

*FEDERATED STATES OF
MICRONESIA*

An Assessment of National Capacity to Address Agrobiodiversity Issues



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August 2004**

National Biodiversity Strategy and Action Plan Project Phase II

FSM Department of Economic Affairs

**Supported by Global Environment Facility
through the
United Nations Development Programme**

Table of Contents

1	Acronyms	3
2	Executive Summary	4
3	Introduction	5
4	Initiation of Discussions on Agrobiodiversity Issues in FSM	6
5	Approach to Assessing FSM's Capacity to Address Agrobiodiversity Issues	8
6	Existing Capacity of FSM to Address Agrobiodiversity Issues	10
7	Conclusions and Recommendations	13
8	Acknowledgements	16
9	References	17

List of Appendices

- Appendix 1 Results of Questionnaire on FSM's Capacity to Address Agrobiodiversity Issues
- Appendix 2 Questionnaire for FSM's Capacity to Address Agrobiodiversity (AB) Issues
- Appendix 3 Agendas for NBSAP Workshops on Assessment of Capacity to Address Agrobiodiversity Issues : Pohnpei, Kosrae, and Chuuk
- Appendix 4 Participant Lists for NBSAP Workshops on Assessment of Capacity to Address Agrobiodiversity Issues : Pohnpei, Kosrae, and Chuuk

1 Acronyms

AB	Agrobiodiversity
ABS	Areas of Biological Significance
AES	Agriculture Experiment Station (Yap)
CES	Cooperative Extension Service
CI	Commerce and Industries
COM-FSM	College of Micronesia-Federated States of Micronesia
COM-LG	College of Micronesia-Land Grant
CSP	Conservation Society of Pohnpei
DAF	Department of Agriculture and Forestry (Yap)
DALF	Department of Agriculture, Lands and Forests (Kosrae)
DEA	Department of Economic Affairs (Pohnpei)
DLNR	Department of Land and Natural Resources
DOE	Department of Education
DRC	Development Review Commission
EDA	Economic Development Authority (Pohnpei)
EFNEP	Expanded Food and Nutrition Education
EPA	Environment Protection Agency
ESC	Environmental Stewardship Consortium
FFPN	Family Food Production and Nutrition
FSM	Federated States of Micronesia
HPO	Historic Preservation Office
JOFCF	Japanese Overseas Fishing Corporation Foundation
KORDI	Korean Ocean Research & Development Institute
KRMC	Kosrae Resource Management Committee
MPPRC	Micronesia Plant Propagation Research Center
NBSAP	National Biodiversity Strategy and Action Plan
NGO	Non-Governmental Organization
OCA	Office of Community Affairs
PATS	Pohnpei Agriculture Trade School
PGRFP	Pacific German Regional Forestry Project
PRMC	Pohnpei Resource Management Committee
RMC	Resource Management Committee
SPC	Secretariat of the Pacific Community
SPC PPM	Secretariat of the Pacific Community Plant Protection Micronesia
TNC	The Nature Conservancy
UOG	University of Guam
USDA	United States Department of Agriculture
USFS	United States Forestry Service
WFR	Watershed Forest Reserve
WIA	Work Improvement Authority
YapCAP	Yap Community Action Plan
YINEC	Yap Interagency Nutrition Education Council
YINS	Yap Institute of Natural Science

2 Executive Summary

The conservation and sustainable use of agrobiodiversity (AB) in the Federated States of Micronesia (FSM) is considered as essential for the nation's development and ensuring future food security. The National Biodiversity Strategy and Action Plan (NBSAP) Phase II project to assess the capacity of the FSM to address AB issues was carried out between January and August 2004, as led by the FSM Department of Economic Affairs. The assessment reviewed systemic, institutional, and individual levels relating to AB issues and documented the programs and activities involved in addressing AB issues, groups implementing programs and activities, inter-group linkages, and the obstacles and possible solutions to addressing AB issues in FSM. A questionnaire for collecting the relevant information from all four FSM states was developed for collecting information, and data were also collected through workshops and key informant interviews.

The workshops were held in three states as follows: Pohnpei on February 12, 2004; Kosrae on March 25-26, 2004, and Chuuk on April 16-17, 2004. A workshop was planned for Yap in April, but was cancelled due to Typhoon Sudal, and the data collection was ably completed by the completion of the questionnaires by key informants.

The workshop results and questionnaire completions were then synthesized in tabular form. The final conclusions and recommendations are as follows:

- Many complex factors and interrelationships, including those relating to policies of both government and private sectors, are affecting the conservation and sustainable use of AB in the FSM. These include attitudes, cultural values, lifestyles, leadership, factors relating to institutional and resource management and development in the agriculture, education, health and other government sectors, as well in the private sector and marketing systems.
- Inconsistent external and internal government policies, food aid programs, lack of awareness of the potential nutritional and economic values of local foods, and sometimes neglect and a lack of motivation are often serious barriers to effectively addressing AB issues.
- In order to achieve the NBSAP strategy goal and objectives relating to AB, a broad array of solutions is needed, involving changes at the systemic, institutional, and individual level.
- There are some groups and individuals who have great capacity and motivation for addressing AB issues, but they need increased financial and staffing support to enable the implementation of AB work. Overall educational and institutional development and further programs to increase awareness of AB issues and raise its status are also needed.
- Linkages between organizations that share interests of AB should be improved to enable partnering and fuller use of the resources available.
- Planning procedures and monitoring mechanisms relating to AB should be developed.
- Few organizational policies/legislation/enforcement/compliance measures are at hand for ensuring the conservation/sustainable use of/documentation of AB and should be developed.
- Research is one of the weakest areas relating to AB in FSM. Additional support should be provided to enable its implementation and ensuring that results are obtained and maintained.
- There is a great need to carry out awareness and education on the issues relating to AB and a need to bring information to the communities. Both governmental and non-governmental organizations in all areas should be encouraged to include AB issues as part of their work in the community and resources should be provided to enable this.

3 Introduction

The Federated States of Micronesia (FSM) is made up of four states and 607 islands spread over approximately a million square miles in the western Pacific Ocean. In total the land area is 271 square miles. The islands are both of mountainous or hilly volcanic origin and flat coral atoll islands. The average temperature is about 80 degrees Fahrenheit with little yearly variation. Rainfall is plentiful on some of the mountainous islands, making some places of FSM among the wettest places on the earth. With the exception of Kosrae, which is a single-island state, all the states are made up of one main island and additional outer islands.

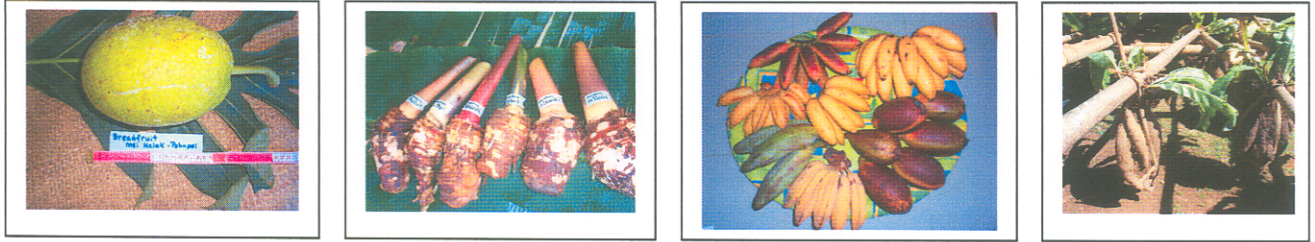
The population is around 107,000, mainly Micronesian (Chuuk, 53,600; Pohnpei, 34,500; Yap, 11,200; and Kosrae, 7700) (FSM Division of Statistics, 2002). There are eight languages for FSM, each state with its own language(s) and separate cultural identities. English is the official government language and is taught from the third school year. The social systems of FSM are based on the Pacific-type community and family structures, with the more hierarchical and hereditary traditional leaderships in Yap and Pohnpei and with more egalitarian leadership in Kosrae (Abbott, 2004). The traditional political system in Chuuk is described as lacking in central authority, never having developed beyond the traditional village or district political units, which may be a central factor in the present low standards of governance, poor economic performance, and in having the most serious emerging problems of the four states (Hezel, 2004; Abbott, 2004).

The area that is now FSM has been dominated by several external powers, from the Spanish, who claimed sovereignty in 1899, rulership then going to Germany and later to Japan. After World War II, the islands were under United States (US) administration. FSM gained independence in 1986, signing a 15-year Compact of Free Association with the US. An amended Compact has been renegotiated with the US and is in the process of being ratified by FSM states. In the past about two-thirds of the total national budget was from aid/US funds, with public service as the major income source. Other income has been from the sale of fishing rights, marine products, and tourism (Federated States of Micronesia, 1996). Over 41% of the present Gross Development Product (GDP) is from foreign cash grants. The per capita annual GDP is estimated at US\$2238 (Abbott, 2004). Out-migration is significant, but remittances are relatively low.

In recent years there has been a great shift towards the consumption of imported foods, with a corresponding decrease in the production of agricultural crops. This has led to an epidemic of lifestyle diseases, including diabetes, heart disease, and cancers. It is estimated that 40% of the population between the ages of 35 and 55 are overweight (Pacific Magazine, 2003), which is a causal factor relating to many health problems. The infant mortality rate is based at 40 per thousand live births, with life expectancy at birth from 66.5 years for males and 67.6 years for females. Only 50% of the population has access to safe water. Adult literacy rates are estimated at 92.4% and enrollment in FSM secondary schools has decreased from 81.4% in 1994 to 72% in 2000 (Abbott, 2004). The human capital has been described as limited, with few students going beyond the early years of secondary school. One of the major problems identified for FSM however is not the lack of human or natural resources, but the remoteness of the islands and the difficulty in economically exploiting the resources that are available (Abbott, 2004).

Agriculture, the predominant occupation for most people, is mainly on a subsistence level. Atoll islands have poorer soils and less rainfall than the high volcanic islands. Soils are mostly adequate

for the mountainous and hilly islands. Some islands may have fertile soils, but have limited potential for large-scale agriculture development; for example, less than 16% of Pohnpei, the largest volcanic island, is suitable for cultivation. Yet it is still considered that there is considerable potential (Abbott, 2004). Occasional typhoons cause severe damage, including Typhoon Sudal, which caused great damage to homes and businesses on the main island of Yap in April 2004.



FSM is a world center for breadfruit and giant swamp taro cultivars, with 133 breadfruit, 177 yam and 55 banana cultivar names documented for Pohnpei (Raynor, 1991; Merlin et al. 1992). About 40 breadfruit, 80 yam, and 27 banana cultivars have been documented in Yap (Falanruw, 1995; Merlin et al., 1996). There is also a great diversity of crops in Chuuk and Kosrae (Merlin and Juvik, 1993; Merlin et al. 1993). Over 20 pandanus cultivars have been documented for Kapingamarangi in Pohnpei (Englberger, et al. 2003a). Agriculture production is the primary livelihood for most FSM citizens. FSM also has over 1000 species of fish (Edward, 2001; Obutnande-Oducado, 2001).



4 Initiation of Discussions on Agrobiodiversity Issues in FSM

The First FSM National Biodiversity Strategy and Action Plan (NBSAP) workshop was developed over a 14-month period, with a national level meeting held April, 2001, in Kolonia, Pohnpei (FSM Department of Economic Affairs, 2001). The meeting adopted this definition of biodiversity: *“The variety of living things on earth.”* Members developed an NBSAP Vision as follows: *“The FSM will have more extensive, diverse, and high quality of marine, freshwater, and terrestrial ecosystems, which meet human needs and aspirations fairly, preserve and utilize traditional knowledge and practices and fulfill the ecosystem functions necessary for all life on earth.”*

At this 2001 FSM NBSAP workshop it was agreed that agrobiodiversity (AB) is of critical importance to the country and was selected as one of the 11 strategic themes (Federated States of Micronesia (FSM) Department of Economic Affairs, 2002). AB was defined as: *the variety and variability of animal, plant and microbial organisms on earth that are important to food and agriculture*. The following strategy goal for AB was agreed upon:

The conservation and sustainable use of agrobiodiversity contributes to the nation's development and the future food security of the FSM.

The NBSAP objectives were agreed upon as follows:

- Protect what we have
- Use it sustainably
- Deal with threats
- All are involved and can do their part



Participants at the first workshop stressed that the agricultural systems of the FSM have attracted the interest of people around the work as models for sustainable agricultural development. Also, FSM is considered to have an extraordinary diversity of natural resources and plants (Balick et al., 1999, Adam et al., 2003). However, there are major threats and constraints to AB conservation and concerns over the increasing loss of traditional knowledge. The following was documented at the 2001 NBSAP workshop:

Conversion and degradation of habitat and ecosystems:

- Inappropriate farming practices (e.g. extensive burning and wildfires)
- Agricultural degradation, soil degradation, deforestation and development
- Degradation of freshwater resources, water catchments, associated ecosystems
- Degradation and deforestation of coastal & mangrove forests
- Ship groundings
- Increasing populations and urbanization
- Increased and poorly planned infrastructure development (e.g. roads)

Over exploitation and unsustainable harvesting methods and practices:

- Destruction of coral reefs and associated ecological communities
- Over exploitation of marine organisms, destructive/unsustainable fishing methods
- Over exploitation of forest resources
- Destructive and unsustainable fishing methods (e.g. dynamite, chorine, other)
- Over exploitation of fish aggregation spawning sites
- Marine sand mining, dredging operations, causeway/sea wall construction
- Loss of traditional ethnobiological knowledge
- Illegal offshore and inshore fishing

Waste management:

- Terrestrial and aquatic pollution (e.g. oil spills, coastal waste dumpsites)
- Solid waste collection and disposal
- Hazardous waste usage and disposal
- Sewage collection, treatment and disposal
- Disposal of heavy equipment (e.g. cars)

Invasive organisms and pests:

- Introduction of pests and diseases
- Direct negative impacts on native species and terrestrial and aquatic habitats

Climate:

- Increased frequency and intensity of tropical storms (typhoons)
- Global climate changes and sea level rise

5 Approach to Assessing FSM's Capacity to Address Agrobiodiversity Issues

There have been many documents prepared that relate to FSM agrobiodiversity (AB) issues (Bascom, 1965; Fischer and Fischer, 1957; Elymore et al. 1989; Englberger et al., 2003; Petersen, 1976; Raynor, 1991). Those papers point out multiple reasons contributing to the present trend towards reliance on imported foods including population growth, lifestyle changes, convenience, changes in tastes and family structure, shift from subsistent agriculture to a market economy, inconsistent external and internal government policies, and food aid program. Note should be made that the many reasons for the shift toward reliance on imported foods and corresponding neglect of local agricultural and marine resources as discussed in these papers are all important and should be considered in reviewing FSM's capacity to address its AB issues.

A project assessing FSM's capacity to fulfill its NBSAP Agrobiodiversity Strategy Goal was initiated in November 2003, as directed by the FSM Department of Economic Affairs. Aquaculture and marine resources were included in this assessment, in order to include all areas addressed by the report. The assessment reviewed systemic, institutional, and individual levels relating to the capacity to address AB issues. The systemic level was considered to refer to the level relating to the country as a whole including external and private sector influences, whereas the institutional level was that related to institutions within FSM, including governmental and non-governmental organizations. The individual level was considered as that which was relating to individuals in FSM. In particular, the focus was on identifying groups and programs addressing the particular objectives of agrobiodiversity as set out in the 2001 NBSAP workshop, and the obstacles and solutions for addressing those objectives.

The tenets of the FSM NBSAP were also maintained as the overall framework for implementing the NBSAP assessment for agrobiodiversity issues. These included the following:

- Protect what we have
- Deal with threats
- Use it sustainably
- All are involved and can do their part

Three NBSAP workshops were held in Pohnpei, Kosrae, and Chuuk, as follows: Pohnpei on February 12, 2004; Kosrae on March 25-26, 2004, and Chuuk on April 16-17, 2004. The primary purpose of the workshops was to provide a forum in which individuals working in the area of AB could discuss matters relating to AB and to collect information relating to the capacity of the states to fulfill the NBSAP AB goals. Also the workshops served to provide an opportunity for increasing awareness of AB issues and for providing an update on work in the AB arena. The questionnaires served as a structured approach to collecting information from all four states on the capacity of FSM to address the AB goal and objectives and for allowing comparison between the states in a standardized manner. A workshop was planned for Yap in April, but was cancelled due to Typhoon Sudal, and the data collection was ably completed by the completion of the questionnaires by key informants. Questionnaires were developed specifically for assessing FSM's capacity to address its AB issues and these were completed for all four states, analyzed, and collated.



Photo left: Participants at the Chuuk NBSAP AB session.

Appendix 1-4 presents the summary of results of the questionnaire for all four states, questionnaire, and workshop agendas and participant lists. Many people participated in the assessment of FSM's capacity to address its NBSAP strategy goal for agrobiodiversity (AB), including directors and officers of government; non-governmental organization (NGO) directors and members; women, youth, and church group representatives; and senators and other government leaders. In total, there were 118 participants in the workshops (Pohnpei-38, Kosrae-47, and Chuuk-33), and in Yap at least seven people were involved in the various communications and questionnaires completion.

In the questionnaires scores were assigned to each of the areas of the four NBSAP objectives to show the level of achievement presently reached in that area of work. These scores were: 0- no action, 1-some action but little, 2-better but not excellent, and 3-excellent.

6 Existing Capacity of FSM to Address Agrobiodiversity Issues

Systemic Level

Scores were mostly low on all areas of AB-related work, indicating that there may be difficulties in all three levels, including the systemic level. There is a framework through which AB-related issues may be dealt, but there are serious difficulties with the coordination of five sets of government, including the national government and four quite independent state governments, separated by long distances, resulting in a complicated, expensive framework with which AB issues must also be dealt.

There was a strong consensus in all four states that disincentives for maintaining local AB include the easy availability of convenient imported foodstuffs, market values, high status awarded to imported foods, including foods from food aid programs, and overall lack of awareness in the community relating to the values of local foods and health benefits. A major obstacle is that of the poorly organized system for marketing locally grown foods, including seafood and marine products, which is another disincentive to local food production and maintenance of AB-related work.

External and internal government policies have often been inconsistent relating to the implementation of AB-related work and have given low priority to funding AB-related projects (Appendix 1). Another inconsistency is that of food aid programs, which often disturb a community's sense of self-reliance and the need for family food production and influence dietary patterns. Informants have reported that the thirty-year long (1960s to 1990s) USDA-supported School Lunch Program, in which rice was the primary food provided, had a major impact on influencing dietary patterns among people in FSM. Even during the time of the preparation of this document there were debates in Yap as to the need for food aid after Typhoon Sudal and the effect that this type of food aid with imported foodstuffs would have on local food production.

Institutional Level

Government institutions in all four states have yet to fully develop their capacity to address AB-related issues, including all areas of research and development of new programs critical to AB, including designing, conducting, documenting, synthesizing, publishing, and cataloguing new AB-related research (Appendix 1, Objectives 2 and 3). This extends to all four state governments and the national government. Some participants in the NBSAP project (particularly those from Yap but also in all four states in various areas) indicated that they have the individual capacity for achieving some of the AB objectives, but that the institutional capacity is lacking, along with the needed funding support and staffing to enable the work to be accomplished. There are few chartered nongovernmental organizations in FSM and few are involved in AB work.

Thus, the capacity to deal with AB issues at the institutional level is severely limited, due to lack of funds, overburdened staff, and poor standards of governance (particularly in Chuuk) (Appendix 1, Objectives 1-4). Increased linkages are needed at the institutional level in relation to AB issues in order to increase understanding of AB issues and to more efficiently implement AB-related work. Fiscal management at the institutional level is one of the primary problems facing FSM and thus also affects the capacity for FSM to address its AB goal and objectives.

The traditional agroforestry agricultural system is still in place and by its very nature serves as a protection and assurance for AB issues. Some traditional practices relating to protecting against overharvesting from the reef were noted as traditional activities that have traditionally provided a protection to AB resources.

However, institutional problems and resource management are serious problems in some cases, as for example in Chuuk, where the radio breakdown for several months and power cuts were severely limiting the capacity to carry out all work, including that relating to AB issues. As in all programs, the roads, local media such as radio, the provision of electricity, the educational system are basic needs, which are all essential for addressing AB issues. Improved political commitment and increased public awareness about the need for voting for honest leaders dedicated to improving the welfare of their people are also essential for improving capacity for AB-related work. Finally the institutional level also requires further support in order to establish policies and legislation needed to ensure the sustainable practices for achieving the NBSAP AB goal and objectives.

Individual Level

There is also still much to do to in all four states and at the national government level to develop the individual capacity to address AB-related issues, including upgrading the overall level of education and AB-related skills and improving all areas of research and development of new programs critical to AB. This includes designing, conducting, documenting, synthesizing, publishing, and cataloguing new AB-related research (Appendix 1, Objectives 2 and 3). This also includes ensuring that the established policies and legislation related to achieving the NBSAP AB goal and objectives are monitored and adhered to.

Implementation of research is one gap, but also there is a low capacity for maintaining and communicating the results. In many cases important research has been carried out but the results were not widely shared or were even lost. Another problem is that some research results may not have been returned to the state, which reflects difficulties with monitoring researchers and following up with them after the projects were completed.

As the tabulated results of the workshops and questionnaires show in Appendix 1, the individuals involved in this assessment had a great understanding of the AB issues facing FSM and provided much insight on the approaches needed for addressing the obstacles and gaps in achieving FSM's NBSAP strategy goal for agrobiodiversity. Participants in all states pointed out that there may be considerable individual capacity to address some AB issues, but that there resources are needed in order to enable the individuals to carry out the work.

There was much concern about the loss of traditional knowledge among the youth and the effect that that will have in the future on AB issues in the FSM. Local pride in having a wide variety of cultivars and preference for local foods remain as incentives for ensuring AB, but there is concern about the future plant genetic resources as the younger generation are increasingly less familiar with the varieties, relying more on imported foods, and losing basic traditional knowledge and skills (Appendix 1, Kosrae, Objective 1.1). Traditional AB experts are increasingly involved in activities that divert from the AB goal, and are increasingly babysitting for children of family members who have a salaried employment, watching television, and sometimes caring for, or avoiding, intoxicated members of society, as reported in Yap (Appendix 1, p.30). A similar situation is present in the

other three states, and there is concern in Pohnpei about the increased amount of time and resources devoted to *sakau* (kava) consumption.

The need for enhancing and strengthening food and health security through the use of sustainable AB practices is urgent. Ad hoc reports as well as published studies on the health status in all four states indicate an epidemic of health problems, including diabetes, heart disease, cancer, and vitamin A deficiency, which are related to the changing diet and lifestyles (Englberger et al., 2003b, CDC, 2001). A participant in Chuuk maintained that a drastic solution is needed due to the urgent situation, noting that that was also stated at the 3rd Economic Summit (Appendix 1, Objective 1.1).

Many individuals, families, and communities lack the awareness of the potential nutritional and economic values of local foods. Along with the change of lifestyles there is a cash income, often leading to a lack motivation for growing family foods. The shift to salaried employment also decreases time available for family food production. Cultural values are very related to the development of motivation and awareness-raising and as it was pointed out by one workshop participant, no mention of cultural values was included in the particular actions set forth in the NBSAP Phase 1 discussion on AB. Note is made that Objective 1 on conservation and sustainable use of AB mentions the need for establishing AB-related incentives, which could also include the fostering of cultural values, which contribute to the conservation and sustainable use of AB.

Attitudes toward locally grown and harvested foods are often not positive towards addressing AB issues in FSM. Rice has been considered as a status food. Many youth have been brought up on imported rice, flour products, and sweet and refined foods as the common foods in their diet and thus are losing familiarity and knowledge of locally grown foods and how to grow and prepare them. Thus, there is an urgent need to address the AB issues in FSM, so that the trend towards the loss of traditional skills and knowledge related to AB is not accelerated. Few people know about the results of the recent nutrient analyses carried out on various varieties of locally grown banana, taro, breadfruit, and pandanus and the high nutrient values (Englberger et al., 2003c).

Many people have a misconception that local foods are “just starch.” Foreigners who are not familiar with Micronesian foods sometimes pass on inaccurate information or attitudes about the locally grown staple foods. Furthermore they may not be aware of the new data showing these foods to have rich levels of micronutrients, such as iron and zinc and provitamin A carotenoids. Programs and teaching materials to convey these messages and to also raise the status of locally grown foods could achieve much in addressing AB issues in FSM. There is also a lack of awareness on many conservation issues, and some initiatives for promoting local foods also have associated difficulties, such as the problems of burning forest trees to grow big yams (Appendix 1).

Another obstacle to AB-related work and the documentation of present food crop varieties and traditional knowledge on crop production and harvesting of seafoods is the reluctance to sharing traditional knowledge. This emerged as a major discussion in the NBSAP workshop in Kosrae, where some participants opposed the idea of documenting traditional knowledge and proposed that only oral transfer should be maintained. However, the final conclusion was that both are needed.

The workshops accomplished much in facilitating discussions on AB, some participants pointing out that they had learned in the workshops about the very terms “agrobiodiversity” and

“genebank.”¹ The workshops also provided an opportunity for linkages between officers of different organizations. However, they also showed that there have been gaps in communication on AB-related issues at the individual level. One outcome of the project was the increased awareness of the new findings on nutritional values of local foods. Presentations were given at each of the workshops on these new findings, as well as sharing and developing copies of new teaching tools with photographs of FSM foods:

- *Mongo Kosrae ma Yohk* “Vitamin A”*kac*: Kosrae Vitamin A-Rich Foods
- *Kisin tungol en Pohnpei kan me kolokol* “Vitamin A” *laud*: Pohnpei Vitamin A-rich Foods
- Pohnpei Bananas: A Preliminary Photo Collection
- Chuuk Bananas: A Preliminary Photo Collection (prepared as a recommendation of the Chuuk NBSAP workshop, Maketo Siren assisting in the identification of varieties)



Photo Left: Chuuk AB Workshop participant presenting working group results. The Pohnpei Vitamin A-Rich Foods Cards with photographs of Pohnpei varieties of banana, giant swamp taro, breadfruit, and pandanus are displayed on the wall.

7 Conclusions and Recommendations

The following is concluded:

Systemic

- There are many complex factors and interrelationships, including those relating to policies of governmental and private sectors, that affect the conservation and sustainable use of AB in the FSM, including attitudes, cultural values, lifestyles, leadership, and other factors that affect the systemic level of FSM’s capacity to achieve its NBSAP AB goal and objectives.
- Inconsistent external and internal government policies, setting of low priorities to AB-related work, food aid programs, and lack of awareness of the potential nutritional and economic values of local foods are barriers to effectively addressing AB issues.
- A large proportion of the foods now eaten in FSM are from imported sources, and thus the nation is vulnerable to a serious food security problem if there would be any global security breakdown affecting the shipping and airfreight services.
- The FSM agroforestry system of agriculture is itself a positive factor for ensuring the sustainable use of AB including food and non-food agricultural crops and marine resources.

¹ A genebank in agriculture was defined as a place where you put together all the different varieties of one crop.

- Few organizational policies/legislation and few enforcement/compliance measures are at hand for ensuring the conservation/sustainable use of/documentation of AB.

Institutional

- Poor personnel and resource management has led to problems such as the radio breakdown and power cuts in Chuuk, and to a lack of continuity in work programs in all four states due to political appointments and remain as serious limitations to work relating to AB.
- Increased financial and technical support is needed to develop institutional capacity in areas of AB-related work and in achieving the NBSAP goal and objectives.
- Linkages between organizations are essential in order to maximize use of resources.
- Research is one of the weakest areas relating to AB in FSM. In some cases there is good individual capacity but institutional capacity and resources (time and staffing) are lacking.
- Church and other community groups offer an avenue through which increased AB awareness raising could be carried out.

Individual

- There is a core of governmental and NGO officers who have great individual capacity and motivation for addressing AB issues, as brought out in the workshops and questionnaires completion, but who are limited by present resources available for devoting to AB work.
- There are other individuals who greatly need training and skills to enable them to plan, implement, and monitor all types of AB work, including research and developing new products.
- There is a great lack of awareness and education on the issues relating to AB in the communities.
- Accessibility of research relating to AB issues is a problem, as some researchers have not provided results back to the states or communities, or reports were provided but were lost.

Thus, it is recommended that:

Systemic

- Efforts should be made to encourage attitudes, cultural values, lifestyles, visionary leadership, and other factors that fostering FSM's NBSAP AB goal and objectives.
- External and internal government policies should be consistent in supporting FSM's NBSAP AB goal/objectives, including the setting of higher priorities on AB-related work and limiting food aid programs using imported foods.
- The health benefits of the locally grown foods should be shared among government, non-government, and external agencies in order to raise awareness of the values of these foods in order to further promote attitudes needed for fostering the NBSAP goal and objectives.
- Further support is needed for encouraging private sector development of agricultural crops (food and non-food) and marine products and an efficient marketing system, following sustainable practices along the lines to achieve the NBSAP AB goal/objectives.
- The traditional agroforestry system, knowledge, and skills relating to cultivation of local agricultural crops should be protected, promoted, and documented. This should include food crops, including a diversity of yam, banana, breadfruit, taro, pandanus and other food crop varieties and also other non-food agricultural crops.

- Increased efforts should be made to develop organizational policies/legislation and enforcement/compliance measures in order to ensure the conservation/sustainable use of/documentation of AB.

Institutional

- Efforts should continue for improving standards of governance, including transparency and accountability, which will lead to overall strengthening of governmental and NGO departments, ensuring essential infrastructure and communication, including the continuity of radio and electricity availability and appropriate appointments, which will assist in strengthening the many factors affecting the complex set of factors relating to AB.
- Funds and technical support should be located for further supporting and researching the traditional agroforestry system. The knowledge and skills relating to cultivation of local food crops, including yam, banana, breadfruit, giant swamp taro, and pandanus varieties, and non-food agricultural crops, should be protected, promoted, and documented.
- Funds, staffing support, technical support, and training and skills development should be provided in order to implement an adequate research program in all AB-related areas.
- Funds, staffing support, technical support, and training and skills development are needed to ensure that the results of AB-related research carried out in FSM are shared among the institutions and the officers working there.
- Linkages between organizations that share interests of AB should be improved. As one workshop participant said “the future is about working together.”
- Efforts should be made to obtain and provide the resources needed for all AB-related work, including increased financial support, staffing support, and development of skills needed to increase awareness of AB issues.
- Planning procedures and monitoring mechanisms relating to AB are greatly lacking and should be developed.
- Organizational policies/legislation and enforcement/compliance measures for ensuring the conservation and sustainable use of and documentation of AB should be developed.
- Improvements in the marketing of local agricultural and marine crops should be supported, as well as the development of technologically appropriate methodologies for processing, preserving, and marketing locally grown and harvested foods.
- Church and other community groups should be included in communications and AB-related development work as integral groups through which the AB goal/objectives can be achieved.

Individual

- Efforts should continue for improving standards of governance, including transparency and accountability, which will lead to improvement of many areas affecting the individual level and the overall strengthening of the individual capacity to deal with AB-related work areas and will also contribute to strengthening those factors involved in the complex set of relationships that contribute to individual capacity for achieving the AB goal and objectives.
- Funds and technical support should be provided for further work and skill-building for supporting AB-related work and the traditional agroforestry system (including atolls) and the knowledge, and skills relating to cultivation of local food crops, including yam, banana, breadfruit, giant swamp taro, and pandanus, and a diversity of varieties of those crops, and non-food agricultural crops.

- Individuals should be encouraged and supported in designing, conducting, documenting, synthesizing, publishing, and cataloguing AB-related research.
- There should be increased monitoring over AB-related research carried out in FSM.
- Efforts should be made to ensure that results and data on AB-related research projects are shared with the communities where the data were taken.
- Capacity-building relating to AB should be developed in all ways possible, including utilizing and documenting traditional knowledge, including that of senior citizens. Also efforts should be initiated to raise the status of AB work and issues and to involve the youth AB activities, through schools, church, community activities, and families.
- Awareness-raising activities and education should be conducted on issues relating to the importance of the NBSAP AB goal and objectives, at all levels in the community, from leaders, businessmen, farmers, mothers, fathers, and children, and resources should be provided to the appropriate groups to enable this.

8 Acknowledgements

Warm thanks are given to Mr. Okean Ehmes for his direction in this project, and providing the resources necessary. Also warm thanks are given to all those individuals assisting in the project, including those presenting at and participating in the workshops and completing the questionnaires, and including all those from Yap, who had particular burdens in filling out the questionnaires during the hard times after Typhoon Sudal, and also Mr. Bill Raynor, Ms. Patricia Leon, and Mr. Olivier Wortel, from The Nature Conservancy, in carrying out this project as a collaborative effort. A special thanks is provided to those who prepared locally grown food for the workshops.

The key persons in each state who assisted in the arrangements for the workshops, discussions, and completion of questionnaires are warmly thanked and they include: Pohnpei, Herson Anson, Department of Lands and Natural Resources (DLNR); Kosrae, Simpson Abraham, Kosrae Development Resources Committee (DRC), Mr. Glastine Cornelius, Kosrae Department of Agriculture, and Dr. Josekutty, Micronesia Plant Propagation Research Center; Chuuk, Joe Konno, Environmental Protection Agency (EPA) and Julita Albert, EPA; Yap, Charles Chieng, YapCAP, Tamdad Sulog, Department of Agriculture and Fisheries (DALF), Stan Fal'Mngar, College of Micronesia-FSM, Margie Falanruw, Yap Institute of Natural Science (YINS), Gabrielle Wilhelm, Australian Volunteer Program/YapCAP, Michael Gaan, Department of Agriculture and Fisheries (DALF), and Dr. V. K. Murukesan, Agriculture Experiment Station-Yap.

Acknowledgement is also given to the Task Force Sight and Life, Centers for Disease Control and Prevention, United Nations Children's Fund, Australian Embassy, Secretariat of the Pacific Community (SPC) Lifestyle Health, and Pacific Agriculture Plant Genetic Resource Network for providing the support to develop and present copies of materials on the local foods to workshop participants and others involved in the project from Yap.

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Appendix 1 Results of Questionnaire on FSM's Capacity to Address Agrobiodiversity Issues

Objective 1: Conservation and sustainable use of agrobiodiversity to develop and ensure the effective implementation of appropriate conservation measures for the sustainable use of agrobiodiversity.

1.1 Promote methodologies for the sustainable use of agrobiodiversity.

	Kosrae	Chuuk	Yap
Pohnpei			
Score: 1	Score: 1	Score: 1	Scores: 0, 2, 3
Major Groups Involved:	Major Groups Involved:	Major Groups Involved:	Major Groups Involved:
<ul style="list-style-type: none"> • Agriculture • COM-FSM • Dept. of Lands and Natural Resources (DLNR) • Div. Marine Development • Resource Management Committee (RMC) • SPC Plant Protection Micronesia (PPM) • SPC Pacific German Regional Forestry Project (PGRFP), US Peace Corps • Education & Curriculum • Youth & church & farmers & women's groups 	<ul style="list-style-type: none"> • Department of Agriculture, Land and Forests (DALF) • Micronesia Plant Propagation Research Center (MPPRC) • Development Review Committee (DRC) • Office of Community Affairs (OCA) • SPC Plant Protection Micronesia (PPM) 	<ul style="list-style-type: none"> • Agriculture • Public Health • COM-FSM • Head Start • Commerce and Industries • Farmers associations • Radio • SPC Plant Protection Micronesia (PPM) 	<ul style="list-style-type: none"> • Division of Agriculture and Forestry (DAF) • USFS State and Private Forestry Program • Public schools (Head Start to high school) • COM-FSM with University of Guam • SPC Plant Protection Micronesia (PPM) • YINS (Yap Institute of Natural Science) • Environmental Stewardship Consortium (ESC)
Major programs:	Major programs:	Major programs:	Major programs:
<ul style="list-style-type: none"> • Conservation Society of Pohnpei (CSP) - Youth to Youth • Demonstration projects • School activities 	<ul style="list-style-type: none"> • Extension, crop production, marketing, research • Interagency events (State Fair, Agricultural Fairs, Cultural Week, Education week, Liberation Day, Kosrae Festival of Arts • Tissue culture programs • Acacia tree planting for organic fertilizer • Backyard farming, making handicrafts, coconut oil • Senior citizens activities • Handicraft instruction by local experts 	<ul style="list-style-type: none"> • Public education programs, local farmers workshops • Giant clam farming but still not enough to harvest 	<ul style="list-style-type: none"> • Integrated Pest Management -Biocontrol against Chromolaena • Promoting revival of traditional yam trellis technology & traditional technology for raising traditional varieties of bananas

Obstacles:	<ul style="list-style-type: none"> Lack of planting material Lack of genebanks, nurseries Difficulties of distribution Limited time for programs Limited support Disincentives include the cheap and easily accessible imported foods 	Obstacles:	<ul style="list-style-type: none"> Attitude that old people can no longer contribute Youth losing traditional skills (how to weave food baskets, prepare urn, tie breadfruits into bundles, climb breadfruit and coconut trees) Limited time and support 	Obstacles:	<ul style="list-style-type: none"> Lack of land Change of diet/attitudes, lack of interest to AB Lack of continuity due to political appointments Difficult to communicate & disseminate information due to radio breakdown and power cuts Poor leadership, lack of appropriations for AB Difficulties in transport to the many islands Lack of motivation at times (also mentioned that laziness issues should be discussed) Lack of NGOs, funding, community system, equipment, understaffing. 	Obstacles:	<ul style="list-style-type: none"> It is easier to practice unsustainable practices Limited time to promote program.
Solutions:	<ul style="list-style-type: none"> More nurseries Churches need to be involved More distribution of planting materials More support, including for the municipality fairs which increase status for local foods 	Solutions:	<ul style="list-style-type: none"> Use old peoples' skills Involve church groups More person-to-person information transfer including crop rotation, green manuring, backyard farming More radio use and more fliers More funds and training are needed. 	Solutions:	<ul style="list-style-type: none"> Committed leadership Public awareness Seeking funding Getting radio/electricity Public awareness on AB Establishing NGOs Increasing motivation Drastic solution is needed, perhaps need ban on some imported foods 	Solutions:	<ul style="list-style-type: none"> Support more time AB courses should be developed; the courses should be required, and taught at all levels of the education system.

1.2 Eliminate unsustainable agrobiodiversity use.

	Kosrae	Chuuk	Yap
Pohnpei	Score: 1 Major Groups Involved: <ul style="list-style-type: none"> • CSP, Environment Protection Agency (EPA), The Nature Conservancy (TNC), DLNR, US Peace Corps. SPC PPM, Agriculture of Department of Economic Affairs (DEA) 	Score: 1 Major Groups Involved: <ul style="list-style-type: none"> • Agriculture, COM-FSM, EPA, police, Marine Resources. SPC PPM 	Score: 0, 3, 3 Major Groups Involved: <ul style="list-style-type: none"> • COM-FSM, DAF, Yap Interagency Nutrition Education Council (YINEC); Public Works, Environment Protection Agency (EPA), SPC PPM
	Major programs: <ul style="list-style-type: none"> • Grow-Low Sakau Program and the Educational Campaign • Traditional land use 	Major programs: <ul style="list-style-type: none"> • Traditional practices (families dividing the reef in four parts alternating use; not harvesting from reef at funeral times) 	Major programs: <ul style="list-style-type: none"> • There are no real programs, but the traditional agriculture includes having small farms that are family size instead of large commercial ones
	Obstacles: <ul style="list-style-type: none"> • Planting <i>sakau</i> in forest 	Obstacles: <ul style="list-style-type: none"> • Use of dynamite and other such practices 	Obstacles: <ul style="list-style-type: none"> • Unsustainable practices are easier
	Obstacles: <ul style="list-style-type: none"> • Tissue culture of certain species (<i>sakau</i>) which is now subsidized by the state government could create problems, i.e. demands on agroforestry system • People not aware of problems associated with increasing the <i>sakau</i> production. • Problem with invasive species such as giant African snail; spread of citrus canker disease 		
	Solutions: <ul style="list-style-type: none"> • Setting the Watershed Forest Reserve (WFR) boundary 	Solutions: <ul style="list-style-type: none"> • Public awareness • See 1.1 	Solutions: <ul style="list-style-type: none"> • People should be trained on low impact earth moving engineering and soil improvement techniques • Chemical pesticides should be avoided in all cases except emergency

1.3 Establish incentives that encourage conservation and sustainable use of agrobiodiversity use

	Kosrae	Chuuk	Yap
Pohnpei	<p>Score: 1</p> <p>Major Groups Involved:</p> <ul style="list-style-type: none"> • CSP, TNC <p>Major programs: -</p>	<p>Score: 1-2</p> <p>Major Groups Involved:</p> <p>Health, Agriculture, COM-FSM, EPA, Police, Marine Resources</p> <p>Major programs:</p> <ul style="list-style-type: none"> • Traditional practices (families dividing the reef in four parts alternating use; not harvesting from reef at funeral times) 	<p>Score: 1.5, 1.75, 2, 3</p> <p>Major Groups Involved: YAP CES, Agriculture, YINEC, DAF, ESC, Village Coordinators, municipal representatives involved in Typhoon Sudan agricultural/forestry recovery</p> <p>Major programs:</p> <ul style="list-style-type: none"> • Growing to sell/have better foods, Expanded Food and Nutrition Education Program (EFNEP) • ESC power point presentations as part of YBSAP • DAF some years ago substituted awards for biggest yams to awards for best collection of yam varieties (any size) to discourage burning forest trees to grow big yams
	<p>Score: 2</p> <p>Major Groups Involved:</p> <ul style="list-style-type: none"> • COM-FSM, DALF, MPPRC, OCA, DRC <p>Major programs:</p> <ul style="list-style-type: none"> • COM-FSM Land Grant programs, food preparation competitions (prizes) 		
	<p>Obstacles: No place to sell crops; Closing PATS Agriculture</p> <p>Solutions: Providing income generating & market opportunities, provide planting materials</p>	<p>Obstacles: Lack of motivation</p> <p>Solutions:</p> <ul style="list-style-type: none"> • Public awareness. See 1.1 	<p>Obstacles: Limited time, support.</p> <p>Solutions: Support and time to revive the award to farmers with most varieties, and to ESC for work on YBSAP. Involve appropriate people in the efforts for Typhoon Sudal.</p> <p>General: There should be an annual cycle of eco-events, Earth Day, Tree Planting Day, Coconut Day, Yap Day</p>

1.4 Promote environmentally sound agricultural practices (e.g. organic farming, agroforestry)

	Kosrae	Chuuk	Yap
Pohnpei	Score: 1 Major Groups Involved: <ul style="list-style-type: none"> • Agriculture, USDA, COM- FSM, CSP, Forestry, Economic Development Authority (EDA) 	Score: 1-2 Major Groups Involved: <ul style="list-style-type: none"> • Agriculture, Health, Marine Resources, local farmers' associations, radio, COM- FSM, Head Start, Commerce and Industries 	Score: 2, 2.75, 2, 2 Major Groups Involved: <ul style="list-style-type: none"> • DAF/USFS State & Private Forestry Program, EPA, Public Safety/Public Health Sanitation, Agriculture, Marine Resources & Fisheries, traditional practitioners in communities
	Major programs: <ul style="list-style-type: none"> • Extension 	Major programs: <ul style="list-style-type: none"> • Education on natural fertilizers/growing practices, crop rotation, rotating with legumes, seed selection 	Major programs: <ul style="list-style-type: none"> • Guest speaker program on Environmental Awareness & Education • Agriculture and home economics activities in extension • Practicing ecologically sound traditional practices • Promoting revival of traditional yam trellis technology and traditional technology for raising traditional varieties of bananas • Giving power point presentations and discussions as a part of YSAP
	Obstacles: See 1.1	Obstacles: See 1.1	Obstacles: <ul style="list-style-type: none"> • More difficult for sustainable practices • Limited time for program
	Solutions: See 1.1	Solutions: <ul style="list-style-type: none"> • Increase motivation, see 1.1 Seek funding 	Solutions: <ul style="list-style-type: none"> • More time , support. There should be fire prevention training, outreach programs, visits to school and communities to educate the public on the importance of safeguarding the forest and environment

1.5 Promote, develop and share environmentally sustainable agricultural practices

Pohnpei		Kosrae	Chuuk	Yap
Score: 2	Major Groups Involved: USDA, COM-FSM, CSP, DLNR	Score: 1 Major Groups Involved: DALF, MPPRC, OCA, DRC	Score: 1 Major Groups Involved: Agriculture, Health, Marine Resources, local farmers and farmers associations, radio, COM-FSM, Head Start, Commerce and Industries	Scores: 1, 2, 2 Major Groups Involved: DAF/USFS State and Private Forestry Program, ESC, COM-FSM, invited agencies
Major programs:	Major programs:	Major programs:	Major programs: -	Major programs: Promoting revival of traditional yam trellis technology & traditional technology for raising traditional varieties of bananas
<ul style="list-style-type: none"> Environmental sustainable setups, i.e. composting toilets Green Road Show 	<ul style="list-style-type: none"> Advising farmers not to remove grasses and vegetation on steep sloped land 	<ul style="list-style-type: none"> Obstacles: See 1.1 	Obstacles: See 1.1	Obstacles: Limited time
Solutions: See 1.1	Solutions: See 1.1	Solutions: See 1.1	Solutions: See 1.1	Solutions: More time for programs. Improve and strengthen extension services to communities.

1.6 Identify, develop and establish botanical gardens featuring local endemic, endangered and threatened species.

Pohnpei		Kosrae	Chuuk	Yap
Score: 1	Major Groups Involved:	Score: 2	Score: 2	Scores: 0, 2, 7.5, na
<ul style="list-style-type: none"> Agriculture, Private Sector SPC PGRFP 	Major Groups Involved:	Major Groups Involved:	Major Groups Involved: Agriculture, Marine Resources	Major Groups Involved: HPO, Tourism, Dalipebinau Community School.
Major programs:	Major programs:	Major programs:	Major programs:	Major programs:
<ul style="list-style-type: none"> Kolonia Botanical Gardens Sei Botanical Gardens 	<ul style="list-style-type: none"> Tissue culture collection of crop varieties; plant propagation, identifying private farms with at least 10 varieties of certain crops, as <i>pasruk</i>, display of crop varieties 	<ul style="list-style-type: none"> Nursery of plants in Weno and Fefan Collection of rare bananas 	<ul style="list-style-type: none"> Established school nature trail, replanted burnt area with endemic trees, re-established Tomilyog trail which will feature native endemic and threatened species, some of which have been identified along trail 	<ul style="list-style-type: none"> Established school nature trail, replanted burnt area with endemic trees, re-established Tomilyog trail which will feature native endemic and threatened species, some of which have been identified along trail
Obstacles:	Obstacles:	Obstacles:	Obstacles:	Obstacles:
<ul style="list-style-type: none"> Little support 	<ul style="list-style-type: none"> Problem on how to define endemic species, is there an inventory, & how many species do we have 	<ul style="list-style-type: none"> Lack of education, space, and continuity of department heads See 1.1 	<ul style="list-style-type: none"> Time 	<ul style="list-style-type: none"> Time
Solutions: Increased support	Solutions: Increased support	Solutions: Increased support	Solutions: Demonstrate endangered plants, native trees/medicinal plants	Note: It would be a good project to develop a botanical garden in the private sector. Solutions: Increased support.

1.7 Identify, promote and enhance existing programs for the inventory, propagation and preservation of traditional species, varieties, cultivars, and breeds.

	Kosrae	Chuuk	Yap
Pohnpei			
Score: 1	Score: 1-2	Score: 1-2	Score: 1, 1, 1.5, 2
Major Groups Involved:	Major Groups Involved:	Major Groups Involved:	Major Groups Involved:
<ul style="list-style-type: none"> • Agriculture • COM-FSM • SPC PGRFP • Youth groups, NGOs, Women, Farmers, Economic Development Authority 	<ul style="list-style-type: none"> • MPPRC, DALF, COM-FSM 	<ul style="list-style-type: none"> • Agriculture, Marine Resources 	DAF/USFS State and Private Forestry Program, ESC, IPIF, COM-FSM, HPO, Yap CES, Agriculture, Marine Resources, Small Business Fisheries, Tourism, Agriculture Experiment Station (AES)
Major programs:	Major programs:	Major programs:	Major programs:
<ul style="list-style-type: none"> • See above • There needs to be a distinction made between family food production and marketed production. Local food is more expensive and time-consuming and women (and men) are now working in salaried jobs and there is less time to carry out family food production. 	<ul style="list-style-type: none"> • Inventory for common, rare, and threatened species • Collection of rare species and multiplication of planting material for soft taro, sweet potato, and banana 	<ul style="list-style-type: none"> • Inventory for common, rare, and threatened species • Collection of rare species and multiplication of planting material for soft taro, sweet potato, and banana 	<ul style="list-style-type: none"> • Black Lipped pearl oysters, culturing via hatchery/growing on farms from local oysters • Activities from Marine Resources Agent • Promoting revival of traditional yam trellis technology and traditional agroforestry technology • Giving power point presentations as part of developing draft YSAP
Obstacles:	Obstacles:	Obstacles:	Obstacles:
<ul style="list-style-type: none"> • Difficulty in family food production and marketing • More time needed • Attitude: we don't really care about nutrition, we know that we are going to die anyway 	See above	See above	See above
Solutions:	Solutions:	Solutions:	Solutions:
	See above	See above	Urban/ and community forestry program. Promote conservation/planting of indigenous trees and crops utilizing traditional practices

Objective 2: Promotion and Development: To compile existing research findings and develop programs and projects critical to the development of AB.

2.1 Document existing traditional agrobiodiversity resources and practices, including aerial photography.

	Kosrae	Chuuk	Yap
Pohnpei			
Score: 1	Score: 0	Score: 1-2	Score: 1, 2.5, 2.75, 3
Major Groups Involved:	Major Groups Involved:	Major Groups Involved:	Major Groups Involved:
<ul style="list-style-type: none"> • DLNR, Agriculture • COM-FSM • Div. of Marine Development • PRMC, Pohnpei Education • Micronesian Seminar • COM-FSM National Library • FSM Office of Antiquities • FSM Dept Economic Affairs • CSP, TNC, US Peace Corps • SPC PPM • SPC PGRFP, University research projects 	<ul style="list-style-type: none"> • DALF • DRC • Farmers 	<ul style="list-style-type: none"> • Harley Manner (LOSAP) • Health Services • Marine Resources • Agriculture 	<ul style="list-style-type: none"> • YINS • ESC (YapCAP, DAF, YINS) • Marine Resources • DAF, COM-FSM, HPO • Dept of Education (DOE), IPIF, • Yap CES • Agriculture • YINEC • AES-Yap yam work by Dr. Murukesan
Major programs:	Major programs:	Major programs:	Major programs:
<ul style="list-style-type: none"> • University research theses, SPC Plant Disease Survey, SPC Invasive Weeds poster, work plans, Policy Guidelines from the 1st and 2nd Economic Summits, many documents kept at Micronesian Seminar, COM-FSM Library, and FSM Archives. 	<ul style="list-style-type: none"> • Vegetation map of Kosrae • Subsistent farming • Spreading information through word of mouth due to concern about misuse of information if documented on paper 	<ul style="list-style-type: none"> • Vitamin A deficiency campaign- pele, potato leaves • Home gardening project • Trochus project in Saprik with Korea Oceania Research & Development Institute (KORDI) and Marine Resources 	<ul style="list-style-type: none"> • Long-standing documenting traditional AB resources & practices, including PhD dissertation • GIS system that includes vegetation, agroforestry areas, other resource layers • EFNEP compiling local recipes
Obstacles:	Obstacles:	Obstacles:	Obstacles:
<ul style="list-style-type: none"> • There are many documents but these are often not shared. 	<ul style="list-style-type: none"> • Some information may be lost using traditional oral transfer. • Traditional attitude may lead to not sharing information 	<ul style="list-style-type: none"> • Home gardening, land issues, lack of land, lack of education/awareness to entice community involvement & participation. Inadequate community involvement. 	<ul style="list-style-type: none"> • Limited time and support • For GIS system, almost no support, but they do it anyway
Solutions:	Solutions:	Solutions:	Solutions:
<ul style="list-style-type: none"> • More time and support for this. 	<ul style="list-style-type: none"> • Keep traditional oral transfer and also document to avoid loss of information 	<ul style="list-style-type: none"> • Education and awareness • Involve key community leaders 	<ul style="list-style-type: none"> • Provide support and hire staff

2.2 Develop and expand on existing markets for local species/varieties that can be produced on a sustainable basis.

	Kosrae	Chuuk	Yap
Pohnpei			
Score: 2	Score: 1	Score: 1-2	Score: 0, 2, 3
Major Groups Involved: DLNR, PRMC, Agriculture, COM-FSM, Marine Development, USDA Forestry	Major Groups Involved: DALF, MPPRC, COM-FSM	Major Groups Involved: Marine Resources, local community, COM-FSM	Major Groups Involved: Yap CES, DAF, YINEC, local markets, Marine Resources, Tourism, Business Center
Major programs:	Major programs:	Major programs:	Major programs:
<ul style="list-style-type: none"> Four main crops: <i>sakau</i>, banana, betel nut, copra 	<ul style="list-style-type: none"> Taro, banana, citrus, home gardening 	<ul style="list-style-type: none"> Sponge farming, <i>noni</i> juice, <i>Uwaw</i> (state bird) project, home gardening 	<ul style="list-style-type: none"> Sustainable agriculture- private farmers
Obstacles:	Obstacles:	Obstacles:	Obstacles:
<ul style="list-style-type: none"> Harvesting/post-harvest care Lack of awareness on nutritional values in local foods 	<ul style="list-style-type: none"> Limited funding 	<ul style="list-style-type: none"> Limited funding and support 	<ul style="list-style-type: none"> Little concern for sustainability.
Solutions: Increased awareness, support to attend trade fairs.	Solutions: Increased awareness, funds	Solutions: More funding and support	Solutions: Develop farmers/fishermen cooperatives

2.3 Promote exist research findings with farmers through training programs and public education

	Kosrae	Chuuk	Yap
Pohnpei			
Score: 1	Score: 1	Score: 1-2	Score: 0, 1, 75, 3
Major Groups Involved: see 2.2	Major Groups Involved: DALF, COM-FSM, MPPRC, Dr. Josekutty, Dr. Lois's work	Major Groups Involved: Marine Resources, KORDI, Health, Agriculture, COM-FSM, community	Major Groups Involved: Yap CES, Agriculture, YINEC, COM-FSM, DAF, DOE, Farm Service Agency, ESC
Major programs: See 2.2. Also traditional practices like use of banana stems for treating injuries	Major programs: <ul style="list-style-type: none"> Vitamin A-rich foods promotion in community Agriculture courses COM-FSM, workshops on noni, coconut, agricultural policy matrix 	Major programs: <ul style="list-style-type: none"> Clam farming, trochus farming Vitamin A deficiency campaign Home gardening 	Major programs: <ul style="list-style-type: none"> Sustainable Agriculture Program for private farmers, Cooking demonstrations, home gardening Public awareness as annual cycle of eco-events
Obstacles:	Obstacles:	Obstacles:	Obstacles:
<ul style="list-style-type: none"> Lack of awareness of nutrient values of local foods 	<ul style="list-style-type: none"> Attitude and behavior Limited funding 	<ul style="list-style-type: none"> Attitude and behavior, limited funding 	<ul style="list-style-type: none"> Limited time
Solutions: Create awareness on nutrient values and health benefits of banana stems	Solutions: <ul style="list-style-type: none"> Increased awareness, funding 	Solutions: <ul style="list-style-type: none"> Increased awareness, funding 	Solutions: Support for more time

Objective 3: New Research and Development: To conduct relevant research critical to the development of agrobiodiversity.

3.1 Evaluate the usefulness and impact of new biotechnologies.

Pohnpei	Kosrae	Chuuk	Yap
Score: 1 Major Groups Involved: Agriculture, Chinese Farm, COM-FSM	Score: 2 Major Groups Involved: DALF, MPPRC, OCA, DRC	Score: 1 Major Groups Involved: Marine Resources, Agriculture	Scores: 0, 1, na Major Groups Involved: YINS, COM-FSM, EPA, Quarantine
Major programs: Chinese Farm (now closed), extension service,	Major programs: • Tissue culture for banana (yellow varieties);yam, soft taro, <i>sakau</i> tissue culture	Major programs: • Sponge farming, composting, • Biological control of insects	Major programs: Attempt to compare the productivity of introduced “Franco farms” with traditional gardens
Obstacles: -	Obstacles: -	Obstacles: Limited funding, sponge farming sites, composting is more work	Obstacles: No data available on plots production, and discontinued after 1 yr
Solutions: -	Solutions: -	Solutions: Seek funding negotiate with reef owners to sponge farm, motivate farmers on benefits of project,	Solutions: Consultants should be required to collect and provide data on their projects

3.2 Document existing traditional agrobiodiversity resources and practices, including the usage of aerial photographs.

Pohnpei	Kosrae	Chuuk	Yap
Score: 0-1 Major Groups Involved: Agriculture	Score: 1 Major Groups Involved: DALF, OCA, and farmers, Historic Preservation Office, Survey and Mapping	Score: 1 Major Groups Involved: Education, EPA Agriculture	Scores: 0, 2, 75, na Major Groups Involved: YINS, COM-FSM, DOE, DAF, ESC
Major programs: sporadic efforts	Major programs: • GIS program, aerial photography • Preservation of historic sites, artifact documentation, traditional reserves	Major programs: • Revising agriculture curriculum; and developing new grade level • Aerial photography • Traditional crop rotation practices	Major programs: • PhD dissertation on Yapese agricultural system
Obstacles: -	Obstacles: -	Obstacles: Limited time and support	Obstacles: Limited time and support
Solutions: -	Solutions: -	Solutions: • See funding and support	Solutions: Provide time and support, also for support for new aerial photographs to document extent of the agroforest

3.3 Develop and expand on new markets for local species and varieties.

Pohnpei	Kosrae	Chuuk	Yap
Score: 0-1 Major Groups Involved: Agriculture,	Score: 1 Major Groups Involved: DALF, aquaculture, Commerce & Industries (CI)	Score: 1 Major Groups Involved: Agriculture, Marine Resources	Scores: 0, 1.3, na Major Groups Involved: YINS, DAF, Business Center, Farm Service Agency
Major programs: Lois/Karat program	Major programs: Marketing, small business training for all relevant agencies related to agrobiodiversity	Major programs: Marketing, small business training, mangrove crab project, giant clam project	Major programs: Formerly there was a program to develop local products, i.e. Yapese chicken soup spice mix, local turmeric soap that cleans & leaves golden glow, cooc chips, solar dried fruit
Obstacles: -	Obstacles: -	Obstacles: Limited farmers, farming sites, funding	Obstacles: Technological problems need for moisture-proof packaging, need for emulsifier so turmeric remains in soap
Solutions: -	Solutions: -	Solutions: Motivate farmers, negotiate with reef owners, seek funding	Solutions: Support to do job right Create marketing agency to identify local species and market abroad

3.4 Develop and implement research and development training programs for all relevant agencies and institutions involved in agrobiodiversity.

Pohnpei	Kosrae	Chuuk	Yap
Score: 2 Major Groups Involved: Agriculture, COM-FSM	Score: 1 Major Groups Involved: DRC, DALF, CI	Score: 2 Major Groups Involved: Education, Agriculture, Marine Resources, Health	Scores: 0, na, na Major Groups Involved: YINS, ESC, DAF, Business Center, COM-FSM
Major programs: Livestock/swine and farmers training	Major programs: Resource Management Committee (RMC)	Major programs: Work Improvement Authority (WIA) and DSL on-the-job contract training	Major programs: There are none, but there could be if support given
Obstacles: - Solutions: -	Obstacles: - Solutions: -	Obstacles: Limited positions, funding Solutions: Increase positions, funding	Obstacles: No support Solutions: Provide support

3.5 Document and publish all research information and findings and maintain collections of information in each State.

Pohnpei	Kosrae	Chuuk	Yap
Score: 1 Major Groups Involved: COM-FSM, Agriculture extension Major programs: no known projects	Score: 1 Major Groups Involved: DALF, DRC, Historic Preservation Office (HPO), Marine Resources Major programs: Storage systems	Score: 1 Major Groups Involved: Marine Resources, Agriculture Major programs: Japanese Overseas Fishing Corporation Foundation (JOFCF) Research Project and foreign researchers	Scores: 0, 2.5, na Major Groups Involved: YINS, NBSAP, representing agencies Major programs: Some research findings were published, others dispersed more informally, have collections of information
Obstacles: Research is one of the weakest areas in every field in FSM. Solutions: Increase awareness among youth and need for this.	Obstacles: - Solutions: -	Obstacles: Project reports inaccessible or lost due to poor filing Solutions: Control research projects, improve filing	Obstacles: Limited support/time to organize information and develop publications Solutions: Support to organize information & develop popular publications Create AB newsletter, radio, and TV program. Hire full-time staff to do research and publication

3.6 Conduct research on the ecology of traditional agriculture methods.

Pohnpei	Kosrae	Chuuk	Yap
Score: 0.5 Major Groups Involved: Agriculture Major programs: no known projects	Score: 1 Major Groups Involved: DALF Major programs: Limited	Score: 0 Major Groups Involved: Not yet carried out Major programs: na	Scores: 0, 2.5, na Major Groups Involved: YINS, NBSAP, and representing agencies Major programs: Some done, YINS would like to do more
Obstacles: - Solutions: -	Obstacles: Solutions:	Obstacles: na Solutions: na	Obstacles: Limited support/time Solutions: Support/time

Objective 4: Food and Health Security: To enhance and strengthen food and health security through the use of sustainable agrobiodiversity practices.

4.1 Develop and implement new/existing programs that promote the production of local food.

Pohnpei	Kosrae	Chuuk	Yap
Score:	Score:	Score:	Scores: 2-3
Major Groups Involved: See above	Major Groups Involved: See above	Major Groups Involved: See above	Major Groups Involved: Yap CES, DAF, YINEC, COM-FSM.
Major programs: See above	Major programs: See above	Major programs: See above	Major programs: Home economics program on diet, nutrition, health, EFNEP, FFPN, Agriculture Extension Service, Yap Day program, Yap Women's Welfare and Health
Obstacles: See above	Obstacles: See above	Obstacles: See above	Obstacles: Lack support, organization
Solutions: See above	Solutions: See above	Solutions: See above	Solutions: See above

4.2 Develop and implement programs that increase local food production and enhance AB.

Pohnpei	Kosrae	Chuuk	Yap
Score:	Score:	Score:	Scores: 2-3
Major Groups Involved: See above	Major Groups Involved: See above	Major Groups Involved: See above	Major Groups Involved: See above
Major programs: See above	Major programs: See above	Major programs: See above	Major programs: See above
Obstacles: See above	Obstacles: See above	Obstacles: See above	Obstacles: See above
Solutions: See above	Solutions: See above	Solutions: See above	Solutions: See above

4.3 Develop and implement programs that increase local food production and enhance AB.

Pohnpei	Kosrae	Chuuk	Yap
Score:	Score:	Score:	Scores: 1
Major Groups Involved:	Major Groups Involved:	Major Groups Involved:	Major Groups Involved: COM-FSM, DOE, Agriculture, Forestry, ADAP
Major programs:	Major programs:	Major programs:	Major programs: Paravet Training Program (an on-line livestock training program launched in Yap on May 31, 2004 and will run to Sept 30, 2004. There is a proposal for a livestock breeding program that has already been submitted to DAF.
Obstacles:	Obstacles:	Obstacles:	Obstacles:
Solutions:	Solutions:	Solutions:	Solutions:

What are the linkages between organizations on work related to the use of and documentation of agrobiodiversity?

	Kosrae	Chuuk	Yap
Pohnpei	<p>The Pohnpei RMC provides such linkages as well as joint projects between COM-FSM and Agriculture, and board memberships in organizations such as CSP which bring together people. However, these linkages need to be strengthened and there need to be more of these. Workshops and meetings such as those supported by SPC and other external agencies provide a forum for linkages between organizations.</p>	<p>There are poor linkages and communications between departments. People do not communicate due to territorial type attitudes and not wanting other departments to go onto their turf. There is little structure for linkages, except for the Biodiversity Committee. There was an intersectoral group in the past on planning activities for the Family Food Production and Nutrition program meeting at regular monthly intervals, but the group stopped meeting after the end of the externally supported project.</p>	<p>ESC provides linkage related to the use and documentation of AB, and is currently on-going to some extent. Research already done and ongoing by YINS is linked through DAF & ESC. COM-FSM & DAF are linked in a project. Other linkages are between YAP CES, DAF, Marine Resources, DOE, R&D, Legislature, OPB & Statistics. External linkages: National COM-FSM, UOG, SPC PPM, SPC, Foreign Embassies</p>

What planning procedures and monitoring mechanisms are at hand in the different organizations for ensuring it?

	Kosrae	Chuuk	Yap
Pohnpei	<p>The plans of work of the officers in different organizations helps to ensure planning around addressing AB issues. There are those set out by the FSM Economic Summit program.</p>	<p>Annual plan based on organization's goals and objectives. Different agencies have different plans on monitoring mechanisms. Amended compact requires quarterly reports and monitoring.</p>	<p>Coastal Management Policy, Marine Resources; EPA Chemical Import Policies, FSM; Quarantine Policies, FSM; and the traditional ownership of land and water. Another view is that there are none in place but that legislation was introduced to the last Yap State Legislature to establish a coordinated project review process and to formalize the ESC.</p>

What organizational policies and legislation are at hand for ensuring the use of and documentation of AB?

	Kosrae	Chuuk	Yap
Pohnpei	<p>There are some policies and legislation, which might relate to AB indirectly, but there are few direct</p>	<p>It is stated in the FSM and Chuuk Constitution to protect species especially season control of turtles,</p>	<p>Health & Sanitation laws, EPA laws, Fire Legislation; Coastal Management Act; and traditional ownership of land</p>

ones, apart from those protecting marine resources.

trochus, pearly oyster. and water.

Agriculture is included in the Chuuk Constitution, as one of the five listed departments, also Education, Health, Transportation, and Marine Resources.

There are laws/regulations on protecting marine resources, i.e. against use of dynamite for fishing, overharvesting of trochus, oyster, turtle, sea cucumbers.

People are fined for harvesting during the closed season for species as turtles, mother pearl, and oyster.

There is concern about the Koreans' overharvesting of sea cucumber, which cleans the water and that soon Chuuk's waters may be polluted due to this.

What enforcement and compliance measures are at hand for ensuring the use of and documentation of AB?

Pohnpei

Kosrae

There are none.

None.

Chuuk

Marine Conservation and Management enforcement was created to enforce the stated law and regulations, and officers patrol markets, at sea and airport. But there is no endangered species law at the state level, except for turtle.

Yap

See above; also control over Trochus, Turtles, and Bats.

What funded projects are at hand for implementing the use of and documentation of AB?

Pohnpei

Kosrae

The Agriculture for Nutrition program at Agriculture supported by SPC and the Healthy Lifestyles program supported by UNICEF and Centers for Disease Control and Prevention (CDC) is presently funding a program for the promotion of vitamin A-rich bananas, giant swamp taro, breadfruit, pandanus and other locally grown food. This program is assisting to

Chuuk

Eco Regional Planning, mapping Areas of Biological Significance (ABS)

Yap

Yap CES

document and promote nutrient-rich cultivars, and promoting the rare varieties. TNC has a funded program for traditional knowledge of plants and medicinal uses (New York Botanical Gardens).

What incentives and disincentives are at hand for ensuring it?

Pohnpei

Local pride and preference for local foods area incentives, this is more among the older people. Disincentives include the cheaper accessible imported foods, market values, and high status awarded to foods coming in from outside.

Kosrae

DALF provides cash prizes at the Annual State Fair for best crops and farmer.

Chuuk

Incentives: Earth Day, speech competitions, t-shirts, prizes, song, Biodiversity Day, Taro Rehabilitation Program (USDA.NRCS), Surveys for fish catch size

Yap

Incentives for maintaining local AB include local pride in having a wide variety of cultivars, and the need to have specific cultivars for specific use.

Disincentives for maintaining local AB include the easy availability of imported foodstuff and related obesity or health problems, the bulldozing of lands that might be used for traditional gardening, and siltation of taro patches from bulldozing operations, the attraction, availability and promotion of desk jobs for potential gardeners, promotion of introduced cultivars by outside development programs, and the deployment of traditional AB experts to other activities such as babysitting, watching TV, and serving, caring for or avoiding intoxicated members of society.

Appendix 2 Questionnaire on FSM's Capacity to Address Agrobiodiversity (AB) Issues

Participant Name: _____ Organization: _____

All these listed actions were listed as priorities in the previous FSM National Biodiversity Strategy Action Plan. We need to now find out what actions are being carried out in these areas. You may list activities of your own project or also you may refer to activities of other government or non-government groups. If possible, fill out this questionnaire prior to the NBSAP meeting and bring to the workshop. Give also a rating 0-3 for how you feel your state has achieved these objectives, 0- no action, 1-some action but little, 2-better but not excellent, and 3-excellent.

Objective 1: Develop/ensure the effective implementation of appropriate conservation measures for sustainable AB. RATING

Actions	Organizations involved	AB activities. Name specific projects, obstacles, solutions. On the right give the rating achieved for meeting each action.
1.1 Promote skills for sustainable use of AB		
1.2 Eliminate unsustainable AB use		
1.3 Establish incentives encouraging conservation and sustainable use of AB		
1.4 Promote environmentally sound agricultural practices (e.g. organic farming, agroforestry, polyculture)		

<p>1.5 Promote, develop and share environmentally sustainable agricultural practices</p>		
<p>1.6 Identify, develop and establish botanical gardens featuring local endemic, endangered, threatened species</p>		
<p>1.7 Identify, promote and enhance existing programs for the inventory, propagation and preservation of traditional species, varieties, cultivars and breeds</p>		

**Objective 2: To compile existing research findings, develop programs & projects critical to the development of AB.
RATING**

Actions	Organizations involved	AB activities. Name specific projects, obstacles, solutions. On the right give the rating achieved for meeting each action.
2.1 Document existing traditional AB resources and practices, including aerial photography		
2.2 Develop and expand on existing markets for local species/varieties that can be produced on a sustainable basis		
2.3 Promote existing research findings with farmers through training programs and public education		

Objective 3. To conduct relevant research critical to the development of agrobiodiversity (AB).

RATING

Actions	Organizations involved	AB activities. Name specific projects, obstacles, solutions. On the right give the rating achieved for meeting each action.
3.1 Evaluate the usefulness and impacts of new biotechnologies.		
3.2 Document existing traditional AB resources, practices, including the usage of aerial photographs.		
3.3 Develop and expand on new markets for local species and varieties.		
3.4 Develop and implement research and development training programs for all relevant agencies and institutions involved in AB.		
3.5 Document and publish all research information and findings and maintain collections of information in each State.		
3.6 Conduct research on the ecology of traditional agricultural methods.		

Objective 4: Food & Health Security: To enhance and strengthen food and health security through the use of sustainable agrobiodiversity practices.

RATING

Actions	Organizations involved	AB activities. Name specific projects, obstacles, solutions. On the right give the rating achieved for meeting each action.
1.1 Develop and implement new and existing programs that promote the production of local nutritious food. 1.2		
1.2 Develop and implement programs that increase local food production and enhance AB.		
1.3 Encourage sustainable breeding programs for livestock (e.g. pigs and chickens)		

What resources does your state have to implement the strategies set forth by NBSAP?

Objective 1: Conservation and sustainable use of agrobiodiversity. To develop and ensure the effective implementation of appropriate conservation measures for the sustainable use of agrobiodiversity.

1. What are the linkages between organizations on work related to the use of and documentation of agrobiodiversity?
2. What planning procedures and monitoring mechanisms are at hand in the different organizations for ensuring it?
3. What organizational policies and legislation are at hand for ensuring the use of and documentation of agrobiodiversity?
4. What enforcement and compliance measures are at hand for ensuring the use of and documentation of agrobiodiversity?
5. What funded projects are at hand for implementing the use of and documentation of agrobiodiversity?
6. What incentives and disincentives are at hand for ensuring it?

**Appendix 3 Agendas for NBSAP Workshops on Assessment of Capacity to Address Biodiversity Issues :
Pohnpei, Kosrae, and Chuuk**

Agenda: Pohnpei NBSAP Workshop February 12, 2004, Sea Breeze Hotel, Kolonia, Pohnpei

Objectives: Assess Capacity of Pohnpei State to Address Three Biodiversity Issues:
In-situ Conservation/Initial Assessment and Monitoring including Taxonomy/Agricultural Biodiversity

8:30	- Welcome, opening and purpose of workshop - Introductions
Session 1	- Introduction to NBSAP
	Break
Session 2	- General Presentation on In-situ conservation and initial assessment/taxonomy (Commitments under NBSAP) - General presentation on Agrobiodiversity (Commitments under NBSAP) - Pohnpei In-situ conservation and monitoring update: Case study of Pohnpei MPAs - CSP - Facilitated Discussions on Capacity Needs
12:30	LUNCH
Session 3	- Pohnpei Agrobiodiversity update: Case study of Pohnpei efforts - Adelino Lorens - General facilitated discussion on Capacity needs - including individual work on questionnaires
	Break
Session 4	- Questionnaire work by the participants in groups - Presentation of the questionnaires and final group discussion
5:00	Closing

Agenda: Kosrae NBSAP Workshop March 25 and 26, 2004, Capitol Complex Training Room, Tofol, Kosrae

Objectives:

- Assess Capacity of Kosrae State to Address Three Biodiversity Issues:
 - o In-situ Conservation /Initial Assessment and Monitoring including Taxonomy (Thursday, March 25)
 - o Agricultural Biodiversity (Friday, March 26)

	MARCH 25: In-Situ Conservation/Initial Assessment & Monitoring	MARCH 26: Agricultural Biodiversity
8:30	- Welcome and Purpose of Workshop – Simpson Abraham - Participant Introductions	- Welcome for the second day and purpose – Simpson Abraham - Participant Introductions
Session 1	- Introduction to NBSAP and general presentation on In-situ conservation and initial conservation and initial assessment/taxonomy – Olivier Wortel	- NBSAP objectives relating to agricultural biodiversity and work on documenting Kosrae agrobiodiversity in relation to cultivar differences in Kosrae food crops – Dr. Lois Englberger
Session 2	- Strategies for In-situ conservation and monitoring: coral monitoring programs and community surveys to save the Humphead parrotfish – Dept. of Marine Resources, Marine Surveillance Division. - A Kosrae In-situ conservation proposal: Biosphere Reserve in Utwe-Walung Conservation Area – Andy George, Executive Director, KCSO.	- Documentation of marine food crops in Kosrae– Dept. of Marine Resources, Marine Surveillance Division. - Documentation of agricultural food crops as a part of the Kosrae Agricultural Show – Glasstine Cornelius, Department of Agriculture.
10:45	Break	Break
	- Facilitated Discussions on Capacity Needs – move into breakout groups divided between Marine and Terrestrial personnel and work on questionnaire	- Facilitated Discussions on Capacity Needs – move into breakout groups divided between Marine and Terrestrial personnel and work on questionnaire
12:00	LUNCH	LUNCH
Session 3	- Continued Questionnaire work by the participants in groups	- Continued Questionnaire work by the participants in groups
Session 4	- Presentation of the questionnaires and final group reporting	- Presentation of the questionnaires and final group reporting
3:00	Closing	Closing

Agenda: Chuuk NBSAP Workshop April 16 and 17, 2004, Truk Stop Hotel, Weno, Chuuk

Objectives:

- Assess Capacity of Chuuk State to Address Biodiversity Issues:
 - o In-situ Conservation, Initial Assessment, and Taxonomy (Friday, April 16)
 - o Agricultural Biodiversity (Saturday, April 17)

	APRIL 16: In-Situ Conservation/Initial Assessment & Taxonomy		APRIL 17: Agricultural Biodiversity, Working Groups and Plenary including In-Situ Conservation/Taxonomy
12:30 pm	- Welcome and Purpose of Workshop – Mr. Olivier Wortel - Welcome on behalf of the Governor- Mr. Nakama Sana - Participant Introductions	8:30 am	- Welcome for second day – Mr. Olivier Wortel - Participant Introductions
Session 1	- Introduction to NBSAP and general presentation on In-situ conservation and initial conservation and initial assessment/taxonomy – Mr. Olivier Wortel - Overview of NBSAP work in Chuuk – Ms. Julita Albert	Session 1	- NBSAP objectives relating to agricultural biodiversity and cultivar differences in Chuuk food crops – Dr. Lois Englberger
Session 2	- Questionnaire work by groups		
5:00 pm	Break and Dinner	10:30 am	Break
		Session 2	- Facilitated Discussions on Capacity Needs – Questionnaire work by the participants: agrobiodiversity
		12 pm	LUNCH
		Session 3	- Continued Questionnaire work by groups
			- Final group reporting for both in-situ conservation/taxonomy and agrobiodiversity

Appendix 4 Participant Lists for NBSAP Workshops on Assessment of Capacity to Address Agrobiodiversity Issues: Pohnpei, Kosrae, and Chuuk

Pohnpei NBSAP Workshop 12 February 2004. Participant List.

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Kosrae NBSAP Workshop, March 25 and 26, 2004. Participant List.

Name	Agency	Tel #	Participation	
			25-Mar	26-Mar
Oliver Wortel	NBSAP	320-4267	x	x
Dr. Lois Englberger	NBSAP	320-8639	x	x
Dr. Josekutty	COM/MPPRC	370-3191	x	x
Arthur Jonas	KBSAP	370-3326	x	x
Heinson Sigrah	KBSAP	370-3646	x	x
Daniel Thomson	DRC	370-3009	x	
Kelly Sepe Burney	KIRMA (PCV)	370-2076	x	x
Mason Timothy	Aquaculture/Malem RMC	370-2069	x	x
Julie Timothy	COM-Land Grant	370-3191	x	x
Sepe Kilafwasru	Dept. of Health	370-3199	x	x
Glasstine Cornelius	DALF/Div. Of Crop Production & Research	370-3017	x	x
Aaron Sigrah	Gov's Office/MLIC	370-3002	x	x
Andy George	Kosrae Conservation & Safety Organization	370-3673	x	x
Rev. Tulen Kinere	Council of Pastors	370-2060	x	x
Michael Tulen Hostino	DALF/Div. Of Marine Resources	370-3031	x	x
Jessica Shruie Slovin	Utwe/Walung Marine Park	370-2321	x	x
Andy Andrew	Utwe/Walung Marine Park	370-3040	x	x
Tony Abraham	DALF/Div of Marine Resources	370-3031	x	x
Jackson Albert	COM-Land Grant/RMC	370-3191	x	x
Maxwell Salik	DALF/Div of Marine Resources	370-3031	x	x
Tadao Waguk	Tourism	370-5080	x	x
Moses Asher				x
Rooston Abraham	DALF/Div of Marine Resources	370-3031	x	x
Standon Andrew	DALF/Div of Land Management	370-3078	x	x
Nimos Salik	Tafunsak RMC	370-3004	x	x
Bruno Ned	DALF/Div of Marine Resources	370-3031		x
Steve Palik	DALF/Div of Marine Resources	370-3031	x	x
Katrina Adams	Kosrae Conservation & Safety Organization	370-3673	x	x
Alokoa P. Joe	Senior Citizens Association	370-2158	x	x
Robert Taulung	DALF/Div of Marine Resources	370-3031	x	x
Kenye Killen	COM Land Grant	370-3191		x
Robert Jackson	KIRMA	370-2076	x	x
Stoner Sanney	Walung RMC	370-3006		x
Mayor Nena Kilafwasru	Malem Municipal Govt	370-4496	x	x
Mayor Johnson Taulung	Tafunsak Municipal Govt	370-4496	x	
Molly Tulpe Foster	Tourism (PCV)	370-2228	x	
Sen. Josaiiah Saimon	KSL/R&D Committee	370-3177	x	
Sen. Gibson Siba	KSL/R&D Committee	370-3177	x	
Bardon Musrasrik	Kosrae Senior Citizens Assoc	370-4202	x	
Mayor Gerson Freddy	Lelu Town Govt	370-3037	x	
Lipar George	Kosrae State Legislature	370-3177	x	
Bell Tosie	Office of Community Affairs	370-3018	x	
Mayor Truman Waguk	Utwe Municipal Govt	370-3207	x	

Moses Palik	KIRMA/Lelu RMC			
Simpson Abraham	KIRMA	370-2076	x	
Blair Charley	KIRMA	370-2076	x	
Betty Sigrah	KIRMA	370-2076	x	x

Chuuk NBSAP Workshop April 16-17, 2004. Participant List.

Name	Agency	Tel #	Participation	
			16-Apr	17-Apr
Mr. Olivier Wortel	NBSAP	320-4267	x	x
Dr. Lois Englberger	NBSAP	320-8639	x	x
Ms. Patricia Leon	The Nature Conservancy	320-3191	x	x
Ms. Julita Albert	EPA Office	330-4158	x	x
Mr. Amanisio Joseph	Dept of Education	330-6131	x	x
Mr. Nakama Sana.	Director, Dept of Administrative Resources		x	
Ms. Brigid A. Nakayama	DOE (CSS) EPA Board Member	330-2190/5047	x	
Mr. Ignacio Stephen	Gov Office		x	
Mr. Kerat Rikim	Division of Marine Resources (DMR)	330-4660	x	x
Ms. Mary Rose Nakayama	COM-FSM, Chuuk, mrose@mail.fm	330-8994	x	x
Mr. Inos (Mike) Urumai	DMR	330-4660	x	x
Mr. Kind K. Kanto	COM-FSM, Chuuk	330-3157	x	x
Mr. Romino Saimon	Director of Health Services	330-2214	x	x
Mr. Sleeper Sared	Agriculture, Forester	330-6131	x	x
Mr. Herbert Osawa	EPA	330-4158	x	
Mr. Benisio Joseph	Education		x	x
Ms. Mercy D. Sos	EPA, Chuuk, chuukpops@mail.fm	330-4158	x	x
Ms. Kiki Stinnett	Chuuk Women Council, KBStinnett@mail.fm	330-4232	x	x
Ms. Mike Robert	Marine Resources, Director	330-4660	x	x
Mr. Keiuo S. William	Representative, Legislature, Chair RD	930-2158	x	
Mr. Paulus Konman	Representative, Legislature		x	
Mr. Charles Rianone	Representative, Legislature		x	
Mr. Florencio Harper	Representative, Legislature		x	
Mr. Chad Huseby	Peace Corps Volunteer	330-2531	x	
Mr. Sean Arnold	Peace Corps Volunteer		x	
Mr. Thomas Mazawa	Dept of Agriculture	330-6131	x	
Mr. Skeichy Albert	Transportation	330-2592	x	x
Ms. Agnes Willyander	FSM Health Services	320-2619		x
Mr. Ioshimy Fred			x	
Mr. Kaster Sisam	Land Management	330-8784		x
Mr. Maketo Siren	Traditional Foods Specialist		x	x
Ms. Moria Shomour	Dept of Health			x
Ms. Emmy S. Soryz	Dept of Health			x