2012 College of Micronesia Combined Research and Extension Plan of Work

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I. Plan Overview

1. Brief Summary about Plan Of Work

The 5-Year Plan of Work for the College of Micronesia Land Grant Programs (COM-LGP) is an integrated approach to addressing the critical issues of strategic importance to the entire Micronesia region. Issues identified are very broad, which requires that the different counties in Micronesia develop research and extension programs that address short-term, intermediate, and long-term critical needs and problems that are unique to each of the islands. All programs are developed based on stakeholders' input and are consistent with priority economic, social and ecological problems identified by the various islands through their Economic Development Plans. Implementation of programs will be in six counties in three different countries and will serve communities in remote and isolated islands and areas to reach people from all walks of life, including the underprivileged and underrepresented.

The geographic region served by the COM-LGP covers over 2 million square miles, an area larger than the continental United States. The Federated States of Micronesia (FSM) is comprised of the Western and Central Caroline Islands. These include 607 islands and atolls, 65 of which are inhabited, spread across an ocean area of more than one million square miles. Although the land area of this nation is only 271 square miles, there are also 2,700 square miles of lagoons.

The Republic of the Marshall Islands (RMI) consists of two north-to-south chains of islands. Together they include five single islands and 29 atolls. The coral atolls rise not more than 25 feet above sea level and average less than 1,000 feet in width. The island group lies on the eastern edge of Micronesia, 2,100 miles southwest of Honolulu.

The Republic of Palau (ROP) is a cluster of 343 islands in the southwest corner of the region, less than 500 miles east of the Philippines. These islands range from the hundreds of small limestone Rock Islands to the volcanic island of Babeldaop, second largest in Micronesia (Guam is the largest).

The three island nations are inhabited by a heterogeneous mixture of people from more than six culturally distinct groups with different customs, traditions and languages. At present, the population is approximately 200,000.

The agricultural and aquaculture programs in the three nations are mostly subsistence in nature. Our continuing challenge is to build a viable economy and ensure a constantly improving quality of life in Micronesia, while maintaining strong cultural identity and a healthy environment. The COM-LGP will continue to play an active role in the economic and social development of the three nations. The Micronesian COM-LGP conducts applied research in the region and develops appropriate and effective extension and teaching materials and methods targeting clienteles in small island communities.

The identification of issues and trends from which programs are developed involves the input of stakeholders and observations and findings of COM-LGP staff and partners from collaborating agencies. Government studies, reports and publications are also used in the tracking of trends and the identification of critical issues. The extension of the economic provisions of the Compact of Free Association funding in

the FSM and the RMI in 2004 provided these two countries with alternative scenarios for achieving economic growth and self-reliance in the next 20 years. The Republic of Palau's Compact of Free Association with the U.S. Government continues. The Compact II with the FSM and RMI is one of numerous issues that will have a major impact on the region in the coming years. Other important trends include: a rapidly increasing population and resulting pressures on land and the environment; family financial resources and social services; increasing out-migration of both young and adult Micronesians to adjacent U.S. population centers in search of economic opportunities; a rising sea level as a result of the greenhouse effect, global warming and other natural phenomena such as El Niño and La Niña that may have disastrous effects on small island nations; and increasing social pressures brought on by rapid unsustainable development and declining cultural values, leading to children, youth and family problems.

COM-LGP supports sustainable systems that improve and advance agricultural, human, community, and natural resource development. The sustainable systems must be economically viable, environmentally sensitive, socially acceptable, culturally appropriate, and technologically feasible. In addressing the wide range of issues identified by stakeholders, COM-LGP has put great emphasis on the preservation and protection of Micronesia's natural environment, a response that is vital, with concerted efforts toward raising awareness that the long-term quality of life is dependent on a healthy natural environment. Genuine sustainability is "of the people, by the people and for the people." Micronesians should continue to use traditional methods of farming and to be empowered to engage in agricultural and aquacultural production systems that will have long lasting positive impacts on their communities.

Obesity, malnutrition, diabetes, and waterborne diseases are emerging problems in some parts of Micronesia. Population dynamics contribute to these problems by the increase in the number of people to feed in the household. The impact of quality education is one that generates jobs with sufficient income to support families. Outreach programs shall emphasize the need for a sustainable food production system, balanced diets, value-added crops, food processing, proper food handling and maintaining clean water sources to lessen the chances of contracting food and waterborne related diseases. Other issues associated with these problems, such as teen pregnancy, family planning, school dropout rate, joblessness, alcoholism and tobacco use will also be addressed.

For the next 5 years, COM-LGP will focus on the following six planned programs : aquaculture, childhood obesity, climate change, food safety, global food security and hunger, and families, youths and communities. When more resources become available, especially human resources, we will include other planned programs to address the other NIFA priority areas.

For programs to achieve their intended goals, COM-LGP supports extensive collaboration and partnerships with public and private local, regional, and international organizations, both public and private. Through these collaborations and partnerships, COM-LGP will be able to maximize outputs in implementing these goals and other community-based programs to address priority needs and critical issues. It will also be in the best interest of all parties involved in these collaborative efforts, as financial resources are dwindling and government and private organizations are streamlining services by reducing staff. Collaboration is a common thread that runs through all programs to enable the various agencies to capitalize on existing resources by sharing information to avoid redundancy of efforts, to learn from one other using locally available expertise to solve problems and to coordinate activities so that limited fiscal resources are used wisely.

The requirements for multi-institutional and multi-disciplinary approaches to program planning and implementation have been the thrust of collaborative efforts with other American Pacific Land Grant institutions through the Agricultural Development in the American Pacific (ADAP) Project. Through ADAP, there are agreements with non-land-grant institutions like the Secretariat of the Pacific Community (SPC) and the University of the South Pacific (USP), which recognize the need to share expertise in collaborative activities and projects, joint participation in administrative and planning meetings, and sharing and the use

of networks for communication, data collection and dissemination of information.

To support the delivery of up-to-date information and to borrow from other successful programs throughout the Pacific region and the U.S. mainland, contact access to email and the Internet will be supported through satellite digital telecommunications and other carriers. The commitment made in this area will strengthen the delivery of higher education as well as providing support and focus in addressing nutrition-related sustainable agriculture, sanitation and population issues. Currently, all six COM sites have the capability of accessing Internet and the World Wide Web, which will undoubtedly contribute to innovative approaches to program development and implementation.

One constraint to sustainability is the continuing lack of trained staff at the institutions. We consider most of our indigenous staff at the level of professional because that they have extensive work experience in their areas of expertise with an excellent command of the local customs, cultures and languages of their clienteles. We will continue to strengthen, improve and increase the skills of institutional staff members and those from collaborating agencies by providing in-service training programs. Only through these human resource and capacity building efforts that a pool of local expertise can be developed in Micronesia.

Estimated Number of Professional FTEs/SYs total in the State.

Year	Extension		Research	
	1862	1890	1862	1890
2012	40.0	0.0	14.0	0.0
2013	40.0	0.0	14.0	0.0
2014	40.0	0.0	14.0	0.0
2015	40.0	0.0	14.0	0.0
2016	40.0	0.0	14.0	0.0

II. Merit Review Process

1. The Merit Review Process that will be Employed during the 5-Year POW Cycle

- ☑ Internal University Panel
- ☑ External University Panel
- ☑ External Non-University Panel
- ☐ Combined External and Internal University Panel
- ☐ Combined External and Internal University External Non-University Panel
- ☑ Expert Peer Review
- ☐ Other

2. Brief Explanation

The current standard procedure for program proposals is to subject each proposal to an internal review by an internal review team comprised of researchers, specialists, extension agents and collaborating agencies. The review team edits and makes comments and suggestions on the program/project proposal before it is finalized. Once finalized, the program/proposal goes through a review process with College administrators, the local College Board of Regents, through the College of Micronesia administrator, and finally through the COM Board of Regents before it is sent to the USDA or non-USDA funding agency.

Advisory or review committees established at the three colleges continues to review plans of work and proposals as they relate to agriculture, family and consumer sciences, and community economic development needs of the three nations under the College of Micronesia system. Advisory/review committees situated at the three colleges provide the review of programs based on the priorities of the governments and non-governmental organizations. The COM Board of Regents and the local Board of Regents at the three colleges are involved in these reviews, as they are also members of these advisory committees. The administrations of COM and the three local colleges and faculty serve on these committees as resource persons. All attempts will be made to include a broad-based advisory group, which represents multi-institutional and multi-disciplinary efforts.

A Scientific Peer Review process has been in use for research and extension proposals. The peer review team includes administrators, researchers and extension staff. They review proposals for their technical merit and potential impact and relevancy to the needs of the communities and their fragile ecosystems.

A project proposal goes to the internal review team and outside experts who also specialize in the field of the proposed project. Once the comments and suggestions of the reviewers are included in the final project proposal, it goes through the college administrators to the AES/CRE Director at COM Central Office for final endorsement and submission to the USDA for approval.

At the colleges, peer review teams have been organized. Other professionals at Land Grant institutions through the Agricultural Development in the American Pacific (ADAP) coalition/alliance and other collaborating agencies with the Secretariat of the Pacific Community are invited to review and comment on proposals in order to satisfy the need for a multi-institutional and multi-disciplinary requirement.

III. Evaluation of Multis & Joint Activities

1. How will the planned programs address the critical issues of strategic importance, including those identified by the stakeholders?

All of our programs were developed based on economic development plans of the various island states and they will be implemented in partnership and in close coordination with similar programs at the community and state levels. The planned programs are targeting issues of strategic importance to the region and individual island states that were identified by stakeholders through strategic planning meetings. Program evaluations and surveys are used

periodically to ensure that the planned programs are on track and relevant to local and regional needs.

2. How will the planned programs address the needs of under-served and under-represented populations of the State(s)?

The planned programs will continue on-going efforts to enhance access and opportunities for programs to reach all socioeconomic and racial/ethnic groups including underrepresented, underserved and underprivileged groups. Representatives of these populations participated in the stakeholder input process and provided inputs into goals and programs during strategic planning meetings.

3. How will the planned programs describe the expected outcomes and impacts?

Each of the programs of our Plan of Work provides several short-term, medium-term and long-term outcome measures. These outcomes statements are directed toward the situation of our programs and the priorities we established for the period ahead. The outcome measures clearly describe the impacts we expect to occur as a result of the resources we will use to carry out activities outlined in each planned program. Additional funding we received from other sources is a reflection of the success of our programs. This will also be accomplished through annual reporting of accomplishments and results that planned programs have on people and the communities served. There will be periodical reviews of how suitable planned programs are for the needs of the communities and necessary changes on planned programs will take place on a continuous basis to reflect changing needs. All of the different sectors of the community should cooperate and collaborate in the implementation of programs so that different needs can be addressed properly and in a timely manner.

4. How will the planned programs result in improved program effectiveness and/or

There will be periodical reviews of how suitable planned programs are for the needs of the communities and necessary changes on planned programs will be donein consultation with the target audience inputs occur on a continuous basis to reflect changing needs. All of the different sectors of the community should cooperate and collaborate in the implementation of programs so that different needs can be addressed properly and in a timely manner.

IV. Stakeholder Input

1. Actions taken to seek stakeholder input that encourages their participation

- ☑ Use of media to announce public meetings and listening sessions
- ☑ Targeted invitation to traditional stakeholder groups
- ☑ Targeted invitation to non-traditional stakeholder groups
- ☑ Targeted invitation to traditional stakeholder individuals
- ☐ Targeted invitation to non-traditional stakeholder individuals
- ☐ Targeted invitation to selected individuals from general public
- ☑ Survey of traditional stakeholder groups

- ☑ Survey of traditional stakeholder individuals
- ☐ Survey of the general public
- ☐ Survey specifically with non-traditional groups
- ☐ Survey specifically with non-traditional individuals
- ☑ Survey of selected individuals from the general public
- ☐ Other

Brief explanation.

Strategic plans were developed for the county level that catered to participants from the various organizations, both public and private, that collaborate and cooperate in our programs. Needs assessments were conducted throughout Micronesia in conjunction with assessments of other related programs funded by the governments, and regional and international organizations. Interviews with government officials, traditional and church leaders, farmers' groups, NGOs and community-based organizations were conducted and solicitation for inputs occurred. Direct written invitations were given to elected officials at the local, state, and national levels and through announcements that were placed in the local newspapers and aired over the local radio stations in both English and the various local languages.

2(A). A brief statement of the process that will be used by the recipient institution to identify individuals and groups stakeholders and to collect input from them

1. Method to identify individuals and groups

- ☑ Use Advisory Committees
- ☑ Use Internal Focus Groups
- ☑ Use External Focus Groups
- ☑ Open Listening Sessions
- ☑ Needs Assessments
- ☑ Use Surveys
- ☐ Other

Brief explanation.

If not all, a major portion of the Micronesian population are our stakeholders, having been classified or identified as representatives from rural communities that consist mostly of subsistence farmers and fishermen who live well below the poverty level and are considered under-represented and under-served. Stakeholders are the same clienteles of local and state governments. Our programs are extended to supplement existing programs and are conducted separately or with governments and regional organizations. Sponsored programs also engage individuals and organizations in which collaboration and networking have been established.

With assistance from political and traditional leaders in the communities, individuals were identified as stakeholders and their valued input was solicited.

2(B). A brief statement of the process that will be used by the recipient institution to identify individuals and groups who are stakeholders and to collect input from them

1. Methods for collecting Stakeholder Input

- ☑ Meeting with traditional Stakeholder groups
- ☑ Survey of traditional Stakeholder groups
- ☑ Meeting with traditional Stakeholder individuals
- ☑ Survey of traditional Stakeholder individuals
- ☐ Meeting with the general public (open meeting advertised to all)
- ☐ Survey of the general public
- ☐ Meeting specifically with non-traditional groups
- ☐ Survey specifically with non-traditional groups
- ☐ Meeting specifically with non-traditional individuals
- ☐ Survey specifically with non-traditional individuals
- ☑ Meeting with invited selected individuals from the general public
- ☑ Survey of selected individuals from the general public
- ☐ Other

Brief explanation.

This will be accomplished through meetings and discussions with government, traditional and church leaders and meetings with farmers, homemakers, community leaders and students.

3. A statement of how the input will be considered

- ☑ In the Budget Process
- ☑ To Identify Emerging Issues
- ☑ Redirect Extension Programs
- ☑ Redirect Research Programs
- ☑ In the Staff Hiring Process
- ☑ In the Action Plans
- ☑ To Set Priorities
- ☐ Other

Brief explanation.

Inputs from clienteles who have successfully adopted recommended practices will be considered and modified to redirect research and extension program outputs. Likewise, negative experiences from clienteles will also be considered in the redirection of approaches. Entrepreneurs who have adopted the food technologies on developed products that they learned can give important suggestions in redirecting the extension and research programs on product development of local foods such as root crops,

breadfruit, fish, coconuts and bananas. Advice, ideas, concerns and needs of political, traditional and community leaders will always be considered.

V. Planned Program Table of Content

S. No.	PROGRAM NAME
1	Aquaculture
2	Families, Youths & Communities
3	Childhood Obesity
4	Climate Change
5	Food Safety
6	Global Food Security and Hunger
7	Sustainable Energy

V(A). Planned Program (Summary)

Program # 1

1. Name of the Planned Program

Aquaculture

2. Brief summary about Planned Program

The establishment of techniques for the spawning, larval and nursery rearing of pearl oyster, rabbit fish, mangrove crab, milkfish, grouper, sea cucumber and other targeted aquacultural species will provide the necessary fingerlings of these species for grow-out operations in Micronesia. Moreover, demonstration of the grow-out culture of pearl oyster, rabbit fish, sea cucumber and other targeted aquacultural species in cages using locally available formulated feeds will institute its economic viability to interested fish farmers. In Micronesia, there is no feed mill operation therefore all feed requirements for poultry, hog, and fish feeds are entirely imported from other countries. This obviously results in an unreliable supply and prohibitive costs of feeds resulting in uncompetitive produce cost. Efforts will explore the use of different locally available feed ingredients for the mass propagation of these targeted aquacultural species.

The establishment of projects for pearl oyster, mangrove crab, milkfish, grouper, rabbit fish, sea cucumber and other targeted aquacultural species in Micronesia will provide training and create opportunities for local people to generate alternate/supplementary income via sustainable aquacultural practices. It will also create employment opportunities in these islands and will generate foreign trade and thereby improve the socioeconomic conditions of people in these small island communities. These projects will also strengthen inter-states and inter-regional aquacultural research and development projects as well as developing expertise of hatchery-based pearl oyster, rabbit fish, mangrove crab, milkfish, grouper, sea cucumber and other targeted aquacultural species resource enhancement programs and contribute to developing aquaculture industries in Micronesia.

3. Program existence :

- ○ New (One year or less)
- ◉ Intermediate (One to five years)
- ○ Mature (More than five years)

4. Program duration :

- ○ Short-Term(One year or less)
- ○ Medium-Term (One to five years)
- ◉ Long-Term (More than five years)

5. Expending formula funds or state-matching funds :

- ◉ Yes
- ○ No

6. Expending other than formula funds or state-matching funds :

- ◉ Yes
- ○ No

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
135	Aquatic and Terrestrial Wildlife	10%		10%	
136	Conservation of Biological Diversity	10%		10%	
301	Reproductive Performance of Animals	15%		15%	
302	Nutrient Utilization in Animals	10%		10%	
307	Animal Management Systems	15%		15%	
308	Improved Animal Products (Before Harvest)	10%		10%	
315	Animal Welfare/Well-Being and Protection	10%		10%	
511	New and Improved Non-Food Products and Processes	10%		10%	
608	Community Resource Planning and Development	10%		10%	
	Total	100%		100%	

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

The abundant and extremely biodiverse coral reefs in Micronesia provide habitat for robust fish

populations and other marine life, which support subsistence and commercial fisheries and most importantly provide potential opportunities for multi-species aquaculture. Recently, there has been a growing emphasis on the sustainable development of marine resources, mainly marine aquaculture or mariculture, to meet future economic needs, provide self-sufficiency and to develop food and economic security for small island communities thereby ensuring self sustainability.

Projects for pearl oyster, rabbit fish, mangrove crab, milkfish, grouper, sea cucumber and other targeted aquaculture species in Micronesia will provide training and create opportunities for local people to generate alternate/supplementary income via sustainable aquacultural practices.

The governments issued restrictions on catching some of these aquatic species of fish during their peak spawning months for fear of depleting stock due to over fishing. Furthermore, since the current source is from the wild, the supply as food fish is unreliable. The establishment of techniques for spawning, larval and nursery rearing of pearl oyster, rabbit fish, mangrove crab, milkfish, grouper, sea cucumber, and other targeted aquacultural species will provide the necessary fingerlings of these species for grow-out operations. Moreover, a demonstration of the grow-out culture of these species in cages using locally available formulated feeds will ensure its economic viability to interested fish farmers.

A very important factor that is crucial in the culture of these targeted aquacultural species is the availability of feed to sustain their growth. In the absence of feed mill operations for feed requirements for poultry, hog and fish, feeds are entirely imported from other countries. This obviously results in the unreliable supply and prohibitive costs of feeds resulting in uncompetitive produce costs. The project will explore the use of different locally available feed ingredients for the mass propagation of these targeted species.

One form of aquaculture that offers excellent potential for sustainable economic development could be pearl farming of the black-lip pearl oyster. The Micronesian nations are far behind the South Pacific nations, particularly French Polynesia, which have been annually exporting over US $120 million of cultured black pearls. This due to the fact that there is not enough black lip pearl oysters that could be collected and maintained in a hatchery-based pearl industry. In FSM, COM-LGP has trained local technicians in the hatchery, ocean grow-out and pearl cultivation. They now become core technicians to train local people as well as supporting research and extension projects for local pearl farming and pearl related products business development. Three outer islands of Pohnpei are preparing to implement commercial pearl farming under the guidance of COM-LGP's development plan.

There is also a strong desire to develop revenue producing local industries based on available natural resources and to restock reefs where natural marine populations have declined. Hence focus is on site-specific sustainable hatchery and farming development of commercially important food and ornamental finfish and shellfish, mainly for stock enhancement purposes by sea ranching of species that have been exploited heavily for food and the ornamental shell trade.

2. Scope of the Program

- ☑ In-State Extension
- ☑ In-State Research
- ☑ Multistate Research
- ☑ Multistate Extension
- ☑ Integrated Research and Extension
- ☐ Multistate Integrated Research and Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

a. Local farmers and fishermen will adopt techniques from the projects.

b. Hatchery and grow-out technologies for production of targeted species will be developed and protocols will be standardized.

c. Highly skilled hatchery and grow-out technicians will be available through technical training.

d. Feeds will be available locally for culturing targeted species.

e. Increased supply and demand for the targeted aquaculture species

f. Adaptation of new species and improved technologies of aquaculture to local conditions in a sustainable manner will be used for income generation.
Research programs will improve the wealth of the oceans by stock enhancing certain vulnerable species and other valuable aquacultural species in selected outer atolls.

g. Existing aquaculture programs will improve through basic and applied research.

2. Ultimate goal(s) of this Program

1. To formulate and prepare appropriate feeds and feeding technology to farmers who may want to culture, rabbit fish, mangrove crab, milkfish, grouper, pearl oyster and other aquatic species.

2. Transfer simple and appropriate feeding technology to pearl oyster, rabbit fish, sea cucumber, and other targeted species farmers who may want to culture them and formulate and prepare their own feeds.

3. Initiate and improve sustainable site-specific multi-species aquaculture to provide and generate alternate/supplementary income generation in the overall aim of improving the socioeconomic conditions of the islands.

4. Establish new industries of the targeted species based on the hatchery technology and transfer the farming technology to the local population.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2012	4.0	0.0	3.0	0.0
2013	4.0	0.0	3.0	0.0

Year	Extension		Research	
	1862	1890	1862	1890
2014	4.0	0.0	3.0	0.0
2015	5.0	0.0	4.0	0.0
2016	5.0	0.0	4.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

Program activities will include establishing techniques in the protocols of hatchery, nursery and grow-out culture of targeted aquacultural species; to formulate a nutritionally balanced and economical feed for the nursery and grow-out culture based on local resources; to test the efficiency of the formulated diet based on the growth rate, digestibility and palatability to the targeted aquacultural species; to demonstrate the economic viability of the cage grow-out culture of the targeted aquacultural species; to develop human resources for supporting and maintaining these industries; to develop business models and to promote local interest and participation in these industries; to demonstrate production and improve quality; to develop training and educational methods for local Micronesians; stake holder input research designing; experimental trial initiation, experimental monitoring and data collection, and data interpretation and analysis; dissemination of findings to existing and prospective farmers and individuals; promotion of new and site-specific technologies to outer-island communities; initiation of these small scale projects in outer island communities; frequent monitoring, data collection and evaluation of these projects; to develop hatchery and grow-out technologies for resource enhancement; replenishment of depleted stocks; and to test the efficiency of alternate or replacement feeds for specific aquacultural species.

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension

Direct Methods	Indirect Methods
☑ Education Class	☑ Public Service Announcement
☑ Workshop	☑ Billboards
☑ Group Discussion	☑ Newsletters
☑ One-on-One Intervention	☑ TV Media Programs
☑ Demonstrations	☑ Web sites
☐ Other 1	☑ Other 1 (Brochures, leaflets, etc.)
☐ Other 2	☐ Other 2

3. Description of targeted audience

Community fishermen, government officials, elementary, high school and college students, researchers and extension agents, international and regional organizations, commercial businesses,

foreign investors, NGOs and local residents.

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact

	Direct Contact Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2012	500	3000	350	3000
2013	500	3000	350	3000
2014	500	3000	350	3000
2015	500	3000	350	3000
2016	500	3000	350	3000

2. (Standard Research Target) Number of Patent Applications Submitted

2012:0 **2013:**0 **2014:**0 **2015:**0 **2016:**0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2012	3	3	6
2013	3	3	6
2014	3	3	6
2015	3	3	6
2016	3	3	6

V(H). State Defined Outputs

1. Output Target

- Number of demonstration farms established.

  2012:10 **2013:**10 **2014:**10 **2015:**10 **2016:**10

- Number of publications for lay use.

  2012:4 **2013:**4 **2014:**4 **2015:**4 **2016:**4

- Number of conference paper and publication/presentation.

  2012:4 **2013:**4 **2014:**5 **2015:**5 **2016:**5

- Expected Professional Journal publications.

  2012:3 **2013:**3 **2014:**3 **2015:**3 **2016:**3

- Expected Gray Literatures.

  2012:10 **2013:**10 **2014:**10 **2015:**10 **2016:**10

- Expected publications for lay use.

  2012:10 **2013:**10 **2014:**10 **2015:**10 **2016:**10

V(I). State Defined Outcome

O. No	Outcome Name
1	Increase awareness in the communities and prospective and existing industry about sustainable, site-specific, and low energy aquaculture technologies.
2	Adoption of sustainable aquaculture technologies by commercial and community groups.
3	Number of established aquaculture operations.

Outcome # 1

1. Outcome Target

Increase awareness in the communities and prospective and existing industry about sustainable, site-specific, and low energy aquaculture technologies.

2. Outcome Type :

- (●) Change in Knowledge Outcome Measure
- ( ) Change in Action Outcome Measure
- ( ) Change in Condition Outcome Measure

2012:850 **2013:**850 **2014:**850 **2015:**850 **2016:**850

3. Associated Knowledge Area(s)

- ☑ 135 - Aquatic and Terrestrial Wildlife
- ☑ 136 - Conservation of Biological Diversity
- ☑ 301 - Reproductive Performance of Animals
- ☑ 302 - Nutrient Utilization in Animals
- ☑ 307 - Animal Management Systems
- ☑ 308 - Improved Animal Products (Before Harvest)
- ☑ 315 - Animal Welfare/Well-Being and Protection
- ☑ 511 - New and Improved Non-Food Products and Processes
- ☑ 608 - Community Resource Planning and Development

4. Associated Institute Type(s)

- ☑ 1862 Extension
- ☑ 1862 Research

Outcome # 2

1. Outcome Target

Adoption of sustainable aquaculture technologies by commercial and community groups.

2. Outcome Type :

- ( ) Change in Knowledge Outcome Measure
- (●) Change in Action Outcome Measure
- ( ) Change in Condition Outcome Measure

2012:350 **2013:**350 **2014:**350 **2015:**350 **2016:**350

3. Associated Knowledge Area(s)

- ☑ 135 - Aquatic and Terrestrial Wildlife
- ☑ 136 - Conservation of Biological Diversity
- ☑ 301 - Reproductive Performance of Animals
- ☑ 302 - Nutrient Utilization in Animals
- ☑ 307 - Animal Management Systems
- ☑ 308 - Improved Animal Products (Before Harvest)
- ☑ 315 - Animal Welfare/Well-Being and Protection
- ☑ 511 - New and Improved Non-Food Products and Processes
- ☑ 608 - Community Resource Planning and Development

4. Associated Institute Type(s)

- ☑ 1862 Extension
- ☑ 1862 Research

Outcome # 3

1. Outcome Target

Number of established aquaculture operations.

2. Outcome Type :

- ○ Change in Knowledge Outcome Measure
- ○ Change in Action Outcome Measure
- ◉ Change in Condition Outcome Measure

2012:15 **2013:**15 **2014:**15 **2015:**15 **2016:**15

3. Associated Knowledge Area(s)

- ☑ 135 - Aquatic and Terrestrial Wildlife
- ☑ 136 - Conservation of Biological Diversity
- ☑ 301 - Reproductive Performance of Animals
- ☑ 302 - Nutrient Utilization in Animals
- ☑ 307 - Animal Management Systems
- ☑ 308 - Improved Animal Products (Before Harvest)
- ☑ 315 - Animal Welfare/Well-Being and Protection
- ☑ 511 - New and Improved Non-Food Products and Processes
- ☑ 608 - Community Resource Planning and Development

4. Associated Institute Type(s)

- ☑ 1862 Extension
- ☑ 1862 Research

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- ☑ Natural Disasters (drought, weather extremes, etc.)
- ☑ Economy
- ☑ Appropriations changes
- ☑ Public Policy changes
- ☑ Government Regulations
- ☑ Competing Public priorities
- ☐ Competing Programmatic Challenges
- ☑ Populations changes (immigration, new cultural groupings, etc.)
- ☐ Other

Description

Natural disasters, the economy and government regulations can hinder data or sampling collection of targeted species for the study. Above external factors could affect the number of participants or interested farmers that may or may not adopt the projects.

Population changes in the outer islands, particularly population flow of the youth from the outer islands to the main islands, and rural areas to the capital city can negatively impact aquacultural development, extension programs and research work.

V(K). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- ☐ After Only (post program)
- ☐ Retrospective (post program)
- ☑ Before-After (before and after program)
- ☑ During (during program)
- ☑ Time series (multiple points before and after program)
- ☐ Case Study
- ☑ Comparisons between program participants (individuals, group, organizations) and non-participants
- ☑ Comparisons between different groups of individuals or program participants experiencing different levels of program intensity.
- ☑ Comparison between locales where the program operates and sites without program intervention

☐ Other

Description

Daily observation and monitoring will be performed to improve and change the process of the study during the course of the projects. Local operations will be evaluated before, after and during the program for their commitment and program needs. Program outcomes will be compared with sites without program intervention to evaluate differences. A pre and post evaluation of projects would be carried out with both in-house and outside stakeholder participation. Time series evaluation will also be executed to monitor the progress of the programs and to evaluate weaknesses in implementation and maintenance in a timely manner to determine solutions to any problem that arises.

2. Data Collection Methods

☑ Sampling
☑ Whole population

Survey (Mail, Telephone, On-Site).

- ☑ Mail
- ☑ Telephone
- ☑ On-Site

Interview

- ☑ Structured
- ☐ Unstructured

☑ Case Study
☑ Observation
☐ Portfolio Reviews
☐ Tests
☑ Journals
☐ Other

Description

Pre and posttests will be conducted for short-term results. During program delivery, evaluations will be carried out for specific programs requiring periodic measures. Case studies will be conducted individually for programs or farming operations to shed light on successes and problems associated with current practices. Structured and unstructured interviews will be conducted and observations will be performed appropriately. Whole population data collection will be used for specific programs such as distribution of cultivars and varieties to selected farmers. Data will also be collected through assessments and unstructured interviews during on-site visits.

V(A). Planned Program (Summary)

Program # 2

1. Name of the Planned Program

Families, Youths & Communities

2. Brief summary about Planned Program

This program will address the rapid social and economic changes affecting communities, families and youth. With a growing population and a challenged economy, island governments face the daunting task of providing essential services, including community development and employment opportunities. Drug and alcohol abuse, school dropout rate, teenage pregnancy and unemployment are social problems that have been escalating at an alarming rate in our communities over the past decade. Leaders and volunteerism, civic and cultural skills programs are important for the success of families and youth development endeavors.

With the change from subsistence to a cash economy, many people expect compensation for their activities and volunteerism is declining. The Micronesian family system used to be a closely knitted institution, in which members shared with one another. It is undergoing transformation and this program is part of the ongoing efforts to instill in the minds of youths the values of love, respect, sharing and helping each other. It will also provide information to inspire youth to become law-abiding citizens and contributing members of society and to cultivate respect for societal norms and values.

3. Program existence :

- ○ New (One year or less)
- ◉ Intermediate (One to five years)
- ○ Mature (More than five years)

4. Program duration :

- ○ Short-Term(One year or less)
- ○ Medium-Term (One to five years)
- ◉ Long-Term (More than five years)

5. Expending formula funds or state-matching funds :

- ◉ Yes
- ○ No

6. Expending other than formula funds or state-matching funds :

- ◉ Yes
- ○ No

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
608	Community Resource Planning and Development	25%		25%	
801	Individual and Family Resource Management	10%		10%	
802	Human Development and Family Well-Being	20%		20%	
804	Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures	15%		15%	
806	Youth Development	30%		30%	
	Total	100%		100%	

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

Traditionally, Micronesian families were supported by a very intricate but strong and sustainable socioeconomic system that kept families together and permitted them to share and help one another. There is an unfortunate breakdown in the traditional support system that results in family and youth friction and misunderstanding, which creates negative social problems. There is also a shift from subsistence to a cash economy that has resulted in the erosion of the extended family structure, which usually gives support to all family members. Teenage pregnancy is increasing at an alarming rate and has resulted in complications during parturition and low birth weight and undernourished children. Other alarming

community, family and youth problems today are the increasing rate of youth suicide, domestic violence, and physical and sexual abuse of children. These social problems are so deeply rooted that there is a need for a comprehensive and individualized approach to these grave challenges. The three Micronesian nations must implement stringent policies and strategies that will improve the wellbeing of families and youth through employment and other essential services.

2. Scope of the Program

- ☑ In-State Extension
- ☑ In-State Research
- ☐ Multistate Research
- ☑ Multistate Extension
- ☑ Integrated Research and Extension
- ☑ Multistate Integrated Research and Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

Families and youth are able to cope with social issues like teenage pregnancies, suicide, substance and alcohol abuse, truancy and school dropout. Improvement of livelihood can be attained by training youth in cultural arts and crafts, gardening and fishing. Youth can also make productive use of their time through sports, clean up activities and beautification.

2. Ultimate goal(s) of this Program

The ultimate goal of the program is to provide training to develop skills for cultural arts and crafts for income generation and thereby improve the quality of life of families and youths. Other civic activities such as gardening community clean-up, beautification and sports will be encouraged to make productive use of their time and decrease incidence of substance abuse and suicide among youth in the communities.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2012	9.0	0.0	1.0	0.0
2013	9.0	0.0	1.0	0.0
2014	9.0	0.0	1.0	0.0
2015	9.0	0.0	1.0	0.0
2016	9.0	0.0	1.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

Cultural arts and crafts training sessions targeting adults and youth will be conducted in the communities. Youths will be encouraged to participate in various community programs such as beautification, gardening, and World Clean Up Day. Life skills, sports and physical fitness are components of youth programs. Children will also be encouraged to participate in civic activities and be involved more actively in the political process. Volunteers will be recruited to serve as liaisons between the colleges and their respective communities and will assist as clientele recruiters. Other volunteers from collaborating agencies in Micronesia will serve as resource persons, mentors and youth leaders in youth development programs, and lecturers where their expertise is needed. Training people with relevant skills to utilize their potential through income generating activities will improve their financial status and increase their family or individual economic stability, and therefore lead to an improved quality of life.

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension

Direct Methods	Indirect Methods
☑ Education Class	☑ Public Service Announcement
☑ Workshop	☐ Billboards
☑ Group Discussion	☑ Newsletters
☑ One-on-One Intervention	☑ TV Media Programs
☑ Demonstrations	☑ Web sites
☑ Other 1 (Field Days/fairs/festivals)	☑ Other 1 (Hand outs, brochures, leaflets)
☐ Other 2	☐ Other 2

3. Description of targeted audience

Families, youths and communities all over Micronesia.

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact

	Direct Contact Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2012	900	2700	1200	3600
2013	900	2700	1200	3600
2014	900	2700	1200	3600
2015	900	2700	1200	3600

	Direct Contact Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2016	900	2700	1200	3600

2. (Standard Research Target) Number of Patent Applications Submitted

2012:0 **2013:**0 **2014:**0 **2015:**0 **2016:**0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2012	3	0	3
2013	3	0	3
2014	3	0	3
2015	3	0	3
2016	3	0	3

V(H). State Defined Outputs

1. Output Target

- Number of training conducted targeting youths.

2012:12 **2013:**12 **2014:**12 **2015:**12 **2016:**12

- Number of training conducted targeting families and youths in the communities.

2012:6 **2013:**6 **2014:**6 **2015:**6 **2016:**6

- Total number of youth clubs organized.

2012:3 **2013:**3 **2014:**3 **2015:**3 **2016:**3

V(I). State Defined Outcome

O. No	Outcome Name
1	Number of youths with increased awareness and understanding of roles and relationship with parents.
2	Number of families adopting interpersonal skills to improve quality of life and harmony in the family.
3	Total number of families and youths benefiting from the use of learned skills.

Outcome # 1

1. Outcome Target

Number of youths with increased awareness and understanding of roles and relationship with parents.

2. Outcome Type :

- (●) Change in Knowledge Outcome Measure
- ( ) Change in Action Outcome Measure
- ( ) Change in Condition Outcome Measure

2012:900 **2013:**900 **2014:**900 **2015:**900 **2016:**900

3. Associated Knowledge Area(s)

- ☑ 608 - Community Resource Planning and Development
- ☑ 801 - Individual and Family Resource Management
- ☑ 802 - Human Development and Family Well-Being
- ☑ 804 - Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial
- ☑ 806 - Youth Development

4. Associated Institute Type(s)

- ☑ 1862 Extension
- ☑ 1862 Research

Outcome # 2

1. Outcome Target

Number of families adopting interpersonal skills to improve quality of life and harmony in the family.

2. Outcome Type :

- ( ) Change in Knowledge Outcome Measure
- (●) Change in Action Outcome Measure
- ( ) Change in Condition Outcome Measure

2012:300 **2013:**300 **2014:**300 **2015:**300 **2016:**300

3. Associated Knowledge Area(s)

- ☑ 608 - Community Resource Planning and Development
- ☑ 801 - Individual and Family Resource Management
- ☑ 802 - Human Development and Family Well-Being
- ☑ 804 - Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial

☑ 806 - Youth Development

4. Associated Institute Type(s)

☑ 1862 Extension
☑ 1862 Research

Outcome # 3

1. Outcome Target

Total number of families and youths benefiting from the use of learned skills.

2. Outcome Type :

○ Change in Knowledge Outcome Measure
○ Change in Action Outcome Measure
◉ Change in Condition Outcome Measure

2012:300	**2013:**300	**2014:**300	**2015:**300	**2016:**300

3. Associated Knowledge Area(s)

☑ 608 - Community Resource Planning and Development
☑ 801 - Individual and Family Resource Management
☑ 802 - Human Development and Family Well-Being
☑ 804 - Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial
☑ 806 - Youth Development

4. Associated Institute Type(s)

☑ 1862 Extension
☑ 1862 Research

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

☑ Natural Disasters (drought, weather extremes, etc.)
☑ Economy
☑ Appropriations changes
☑ Public Policy changes
☑ Government Regulations

- ☑ Competing Public priorities
- ☑ Competing Programmatic Challenges
- ☑ Populations changes (immigration, new cultural groupings, etc.)
- ☐ Other

Description

Travel to outer islands may become risky during natural calamities thus services are disrupted. Increase or decrease of funding will influence planned activities. Other external factors such as the rising cost of fuel will hit hard on outlying communities that depend on field trip vessels for transportation and the green house effect with rising sea level wil have disastrous effect on agricultural activities on our numerous low-lying coral atolls. Additionally, we depend on a strong US economy and at this point it's not a pretty picture.

V(K). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- ☑ After Only (post program)
- ☑ Retrospective (post program)
- ☑ Before-After (before and after program)
- ☑ During (during program)
- ☐ Time series (multiple points before and after program)
- ☐ Case Study
- ☑ Comparisons between program participants (individuals, group, organizations) and non-participants
- ☑ Comparisons between different groups of individuals or program participants experiencing different levels of program intensity.
- ☑ Comparison between locales where the program operates and sites without program intervention
- ☐ Other

Description

Pre and post assessments will be conducted to program participants to determine level of knowledge gained. Comparision between participants and non-participants will be made to determine impact of program. We will also have to go through the strategic planning process to refocus our programs, based on the priorities identified by our stakeholders.

2. Data Collection Methods

- ☑ Sampling
- ☑ Whole population

Survey (Mail, Telephone, On-Site).

- ☑ Mail
- ☑ Telephone
- ☑ On-Site

Interview

- ☑ Structured
- ☑ Unstructured

☑ Case Study

☑ Observation

☐ Portfolio Reviews

☐ Tests

☐ Journals

☐ Other

Description

Both sample and whole population data collection methods will be used to ensure accuracy of data.Data collection will be done on-site utilizing structured interview enabling for future reference.Visual observations will be made to determine improvement in the family and youths interpersonal relationships.

V(A). Planned Program (Summary)

Program # 3

1. Name of the Planned Program

Childhood Obesity

2. Brief summary about Planned Program

Plan, implement, monitor and evaluate projects to promote the well-being of youths, families, and communities through the provision of high-quality, relevant, and timely preventive and intervention nutrition, heath, and physical education, and the enhancement of indigenous knowledge and practices to assure an affordable and secure food supply for supporting healthy populations. Develop intervention activities such as physical education and proper nutrition and meal planning to address childhood obesity. This program will also introduce home and school gardening activities to encourage and increase production and consumption of local fruits and vegetables. Also, school administrators and cooks will be encouraged to prepare and serve local foods rich in dietary fiber in school lunches. These activities will ultimately result in a healthy Micronesian population.

3. Program existence :

- (●) New (One year or less)
- ( ) Intermediate (One to five years)
- ( ) Mature (More than five years)

4. Program duration :

- ( ) Short-Term(One year or less)
- ( ) Medium-Term (One to five years)
- (●) Long-Term (More than five years)

5. Expending formula funds or state-matching funds :

- (●) Yes
- ( ) No

6. Expending other than formula funds or state-matching funds :

- (●) Yes
- ( ) No

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
703	Nutrition Education and Behavior	25%		25%	
704	Nutrition and Hunger in the Population	25%		25%	
724	Healthy Lifestyle	25%		25%	
802	Human Development and Family Well-Being	25%		25%	
	Total	100%		100%	

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

Obesity in the Pacific is a growing health concern with health officials indicating that it is one of the leading causes of preventable deaths in the Pacific Rim. According to Forbes, Pacific island nations and associated states make up the top seven on a 2007 list of fattest countries, and eight of the top ten. In all these cases, more than 70% of citizens aged 15 and over have an unhealthy weight.

Reasons for this issue include mining operations that have left not much arable land. As a result, much of the local diet is of processed, imported food such as tinned foods, rather than fresh fish, fruits and vegetables. In addition, cultural factors may contribute, such as associating a large body size with wealth and power, or changing ways of living, with children leading more sedentary lives.

In addition, many children and adults are not actively engaging in physical activities and have poor diets and continue to consume unhealthy foods with few green leafy vegetables. There is also a shift in preference for imported food over local foods by the younger generations and in general, there is a lifestyle change due to excessive use of vehicles, improved transportation systems and the availability of mechanized appliances.

2. Scope of the Program

- ☑ In-State Extension
- ☑ In-State Research
- ☑ Multistate Research
- ☑ Multistate Extension
- ☑ Integrated Research and Extension
- ☑ Multistate Integrated Research and Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

- Physical activity and proper diet will reduce the rate of childhood obesity
- Community involvement in local food production will enhance physical activity and provision of local

fruits and vegetables

- Seminars and workshops for proper diet and physical education will increase awareness in addressing the issue of childhood obesity.
- Use of high dietary fiber foods like root crops will contribute to reduction in childhood obesity.

2. Ultimate goal(s) of this Program

- Decrease in the rate of childhood obesity in Micronesia
- Healthy people and healthy communities
- Reduction in health care cost

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2012	4.0	0.0	1.5	0.0
2013	4.0	0.0	1.5	0.0
2014	4.0	0.0	1.5	0.0
2015	4.0	0.0	1.5	0.0
2016	4.0	0.0	1.5	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

Program will reduce childhood obesity through technical assistance and trainings, physical activities, educating parents, teachers, and children on healthy consumption and active living, teaching yoga and movement, healthy living in the American Pacific, physical fitness.

Work with leadership and policy makers to develop policies to serve healthy food in schools and communities, and to incorporate agriculture and physical fitness in the curriculum.

Work in collaboration with Departments of Education and Health Services, and NGOS to develop and implement programs.

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension

Direct Methods	Indirect Methods

☑ Education Class	☑ Public Service Announcement
☑ Workshop	☑ Billboards
☑ Group Discussion	☑ Newsletters
☑ One-on-One Intervention	☑ TV Media Programs
☑ Demonstrations	☑ Web sites
☐ Other 1	☐ Other 1
☐ Other 2	☐ Other 2

3. Description of targeted audience

The target audiences include children, teachers, parents, school administrators, policy makers, and others.

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact

	Direct Contact Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2012	1200	3000	3000	3000
2013	1200	3000	3000	3000
2014	1200	3000	3000	3000
2015	1200	3000	3000	3000
2016	1200	3000	3000	3000

2. (Standard Research Target) Number of Patent Applications Submitted

2012:0 **2013:**0 **2014:**0 **2015:**0 **2016:**0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2012	2	2	4
2013	2	2	4
2014	2	2	4
2015	2	2	4
2016	2	2	4

V(H). State Defined Outputs

1. Output Target

- Number of conference papers and publications on childhood obesity.

  2012:3 **2013:**3 **2014:**3 **2015:**3 **2016:**3

- Number of trainings conducted on childhood obesity and physical activity.

  2012:12 **2013:**12 **2014:**12 **2015:**12 **2016:**12

- Number of extension publications on childhood obesity and physical activity.

  2012:12 **2013:**12 **2014:**12 **2015:**12 **2016:**12

- Number of training conducted on proper diet and physical activity.

  2012:12 **2013:**12 **2014:**12 **2015:**12 **2016:**12

V(I). State Defined Outcome

O. No	Outcome Name
1	Number of persons with increased knowledge in healthy food choices and physical activity.
2	Number of program participants adopting recommended practices on healthy food choices and physical activity.
3	Reduction in the number of obese children.

Outcome # 1

1. Outcome Target

Number of persons with increased knowledge in healthy food choices and physical activity.

2. Outcome Type :

- (●) Change in Knowledge Outcome Measure
- ( ) Change in Action Outcome Measure
- ( ) Change in Condition Outcome Measure

2012:4200 **2013:**4200 **2014:**4200 **2015:**4200 **2016:**4200

3. Associated Knowledge Area(s)

- ☑ 703 - Nutrition Education and Behavior
- ☑ 704 - Nutrition and Hunger in the Population
- ☑ 724 - Healthy Lifestyle
- ☑ 802 - Human Development and Family Well-Being

4. Associated Institute Type(s)

- ☑ 1862 Extension
- ☑ 1862 Research

Outcome # 2

1. Outcome Target

Number of program participants adopting recommended practices on healthy food choices and physical activity.

2. Outcome Type :

- ( ) Change in Knowledge Outcome Measure
- (●) Change in Action Outcome Measure
- ( ) Change in Condition Outcome Measure

2012:500 **2013:**500 **2014:**500 **2015:**500 **2016:**500

3. Associated Knowledge Area(s)

- ☑ 703 - Nutrition Education and Behavior
- ☑ 704 - Nutrition and Hunger in the Population
- ☑ 724 - Healthy Lifestyle
- ☑ 802 - Human Development and Family Well-Being

4. Associated Institute Type(s)

- ☑ 1862 Extension
- ☑ 1862 Research

Outcome # 3

1. Outcome Target

Reduction in the number of obese children.

2. Outcome Type :

- ○ Change in Knowledge Outcome Measure
- ○ Change in Action Outcome Measure
- ◉ Change in Condition Outcome Measure

2012:250	**2013:**250	**2014:**250	**2015:**250	**2016:**250

3. Associated Knowledge Area(s)

- ☑ 703 - Nutrition Education and Behavior
- ☑ 704 - Nutrition and Hunger in the Population
- ☑ 724 - Healthy Lifestyle
- ☑ 802 - Human Development and Family Well-Being

4. Associated Institute Type(s)

- ☑ 1862 Extension
- ☑ 1862 Research

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- ☑ Natural Disasters (drought, weather extremes, etc.)
- ☑ Economy
- ☑ Appropriations changes
- ☑ Public Policy changes
- ☑ Government Regulations
- ☑ Competing Public priorities
- ☑ Competing Programmatic Challenges

- ☑ Populations changes (immigration, new cultural groupings, etc.)
- ☐ Other

Description

Lack of motivation in joining the programs for physical activity and change in diet to local foods will greatly affect the outcome of this program.

V(K). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- ☐ After Only (post program)
- ☐ Retrospective (post program)
- ☑ Before-After (before and after program)
- ☑ During (during program)
- ☑ Time series (multiple points before and after program)
- ☐ Case Study
- ☑ Comparisons between program participants (individuals, group, organizations) and non-participants
- ☑ Comparisons between different groups of individuals or program participants experiencing different levels of program intensity.
- ☑ Comparison between locales where the program operates and sites without program intervention
- ☐ Other

Description

Evaluation of progress will be accomplished periodically for each proposed outcome. This will be accomplished at multiple points before, during and after program. Case studies and comparisons between program participants (individual, group, organization) and non-participants will be performed.

2. Data Collection Methods

- ☑ Sampling
- ☑ Whole population

Survey (Mail, Telephone, On-Site).

- ☑ Mail
- ☑ Telephone
- ☑ On-Site

Interview

- ☐ Structured
- ☑ Unstructured

- ☑ Case Study
- ☑ Observation

- ☑ Portfolio Reviews
- ☑ Tests
- ☐ Journals
- ☐ Other

Description

Collection of data will vary between program activities and location of program delivery. All the above will be utilized.

V(A). Planned Program (Summary)

Program # 4

1. Name of the Planned Program

Climate Change

2. Brief summary about Planned Program

With rising sea level due to climate change, the Micronesian population, which is mostly rural and scattered throughout mostly small islands and low-lying coral atolls, is seriously at risk and vulnerable to the effects of climate change. Most of the Micronesian islands and atolls are not more than 25 feet above sea level and average less than 1,000 feet in width and if tidal surges or tsunamis occur, they may inundate severely. The Micronesian population must make necessary adjustments in response to these global impacts and find sustainable methods of farming crops, livestock and aquacultural species. The Micronesian population is at risk of starvation as the population continues to increase and the rising temperatures and changes in rainfall patterns take their toll on farmers' crops. It is anticipated that there will be mass migration and relocation of the population as sea levels swamp low-lying areas where many people reside and make a living.

The Micronesian islands are also prone to typhoons and when they occur, they can be devastating to the limited agricultural land on small islands and atolls where many people reside. As recently as January 2009, the President of the FSM has declared the outer islands of Chuuk, Pohnpei and Yap as disaster areas and provided emergency relief as tidal surges swamped agricultural land with salt water and caused tremendous crop loss. The Micronesian islands must strengthen their capacity to adapt to climate change and to mitigate its effects to protect their natural resources. Environmental scanning will continue as we continue to monitor the effects of this phenomenon and efforts will be made to introduce salt-tolerant crop varieties and to educate communities on conservation and sustainable livelihood practices.

3. Program existence :

- (●) New (One year or less)
- ( ) Intermediate (One to five years)
- ( ) Mature (More than five years)

4. Program duration :

- ( ) Short-Term(One year or less)
- ( ) Medium-Term (One to five years)
- (●) Long-Term (More than five years)

5. Expending formula funds or state-matching funds :

- (●) Yes
- ( ) No

6. Expending other than formula funds or state-matching funds :

- (●) Yes
- ( ) No

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
111	Conservation and Efficient Use of Water	10%		10%	
112	Watershed Protection and Management	5%		5%	
125	Agroforestry	5%		5%	
131	Alternative Uses of Land	10%		10%	
132	Weather and Climate	10%		10%	
133	Pollution Prevention and Mitigation	5%		5%	
134	Outdoor Recreation	5%		5%	
135	Aquatic and Terrestrial Wildlife	10%		10%	
136	Conservation of Biological Diversity	10%		10%	
141	Air Resource Protection and Management	5%		5%	
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants	5%		5%	
315	Animal Welfare/Well-Being and Protection	10%		10%	
605	Natural Resource and Environmental Economics	10%		10%	
	Total	100%		100%	

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

The geographic region served by the College of Micronesia Land Grant Programs (COM-LGP) covers three nations and over 2 million square miles, an area larger than the continental United States but consists mostly of water. The Federated States of Micronesia (FSM) is comprised of the Western and Central Caroline Islands. These include 607 islands and atolls, 65 of which are inhabited, spread across an ocean area of more than one million square miles. Although the land area of this nation is only 271 square miles, there are also 2,700 square miles of lagoons. The Republic of the Marshall Islands (RMI) consists of two north-to-south chains of islands. Together, they include five single islands and 29 atolls. The coral atolls rise not more than 25 feet above sea level and average less than 1,000 feet in width. The island group lies on the eastern edge of Micronesia, 2,100 miles southwest of Honolulu. The Republic of Palau (ROP) is a cluster of 343 islands in the southwest corner of the region, less than 500 miles east of the Philippines. These islands range from the hundreds of small limestone Rock Islands to the volcanic island of Babeldaop, which is the second largest in Micronesia, next to Guam.

Climate change will have devastating effects on small island communities in terms of food security, environment and human health. The record cooler temperatures in the world this winter may be further testimony to the effects of climate change. The Copenhagen climate change meetings were insufficient therefore we must act to address the impacts of climate change. Compounding this problem is the growing population, which increases our vulnerability in the region. The expanding population poses an enormous challenge for sustaining and producing adequate amounts of food with our vulnerability to interruptions in the food supply chain due to the distances in which food travels to reach our communities and the volume of imported food necessary to sustain our communities is limited. Leadership from all segments of our society must have the social, economical and environmental responsibility and stewardship in mitigating and adapting to climate change. We shall work with the economically and politically powerful countries that also pollute, to understand the risk and vulnerability of our region to climate change and we will seek their advice and assistance on how to develop agricultural systems and other programs to maintain and improve productivity on the frontlines of climate change. We will collaborate with appropriate organizations and agencies to develop programs to ensure that food security programs continue to be developed so that nutritious local food is available and affordable.

2. Scope of the Program

- ☑ In-State Extension
- ☑ In-State Research
- ☑ Multistate Research
- ☑ Multistate Extension
- ☑ Integrated Research and Extension
- ☑ Multistate Integrated Research and Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

Communities will be more aware of the climate change effects, improved food security in the face of climate change by the use of salt-tolerant crops, increased government support, and environment-friendly adaptive strategies to reduce vulnerability.

2. Ultimate goal(s) of this Program

The ultimate goals of this program are to increase knowledge on climate change effects and increase adaptation and mitigation capacity of the islands.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2012	2.0	0.0	3.0	0.0
2013	2.0	0.0	3.0	0.0
2014	2.0	0.0	3.0	0.0
2015	2.0	0.0	3.0	0.0
2016	2.0	0.0	3.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

a. Provide awareness programs on climate change adaptation and mitigation
b. Expand sustainable food production efforts
c. Collaborate with government and non-governmental organizations on climate change mitigation efforts
e. Demonstrate cultivation of certain root crops suitable to grow under atoll condition
f. Provide training to island communities
g. Distribution of salt tolerant planting materials
h. Disseminate results/findings of successful food production systems to other islands
i. Frequent monitoring, data collection and evaluation of established climate change and farm projects

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension

Direct Methods	Indirect Methods
☑ Education Class	☑ Public Service Announcement
☑ Workshop	☑ Billboards
☑ Group Discussion	☑ Newsletters
☑ One-on-One Intervention	☑ TV Media Programs
☑ Demonstrations	☑ Web sites
☐ Other 1	☑ Other 1 (leaflet, borchure, etc.)
☐ Other 2	☐ Other 2

3. Description of targeted audience

Target audiences are all communities throughout Micronesia and local, state and national governments, the private sectors, and other organizations.

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact

	Direct Contact Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2012	500	2000	500	2000
2013	500	2000	500	2000
2014	500	2000	500	2000
2015	500	2000	500	2000
2016	500	2000	500	2000

2. (Standard Research Target) Number of Patent Applications Submitted

2012:0 **2013:**0 **2014:**0 **2015:**0 **2016:**0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2012	2	2	4
2013	2	2	4
2014	2	2	4
2015	2	2	4
2016	2	2	4

V(H). State Defined Outputs

1. Output Target

- Number of awareness training conducted.

  2012:2000 **2013:**2000 **2014:**2000 **2015:**2000 **2016:**2000

- Number of salt-tolerant crops/plants developed and distributed.

  2012:5 **2013:**5 **2014:**5 **2015:**5 **2016:**5

- Number of people who adopted sustainable food production technologies.

  2012:250 **2013:**250 **2014:**250 **2015:**250 **2016:**250

- Increased staple food crop production.

  2012:150 **2013:**150 **2014:**150 **2015:**150 **2016:**150

V(I). State Defined Outcome

O. No	Outcome Name
1	Number of persons with increased awareness on impact and how to mitigate climate change in Micronesian life.
2	Number of program participants adopting sustainable food production technologies.
3	Number of persons who increased staple food crop production.

Outcome # 1

1. Outcome Target

Number of persons with increased awareness on impact and how to mitigate climate change in Micronesian life.

2. Outcome Type :

- (●) Change in Knowledge Outcome Measure
- ( ) Change in Action Outcome Measure
- ( ) Change in Condition Outcome Measure

2012:2000 **2013:**2000 **2014:**2000 **2015:**2000 **2016:**2000

3. Associated Knowledge Area(s)

- ☑ 111 - Conservation and Efficient Use of Water
- ☑ 112 - Watershed Protection and Management
- ☑ 125 - Agroforestry
- ☑ 131 - Alternative Uses of Land
- ☑ 132 - Weather and Climate
- ☑ 133 - Pollution Prevention and Mitigation
- ☑ 134 - Outdoor Recreation
- ☑ 135 - Aquatic and Terrestrial Wildlife
- ☑ 136 - Conservation of Biological Diversity
- ☑ 141 - Air Resource Protection and Management
- ☑ 203 - Plant Biological Efficiency and Abiotic Stresses Affecting Plants
- ☑ 315 - Animal Welfare/Well-Being and Protection
- ☑ 605 - Natural Resource and Environmental Economics

4. Associated Institute Type(s)

- ☑ 1862 Extension
- ☑ 1862 Research

Outcome # 2

1. Outcome Target

Number of program participants adopting sustainable food production technologies.

2. Outcome Type :

- ○ Change in Knowledge Outcome Measure
- ◉ Change in Action Outcome Measure
- ○ Change in Condition Outcome Measure

2012:500 **2013:**500 **2014:**500 **2015:**500 **2016:**500

3. Associated Knowledge Area(s)

- ☑ 111 - Conservation and Efficient Use of Water
- ☑ 112 - Watershed Protection and Management
- ☑ 125 - Agroforestry
- ☑ 131 - Alternative Uses of Land
- ☑ 132 - Weather and Climate
- ☑ 133 - Pollution Prevention and Mitigation
- ☑ 134 - Outdoor Recreation
- ☑ 135 - Aquatic and Terrestrial Wildlife
- ☑ 136 - Conservation of Biological Diversity
- ☑ 141 - Air Resource Protection and Management
- ☑ 203 - Plant Biological Efficiency and Abiotic Stresses Affecting Plants
- ☑ 315 - Animal Welfare/Well-Being and Protection
- ☑ 605 - Natural Resource and Environmental Economics

4. Associated Institute Type(s)

- ☑ 1862 Extension
- ☑ 1862 Research

Outcome # 3

1. Outcome Target

Number of persons who increased staple food crop production.

2. Outcome Type :

- ○ Change in Knowledge Outcome Measure
- ○ Change in Action Outcome Measure
- ◉ Change in Condition Outcome Measure

2012:250 **2013:**250 **2014:**250 **2015:**250 **2016:**250

3. Associated Knowledge Area(s)

- ☑ 111 - Conservation and Efficient Use of Water
- ☑ 112 - Watershed Protection and Management
- ☑ 125 - Agroforestry
- ☑ 131 - Alternative Uses of Land
- ☑ 132 - Weather and Climate
- ☑ 133 - Pollution Prevention and Mitigation
- ☑ 134 - Outdoor Recreation
- ☑ 135 - Aquatic and Terrestrial Wildlife
- ☑ 136 - Conservation of Biological Diversity
- ☑ 141 - Air Resource Protection and Management
- ☑ 203 - Plant Biological Efficiency and Abiotic Stresses Affecting Plants
- ☑ 315 - Animal Welfare/Well-Being and Protection
- ☑ 605 - Natural Resource and Environmental Economics

4. Associated Institute Type(s)

- ☑ 1862 Extension
- ☑ 1862 Research

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- ☑ Natural Disasters (drought, weather extremes, etc.)
- ☑ Economy
- ☑ Appropriations changes
- ☑ Public Policy changes
- ☑ Government Regulations
- ☑ Competing Public priorities
- ☑ Competing Programmatic Challenges
- ☑ Populations changes (immigration, new cultural groupings, etc.)
- ☐ Other

Description

Rapid increase in the population, the weak economy, and government regulations will affect the outcomes of the program.

V(K). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- ☑ After Only (post program)
- ☑ Retrospective (post program)
- ☑ Before-After (before and after program)
- ☑ During (during program)
- ☑ Time series (multiple points before and after program)
- ☑ Case Study
- ☑ Comparisons between program participants (individuals, group, organizations) and non-participants
- ☑ Comparisons between different groups of individuals or program participants experiencing different levels of program intensity.
- ☑ Comparison between locales where the program operates and sites without program intervention
- ☐ Other

Description

Evaluation of this program will be done periodically utilizing all the above.

2. Data Collection Methods

- ☑ Sampling
- ☑ Whole population

Survey (Mail, Telephone, On-Site).

- ☑ Mail
- ☑ Telephone
- ☑ On-Site

Interview

- ☑ Structured
- ☑ Unstructured

- ☑ Case Study
- ☑ Observation
- ☑ Portfolio Reviews
- ☑ Tests
- ☑ Journals
- ☐ Other

Description

Collection of data will vary between program activities and location of program delivery. All the above will be utilized.

V(A). Planned Program (Summary)

Program # 5

1. Name of the Planned Program

Food Safety

2. Brief summary about Planned Program

This program will continue to enhance the safety of food produced in the islands and those imported from other countries to prevent food-borne illnesses. It will provide appropriate food safety educational programs in the communities, including the benefits of proper food storage, handling, and processing practices and proper inspection of food. It will also strengthen existing collaborations on programs that provide information to stakeholders on healthy lifestyle and consumption of safe and healthy foods. It will be a major challenge on how this program is delivered to make a change in behavior and attitude toward food safety. The program will provide quality training to increase knowledge and skills that ensure a safe food preparation, handling and storage to reduce incidences of food--borne illnesses by creating awareness on food safety and relevant policies.

3. Program existence :

- (●) New (One year or less)
- ( ) Intermediate (One to five years)
- ( ) Mature (More than five years)

4. Program duration :

- ( ) Short-Term(One year or less)
- ( ) Medium-Term (One to five years)
- (●) Long-Term (More than five years)

5. Expending formula funds or state-matching funds :

- (●) Yes
- ( ) No

6. Expending other than formula funds or state-matching funds :

- (●) Yes
- ( ) No

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
703	Nutrition Education and Behavior	20%		20%	
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources	20%		20%	
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins	20%		20%	
724	Healthy Lifestyle	40%		40%	
	Total	100%		100%	

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

The tropical environment of Micronesia renders a high incidence of food-borne illnesses and water-borne diseases. Improper food handling, processing and storage is a continuing problem and expired foods is still not properly inspected with a continuing lax in the enforcement of health and sanitation policies, and there is a continuing improper use of chemical and animal manure. Food poisoning and other food related illnesses continue to be major health problems in Micronesia today as a result of improper food selection, storage, and preparation. This program is part of the ongoing effort in reversing this trend through the provision of knowledge and skills necessary for families to plan and prepare safe and nutritious healthy meals with the use of proper food storage and handling practices.

Food safety plays a key role in explaining the continuing upward trend in the deteriorating health condition of so many people in our communities. Cases of food poisoning and food related illnesses continue to rise as families and governments are challenged with the ever rising medical cost related to referral of patients to off island medical facilities. Many households and individuals continue to consume unsafe processed foods that are contaminated from improper food selection, storage, and handling.

2. Scope of the Program

- ☑ In-State Extension
- ☑ In-State Research
- ☑ Multistate Research
- ☑ Multistate Extension
- ☑ Integrated Research and Extension
- ☑ Multistate Integrated Research and Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

- Trained participants in safe food preparation, handling and storage
- There will be low incidence of food-borne illnesses and therefore lower hospitalization expenses
- Food hazards are preventable in home, offices, restaurants and food establishments
- Increased awareness and improved actions on safe food choices for consumer protection

2. Ultimate goal(s) of this Program

The program helps consumers understand how to prepare safe food, reduce the incidence of food and water-borne illnesses , thus prevent hospitalization expenses for the community.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2012	3.0	0.0	1.0	0.0
2013	3.0	0.0	1.0	0.0
2014	3.0	0.0	1.0	0.0
2015	3.0	0.0	1.0	0.0
2016	3.0	0.0	1.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

Training programs on safe food preparation, handling and storage will be conducted to school children, housewives, school cooks, food handlers, chefs and others. Inspection and sale of expired food items in stores and groceries will be monitored and enforced.

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension

Direct Methods	Indirect Methods
☑ Education Class	☑ Public Service Announcement
☑ Workshop	☑ Billboards
☑ Group Discussion	☑ Newsletters
☑ One-on-One Intervention	☑ TV Media Programs
☑ Demonstrations	☑ Web sites
☐ Other 1	☐ Other 1
☐ Other 2	☐ Other 2

3. Description of targeted audience

Target audience include school children , food handlers, chefs, school cooks, housewives, food and grocery establishments in all communities throughout Micronesia and local, state and national governments, the private sectors, and other organizations.

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact

	Direct Contact Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2012	600	3000	300	1500
2013	600	3000	300	1500
2014	600	3000	300	1500
2015	700	3500	400	2000
2016	700	3500	400	2000

2. (Standard Research Target) Number of Patent Applications Submitted

2012:0 **2013:**0 **2014:**0 **2015:**0 **2016:**0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2012	1	1	2
2013	1	1	2
2014	1	1	2
2015	1	1	2
2016	1	1	2

V(H). State Defined Outputs

1. Output Target

- Number of community workshops on food safety conducted.

2012:6 **2013:**6 **2014:**6 **2015:**6 **2016:**6

- Number of program participants with increased knowldege and practices after completing educational programs.

2012:400 **2013:**400 **2014:**400 **2015:**400 **2016:**400

- Number of extension publications on food safety.

2012:6 **2013:**6 **2014:**6 **2015:**6 **2016:**6

V(I). State Defined Outcome

O. No	Outcome Name
1	Number of program participants who increase awareness of food safety issues.
2	Number of program participants adopting recommended practices after completing educational programs.
3	Reduced incidences of food-borne and water-borne illnesses.

Outcome # 1

1. Outcome Target

Number of program participants who increase awareness of food safety issues.

2. Outcome Type :

- (●) Change in Knowledge Outcome Measure
- ( ) Change in Action Outcome Measure
- ( ) Change in Condition Outcome Measure

2012:1500 **2013:**1500 **2014:**1500 **2015:**1500 **2016:**1500

3. Associated Knowledge Area(s)

- ☑ 703 - Nutrition Education and Behavior
- ☑ 711 - Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and
- ☑ 712 - Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally
- ☑ 724 - Healthy Lifestyle

4. Associated Institute Type(s)

- ☑ 1862 Extension
- ☑ 1862 Research

Outcome # 2

1. Outcome Target

Number of program participants adopting recommended practices after completing educational programs.

2. Outcome Type :

- ( ) Change in Knowledge Outcome Measure
- (●) Change in Action Outcome Measure
- ( ) Change in Condition Outcome Measure

2012:400 **2013:**400 **2014:**400 **2015:**400 **2016:**400

3. Associated Knowledge Area(s)

- ☑ 703 - Nutrition Education and Behavior
- ☑ 711 - Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and
- ☑ 712 - Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally
- ☑ 724 - Healthy Lifestyle

4. Associated Institute Type(s)

- ☑ 1862 Extension
- ☑ 1862 Research

Outcome # 3

1. Outcome Target

Reduced incidences of food-borne and water-borne illnesses.

2. Outcome Type :

- ○ Change in Knowledge Outcome Measure
- ○ Change in Action Outcome Measure
- ◉ Change in Condition Outcome Measure

2012:50	**2013:**50	**2014:**50	**2015:**50	**2016:**50

3. Associated Knowledge Area(s)

- ☑ 703 - Nutrition Education and Behavior
- ☑ 711 - Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and
- ☑ 712 - Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally
- ☑ 724 - Healthy Lifestyle

4. Associated Institute Type(s)

- ☑ 1862 Extension
- ☑ 1862 Research

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- ☑ Natural Disasters (drought, weather extremes, etc.)
- ☑ Economy
- ☑ Appropriations changes
- ☑ Public Policy changes
- ☑ Government Regulations
- ☑ Competing Public priorities
- ☑ Competing Programmatic Challenges

- ☑ Populations changes (immigration, new cultural groupings, etc.)
- ☐ Other

Description

Power outages will affect safe food storage. Government regulations on food sanitation and safety has to be strictly enforced.

V(K). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- ☑ After Only (post program)
- ☑ Retrospective (post program)
- ☑ Before-After (before and after program)
- ☑ During (during program)
- ☑ Time series (multiple points before and after program)
- ☑ Case Study
- ☑ Comparisons between program participants (individuals, group, organizations) and non-participants
- ☑ Comparisons between different groups of individuals or program participants experiencing different levels of program intensity.
- ☑ Comparison between locales where the program operates and sites without program intervention
- ☐ Other

Description

Pre and post tests will be conducted among training participants in safe food preparation and handling. Hospital statistics will be monitored to determine the rate and incidence of food and water-borne illnesses.

2. Data Collection Methods

- ☑ Sampling
- ☑ Whole population

Survey (Mail, Telephone, On-Site).

- ☑ Mail
- ☑ Telephone
- ☑ On-Site

Interview

- ☑ Structured
- ☑ Unstructured

- ☑ Case Study
- ☑ Observation
- ☑ Portfolio Reviews

- ☑ Tests
- ☑ Journals
- ☐ Other

Description

Number of trainings conducted on safe food preparation and handling. Groceries inspected for sale of expired food items.

V(A). Planned Program (Summary)

Program # 6

1. Name of the Planned Program

Global Food Security and Hunger

2. Brief summary about Planned Program

Agriculture is an important industry for the economic growth and food security of small island communities in Micronesia. This program will address sustainable plant and animal production and their implications on the environment in both mountainous islands and low atolls to include small and subsistence farms and commercial agriculture. Emphasis will placed be on traditional production systems, conservation and development of natural resources, techniques that incorporate traditional practices into contemporary approaches, processing, and marketing of both crops and animal products. Production and utilization of local food should be increased.

The Economic Development Plans of Palau, Marshall Islands, and FSM call for market-oriented sustainable agriculture with emphasis on food security, self-sufficiency, import substitution, accessibility, and export markets. The increase in local food production should create surpluses that can be converted into value-added products for local use and for the export market. The introduction of tissue culture technology will result in the production of superior plantlets (disease free, uniform, high yielding) in sufficient quantities. Developing banana farms and other crops of production capability beyond subsistence is necessary to achieve the export goal aimed at economic development. New techniques/methods of rapid crop propagation and production technologies of economic crops should be pursued. Other relevant issues and problems in crop production such as soil fertility, integrated pest management, marketing, cultural methods, post harvest handling practices, and processing will also be addressed.

3. Program existence :

- (●) New (One year or less)
- ( ) Intermediate (One to five years)
- ( ) Mature (More than five years)

4. Program duration :

- ( ) Short-Term(One year or less)
- ( ) Medium-Term (One to five years)
- (●) Long-Term (More than five years)

5. Expending formula funds or state-matching funds :

- (●) Yes
- ( ) No

6. Expending other than formula funds or state-matching funds :

- (●) Yes
- ( ) No

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
102	Soil, Plant, Water, Nutrient Relationships	10%		10%	
112	Watershed Protection and Management	10%		10%	
136	Conservation of Biological Diversity	10%		10%	
202	Plant Genetic Resources	10%		10%	
204	Plant Product Quality and Utility (Preharvest)	10%		10%	
205	Plant Management Systems	10%		10%	
212	Pathogens and Nematodes Affecting Plants	5%		5%	
216	Integrated Pest Management Systems	20%		20%	
315	Animal Welfare/Well-Being and Protection	5%		5%	
601	Economics of Agricultural Production and Farm Management	10%		10%	
	Total	100%		100%	

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

The Micronesian islands have developed an economically detrimental reliance on imported foodstuff, especially fruits, vegetables and other food crops. The increase in the consumption of imported food has led to an overall decline in local food production. Production of food crops and livestock are high economic development priorities of all governments and local animal and crop producers. For crops such as banana, taro, cassava and sweet potato, limitations are in the availability of disease free and elite seedlings. For livestock, a number of constraints include improved bloodline, lack of affordable feedstuff, diseases and lack of appropriate knowledge in animal husbandry.

There is an urgent need to increase local food production to ensure an adequate supply for the growing population and demand, for food security and to support the emerging tourism industry. From inputs of the stakeholders and environmental scan, the following are issues that directly or indirectly led to the declining contribution of agriculture: lack of available arable land due to low soil fertility; low wages and negative image of farming; lack of agricultural loans and crop insurance; lack of infrastructure such as decent roads, electricity and storage facilities in remote areas; stiff competition between local and imported produces; lack of marketing information and centralized marketing; introduction of pests and diseases in agricultural commodities; unstable supply of local produce; rapid population growth; lack of agricultural professionals; limited skills and knowledge of producers in locally adapting technologies of crop farming, poultry and livestock production; and dependence on foreign labor.

2. Scope of the Program

- ☑ In-State Extension
- ☑ In-State Research
- ☑ Multistate Research
- ☑ Multistate Extension
- ☑ Integrated Research and Extension
- ☑ Multistate Integrated Research and Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

Assumptions made for this program include increased production of local food crops and decrease dependency on imported food; improved quality of life; increased knowledge and skills in marketing; prolong shelf-life; affordable changes in technology and practices will become available; increased family income through sales of excess production; less labor intensive production systems; improved family economy and living standards; reduction in pesticide and herbicide use; and increased profitability and job creation.

2. Ultimate goal(s) of this Program

Food security, improved agricultural production systems, increased consumption of locally produced foods; improved quality of life for the population; increased employment opportunities and sustainable economic development.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2012	16.0	0.0	6.0	0.0
2013	16.0	0.0	6.0	0.0
2014	16.0	0.0	6.0	0.0
2015	16.0	0.0	6.0	0.0
2016	16.0	0.0	6.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

Research and Extension activities will include field trials to test and evaluate crop varieties, cultural methods and ways to improve soil fertility. Research on livestock will include utilizing local feeds and how to improve management and bloodline. Other research activities will include tissue culture to develop efficient and reproducible micropropagation protocols and establish cultures of collected germplasm. Work in this area will include development of reliable micropropagation protocols and nursery management systems to produce elite seedlings for distribution and to conserve germplasm in vitro for future use.

Research-based extension materials will be developed and distributed among the farming communities to increase awareness and generate interest in agricultural systems. Workshops, group discussions, demonstrations, farm-visits and field days/fairs are other components of this program. Researchers will produce elite and disease-free seedlings through tissue culture and nursery techniques.

Trainings and demonstrations will be organized on food technology and food processing to increase shelf life of farm products and add value to agricultural produce thereby addressing food security issues.

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension

Direct Methods	Indirect Methods
☑ Education Class	☑ Public Service Announcement
☑ Workshop	☑ Billboards
☑ Group Discussion	☑ Newsletters
☑ One-on-One Intervention	☑ TV Media Programs
☑ Demonstrations	☑ Web sites
☐ Other 1	☐ Other 1
☐ Other 2	☐ Other 2

3. Description of targeted audience

Both crop and livestock farmers, potential farmers, researchers and extension agents, homemakers and students.

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact

	Direct Contact Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2012	1200	3000	600	600
2013	1200	3000	600	600
2014	1200	3000	600	600
2015	1300	4000	700	700
2016	1300	4000	700	700

2. (Standard Research Target) Number of Patent Applications Submitted

2012:0 **2013:**0 **2014:**0 **2015:**0 **2016:**0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2012	3	0	3
2013	3	0	3
2014	4	0	4
2015	4	0	4
2016	4	0	4

V(H). State Defined Outputs

1. Output Target

- Number of demonstration farms established.

2012:12 **2013:**12 **2014:**12 **2015:**14 **2016:**14

- Number of publications for lay use.

2012:6 **2013:**6 **2014:**6 **2015:**6 **2016:**6

- Number of conference papers and publications/presentations.

2012:3 **2013:**3 **2014:**3 **2015:**3 **2016:**3

- Expected professional journal publications

2012:3 **2013:**3 **2014:**3 **2015:**3 **2016:**3

- Expected gray literature.

2012:6 **2013:**6 **2014:**6 **2015:**6 **2016:**6

- Expected publications for lay use

2012:6 **2013:**6 **2014:**6 **2015:**6 **2016:**6

V(I). State Defined Outcome

O. No	Outcome Name
1	Number of persons with increased knowledge on appropriate production and processing technologies.
2	Number of program participants adopting recommended practices.
3	Number of established farms producing, utilizing, and/or selling produce and products.

Outcome # 1

1. Outcome Target

Number of persons with increased knowledge on appropriate production and processing technologies.

2. Outcome Type :

- (●) Change in Knowledge Outcome Measure
- ( ) Change in Action Outcome Measure
- ( ) Change in Condition Outcome Measure

2012:2400 **2013:**2400 **2014:**2400 **2015:**2400 **2016:**2400

3. Associated Knowledge Area(s)

- ☑ 102 - Soil, Plant, Water, Nutrient Relationships
- ☑ 112 - Watershed Protection and Management
- ☑ 136 - Conservation of Biological Diversity
- ☑ 202 - Plant Genetic Resources
- ☑ 204 - Plant Product Quality and Utility (Preharvest)
- ☑ 205 - Plant Management Systems
- ☑ 212 - Pathogens and Nematodes Affecting Plants
- ☑ 216 - Integrated Pest Management Systems
- ☑ 315 - Animal Welfare/Well-Being and Protection
- ☑ 601 - Economics of Agricultural Production and Farm Management

4. Associated Institute Type(s)

- ☑ 1862 Extension
- ☑ 1862 Research

Outcome # 2

1. Outcome Target

Number of program participants adopting recommended practices.

2. Outcome Type :

- ( ) Change in Knowledge Outcome Measure
- (●) Change in Action Outcome Measure
- ( ) Change in Condition Outcome Measure

2012:1800 **2013:**1800 **2014:**1800 **2015:**1800 **2016:**1800

3. Associated Knowledge Area(s)

- ☑ 102 - Soil, Plant, Water, Nutrient Relationships
- ☑ 112 - Watershed Protection and Management
- ☑ 136 - Conservation of Biological Diversity
- ☑ 202 - Plant Genetic Resources
- ☑ 204 - Plant Product Quality and Utility (Preharvest)
- ☑ 205 - Plant Management Systems
- ☑ 212 - Pathogens and Nematodes Affecting Plants
- ☑ 216 - Integrated Pest Management Systems
- ☑ 315 - Animal Welfare/Well-Being and Protection
- ☑ 601 - Economics of Agricultural Production and Farm Management

4. Associated Institute Type(s)

- ☑ 1862 Extension
- ☑ 1862 Research

Outcome # 3

1. Outcome Target

Number of established farms producing, utilizing, and/or selling produce and products.

2. Outcome Type :

- ○ Change in Knowledge Outcome Measure
- ○ Change in Action Outcome Measure
- ◉ Change in Condition Outcome Measure

2012:250	**2013:**250	**2014:**250	**2015:**250	**2016:**250

3. Associated Knowledge Area(s)

- ☑ 102 - Soil, Plant, Water, Nutrient Relationships
- ☑ 112 - Watershed Protection and Management
- ☑ 136 - Conservation of Biological Diversity
- ☑ 202 - Plant Genetic Resources
- ☑ 204 - Plant Product Quality and Utility (Preharvest)
- ☑ 205 - Plant Management Systems
- ☑ 212 - Pathogens and Nematodes Affecting Plants
- ☑ 216 - Integrated Pest Management Systems
- ☑ 315 - Animal Welfare/Well-Being and Protection
- ☑ 601 - Economics of Agricultural Production and Farm Management

4. Associated Institute Type(s)

- ☑ 1862 Extension
- ☑ 1862 Research

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- ☑ Natural Disasters (drought, weather extremes, etc.)
- ☑ Economy
- ☑ Appropriations changes
- ☑ Public Policy changes
- ☑ Government Regulations
- ☑ Competing Public priorities
- ☑ Competing Programmatic Challenges
- ☑ Populations changes (immigration, new cultural groupings, etc.)
- ☐ Other

Description

The occurrence of droughts or typhoons in the Micronesian region may greatly affect outcome and can impact the success in food production technologies. Favorable public policy changes and governmental regulations to decrease competition of domestic and imported commodities will encourage sustainable production.

Of great concern for our agricultural programs is the greenhouse effect that may contribute to the rising sea level in many of our low-lying coral atolls. This can cause destruction to the staple food crops that people in these communities depend on.

Additionally, the high cost of fuel will make it virtually impossible for people and agricultural materials to move freely between islands.

V(K). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- ☑ After Only (post program)
- ☑ Retrospective (post program)
- ☑ Before-After (before and after program)
- ☑ During (during program)
- ☑ Time series (multiple points before and after program)
- ☑ Case Study
- ☑ Comparisons between program participants (individuals, group, organizations) and non-participants
- ☑ Comparisons between different groups of individuals or program participants experiencing different levels of program intensity.

- ☑ Comparison between locales where the program operates and sites without program intervention
- ☐ Other

Description

Evaluation of research progress will be executed periodically for each proposed objective as per approved projects and for Extension evaluation. It will be performed at multiple points before, during and after program. Case studies and comparisons between program participants (individual, group, organization) and non-participants will be conducted to assess the impact of organized extension activities.

2. Data Collection Methods

- ☑ Sampling
- ☑ Whole population

Survey (Mail, Telephone, On-Site).

- ☑ Mail
- ☑ Telephone
- ☑ On-Site

Interview

- ☑ Structured
- ☑ Unstructured

- ☑ Case Study
- ☑ Observation
- ☑ Portfolio Reviews
- ☑ Tests
- ☑ Journals
- ☐ Other

Description

Collection of data will be varied between program activities and location of program delivery. All of the above will be utilized.

V(A). Planned Program (Summary)

Program # 7

1. Name of the Planned Program

Sustainable Energy

2. Brief summary about Planned Program

No activities planned.

3. Program existence :

- (●) New (One year or less)
- ( ) Intermediate (One to five years)
- ( ) Mature (More than five years)

4. Program duration :

- ( ) Short-Term(One year or less)
- ( ) Medium-Term (One to five years)
- ( ) Long-Term (More than five years)

5. Expending formula funds or state-matching funds :

- (●) Yes
- ( ) No

6. Expending other than formula funds or state-matching funds :

- ( ) Yes
- (●) No

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
123	Management and Sustainability of Forest Resources	0%		100%	
	Total	0%		100%	

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

No planned activities.

2. Scope of the Program

- ☐ In-State Extension
- ☐ In-State Research
- ☑ Multistate Research
- ☐ Multistate Extension
- ☐ Integrated Research and Extension
- ☐ Multistate Integrated Research and Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

No planned activities so no assumptions.

2. Ultimate goal(s) of this Program

No planned activities

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2012	0.0	0.0	0.0	0.0
2013	0.0	0.0	0.0	0.0
2014	0.0	0.0	0.0	0.0
2015	0.0	0.0	0.0	0.0
2016	0.0	0.0	0.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

No planned activity.

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension

Direct Methods	Indirect Methods

☐ Education Class	☐ Public Service Announcement
☐ Workshop	☐ Billboards
☐ Group Discussion	☐ Newsletters
☐ One-on-One Intervention	☐ TV Media Programs
☐ Demonstrations	☐ Web sites
☑ Other 1 ()	☑ Other 1 ()
☐ Other 2	☐ Other 2

3. Description of targeted audience

No planned activity so no target audience.

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact

	Direct Contact Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2012	0	0	0	0
2013	0	0	0	0
2014	0	0	0	0
2015	0	0	0	0
2016	0	0	0	0

2. (Standard Research Target) Number of Patent Applications Submitted

2012:0 **2013:**0 **2014:**0 **2015:**0 **2016:**0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2012	0	0	0
2013	0	0	0
2014	0	0	0
2015	0	0	0
2016	0	0	0

V(H). State Defined Outputs

1. Output Target

V(I). State Defined Outcome

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- ☐ Natural Disasters (drought, weather extremes, etc.)
- ☐ Economy
- ☐ Appropriations changes
- ☐ Public Policy changes
- ☐ Government Regulations
- ☐ Competing Public priorities
- ☐ Competing Programmatic Challenges
- ☐ Populations changes (immigration, new cultural groupings, etc.)
- ☐ Other

Description

No activities planned.

V(K). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- ☐ After Only (post program)
- ☐ Retrospective (post program)
- ☐ Before-After (before and after program)
- ☐ During (during program)
- ☐ Time series (multiple points before and after program)
- ☐ Case Study
- ☐ Comparisons between program participants (individuals, group, organizations) and non-participants
- ☐ Comparisons between different groups of individuals or program participants experiencing different levels of program intensity.
- ☐ Comparison between locales where the program operates and sites without program intervention
- ☐ Other

Description

No planned activities

2. Data Collection Methods

- ☐ Sampling
- ☐ Whole population

Survey (Mail, Telephone, On-Site).

- ☐ Mail
- ☐ Telephone
- ☐ On-Site

Interview

- ☐ Structured
- ☐ Unstructured

- ☐ Case Study
- ☐ Observation
- ☐ Portfolio Reviews
- ☐ Tests
- ☐ Journals
- ☐ Other

Description

No planned activities; no data.