incentives for compliance; decision rules; financial resources; and formal access to supporters. The land use planning program on Pohnpei is based on the creation of goals, zoning ordinances, and development permit process. Applications for development will be reviewed by their applicability to the zoning of the area and also, if procedures are taken to mitigate the negative affects of development. It is hoped that the land use plan and zoning ordinances will set out rules and criteria to guide permit approval and subsequent development while still being flexible. It is important that enough flexibility and discretion be allowed to deal with variation in specific situations but not so much that goals are sacrificed in order to placate important actors in specific cases.

A. Assignment to Sympathetic Agency

The SPC was appointed and approved by the legislature by the end of summer 1995. The DL is designated as the administrative arm of the SPC providing needed supplies and expertise. The head of the DL Yasuo Yamada is very enthusiastic about land use planning. The SPC approved the TAC as the action group charged with designing a working draft of the land use plan. The TAC consisted of members of the DL, municipal representatives, and technical assistants from the University of Oregon.

The SPC membership is currently biased towards cultural preservation, natural resource concerns, and orderly development. The SPC is a new agency specifically created by the law to carry out land use planning. New agencies created specifically to

address a task usually tend to be more focused and more enthusiastic and aggressive in pursuing the agency's agenda. Many members of the DL are also, biased towards cultural preservation, natural resource concerns, and orderly development. The head of the DL is appointed by the governor so this bias could change, although, the division heads are civil servants and should provide some continuity to modify any radical changes the new governor's appointee might attempt to make.

Every two years, two new members are appointed to the SPC by the governor and approved by the legislature. The director of the DL and the State Planner are also members of the SPC and are selected by the governor and approved by the legislature. The bias of the SPC could change over time to one more strongly pro-development as membership changes. As Compact funds decrease more pressure may be placed on the SPC to approve almost all plans for development regardless of their quality or compatibility with the plan.

B. Adequate incentives for compliance?

Statutory regulations must provide adequate incentives for compliance and maximize the probability people will behave as desired (Sabatier and Mazmanian 1983). Traditionally compliance is brought about through the use of fines, jail sentences, taxes on activities that are not desired, and tax breaks on those activities that are desired.

The SPC does have sufficient jurisdiction over target groups. The LUPZA regulates the use of land through development of plans and zoning ordinances. For land clearing or earth moving activities to occur, a permit must be approved by the DL, with EPA and C&RS commenting on the proposed activity. The SPC then determines if the development meets the qualifications laid out in the land use plan and zoning ordinance. Under the LUPZA the DL and SPC have a close working relationship but further clarification of methods to work out possible differences of opinion in permitting

decisions between agencies need to be made. Conflicts over permitting decision are not likely in the near future for John Weilbacher is head of both the SPC and Division of Public Land Management, the division of the DL in charge of permit approval. This approval system will only be effective if the DL and SPC have the political and administration skills to run the program.

The LUPZA does not specify penalties, but allows monetary penalties and jail terms to be written into the zoning ordinance. Care must be taken that penalties are set at a high enough rate to discourage disobedience. When pursuing a jail sentence the case will be turned over to the Attorney General's Office.

State agency's plans are required to be in accordance with the land use plan. State agencies such as C&RS are also responsible for enforcing their rules and regulations and have the ability to level fines and bring people to court. C&RS can also regulate natural resource use through permits and access or season restrictions. The EPA, C&RS, and DL all evaluate and comment on building development permits. It is hoped that the day to day decision making of the state agencies will follow the goals of the plan. It will be important too, for communication and coordination to occur between state agencies and the SPC.

Federal agency plans will be required to be in agreement with the state land use plan. The role of federal agencies in land management is currently fairly small but effort should be made to coordinate their activities with state agencies to maximize success and avoid duplication of effort.

Municipal governments are to formulate land use plans and submit them to the SPC for approval. Municipal governments have some flexibility in determining land use but their decisions must be in accordance with the goals of the land use plan. The federal government will also only be able to fund projects that are in accordance with the land use plan. Outside aid agencies can use the plan as a guideline for distributing funds.

The implementation process as outlined in LUPZA does not maximize the probability that people will behave as desired. There are many regulations already on the books that are difficult to enforce due to lack of staff and pressure from family and friends to ignore certain activities. Pohnpeians still have strong ties to the past and place a high importance on community acceptance and following community values. The LUPZA should work to incorporate the people of Pohnpei into land use planning so that it is their plan and the force of community peer pressure can be brought to bear on those who attempt to disregard the plan.

C. Decision Rules

The SPC is entrusted with the responsibility to formulate and implement planning policies to achieve the goals stated in the law. Also, the SPC is to develop and prioritize criteria in order to make consistent decisions when conflicts arise between conflicting goals such as economic development and preservation of natural resources. The WDLUP sets out criteria that gives first priority to sustainable use of renewable resources and less priority to development that will decrease the amount of renewable resources and future options. Priority is also to be given to subsistence use of natural resources. Many citizens of Pohnpei rely heavily on subsistence use of agriculture and fishing to feed their families.

The criteria for deciding between competing goals and making land use decisions needs to be further defined by the SPC. Citizen involvement through community meetings should be solicited to determine what the priorities of the public are and their vision of the future. The goals of the public should be incorporated into the plan so that it is their plan, not a foreigner's plan for the island.

It is possible that the basic criteria already set out in the land use plan will be changed by the SPC as time goes on and a more pro-development approach will be taken.

There is also the possibility that criteria will be ignored under pressure from outside sources. The SPC will need to consistently base its decisions on the criteria decided upon to be successful.

D. Financial Resources - Compact Funds

The SPC must be allocated adequate financial resources to fund staff positions, conduct technical analysis involved in the development of regulations, the administration of permit systems and monitoring target group compliance (Sabatier and Mazmanian 1983). Financial Resources for developing a land use plan are in short supply. Originally approximately \$65,000 was designated by the legislature to develop a land use plan. Robert Fischer was hired to come to Pohnpei and develop a land use plan and zoning map. He quickly developed a zoning map for the entire island based on land suitability. This plan was deemed unacceptable to the public and shelved. The zoning map could prove a useful tool, as a starting point for communities' discussions of land use. Communities could discuss what they like, dislike, and what should be changed in the zoning map.

The SPC is paid for the time they spend in meetings. Most members also hold other positions in the government or private work and can not devote themselves to land use planning, zoning, and permit processing full-time. This means less time for the SPC to work on planning, but there are possible benefits to part-time status. Part-time commissioners with other employment are less dependent on their SPC jobs and less likely to cave to political pressure.

According to D.L. 3L-54-94, municipal governments are to develop their own plans in accordance with the goals and strategies of the land use plan. These plans will then be approved by the SPC and become official. Although most planning is to take place at the local level, there was no initial funding provided to municipalities. During

the summer of 1995, all the time and work invested by local officials was effort taken from their other responsibilities. Funding for a full-time or at least part-time person with some training in planning and community outreach would greatly benefit the planning process.

Funding for land use planning has come through legislative appropriations which are almost solely dependent on U.S. Compact funds. Compact funds are being phased out and will stop in 2001. There is no guarantee of additional funding after 2001 and funding is likely to become increasingly more difficult to come by. One possible source of future funds and resources is from outside non-government agencies, such as the Nature Conservancy and Greenpeace.

E. Formal Access to Supporters

An important part of the planning process is providing many opportunities for interest groups and government officials supportive of statutory objectives to intervene in the implementation process (Sabatier and Mazmanian 1983). The LUPZA requires municipal governments to develop their own land use plans for approval by the SPC. Planning at the municipal level can provide the public with easier access to planning meetings and more opportunities to contribute to the planning process for their communities.

The meetings of the SPC are open to the public and the public has access to meeting transcripts. The public is to be given sufficient notice, a week before SPC meetings, in order that they may attend and voice their support and grievances. In addition, the WDLUP recommends open public meetings at all stages in the planning process, both to educate Pohnpeians about land use planning and to receive their input. The recommendations from these meetings should be incorporated into the zoning where feasible. People must feel that their suggestions are given weight and they are listened

too. It is critical to include communities in the land use planning process from the very beginning, so that they the plan expresses what they want to see happen and it belongs to them.

If the SPC denies or approves a zoning change or building permit the decision can be appealed to the courts. This might cause problems in the future if too many cases are appealed and clog up the court system. The reasons for permit denial, conditional approval, or approval by the SPC should be documented and consistent so that decisions hold up in court. A citizen or group can ask the legislature to pass a law to change a zoning ordinance.

In summary, condition 3, giving implementing agencies sufficient power over target groups and designing the implementation process so that target groups will behave as desired, has an overall assessment of high to low (Table 2). LUPZA structures the implementation process to maximize the probability that implementing officials will act consistently with program objectives and goals. The development and implementation of the LUPZA was assigned to the SPC, a newly created organization focused on land use planning. The SPC is concerned about natural resources and enthusiastic about land use planning but they are limited in education and experience. The SPC is highly sympathetic to the LUPZA but this could change as new members are appointed (Table 2).

State agencies are to review and comment on proposed developments but the final decision making authority rests in the SPC. This streamlines the permit process and overcomes possible conflicts between state agencies that prohibit a final decision from being made. Strong enforcement measures can be enacted to ensure compliance. This will require the cooperation of the Attorney General. The plans of state agencies and the municipal government are required to be in accordance with the land use plan. The SPC can work to facilitate cooperation between all agencies. One possible means of accomplishing this is by setting up a task force with a member from each municipality

and involved state agency. The task force could work together to ensure coordination of efforts between agencies and also, to comment on development permits. The SPC could also benefit from hiring a staff member to help coordinate activities between various agencies and to take care of other necessary tasks. LUPZA ranks an overall assessment of high to low with regard to hierarchically integrating implementation.

The conservation, parks and recreation, tourism, and culture and tradition goals all require coordination between various state agencies and municipal governments and further development of sectoral plans. The goals will benefit from the development of coordination between different agencies. Because of the lack of coordination between sectoral agencies the overall assessment of these goals is moderate except for culture and tradition (Table 3). Culture and tradition is ranked high because plans to protect and develop sites are already in effect and public support for preserving cultural sites is high. Many people with historical sites on their land are interested in preserving these sites as part of their family history and/or as sites to attract tourists and make money.

The financial resources of Pohnpei are moderate but will decrease when Compact funding ends (Table 2). There is currently some money available for funding the SPC for their meeting time little money is available for funding the planning effort either for supplies or staff. The municipal level, where LUPZA suggests plans be developed, has not received any funding to carry out planning.

Formal access to supporters is ranked moderate to low (Table 2). SPC meetings are open to public and the public may comment on development proposals. Unfortunately, transportation to Kolonia can be difficult for those in outlying areas making participation difficult. During the planning process, communities will be involved at the municipal level allowing people access to the planning process.

Table 3. Extent to Which Implementation of the Land Use Plan will meet Program's Goals and Policies.

Pohnpei's Master Land Use Plan Goals and Policies	Overall Assessment	Causal Theory
<u>Master Plan Goals</u>		
1. Conserve and manage Pohnpei State's natural resources to ensure their sustainability for future use.	moderate	Need to further develop and implement plans for watershed area, marine resources, and mangroves. SPC will need to coordinate sectoral management of resources. Currently, C&RS and police have enforcement authority for resource regulations. The SPC can levy fines and turn over violators to the Attorney Generals Office. Development Permit.
2. Preserve sites of cultural and historical significance for the people of Pohnpei	good	Development Permit must be approved by H&CP. H&CP responsible for protecting sites and tracking them. Any citizen can nominate a historical site for protection. Unclear ownership of Nan Madol.
3. Identify and develop suitable recreation sites and other areas of scenic importance for the people of Pohnpei and visitors.	moderate	Municipal governments responsible for location/ needs of recreation for community, with attempts to locate facilities centrally and safely. P&R is responsible for obtaining access easements and developing park sites. Development Permit

4. Balance Pohnpei State tourism development objectives between economic development and social, cultural, and environmental conservation.

moderate

Subsistence uses given priority over tourist uses. Traditional architecture and landscaping given priority. Ecotourism in fragile areas will be determined and controlled by responsible agency. Development Permit.

Condition 4: Commitment and Skill

The members of the SPC and those involved in municipal planning efforts must have the necessary managerial and political skills and be committed to the LUPZA for successful implementation to occur (Sabatier and Mazmanian 1983). To be appointed to the SPC a person must be nominated by the governor and approved by the legislature. The president of the SPC is then chosen by the members, from among their membership. There are no minimum qualifications for being appointed to the SPC. Minimum qualifications should be developed in the future. There is a danger that candidates will be appointed for political and family reasons and not for their qualifications. Once selected, even skilled members might be easily swayed by family and political concerns.

The SPC is crucial to the success of the land use planning and zoning effort, for they have the responsibility to develop and implement the land use plan and code. They are responsible for checking and approving the municipal plans and making sure they agree with the land use goals and strategies. The SPC will approve or deny changes in the land use plan and zoning ordinance and ensure enforcement. The commitment of the SPC to land use planning is likely to be high for they are a new agency and comprised of members that generally support the legislature's land use planning objectives.

At the local, state, and federal level the ability to coordinate and network with other agencies and to reach out to the public to educate and receive advice is important. Unfortunately, most local and state officials do not have training in land use planning and community outreach, and not all are interested in soliciting public input. Programs such as the East West Center at the University of Hawaii and University of Oregon Micronesia and South Pacific Program can provide training and assistance in the planning effort.

Condition 4, those involved in planning must have the necessary skills and commitment, is met with a mixed overall assessment (Table 2). A possible weakness is the significant decision-making authority of the SPC. Having the SPC make final

decision on what development is to occur streamlines the permitting process but their power may or may not be used effectively. Success will depend on the orientation of SPC members, their skill, and also their ability to vote outside family and political influences.

The commitment and skill of implementing officials is a weakness. The SPC is currently supportive, but as two new members are appointed every two years the composition of the SPC could switch to one very pro-development or very preservationist. The decision of SPC members must also, not be unduly influenced by family or political ties.

There are no criteria or level of skills necessary to be appointed to the SPC but qualifications could be developed in the future. Most members do have experience working in a government agency but only two have a significant amount of exposure to land use planning issues. There is a need to develop a clear description of the position's responsibilities and desired experience for the position. Technical assistance in developing a position description could be obtained from the University of Oregon or other interested organizations.

Condition 5: Continuous Support From Constituency

For a program to be successful it should be actively supported by organized interest groups and by at least a few key legislators or chief executives throughout implementation with the courts remaining neutral or supportive (Sabatier and Mazmanian 1983). The LUPZA is strongly supported by several senators, the head of the DL, and Chief of the Administration and Management of Public Land who is also the head of the SPC.

Land use planning and zoning is part of the traditional way of Pohnpeian life (Raynor pers. comm. 1995). In the past, lands were designated for uses by the traditional leaders according to which plants they grew best. Environmental regulations were part of

traditional life. For example, certain areas of the reef would be closed to fishing at set times. Legends would explain why these regulations were in affect. It is very probable that these times coincided with breeding and spawning seasons of certain fish species. Following the cautionary tales of the legends would ensure a bountiful harvest by enabling the fish to propagate. Traditional environmental regulations that have not been forgotten should be reexamined and possibly incorporated into the land use plan. The traditional status of these regulations will give them added validity.

Most Pohnpeians depend on subsistence farming and fishing for food on their table. Many are also aware of the decrease of soil fertility in areas and decreasing availability of fish (Raynor and Sohl pers. comm. 1995). As long as Pohnpeians perceive that planning improves the conditions of vital natural resources they are likely to support land use planning. Community involvement in the planning process can also increase enthusiasm for planning. Many Pohnpeians, especially those of the older generation, will support measures they feel will help preserve their culture and traditions. Other important supporters of land use planning are those involved in nature based tourism. Nature based tourism depends on a healthy environment. The Nature Conservancy and other NGO's are considering developing nature based tourism enterprises with villagers and this influx of money is likely to enhance support for land use planning.

The Nature Conservancy is also willing to offer support including the use of a GIS system and the help of a GIS technician. They are currently working hard to gain public acceptance of the watershed boundaries. The University of Hawaii East-West Center, University of Oregon, and various US government agencies have provided financial support or technical assistance in the past to do baseline studies of natural resources, assessments of environmental problems and solutions, and to help establish resource management programs.

Sabatier and Mazmanian's (1983) fifth condition, continuing support from constituencies is ranked moderate (Table 2). An important strength of the planning

process is the opportunity for local development and participation. All citizens have the right to attend SPC meetings which are to be advertised in advance. The LUPZA calls for the formation of plans at the municipal level. Communities from each municipality can be organized to discuss land use planning issues and develop a vision for their future and subsequent zoning ordinances. With community support, land use planning regulations can more easily be implemented and enforced. During the summer of 1996, coordinated efforts to reach out to the community began. A successful example of community involvement, PRA, has been carried out by the Watershed Steering Committee. This program can provide a base of knowledge and training for involving communities in planning. Support from outside agencies including TNC, University of Oregon, and East West Center is a valuable resource for land use planning efforts.

Condition 6: Changing Socioeconomic Conditions and Political Support Over Time

For land use planning to be successful in the long term it must not be undermined over time by the emergence of conflicting public policies or by changes in the relevant socioeconomic conditions that undermine the statute's underlying causal theory or political support. It has also been noted that political and public support for government programs tend to diminish over time. (Sabatier and Mazmanian 1983). The public is likely to support land use planning and zoning over the long term if they view it as improving the availability/viability of natural resources and that they played a role in creating their plan. Visible and motivating issues of current concern are decreasing fish stocks within the barrier reef, mud slides in the upland forest, reef degradation, trash, and pig pens located directly over water sources. Continued support will come if land use planning is perceived to be successful in improving the situation and/or halting environmental deterioration. This is especially important to the many people who depend on subsistence farming and fishing for their livelihood. Further support will come from

those interested in nature-based tourism enterprises. Nature based tourism requires protection of natural resources and beauty over the long term. Land use planning would designate areas to be used as tourist attractions and maintain the overall beauty and health of Pohnpei's natural resources. Zoning could also be used to enhance the architecture and style of hotels on Pohnpei.

There is great uncertainty regarding how socioeconomic conditions will change over time but as Compact funds diminish, an ever-increasing push towards economic development is likely. The government of Pohnpei would like to reach the point of economic self-sufficiency. This could lead to development projects being proposed and accepted without regard for minimizing their impact on the environment in the hope of quick money. At present, a huge resort in the Madolenihmw district has been proposed, complete with a gambling casino and a new airport (the current one is underutilized) in the midst of the sacred rain forest. Support for the project is low, but as loss of Compact funds looms closer, poorly-planned developments will probably appear more and more attractive. To continue to exist and succeed, land use planning must not be perceived as hindering development, but as smoothing the way for well-planned development ventures, and discouraging wasteful damaging ventures. If planning and zoning are seen as anti-development, support will deteriorate.

Future political support will also play an important role in the future of land use planning. Political support will vary with each new governor's administration and new legislature. The governor will have a significant impact on the SPC as the governor is responsible for appointing members. The SPC will have some stability between administrations as appointments are staggered and two of the nine members are appointed every two years. Continued support of the legislature will be needed to secure funding and to approve acceptable governor appointees to the SPC.

Changing socioeconomic conditions and political support over time, condition 6, has an overall ranking of uncertain. There are many strengths of LUPZA that can help it

become a success. LUPZA is comprehensive in scope, addressing land use issues throughout the island. The negative impacts of poorly planned development will continue to be regulated through the development permit application. The development permit process is a valuable tool for mitigating harmful effects associated with development activities. Islanders are highly dependent on natural resources for subsistence food sources. There is a push towards development and economic self-sufficiency as Compact funds decrease. Currently, there are many projects floating including a new airport and hotel casino scheme but the government seems unwilling to plunge into high density tourist development. If nature based tourism develops as a strong economic and political force this will increase the push towards conservation of natural resources and culture.

CONCLUSIONS

In 1994, the Pohnpeian State Legislature passed the "Land Use Planning and Zoning Act" to guide future development, protect the welfare of Pohnpeians, and preserve the natural and cultural resources of the island. The land use planning program got off to a good start in the summer of 1995. Under LUPZA, land use planning will encompass the whole island and bring together the current piecemeal approach to natural resource and development regulation under a broad comprehensive plan. Planning on Pohnpei can be used to upgrade the quality of proposed development, prevent pollution problems, protect decreasing stocks of marine life and threatened species, and promote businesses such as ecotourism on the island.

The development of the working draft of the land use plan is the start of an effort to promote interagency discussion of land use and resource issues and provide a working draft that could, after review and revisions, be sent to the legislature for approval by the 1999 deadline. Realizing that a land use plan could not be developed within three months, priority was given to educating government agencies about the land use legislation, the proposed planning process, and soliciting their help and input. A draft land use plan was drawn up by the TF with attempts to incorporate solicited input and previous studies in the hopes of providing a starting point for promoting further discussion among agencies, municipal governments, and the public.

An important means of gaining support will be involving the public throughout the land use planning process. By carrying out planning not just at the state government level, but also at the local level, communities will be encouraged to plan for the future and work together to reach their goals. Planning at the municipal level on Pohnpei follows traditional and current political boundaries and allows for more public participation and flexibility on a local scale. Developing a common vision in the community will enable traditional power structures and community peer pressure to

work towards ensuring compliance with land use laws. This is an increasingly important means of enforcement as the Pohnpeian government has little money to spend enforcing land use laws and enforcement is sometimes difficult because officials would rather avoid conflicts.

If the land use program is analyzed using the conditions of effective implementation by Sabatier and Mazmanian (1983), deficiencies such as lack of an interagency coordination mechanism, the great discretion of SPC in determining goals and carrying out permitting decisions, and funding become obvious. Despite these faults, most of the conditions were met at least moderately well. Meeting the conditions set out by Sabatier and Mazmanian does not guarantee success.

To be successful the land use planning program will need to gain and keep the support of the public and government agencies in order to pass the legislature and be enacted into law by 1999. Even being passed into law is not a guarantee of success. Once passed into law, the planning effort will require cooperation and coordination between federal, state, and municipal agencies. Continued support from government officials and the public will continue to be needed for the program to be a success.

RECOMMENDATIONS TO IMPROVE PROGRAM EFFECTIVENESS

The process of implementing a land use plan for the island of Pohnpei is still in its beginning stages. Land use planning will require continuing efforts and adaptation to be successful. As discussed in the previous chapter, the land use planning legislation addressed some implementation issues adequately while for others, questions remain. This list can provide guidelines to help administrators to focus their efforts.

1. Land use planning will be a major change in the status quo. The public needs to be informed and kept involved in the land use planning process. Public involvement at all steps in the planning process is essential for successful implementation. The currently successful use of PRA around the watershed area would suggest that this is an excellent environmental education method and means to solicit public input into the planning process.
2. The SPC, sectoral agencies, and municipal government need to jointly review existing resource and development plans to better integrate and coordinate activities. Through review of current plans and regulations better strategies and regulations can be adopted in the future for better management of resources and development. This review process is especially important in the following areas.

A. Marine Resources: A marine resource management plan has been completed but not implemented by the Division of Marine Resources. The plan is perceived as controversial and has been shelved. The SPC and MR should review the plan to determine consistency. As MR updates their plan they should keep in communication with the SPC to determine consistency and work out problems. MR and FOR will need to review and coordinate their plans and jurisdictions regarding the mangrove areas.

- B. Upland Forest: The Watershed Steering Committee, FOR, and SPC should coordinate their efforts to deter building in the upland forest and development of only sustainable resource extraction.
- C. Mangroves: FOR is in the process of developing a plan for the use and harvest of the mangroves. This plan should be investigated by FOR, MR, and SPC for consistency with the land use plan and the marine resource management plan.
3. Continued funding of land use planning will be necessary. As the LUPZA calls for planning to occur at the municipal level, funding of planning efforts at the municipal level will be essential. Funding for the training of personnel at the state level and municipal level should also be considered.
 4. Continuing education for those involved in the planning process at the state and municipal level are important. Education should take a much higher priority than having outsiders come in to carry out the planning program.
 5. Where needed outside technical expertise should be brought in to help with the planning process. Where possible this outside technical assistance should be combined with training.
 6. Communication and coordination between federal, state, and municipal government agencies should be improved. A possible method of increasing communication is to further develop the role of the TAC. The TAC could include not only a member from each municipal government but also agencies such as EPA, FOR, MR, AGR, Tourism, H&CP, P&R, Office of Budget and Planning, Dept. of Commerce and Industry, and Pohnpei Utilities Corporation. The members of the TAC could work together to develop recommendations for the SPC regarding permit applications for large development projects.
 7. The creation of a staff position responsible for helping with the duties of the SPC would be very beneficial. This person could be responsible for facilitating

communication between agencies, coordinating their planning efforts and other needed activities.

8. If the SPC proves ineffective in making decisions then a process whereby they would share decision making authority with a TAC could be designed.

9. The SPC and TAC should work with the Federal Government to coordinate activities and stay on top of federal regulations. A closer working relationship between federal and state agencies should be achieved.

REFERENCES

- Ashby, Gene. 1983. *Ponape ... An Island Argosy*. Eugene: Rainy Day Press.
- Caraker, Elizabeth. 1996. Insight into the planning process on Pohnpei, Sept. - Dec. 1995.
- Chambers, Robert. 1994. The Origins and Practice of Participatory Rural Appraisal*. *World Development*. 22(7):953-969.
- Dahl, A. L. 1982. Practical management of limited resources, In *Proceedings Pacific Basin CZM Conference*. Pago Pago: American Samoa.
- Doulman, David J. 1993. Community-based fishery management Towards the restoration of traditional practices in the South Pacific. *Marine Policy*. 17(2):108-117.
- Hawaii Architects and Engineers. 1968. *Summary Plan for Pohnpei*. Honolulu: Hawaii Architects and Engineers.
- Healy, Robert G. and John S. Rosenberg. 1979. *Land Use and the United States*. Baltimore: The Johns Hopkins University Press.
- Lawrence, Rick and Steven Daniels. 1996. *Public Involvement in Natural Resource Decision Making: Goals, Methodology, and Evaluation*. Papers in Forest Policy no. 3. Corvallis: Oregon State University Forest Research Laboratory.
- Olsen, Stephen B. 1993. Will Integrated Coastal Management Programs be Sustainable; the Constituency Problem. *Ocean & Coastal Management*. 21:201-225.
- Office of Budget, Planning, and Statistics. 1992. *FSM Second National Development Plan 1992-1996*. Pohnpei: Office of Budget, Planning, and Statistics.
- Office of Budget, Planning, and Statistics. 1995. *Unpublished 1994 Census Information*. Pohnpei: Office of Budget, Planning, and Statistics.
- Phillips, Brady A. 1993. *Assessing the Effectiveness of the Kosrae Island Resource Management Program (KIRMP) Implementation Strategy*. Corvallis: Oregon State University.
- Raynor, Bill. 1995. Insight into local culture and participatory rural appraisal, Personal communication throughout June - Sept. 1995.

Roberts, John C. 1979. "Principles of Land Use Planning." In *Planning the Uses and Management of Land*, edited by M.T. Beatty. Madison: Soil Science Society of America and the American Society of Agronomy.

Sabatier, P.A. and D.A. Mazmanian. 1983. *Can Regulation Work? The Implementation of the 1972 California Coastal Initiative*. New York: Plenum Press.

Schwartz, S.I. 1975. Distributional Impacts of Automobile Pollution Control Programs. *Journal of Environmental Systems* 5:185-202.

Sohl, Francisco. 1995. Insight into local culture and status of fisheries. Personal communication throughout June - Sept. 1995.

Templet, Paul. 1996. Coastal Management, Oceanography, and Sustainability of Small Island Developing States. In *Coastal and Estuarine Studies Small Islands Marine Science and Sustainable Development*, edited by G. A. Maul, 366-384. Washington DC: American Geophysical Union.

The Pacific Basin Development Council and The Center for Development Studies Social Science Research Institute University of Hawaii at Manoa (TPBDC). 1992. *Assessment of the American Samoa Coastal Management Program*, 41-67. Honolulu: The Pacific Basin Development Council and The Center for Development Studies Social Science Research Institute University of Hawaii at Manoa.

Tourist Commission. 1993. *Pohnpei State Tourism Development Plan 1993-2001 Workshop*. Pohnpei: Tourist Commission

Weilbacher, John. 1995. Insight into local culture and planning, Personal communication throughout June - Sept. 1995.

White, A.T. 1989. "Two community-based marine reserves: lessons for coastal management" In *Coastal area management in Southeast Asia: policies, management strategies, and case studies. ICLARM Conference Proceedings 19*, edited by T.E. Chua and D. Pauly, 85-96. Manila: International Center for Living Aquatic Resources Management.