

**2010 Annual Report
College of Micronesia**

I. Report Overview

1. Enter an Executive Summary for your Fiscal Year 2010 Report (6400 characters).

Integrated research and extension programs to address economic, social, and ecological issues on small islands continued to be implemented through the cooperative research and extension offices at the three partner colleges: College of the Marshall Islands (CMI), College of Micronesia – FSM (COM-FSM), and Palau Community College (PCC). Dissemination of new knowledge and technologies to sustain and improve the quality of life of all Micronesian citizens in the Republic of the Marshall Islands (RMI), Federated States of Micronesia (FSM), and Republic of Palau (ROP) has been the thrust of programs in all six counties.

The swine flu and the seasonal flu are still of major concerns, so awareness programs on proper hygiene and healthy lifestyle were important to safeguard the well-being of citizens. The rising sea level due to climate change is becoming a serious concern as we witnessed catastrophic effects of this phenomenon. The increasing cost of food and fuel has forced people to make adjustments necessary for the new economic, social and environmental conditions and find innovative methods of farming of crops, livestock, and aquaculture species. Research and extension activities promoted agricultural productivity and food security, self-sufficiency, and enhancing the quality of life. The utilization, processing and development of products from staple food crops that are acceptable to the native population and in local markets continued. Trials on taro varieties (*Cyrtosperma* spp. & *Colocasia* spp.) for their suitability to grow under atoll conditions continued and the micro propagation of elite (disease-free and high yielding) varieties that will improve the quality and quantity of certain crop varieties for the export market were ongoing. Continued germplasm of staple root crops has ensured the genetic conservation of these valuable resources for future generations. This has also facilitated the continue supply of planting materials to growers and allow in-vitro multiplication of other food crops.

Aquaculture demonstration projects continued to transfer the technical know-how to Micronesians to enable them to actively engage in projects that could provide alternate income generation with the overall aim of improving the socio-economic conditions of islanders. Efforts were made to initiate and improve site-specific multi-species aquaculture and transfer simple and appropriate feeding technology for targeted aquaculture species to farmers to formulate and prepare their own feeds. Other projects provided stock enhancement to replenish depleted stocks. A joint project that got underway was to develop the technology for the farming of sea cucumbers in the FSM and RMI to enable the replenishment of lagoons and reefs depleted as a result of over harvesting.

Outreach programs continued on issues ranging from food safety and quality, food security, strengthening families and developing youth, water quality, and managing limited natural resources and the environment. Health and nutrition programs continued on the importance of healthy lifestyles, which included physical activity and consumption of safe, nutritious local food to combat obesity, diabetes, heart diseases and NCDs. The outbreak of melamine infected food from China provided a wake-up call on how vulnerable we are to food borne diseases and that we must be vigilant in combating such diseases. A project on

endangered species of banana produced rare banana varieties to support nutritional needs for Vitamin A among children and adult. The youth development programs provided information to increase knowledge and appreciation of marine and terrestrial flora and fauna. Summer programs provided information on basic life skills on small islands. More students are exposed to computers, which provided the opportunity to use the Internet as an introduction to electronic connectivity and information gathering. Water quality education programs continued as collaborative efforts with international and regional organizations, government agencies, and community groups. Sustainable agriculture and IPM programs provided farmers information on agricultural production practices that protect the fragile island ecosystem integrity and biodiversity. Programs continued on resistant crop varieties and practical biological pest control measures to provide useful tools for stakeholders to combat crop pests and diseases and increase productivity. The use of beneficial organisms was emphasized to reduce pest threats on crops. Biological control agents, such as mirid bugs (*Cyrtorhinus fulvus*) to control taro leafhopper, *Aphidius colemani* on melon aphid, and predatory mites (*Neoseilus longispinosus*) on cassava spider mites. Biological control of the *Mimosa diplotricha* continued with psyllid insects.

Multi-state and multi-institutional efforts continued through the alliance of the American-Pacific land-grant universities and colleges through the Agricultural Development in the American Pacific (ADAP) project and with the College of Tropical and Subtropical Aquaculture (CTSA) on aquaculture projects. A cost-sharing agreement with Pohnpei State Government continued, whereby extension agents from the Agriculture Station have been collaborating with Pohnpei CES staffs. Continuing shortage of necessary human resources and professional staff continued to be a top priority and several programs and activities toward developing this area were implemented, including a Financial Assistance & Scholarship Program for high school students through a summer research/extension apprenticeship program and financial assistance for college students enrolled in agriculture and home economic. Other capacity building activities included sustainable agriculture workshops, tissue culture and nursery practice, IPM, health and nutrition, and basic sewing attended by farmers, homemakers, the youth and adult sectors of the society and the underprivileged.

2. Enter the Total Actual amount of professional FTEs/SYs for the State.

Year: 2010	Extension		Research		
	1862	1890	1862	1890	Others*
Plan	49.1		11.9		
Actual	40.50		11.0		

II. Merit Review Process

1. Select the Merit Review Process that was employed for this year. (Check all that apply).

- Internal University (college) Panel
- External University Panel
- External Non-University Panel
- Combined Internal and External University Panel
- Combined Internal and External University and External Non-University Panel
- Expert Peer Review

___ Other _____

2. Tell us about your Merit Review and/or Peer Review Process completed this year. (3200 characters).

Project proposals were developed as a result of meetings and consultation with stakeholders and also based on existing plans of work for research and extension. The proposals were submitted to a publication, merit or scientifically acceptable peer review committees for comments and suggestions. Other special project proposals were subject to peer review within and outside of the colleges by other stakeholders and also subjected to review by advisory committees. Proposals were also posted on websites. Once comments were incorporated into the proposals, the Vice-President of Cooperative Research and Extension then submitted them for review and approval at each college. Final proposals were submitted to the AES/CES Interim Director through the college Presidents for approval.

III. Stakeholders Input

1. Actions taken to seek stakeholder's input that encourages their participation. (Check all that apply.)

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

Briefly explain how you encouraged stakeholder participation (3200 characters).

When meetings were called to discuss research and extension planned activities, stakeholders such as community leaders, farmers, homemakers, traditional leaders and political leaders, were directly involved in the discussions. Many of their suggestions and comments were included in the planned research and extension activities. In some cases, research activities were done in farmers' field and in so doing farmers participated directly in the implementation of projects. Scheduled meetings were also held in the communities to inform community leaders, farmers, homemakers, political and traditional leaders about progress being made with research and extension activities. During these meetings, stakeholders were given the opportunity to ask questions, make comments, share traditional knowledge and even suggested changes or other activities that are more important and relevant to the needs of their communities. Other methods of encouraging stakeholder

participation were done through direct meetings and workshops with different sectors of the population to solicit their inputs in identifying priority issues.

2(A). A brief statement of the process that was used by the recipient institution to identify individuals and groups who are stakeholders and to collect input from them. (Part – 1)

1. Method to identify individuals and groups. (Check all that apply)

- Use Advisory Committee
- Use Internal focus Group
- Use External Focus Groups
- Open Listening Sessions
- Needs Assessments
- Use Surveys
- Other Referred by others _____

Briefly explain your methods for identifying individuals and groups. (3200 characters)

Farmers, homemakers, political, traditional and community leaders were requested to identify names of individuals or groups in their respective communities who should be attending meetings and workshops. Other individuals were those working on similar programs with other agencies and those recommended by peers. Those identified were informed via letter, radio or through personal visits when meetings or trainings were held. Other methods were through strategic planning meetings, interagency collaboration, community associations and direct client contact and needs assessment surveys directly in the field. Meetings/discussions were also held with school authorities, church leaders, parents and the general public on the implementation of community projects.

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

1. Methods for collecting stakeholders input. (Check all that apply).

- Meeting with traditional Stakeholders 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 _____

Briefly explain your methods for collecting stakeholder input. (3200 characters)

Some of the methods used for collecting stakeholder input were one-on-one visits conducted in the communities and through discussions and interviews with community leaders. Surveys and field observations in addition to farmers association and other community meetings were also used. Youth programs were developed through discussions with schools, church and community groups and through direct assistance to government agencies such as the Early Childhood Education (ECE) recruitment programs. Stakeholders were directly involved in identifying positions and hiring of new upper level staff. Other methods used were questionnaires, need assessments, Board of Regents reviews, annual retreat, cabinet level meetings and student recruitment campaigns.

3. How the input was considered. (Check all that apply).

- In the Budget Process
- To identify emerging issues
- Redirect Extension Programs
- Redirect Research Program
- In the Staff Hiring Process
- In the action plans
- To Set Priorities
- Others _____

Briefly explain how you used the input given by stakeholders (3200 characters).

During meetings with stakeholders, suggestions, comments and modifications from them were sorted out and those with positive impacts to research and extension project proposals were incorporated. It also helped with planning and prioritization of the next year’s planned program activities. The review of strategic action plans, hiring of senior research and administrative positions, and focusing on special projects were also used to collect stakeholder inputs. State agencies assisted in developing programs and focus budgets for activities supported by matching funds through MOAs.

Key Stakeholder input items for CSREES Attention: What did you learn from your Stakeholders? (3200 characters)

We learned that farmers, homemakers, community groups and others are good sources of traditional knowledge which can be applied and used to improve crop production and increase value-added food products. Entrepreneurs interested in business development lack marketing strategies and training necessary for them to be successful.

IV (A): Planned Program (Knowledge Area)?

Name of Planned Program: Aquaculture

1. Enter the program Knowledge Areas (up to 20) and a percentage for each (total of each column must equal either 100% or 0%).

KA Code	Knowledge Area	%1862 Extension	%1862 Research
135	Aquatic and Terrestrial Wildlife	17	0

136	Conservation of Biological Diversity	30	75
301	Reproductive Performance of Animals	0	0
302	Nutrient Utilization in Animals	23	10
307	Animal Management Systems	17	15
308	Improved Animal Products (Before Harvest)	13	0
315	Animal Welfare/Well-being and Protection	0	0
511	New and Improved Non-Food Products and Processes	0	0
Total		100	100

IV (B). Planned Program Inputs

1. Enter the actual amount of professional FTEs/SYs expended for this Planned Program.

1862 Extension Research
 1890 1862 1890

Plan	6.9		5.0	
2010	2.88		4.12	

2. Enter Actual dollars Expended in this Planned Program during FY 2009 (includes Carryover Funds from previous years). The values must be whole number i.e. no commas or decimals are allowed.

Extension Research

Smith-Lever 3b & 3c 1890 Extension Hatch Evans-Allen

2009	\$	0	\$	0
------	----	---	----	---

1862 Matching 1890 Matching 1862 Matching 1890 Matching

2009	0	0	0	0
------	---	---	---	---

1862 All Other 1890 All Other 1862 All Other 1890 All Other

2009	0	0	0	0
------	---	---	---	---

IV. (C): Planned Program (Activity and Participation)

1. Brief description of Activity (What was done?): (3200 characters)

PCC: A series of larval rearing trials on rabbitfish and mangrove crabs were conducted at the newly opened multi-species hatchery and a total of 15,000 pieces rabbitfish fingerlings (8,000 *Siganus fuscus* and 7,000 *Siganus lineatus*) were produced. About 5,000 pieces were given to local fishfarmers for grow-out in cages while the remaining 10,000 were released to the wild during the launching of a marine sanctuary project. Preliminary runs on the seed production of mangrove crabs using small plastic containers yielded about 28 pieces crablets. A total of 30 pieces milkfish (*Chanos chanos*) broodstock with body weight ranging between 3 to 4 kilos were collected from local milkfish farms and were stocked in 80ton capacity tank for gonad maturation and spawning. Lectures on fish biology and aquaculture have been conducted in several schools and field trips to visit observe actual hatchery operations were

provided. Local clients planning to put up hatchery for rabbitfish operations were assisted. Posters and aquarium exhibits were presented in various local and national events.

CMI: Several successful spawning took place which produced millions of oyster spats, which will distributed to the local pearl industries. Another area that CMI started working on is fish production. The ROC-Taiwan government announced that it will officially turn over its fish hatchery facility to CMI to oversee, so the Extension Agent received training by Taiwan Hatchery Technician on fish spawning and spent a month in Iloilo, Philippines to receive training on fish production. There is a growing interest in the sea cucumber industry, but now there are no standard procedures for harvesting and there is a strong possibility that this resource might be depleted soon. The Arrak hatchery was remodeled and several spawning of the pearl oysters took place.

COM-FSM: Black pearl extension work continued on training of local farmhands to maintain the farms and the pearl hatchery program continued its activity to simulate mass juvenile production for implementing commercial farming at three outer islands. A new project implemented with the grant from the Center for Tropical and Subtropical Aquaculture (CTSA) to add values to the pearl shells by using “half-pearl” grafting methods. The sea cucumber project continued on the hatchery technology transfer and on developing restocking methods in Pohnpei. Two restocking sites were designated in Pohnpei lagoon on a high-value commercial species, the sandfish (*Holothuria scabra*). A long-term high-density holding tank system was developed for both broodstock and juveniles.

1. Brief description of the target audience. (3200 characters)

People in the community, government officials, local and foreign tourists, students and individuals who are interested and engaged in aquaculture activities in Palau are considered the target audience.

In Pohnpei, the pearl project targeted three atoll communities including one NGO, one local government and several private land owners for implementing commercial farming. The sea cucumber project targeted local and state governments to develop collaborations in wild stock surveys and restocking programs.

IV (D): Planned Program (Outputs).

1. Enter the actual number of persons (contacts) to be reached through direct and indirect methods. (Standard Extension Output).

Direct Contacts Adults		Indirect Contacts Adults		Direct Contacts Youth		Indirect Contact Youth	
Year	Target	Target	Target	Target	Target	Target	Target
Plan	350	1000	150	1000	1000	1000	1000
2010	479	10000	1695	10000	10000	10000	10000

2. Number of patents (Standard Research Output).

Patents Received
Year Target

Plan	0
2010	0

If patents received, please list them here.

3. Publications (Standard General Output Measure).

Number of Peer Reviewed Publications.

	Extension	Research	Total
2010	0	0	0

IV (E): State Defined Output Measure

1. Output Target

Number of demonstration farms established.

Year	Target	Actual
2010	6	10

1. Output Target

Number of publications for lay use.

Year	Target	Actual
2010	4	1

1. Output Target

Number of conference paper and publication/presentation.

Year	Target	Actual
2010	5	2

1. Output Target

Expected Professional Journal publications.

Year	Target	Actual
2010	3	1

1. Output Target

Expected Gray Literatures.

Year	Target	Actual
2009	6	3

1. Output Target

Expected publications for lay use.

Year	Target	Actual
2010	5	1

IV (E): State Defined Outcome Measures

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

Enter by Quantitative and/or Qualitative Method Below as appropriate.
Quantitative Outcome

Year	Quantitative Target (If appropriate)	Actual
2010	30	2044

Qualitative Outcome or Impact Statement

Issue (Who cares and Why?): (500 Char Max)

PCC: Some people in Palau are not aware of recent aquaculture development in the country. A number of individuals are interested to start an aquaculture project, but with limited know how. Only few students are aware about the importance of aquaculture in the country.

CMI: The status of the Arrak hatchery is the critical component for the pearl farming industry of the RMI. The RMI people should look at this as something that will be greatly beneficial for the RMI. The outer atolls hold some of the pristine waters that make them very suitable for aquaculture farms of any marine species.

COM-FSM: Knowledge on current aquaculture technologies and management has been improved by extension and research efforts. Local people have been realizing that aquaculture will provide sources of income from new productions and add values to existing commodities. Pearl culture, sea cucumber and other marine species can be raised successfully with appropriate methodologies, training programs and infrastructure improvements.

What has been done: (500 Char Max)

PCC: Posters and aquarium display showing hatchery-produced rabbitfish fingerlings and mangrove crab larvae were presented in various national events. Walk-in and pre-arranged visits of people from different places to the PCC Multi-species Hatchery were accommodated. Actual technical assistance were provided to clients with regards to site selection, infrastructure and operational plans. Series of lectures about biology of fishes and aquaculture were conducted in different schools.

CMI: Several spawns were conducted to determine the status and also to revive the pearl project that is aiming to obtain more reliable farm communities within the RMI.

COM-FSM: Oral and poster presentations were given at international aquaculture conferences and workshops, as well as public displays for local communities were made with the products produced from the projects. Hands-on training in hatchery, farming and craft making were provided. On-site visits were facilitated to students and others at hatchery and farms and aquaculture information were aired via local radio stations and overseas mass media.

Results: (1000 Char Max)

PCC: People have realized the importance of aquaculture for the country's food security and economic development. They were able to see PCC-CRE's efforts to contribute in the development of aquaculture in the country. The existence to PCC Multi-species Hatchery enables the people in Palau to see the actual seed production activities that are considered essential in making aquaculture sustainable. Fish farmers availed free technical assistance and were guided with appropriate knowledge on how to start and operate there proposed and existing aquaculture projects. Through series of lectures in various schools, students were able to learn the basic concepts in aquaculture and have shown more interest by participating in the discussions.

CMI: From the test runs, the program was able to raise 14,000 spats which have been put on lines at the CRE farm.

COM-FSM: [The pearl and sea cucumber projects received immediate attentions from domestic and overseas stakeholders and international journals on high quality products and skill training methodologies.](#)

3. Associate KAs from the Planned Program. (Check all that apply).

	KA Code	Knowledge Area
x	135	Aquatic and Terrestrial Wildlife
x	136	Conservation of Biological Diversity
X	301	Reproductive Performance of Animals
	302	Nutrient Utilization in Animals
X	307	Animal Management Systems
X	308	Improved Animal Products (Before Harvest)
	315	Animal Welfare/Well-being and Protection
	511	New and Improved Non-Food Products and Processes

IV (F): State Defined Outcome Measures

1. Outcome Target - Adoption of sustainable aquaculture technologies by commercial and community groups.

2. Outcome Type

___ Change in Knowledge Outcome Measure

__x_ Change in Action Outcome Measure

___ Change in Condition Outcome Measure

Enter by Quantitative and/or Qualitative Method Below as appropriate.

Quantitative Outcome

Year	Quantitative Target (If appropriate)	Actual
2010	10	47

Qualitative Outcome or Impact Statement

Issue (Who cares and Why?): (500 Char Max)

PCC: Previous runs on seed production of rabbitfish at Bureau of Marine Resources Hatchery were successful but survival rate was low and inconsistent. Natural spawning of mangrove crabs in captivity using fiberglass tanks was not successful in previous runs at the BMR hatchery. Grow-out of rabbitfish, *Siganus fuscescens* yielded poor survival rate and yield. Mangrove crab farmers are dependent from the wild caught crabs for their seedstock requirements in their grow-out activities.

CMI: The pearl industry has been on hold for several years with an undetermined future. Now that the Arrak hatchery has proven to be operable, the pearl industry is starting to look at a promising future.

COM-FSM: Local communities has realized the importance of aquaculture as a means for food security, natural resource enhancement and improving quality of life. Island people needed to know adding values to existing products and materials as a mean to generate income.

What has been done: (500 Char Max)

A series of larval rearing trials were conducted in the newly inaugurated PCC Multi-species Hatchery with improved design of tanks, seawater supply and roof elevation. Appropriate broodstock feeds were used to nourish the broodstock, improved handling of eggs and larvae and continuous production and maintenance of natural food were established. Broodstock tanks for mangrove crabs were covered with sand. Another species of rabbitfish (*Siganus lineatus*) was produced in the hatchery. Grow-out trials of *S. lineatus* were done in ponds and cages using commercial pelletized feeds. Preliminary runs on seed production of mangrove crabs were conducted at the newly opened hatchery.

CMI: Plans have already been developed and other agencies that were involved with industry have shown great interest and have planned to combine all the efforts in reviving the industry. So far equipments, funds, and other sources have been mentioned and will be used for maximizing the outcome of this project. From all these combined efforts, the hatchery was able to do a successful spawn. From the result of the spawn, plans have been developed to expand the outer atolls farms with high hopes of success.

COM-FSM: The project staffs continued farming skill training for local people and monitoring activities of pilot commercial pearl farms as well as demonstrating value-added products making and sea cucumber spawning and grow-out methods.

Results: (1000 Char Max)

PCC: Spontaneous natural spawning of two species of rabbitfish (*Siganus fuscescens* and *S. lineatus*) at PCC Multi-species Hatchery was successful and consistent. The eggs have good quality and have high hatching rate of about 90% to 100%. Production of natural food and survival rate of larvae were improved. Preliminary runs on seed production of mangrove crabs were successful using small plastic containers. Giving the right amount of feed and regular sampling enables farmers to monitor the growth performance of rabbitfish in ponds and cages.

CMI: The Arrak hatchery is now fully equipped and has the capability to do large number of runs with large amount of spats. From the combined efforts, the spawn resulted with more than 2million larvae on the first week. As it reached the settlement stage, the count was still at very high number of more than 1.7 million.

COM-FSM: Pearl project staff continued hatchery productions of pearls and sea cucumbers, pilot farm maintenance and made sample value-added products. This enhanced local awareness in pearl farming business investment and conservation in Pohnpei. Long-term high density sea cucumber holding system was developed for high-valued sandfish (*H. scabra*).

3. Associate KAs from the Planned Program. (Check all that apply).

	KA Code	Knowledge Area
x	135	Aquatic and Terrestrial Wildlife
x	136	Conservation of Biological Diversity
x	301	Reproductive Performance of Animals
	302	Nutrient Utilization in Animals
X	307	Animal Management Systems
X	308	Improved Animal Products (Before Harvest)
x	315	Animal Welfare/Well-being & Protection
	511	New and Improved Non-Food Products and Processes

IV (G): State Defined Outcome Measures

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

Enter by Quantitative and/or Qualitative Method Below as appropriate.

Quantitative Outcome

Year	Quantitative Target (If appropriate)	Actual
2010	3	44

Qualitative Outcome or Impact Statement**Issue (Who cares and Why?): (500 Char Max)**

PCC: Fish farmers want to know the actual data about the grow-out performance of hatchery produced rabbitfish in ponds and cages. Consistent supply of hatchery produced rabbitfish

fingerlings is essential so that more fish farmers will be encouraged to grow rabbitfish in ponds and cages. There are only two fish farmers who interested in growing mangrove crabs in the country and more will be expected once hatchery produced mangrove crabs becomes available

CMI: There are a lot of potential for the RMI to do aquaculture activities/projects that can be sustainable. The aquatic environment has some of the best characteristics that can be used for aquaculture. As the economy is on the down with the rest of the world, these types of projects can be easily successful with such environment. The RMI is mainly made out of water and some of the biggest resources can be found in these waters, it should be considered something of high value.

COM-FSM: Communities and the state government in Pohnpei still lack a fisheries management plan and capacity building must be reviewed and strengthen.

What has been done: (500 Char Max)

PCC: About 3,000 pcs of hatchery produced rabbitfish fingerlings were delivered to fishfarms for stocking in cages and 400 pcs for stoking in earthen pond last August 2009. Larval rearing of two species of rabbitfish (*S. fuscescens* and *S. lineatus*) was conducted at the PCC Multi-species hatchery in August 2010 and fingerlings produced were stocked in two fish farms. Appropriate feeding management was recommended. Preliminary runs on seed production of mangrove crabs were conducted in September 2010.

CMI: Several things have been done as part of the aquaculture program. Main one for this year is the reviving of the pearl project which has been commented heavily by various agencies and groups. Plans for expanding the program have been put onto workplans and part of the plans is to look at activities on fish. Some of the favorable fish are being cultured in the RMI with the help of the Taiwan technical mission to the RMI such as rabbit fish, and groupers. The extension agent started working with the Taiwanese fish hatchery technician to obtained basic knowledge on how to operate a fish hatchery. The program and the college have been asked to take over the hatchery. The extension agent spend one month in the Philippines to receive training on fish hatchery management.

COM-FSM: Pearl farm training involved nucleus implantation skills for youths in three communities. Tagging trials implemented using the wild-caught and hatchery-produced sandfish for restocking purposes.

Results: (1000 Char Max)

PCC: A total of 250 pieces rabbitfish with body weights ranging between 250 to 300g were harvested from the fish pond while a total of 2,300 pieces rabbitfish that were stocked in cages reached the size ranging between 120g to 150g, after 6 months of culture. The result of these grow-out trials reveal that growing rabbitfish in a brackish water pond and fish cages is feasible and may encourage more individuals who wish to go into this kind of aquaculture activity. It was observed that rabbitfish fed with high protein pellet feeds for carnivorous fishes gave better growth rate than those fed with pellet feeds for milkfish. It was presumed that higher protein content of shrimp feeds promoted a faster growth rate for rabbitfish grown in

cages. Preliminary larval rearing trials for mangrove crab yielded 24 pieces of crablets. Large scale production of crablets using 10 ton capacity tanks is being tried following the data obtained from small scale experiment.

CMI: Pearl Oyster hatchery is now culturing more than 500,000 spats and will be distributing before the end of this year. Other atolls have begun showing interest in pearl oyster farming and plans to start new farms will be implemented soon.

The training was a success and the program holds some knowledge on fish hatchery management and work from this program has begun to the fish hatchery.

COM-FSM: Half-pearl seeding skill training commenced at Pakin atoll community along with its farm maintenance work with 10,000 pearl oysters which were produced by the COM pearl hatchery project. Other two outer island communities continued line-culture method of the pearl oysters. The sea cucumber project developed a long-term tank culture system for broodstock and juveniles of commercially high-value sandfish specie (*H. scabra*).

3. Associate KAs from the Planned Program. (Check all that apply).

	KA Code	Knowledge Area
x	135	Aquatic and Terrestrial Wildlife
x	136	Conservation of Biological Diversity
x	301	Reproductive Performance of Animals
x	302	Nutrient Utilization in Animals
x	307	Animal Management Systems
X	308	Improved Animal Products (Before Harvest)
x	315	Animal Welfare/Well-being & Protection
x	511	New and Improved Non-Food Products and Processes

IV (H): Planned Program (Evaluation)

1. Evaluation studies Completed. (Check all that apply)

- 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 (individual, group, organization) & non-participants
- Comparison 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(s) _____

What are your Evaluation Results? (3200 characters)

PCC: In the previous years people in Palau have been dependent on the fish caught from the wild. With the success in producing fingerlings of rabbitfish in hatchery, people become aware of the potentials in growing these important fish species in ponds and cages. More and more people are becoming interested in growing fish for commercial purpose. The establishment of PCC Multi-species Hatchery will help promote the development of aquaculture in the country by providing continuous and consistent supply of high quality fingerlings and seedstocks of other aquaculture species such as milkfish, mangrove crabs and shrimps. More students are now eager to learn more about the biology and culture of fish since they participate more actively in discussions during lectures and study tours. Currently there is an increase in number of ponds and cages for grow-out of milkfish, rabbitfish, grouper and mangrove crabs. Fish farmers are able to learn how to improve their production through the technical advise that were provided to them on-site. There is an increasing number of individuals who developed interest in aquaculture and wish to invest in aquaculture activities.

CMI: Namdrik and Rongelap are the only two atolls that have dedicated their times and effort in keeping the pearl industry alive. By far with no hatchery runs for spat they managed to use spat collectors to collect spat from wild spawn from their farms. They just recently harvested and have sold \$31K worth of pearl and pearl jewelries. With the operation of the pearl hatchery now, these two atolls are looking at expanding their projects. From this it will create more jobs for the atoll communities and will also help out their local economies.

COM-FSM: Along with onsite farming skill training at COM's demonstration farm in Pohnpei, the communities have been engaging maintenance work of their own farms. Pakin Community Association selected four youths for receiving specialized seeding training from the COM's pearl project technicians. Pingelap Atoll community also sent 3 youths to join COM's pearl farming skill training prior to implementing its community-based pearl farming. The sea cucumber hatchery technology was transferred successfully to the COM's Micronesian technicians for the high valued species (*H. scabra*) which has been facing extinction in the lagoon of Pohnpei. The hatchery technology has potential to contribute to enhance resources and to provide additional source of income in local communities.

Key Items of the Evaluation(s) for CSREES Attention. (3200 characters)

PCC: A practical method in larval rearing of two rabbitfish species has been documented with the success in natural spawning of the captive breeders . A nursery and grow-out of rabbitfish in cages has been verified and better feeding protocol was developed. PCC-CRE has contributed in success of producing high valued aquaculture species such as grouper which gave an opportunity to fish farmers experience growing the locally hatchery bred grouper in their facility. Through series of lectures in schools and poster and aquarium displays in various national events, students became more interested in learning fish biology and aquaculture. The development of technique in seed production of mangrove crabs in Palau also encouraged more individuals to grow this high valued aquaculture species in ponds and cages.

CMI: No report

COM-FSM: Half-pearls and pearl shell accessories by adding value to pearl shells are getting more attention among local and international stakeholders such as in Japan and USA. A display and sale of sample products from COM's pearl project was conducted in Pohnpei resulting in positive responses from domestic and overseas stakeholders for developing marketing and branding strategies. Cross-breeding work produced a high rate of unique blue colored pearls and other rare colors such as light-green peacock and enquiries have been received from overseas for using these pearls for joint sales promotions of the Micronesian brand pearls. The sea cucumber (*H. scabra*) species has been consumed as a favorite seafood unlike other places in the world where people catch and process for export business. Although the COM project revealed that this species was not near extinct in Pohnpei lagoon, it could be depleted rapidly in spite of the Pohnpei State government's export ban if not restocking program is implemented. The COM's hatchery-based aquaculture project shows a feasible tool to enhance resources and to re-vitalize local economy in Pohnpei.

IV (I): Planned Program (Outcome)

1. External factors which affected outcomes. (Check all that apply)

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriation changes
- Public Policy changes
- Government regulations
- Competing Public priorities
- Competing Programmatic Challenges
- Population changes (immigration, new cultural groupings, etc.)
- Other

Brief explanation of external factors which affected the outcomes. (Opportunity to discuss Unmet Goals). (3200 characters).

PCC: Restrictions in catching and selling undersized mangrove crabs (with carapace length less than 5 inches) as well as exportation of mangrove crabs is expected to affect the marketing aspect of farming mangrove crabs in commercial scale. High cost of imported commercial feeds reduces profitability in farming rabbitfish, thus not so many individuals become interested in fish farming.

CMI: No report

COM-FSM: As has been exhibited by past business activities in Pohnpei and other places, collecting wild stocks such as pearl oysters and sea cucumbers has a risk of leading to a boom-and-bust business. Over-expectations of easy gathering and picking of high valued commodities lured many community members without going through a sustainable fisheries management and business plan. Pearls and pearl-related products are regarded as non-perishable high-value export commodity and therefore national, states and local governments

needed to develop coordinated efforts on international marketing strategy and financial and vocational planning in a sustainable economic development. COM pearl project exhibited that it was possible to create highly skilled hatchery technicians, to train skilled farm laborers and to develop high quality products locally. In order to enter into internationally competitive export business, it is high time that each pearl farmers in Pohnpei and atolls need to be supported to develop a state-wide association or cooperatives, which could be provided technical advices by the US Rural Development through COM Land Grant Program research and extension services. The hatchery-based sea cucumber resource enhancement project should be considered to be a primary fisheries commodity by the FSM Government and four State Governments, which has more direct impacts that that of offshore tuna fisheries on improvement of livelihoods and local economy in the coastal communities. This is because that many Pacific island countries show series interests in this commodity to enhance resources by aquaculture and the Food and Agriculture Organization of the United Nations designated the sea cucumber as one of primary target commodities for aquaculture development in the Pacific region. The government's fisheries departments should take more active roles in fisheries management, policy review processes and strategic planning based on the hatchery-based sea cucumber aquaculture programs.

IV (A): Planned Program (Knowledge Area)?

Name of Planned Program: Small Island Agricultural Systems

1. Enter the program Knowledge Areas (up to 20) and a percentage for each (total of each column must equal either 100% or 0%).

KA Code	Knowledge Area	%1862 Extension	%1862 Research
102	Soil, Plant, Water, Nutrient Relationships	10	10
111	Conservation and Efficient Use of Water	0	0
112	Watershed Protection and Management	10	10
123	Management and Sustainability of Forest Resources	0	0
125	Agroforestry	0	0
133	Pollution Prevention and Mitigation	10	10
136	Conservation of Biological Diversity	0	0
202	Plant Genetic Resources	30	30
204	Plant Product Quality and Utility (Preharvest)	0	0
205	Plant Management Systems	10	10
212	Pathogens and Nematodes Affecting Plants	0	0
216	Integrated Pest Management Systems	30	30
315	Animal Welfare/Well-Being and Protection	0	0
601	Economics of Agricultural Production and Farm Management	0	0
	Total	100	100

IV (B). Planned Program Inputs

1. Enter the actual amount of professional FTEs/SYs expended for this Planned Program.

	1862	Extension	1890	1862	Research	1890
Plan	19.8			7.0		
2010	18.45		7.45			

2. Enter Actual dollars Expended in this Planned Program during FY 2009 (includes Carryover Funds from previous years). The values must be whole number i.e. no commas or decimals are allowed.

	Extension			Research	
	Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen	
2009	\$	0	\$	0	
	1862 Matching	1890 Matching	1862 Matching	1890 Matching	
2009	0	0	0	0	
	1862 All Other	1890 All Other	1862 All Other	1890 All Other	
2009	0	0	0	\$	

III. (C): Planned Program (Activity and Participation)

1. Brief description of Activity (What was done?): (3200 characters)

PCC: Water education outreach presentation were conducted in several schools to educate high school students and their classroom teachers how to maintain their rainwater catchments systems.

Different groups from the community and the schools have visited the Animal Waste Dry Litter system demonstration. In addition, piggery waste management assessment was conducted to 10 piggery farms before the animal waste management workshop was conducted to the farmers, interested individuals and government/non-government agencies with the help of a collaborator from UH. Revised dry litter design was distributed to five farmers. A televised infomercial was shown in a local television program just for the community people to be aware of the alternative ways to operate a piggery without harming the environment.

The R & D Station continued to be the repository for root crops germplasm collection in Palau. Conservation and maintenance of the taro, cassava and sweet potato germplasm is a major activity. The taro germplasm collections were maintained in the mesei, dechel and sers. At the same time, mass propagation and conservation of the taro germplasm collection is continuously being done in the laboratory to ensure a steady supply of planting materials. A total of 9280 taro planting materials were distributed to 265 farmers. In addition, sweet potato and cassava planting materials were also given out to 63 farmers. Moreover, planting materials of banana, chili pepper and lemon were also distributed to interested parties.

Field and sensory evaluation of taro hybrids obtained from the Secretariat of the Pacific Community (SPC) revealed that they were well adapted to Palauan environment and were very acceptable to Palauan taste. Planting materials of these new taro hybrids were

distributed to farmers. In addition, new batches of taro hybrids were received from SPC for evaluation in Palau.

Biocontrol agents for such as predatory mite for cassava spider mite and mirid bug for taro leafhopper were released on cassava and taro plantings to assist farmers in controlling these pests. Also, Entomologists from Northern Marianas College came to Palau to collect psyllid insects to control Mimosa in the Saipan, Rota and Tinian.

A Workshop on the Use of Alternative Herbal Medicine for Livestock Healthcare was conducted in collaboration with the Northern Marianas College and the University of Guam. A Radio Talk show on Tomato Production in Palau was also held in collaboration with the Palau Conservation Society and the Bureau of Agriculture.

Several community and student groups who visited the PCC R & D Station were briefed on various on going agricultural activities which was also displayed during the national fairs in Palau.

CMI: One of the major activities for the Agriculture Extension Agent was cleaning and rearranging the agriculture nursery after being unutilized for more than a year. Began propagating air layer (lime and mountain apple trees) at the nursery. Demonstrations on the Sweet potato tower occurred in three different locations. Plant cuttings of 107 lime trees, and 93 mountain apple trees were distributed to individuals during the 2010 World Food Day celebration.

Started teaching food security and gardening to ninety-one 7th and 8th graders. Started translated sections of the RMI Arthropod Pest and Invasive Weed book. Developed translated brochures on Composting, Dry litter waste management and Sweet Potato Tower. Brochures were distributed to the community.

In celebration of 2010's World Water Day, CMI's Water Quality Program collaborated with government and non-government agencies and produced a video entitled "The Challenges of Water in the Republic of the Marshall Islands". This video was shown to almost all of the schools on the capital island. Copies were distributed locally, regionally and internationally. The video can be viewed at the (1) Southwest States & Pacific Islands Regional Water Quality Project's and (2) SOPAC's websites. Water quality extension and awareness workshops were conducted on Majuro and its neighboring isles (27), and Ebeye island with various community members, home owners, farmers, women's groups, and schools. Through joint efforts, water quality teams distributed a set of water quality brochures to more than three hundred houses in one of the populated villages on the capital island. The Water Quality Extension Agent has developed five water quality brochures that have been translated, printed, and distributed locally in the Marshall Islands. Developing and distributing of brochures is an ongoing effort.

The Water Quality Extension Agent also conducted and kept records of the water monitoring and readings of the CMI Uliga and Arrak Campuses' Water units. Also, test results are recorded and available for all the water quality bacterial tests that were conducted during the

outreach and awareness activities. The H2S test was the method used to test the quality of individual homeowners water source. Community members were also trained on how to use the H2S test method and to read the results.

COM-FSM: The Small Island Agriculture Systems is the most prominent program in all state offices. In one state all extension activities are provided through CRE offices while in three states there is a sharing of responsibilities between state agencies and the CRE. All states have formed Advisory councils

Primary programs vary between sites with home and school gardening being common and a shared program with Food and Nutrition program. Small scale commercialization has become more important this period with new commercial farms beginning in Yap and Chuuk while improved delivery of produce to the markets of Pohnpei is obvious. Promotion of locally nutritious foods at several events in Chuuk: World Food Day; Organic Crop Production Workshop; Community Planning at UFO, Go Local-Traditional Agroforestry Food Crops and Health Improvements workshop; Poster presentation titled “Diabetes: Alternative Prevention and Cure” for Children’s diabetes fair at *Saramen Chuuk* Academy Gym and regular in-house information and sharing about banana, okra, *malunggay*, papaya, watermelon, sour sop and, waxy gourd-

The AES programs have responded to the call for research in salt tolerant root crops to prepare for the expected effects of climate change. New programs in Agro-forestry are promoting bio-diversity and food security systems to buffer climate change. Livestock farmers are benefiting from programs promoting use of local feeds with training in feed nutrient balancing and use of local medicinal plants as veterinary pharmaceuticals.

Research and extension produce and promote elite varieties of banana, taro, sweet potato and disease resistant planting materials of limes and other citrus. A strong niche market is emerging for noni and farmers are receiving selected lines of quality plant stock. External funding from Food and Agriculture Organization encouraged the exchange of planting material from ‘have’ farmers to farmers affected by climate change effects. CRE staff were heavily involved in securing and distributing the planting material and for other Food Security programs funded by USDA grants. In the reporting period, more than 7,000 taro and 6,500 sweet potato seedlings were produced, and total 10 banana, 4,600 taro and 1,472 sweet potato plants were distributed to interested farmers. In the reporting period, more than 6,600 eggplant, green onion, Chinese cabbage, cucumber and tomato seedlings were produced, and 3,949 seedlings were distributed to interested Kosraean farmers alone.

Entrepreneurship training is being given to youth programs and there is an observed need to provide such support for farmers transitioning from subsistence to semi-commercial status. Farm planning and market guidance is currently given to some niche crop farms such as the Pohnpei Black Pepper producers, Pohnpei Farmers Association and Yap Noni Farmers Association. Joint technical assistance trip with Department of Agriculture to 13 villages in Northwest, *Párem* and *Udot* to increase productivity of local economic crops

More farmers expressed interest in black pepper cultivations with nineteen new black pepper farms established in Pohnpei. There are now over 100 pepper farmers on Pohnpei and 1000 pieces of planting material was transferred to Kosrae for farmers there. Impacts in this knowledge area had been toward promotion of environmental and ecological sound practices, through usage of compost, mulching, and improve cultural practices. Organic agriculture has been promoted with collaborative training provided through the CRE network by regional partners.

2. Brief description of the target audience. (3200 characters)

PCC: The agriculture program in Palau caters to several groups including the farmers, students from the kindergarten, elementary, high schools to college level, parents, teachers, government officials and the private individuals.

COM-FSM: Target audiences in this planned program include school children, NGOs, Government Agencies, farmers, traditional leaders, women’s groups, community groups, individual Target audience included farmers, gardeners, students, leaders, women, homemakers, youth, employed and unemployed.

Scientists, extension staff, agricultural professionals, agriculture students, federal, state and national agencies, conference publications, and scientific journals are target audiences for

research activities. Farmers, producers and exporters of the state, extension colleagues, and other members of the community who are involved in the agriculture sector are target audiences for extension activities. Internships are being provided to college agriculture students at biotechnology facility of the Agricultural Experiment Station.

FSM is a country of 4 states comprised of 607 islands in an ocean area close to the size of the United States with which it is associated in a Compact of Free Association status. Farming is confined to a few islands and to primarily subsistence, traditional crops and systems. As commercialization encroaches, and traditional diets give way to processed foods, programs have shifted to encourage entrepreneurship and to correct the deteriorating health problems due to nutrition related diseases and conditions. Target audiences are a wide spectrum of stakeholders. Agents assist government agencies to conduct surveys of climate effects. Food security programs were targeted at families on outer islands that were affected by climatic factors while families on the main islands benefited from the same programs to improve their diets and nutritional status. Commercial producers of traditional root crops received assistance similar to the producers of niche products or suppliers to newly emerging markets such as the hotel trade for vegetables. EFNEP homemakers, families revered by the Health Services, senior citizens on the island, students – post secondary and college students & staff on the island, youth participants and interested backyard gardeners. Livestock produces received training in management, nutrition and health related actions. Agents promoted control of invasive species and pollution to preserve the island environment. Programs were provided across all age groups and genders to encourage better agriculture, food security and improved diets. Attendance is increasing for agriculture programs at the college level and both research and Extension staff are involved as resources for these programs. Special Education training of mute and deaf in gardening was conducted.

CMI: Audience include community members such as, leaders, farmers, men, women, youth, school principals and teachers, elementary, high school and college aged students.

IV (D): Planned Program (Outputs).

1. Enter the actual number of persons (contacts) to be reached through direct and indirect methods. (Standard Extension Output).

Direct Contacts Adults		Indirect Contacts Adults		Direct Contacts Youth		Indirect Contact Youth	
Year	Target	Target	Target	Target	Target	Target	Target
Plan	600	3000	300	600			
2010	5600	9200	3664	7700			

2. Number of patents (Standard Research Output).

Patents Received

Year	Target
Plan	0
2010	1

If patents received, please list them here.

3. Publications (Standard General Output Measure).

Number of Peer Reviewed Publications.

	Extension	Research	Total
2010	1	1	0
Actual	0	0	0

IV (E): State Defined Output Measure

1. Output Target

Expected Professional Journal Publications.

Year	Target	Actual
2010	0	1

1. Output Target

Expected Gray Literatures.

Year	Target	Actual
2010	0	7

1. Output Target

Expected publications for lay use.

Year	Target	Actual
2010	0	18

1. Output Target

Conference presentations.

Year	Target	Actual
2010	0	15

1. Output Target

Conference publication.

Year	Target	Actual
2010	0	4

1. Output Target

Number of publications for lay use.

Year	Target	Actual
2010	0	6

1. Output Target

Number of conference paper publication/presentations.

Year	Target	Actual
2010	0	3

1. Output Target

Number of demonstration farms established.

Year	Target	Actual
2009	0	43

IV (F): State Defined Outcome Measures

3. Outcome Target - Number of persons with increased knowledge on appropriate production technologies.

4. Outcome Type

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

Enter by Quantitative and/or Qualitative Method Below as appropriate.

Quantitative Outcome

Year	Quantitative Target (If appropriate)	Actual
2010	2400	19,764

Qualitative Outcome or Impact Statement

Issue (Who cares and Why?): (500 Char Max)

PCC: Conventional spray out piggery system has been practiced in the island for a long time and it is polluting the island’s water sources and the environment.

Farmers, community people, youth, government and private businesses and health and environmental agencies are not fully aware of the effects of animal waste pollutants and the rainwater catchments contaminants.

Knowledge of current best management practices and Integrated Pest Management techniques are essential to increase productivity. Farmers need to be aware of current best management practices and farming techniques to ensure availability of food and agricultural products all year round.

CMI: Soil fertility is an issue, where as a result, most of the farmers are using commercial fertilizer to maintain the growth of their crops. Unfortunately, they do not know that using commercial fertilizer may taint the well water. Majority of the local farmers do not know which fertilizer to use, and the correct amount to use on their crops. Farmers used commercial fertilizer because they can't afford a shredder to make their own organic fertilizer.

According to the RMI Water Survey 2009, the percentage of total population in households without water catchments on Ebeye and Majuro is 37.5. More than half of the population in the Republic of the Marshall Islands rely on rain water for human consumption purposes. It has been discovered that 75% of the households' water is contaminated of pathogen and E-Coli. Due to lack of knowledge and information on proper water treatment, people are bound to experience health issues.

COM-FSM: The college mandate is to provide technical assistances to the communities in order to improve health, economic status and the environment. Trainings, demonstrations and presentation provided would improve awareness, skills, knowledge in the planned programs, thus this would improved the health, especially reducing obesity, and non-communicable diseases especially diabetes and hypertension economy and the environment.

To address one of the prime agricultural issue of lack of agricultural professionals and skilled workers on islands, targeted number of youths and adults from farmers and home gardener communities will learn about appropriate farming techniques and practices.

. The FSM national, state and local governments and non-government agencies particularly Island Food Communities of Pohnpei and CRE promoted growing and consumption of local produce for health and reducing families’ expenditures from soaring food prices especially the

imported stuff. Such move would also save governments from importation costs and provide opportunities for the population to improve traditional farming and nutrition.

What has been done: (500 Char Max)

PCC: Students have benefited from the water quality education campaign. The education campaign includes lessons on water testing, rainwater catchment system, and treatment of drinking water. In other words, the students can test their drinking water with assistance from the program extension agent.

Moreover, school administrators, operators and teachers also have been trained to test water, treat their drinking water with chlorine and clean their rainwater catchment systems. Shared information and technical assistance has been coordinated between PCC-CRE and the environmental health agencies regarding water concerns.

School Outreach, community outreach, workshops/trainings, fairs exhibits and site demonstrations of the Dry Litter system was provided to the target audiences to provide awareness and knowledge about the projects.

PCC-CRE -Information dissemination was achieved by putting up exhibits on PCC-CRE activities to improve crop production, participation in radio talk show and conducting workshops. Clients were encouraged and welcomed to visit the PCC R & D Station who were briefed on the importance of root crops germplasm conservation activities, the use of tissue culture technique for the mass propagation of taro and banana, control of pests of crops and invasive weeds using biological control agents, and dry litter waste management. The Manual on Banana Production in Palau was distributed to several farmers and students. A book on "Biological Control Introductions in the Freely Associated States of Micronesia" has been completed and is ready for printing.

CMI: The Agriculture Extension Agent collaborated with the agriculture personnel of the Department of Agriculture and the Republic of China (Taiwan) Technical Mission to work on finding solutions to address the soil fertility problem. The Extension Agent distributed copra cake to individual farmers in Laura village. He also conducted demonstrations on how to make compost, using organic matters. Brochures on composting were developed and distributed to farmers and interested individuals.

The Water Quality Extension Agent worked with partner agencies to address this important issue by offering awareness trainings and workshops. Tested the water sources for bacterial contaminants. Also worked with schools and the communities. These activities were conducted in the highly populated atolls and islands.

COM-FSM: Over 3,079 individual were served through planned program. These individual have face-to-face contact with the programs and the impact will be great when each individual preached his/her family members, community and neighbors. These clients' skills and knowledge have increased in respective knowledge areas thus improving quality of life within and outside the family structure. (PNI)

Agents provided technical assistances and advised to farmers on new and innovative farming techniques and practices, conduct demonstrations on farms on piglet health interventions, castrations, parasites treatments, drug administration, soil media preparation, sowing

vegetable seeds, landscaping on vegetable farm, spacing between vegetable seedlings and the like. Discussions during visits on topic animal waste management, composting, feeding, housing and related issues with advice, and recommends.

The Kosrae Agricultural Experiment Station has organized hands-on training to increase the participant's knowledge and farm visits for on-site recommendations.

- Information and Education Campaigns (IEC's) through training, workshops, one-to-one visits, demonstrations on gardening of nutritious crops, distribution of planting materials
- Networking/Collaboration with schools, government and non-government agencies, churches, leaders, among others
- Furnishing the newly-built agricultural research lab with facilities
- Establishments of Agroforestry/community nurseries in Patta (2), Northwest (1) and Tol

(1)

CRE program has recruited clients from the target groups provided basic agriculture technical skills and assistance, conducts workshops, site visits, prepares and distributes vegetable seedlings and other planting materials. Research has focused on simple, sustainable production systems for traditional crops, commercial niche crops and for Food Security issues through searches for salt tolerant or disease resistant crops.

Results: (1000 Char Max)

PCC: Students and teachers have gained knowledge and awareness of water contaminants, rainwater catchments' maintenance and the value of water resources in the island. The students were somewhat clueless about the water contaminants in their drinking water. Thus, after the campaign they became more conscious about the contaminants that can be found in their drinking water. The students didn't realize the importance of the water resources, such as rainwater catchments, watersheds, rivers, streams and lakes until after the water education campaign. Farmers and community people have gained knowledge and awareness about animal waste management. Continuous education and promotion of animal waste management system (Dry Litter) have convinced the regulating agencies to recommend the dry litter system to piggery farmers as an alternative way to keep their piggery operations going and not violate the environmental pollution regulation. Several farmers and school administrators have acquired information and dry litter model design to start the construction of their dry litter piggeries. Farmers who are not interested in the piggery operations are requesting composts from the PCC-CRE dry litter demonstration for their farms and school gardens. Visitors to the PCC R & D Station are now knowledgeable, aware and understand the importance of root crops germplasm conservation, use of biocontrol agents to control pests of crops and invasive weeds, and current best management techniques to ensure successful crop production and improve productivity.

CMI: During the 2010 World Food Day Celebration, the Agriculture Extension Agent distributed brochures on composting to the participants. More than 2000 participants attended the event.

During his visits to the farmers, the Extension Agent noticed that the some of the farmers stopped using commercial fertilizers instead were using their organic composts made from copra cake and organic matters.

This year, fifteen representatives from the Community Health Centers in the outer islands including Ebeye and Majuro received water quality trainings. One of their responsibilities include providing data on Water quality test results and numbers of reported health issues from their communities. Water Quality awareness brochures were distributed to every households in one of the populated villages of Majuro. Also, more than 2,500 students in the schools here in the Republic of the Marshall Islands.

COM-FSM: The extension activities have improved knowledge, created awareness and developed skills of 80 participants in sustainable agriculture systems and innovative farming techniques and practices.

- Stakeholders became aware of what and how plants with special uses such as source of fertilizer will be conserved and utilized for growing their crops at home or farm.
- They knew other ways of weeding by mulching or by whole planting to minimize their labor.
- Other implementing government and non-government agencies appreciated the value of networking and collaboration for efficiency and effectiveness of program delivery.
- The public started to know agricultural research from contacts, meetings and collaboration.
- The target audience became conscious of what local plants provide for maintaining their health

They learned alternative methods of protecting crops from pests instead of complete reliance on pesticides.

Across the nation, over 5000 clients were served directly with new information and techniques. More than 500 families in three states and on both central and remote islands received planting materials of selected varieties to address specific concerns of food security or nutritional distress. More than 1500 pieces of Breadfruit plants of the ‘Samoan’ Variety were distributed to families for food security and/or climate concerns. There has been an increase in the number of extension level bulletins produced and distributed. Increased support of recruitment efforts for the college has resulted in twice as many students enrolling in agriculture programs at the college. At least 87 more families are growing some vegetables and one producer has gone commercial with sales of over \$2000 per month by the end of the year. Sustainable agriculture and agro-forestry were important components of all state SIAS programs.

3. Associate KAs from the Planned Program. (Check all that apply).

	KA Code	Knowledge Area
x	102	Soil, Plant, Water, Nutrient Relationship
x	111	Conservation and Efficient Use of Water
	112	Watershed Protection and Management
x	133	Pollution Prevention and Mitigation
x	136	Conservation of Biological Diversity
x	202	Plant Genetic Resources
x	204	Plant Product Quality and Utility (Preharvest)
x	205	Plant Management Systems
x	212	Pathogens and Nematodes Affecting Plants

x	216	Integrated Pest Management Systems
x	315	Animal Welfare/Well-Being and Protection
x	601	Economics of Agricultural Production and Farm Management

IV (G): State Defined Outcome Measures

- 3. Outcome Target - Number of program participants adopting recommended practices.
- 4. Outcome Type
 - ___ Change in Knowledge Outcome Measure
 - x Change in Action Outcome Measure
 - ___ Change in Condition Outcome Measure

Enter by Quantitative and/or Qualitative Method Below as appropriate.

Quantitative Outcome

Year	Quantitative Target (If appropriate)	Actual
2010	10	35

Qualitative Outcome or Impact Statement

Issue (Who cares and Why?): (500 Char Max)

PCC: Most piggery farmers are still cleaning out their pig waste down into the water sources and areas around their piggeries. Some households and schools are still neglecting their rainwater catchments maintenance, yet using the water for drinking and cooking.

The use of high yielding and disease –free planting materials, good soil nutrient management and proper control of pests of crops can greatly enhance farm productivity and yield. Some water related diseases and animal waste contaminants are harming the people’s health as well as the environment. Environmental protection agency and the Environmental health are concerned with the people’s health so as to provide alternative solutions to the problems instead of just closing down piggery farms and drinking sources.

The availability of disease-free and high yielding planting materials and adequate control of pests and diseases greatly affect farm productivity.

CMI: According to the RMI Water Survey 2009, the percentage of total population in households without water catchments on Ebeye and Majuro is 37.5. More than half of the population in the Republic of the Marshall Islands rely on rain water for human consumption purposes. It has been discovered that 75% of the households' water is contaminated of pathogen and E-Coli. Due to lack of knowledge and information on proper water treatment, people are bound to experience health issues.

Rain and groundwater are the two sources of water. Farmers also heavily rely on water for their plants and animals. Not all farmers have water catchments. Therefore, depend on their groundwater which sometimes is too salty and the plants end up dying.

FSM: It has been one of the college mandates to provide technical assistances to the communities as requested in order to improve health, status and the environment. Trainings provided would improve skills, knowledge and confident of participants.

To address one of the prime agricultural issue of lack of agricultural professionals and skilled workers on islands, targeted number of youths and adults from farmers and home gardener

communities will adopt appropriate and innovative farming techniques and practices. They will start their own home-gardens and/or develop their land into agriculture farms and will start crop production. Generally, consumers complained about high food costs, irregularities in supply of local and imported foodstuff and expensive farm inputs. On the other hand, producers needed seeds and even tools in their gardens. They disliked unstable pricing of their local produce and their expensive transport from islands outside Weno. Program participants expressed need to adopt low-input but sustainable practices of growing food crops for health and reduction of family expenditures from buying expensive yet not so fresh imported food items. They wanted to have nutritious and healthy local plants in their homes and/in the local markets. The national, state and local governments and non-government organizations actively campaigned also for growing and consuming local produce.

Most Micronesians now rely on imported food products, due to lack of knowledge and skills in agriculture and the vision of agriculture as a dirty occupation for losers. More than 30% of middle age Micronesians have diet related health conditions and over 80% of the middle age group is over weight or obese. Paid employment is difficult for many Micronesians to get so entrepreneurial activity would help both individuals and the island economies.

What has been done: (500 Char Max)

PCC: Palau Environmental Protection agency and Environmental Health are penalizing piggery farmers who are polluting the water sources without giving the people alternative methods of piggery operations. Most households are now buying manufactured water or purified water from the store instead of utilizing their rainwater catchments as their water sources. Therefore, these agencies are interested in new innovations that will keep the piggeries and the environment and any water sources free of pollutants.

The PCC –CRE Agriculture Program has been a reliable source of disease-free and high yielding planting materials of taro, sweet potato and cassava which were distributed to farmer clients in Palau. Biocontrol agents were released on taro and cassava plantings infested with pests.

CMI: The Water Quality Extension Agent worked with partner agencies to address this important issue by offering awareness trainings and workshops. He demonstrated the "First Flush Device" concept in these trainings and workshops. A brochure describing this method was translated and distributed to the community. Two individuals have set up the First Flush Device concept at their homes. They purchased all the materials and the Water Quality Extension Agent provided the technical assistance.

Both the Agriculture and Water Quality Extension Agents have started talking to farmers to promote the usage of the Dry Litter Waste Management device. Brochures were translated and distributed to farmers and individuals.

COM-FSM: Trainings, workshops, demonstrations and presentations have been carried out through out Pohnpei proper and outer islands in schools, communities, business and public setting/areas by CES staff.

The Kosrae Agricultural Experiment Station continued seedling production and distribution, and farm visits for on-site recommendations. In the reporting period, more than 7,000 taro and

6,500 sweet potato seedlings were produced, and total 10 banana, 4,600 taro and 1,472 sweet potato plants were distributed to interested farmers. In the reporting period, more than 6,600 eggplant, green onion, Chinese cabbage, cucumber and tomato seedlings were produced, and 3,949 seedlings were distributed to interested farmers

- Training/workshops to target audience
- Demos and farm visits for technical advice
- Gardens and nurseries established in Land Grant (1), Patta (2), Northwest (1) and Tol (1) for sources of seeds/seedlings and showcase of recommended crop management

Mass multiplication and distribution of banana, taro, sweet potato and kava seedlings, to reduce dependency on imported food was accomplished. In Kosrae alone, more than 8,687 elite seedlings were produced. Youths and adults from farmers and home-gardener communities received training and starter materials to develop their land into better gardens or semi-commercial farms. Entrepreneur training and recruitment of youth into college agriculture programs has been successful.

Results: (1000 Char Max)

PCC: Workshops and demonstrations have manipulated the regulating agencies to refer clients to CRE for Dry litter system awareness and its adaptation. Piggery farmers have showed interest to adapt the model. Several piggery farmers and two private high schools are in the process of building their dry litter piggery. Some rainwater catchments owners are maintaining their tanks or boiling their water. Students are taking the initiative to maintain their rainwater catchments in the schools.

Food supply and production capacity in Palau has been greatly enhanced by the improved yield of farmers who are now growing disease-free and high-yielding planting materials of root crops and using biocontrol agents to control pests of crops.

CMI: [More than 10 farmers have indicated interest in the Dry Litter Waste Management device. Some have even volunteered their farm and pig pens for demonstration purpose. In 2011, the device will be introduced to farmers and interested individuals.](#)

[The Water Quality Extension Agent monitored the operations of the two installed First Flush Device on a quarterly. The two catchments' water were also tested for bacteria. Before the installation of the First Flush Device, the water test results were positive for baceteria. After installation, tests' results were negative for bacteria. Home owners were very happy of the good results. The owners have allowed the Water Quality Extension Agent to use their devices for demonstrations.](#)

COM-FSM: More farmers are attending agriculture training in order to better equip themselves in coping with changing environmental conditions, technology and species. Such move is to ensure and promote sustainable practices of farming through better utilization of composting, recycling of green manure, low land cultivation and less use of pesticides, herbicides, etc.

More farmers are moving toward sustainable practices, more diversification of crops types and varieties, with smaller units as compared with larger field with mono-cropping.

Target audience utilized kitchen (excluding cooked fatty foods and bones) and crop residues at their backyards for composting. They frequented the Department of Agriculture, which distributed vegetable and fruit seedlings. Some enterprising individuals even sold extra produce to the local markets.

Total 10,031 seedlings of different varieties of banana, taro, sweet potato, and vegetables were distributed to interested farmers. New varieties of banana are bearing fruits and farmers are very happy to harvest excellent bunches of banana.

Twenty-three youths and adults have started establishing their farms and are cultivating different varieties of banana, soft

taro, sweet potato and vegetables. Ultimately the projects have developed positive attitudes, zeal for learning techniques and farming aspects, and have changed the behavior of the participants.

More than 57 people signed up for the program and total of 57 gardens established in Kosrae. In Pohnpei 39 new gardens were started. On Yap, one new farmer started from scratch and by the end of the year was employing three people and selling more than \$2000 per month of vegetables. Impacts for livestock farmers include using local herbal plants as alternative medicine for animal diseases; usage of compost have been increased thus improving soil conditions and the environment; and more farmers carried out treatment of their animals on their own thus easing some pressured on the program staff and time. Thirty-six new youths and adults are cultivating different varieties of banana, soft taro and sweet potato due to Agent encouragement on Kosrae. Total enrollment in Agriculture programs at COM-FSM reached 67 students.

3. Associate KAs from the Planned Program. (Check all that apply).

	KA Code	Knowledge Area
<input checked="" type="checkbox"/>	102	Soil, Plant, Water, Nutrient Relationship
<input checked="" type="checkbox"/>	111	Conservation and Efficient Use of Water
<input checked="" type="checkbox"/>	112	Watershed Protection and Management
<input checked="" type="checkbox"/>	133	Pollution Prevention and Mitigation
	136	Conservation of Biological Diversity
<input checked="" type="checkbox"/>	202	Plant Genetic Resources
<input checked="" type="checkbox"/>	204	Plant Product Quality and Utility (Preharvest)
<input checked="" type="checkbox"/>	205	Plant Management Systems
<input checked="" type="checkbox"/>	212	Pathogens and Nematodes Affecting Plants
<input checked="" type="checkbox"/>	216	Integrated Pest Management Systems
	315	Animal Welfare/Well-Being and Protection
	601	Economics of Agricultural Production and Farm Management

IV (H): State Defined Outcome Measures

4. Outcome Target - Number of established farms and farm related businesses by individuals and cooperatives.

5. Outcome Type

Change in Knowledge Outcome Measure

Change in Action Outcome Measure

Change in Condition Outcome Measure

Enter by Quantitative and/or Qualitative Method Below as appropriate.

Quantitative Outcome

Year	Quantitative Target (If appropriate)	Actual
2010	0	374

Qualitative Outcome or Impact Statement

Issue (Who cares and Why?): (500 Char Max)

PCC: PCC-CRE Water resources qualities are improving now because of the management technologies and practices that have been promoted to the people.

Farmers are now adopting proper cultural management technologies resulting in increased production and quality of root crops

Alternative piggery operations and rainwater catchments maintenance promotion and education should be adopted by farmers, youths and the general community to improve water resources and protect the environment.

High quality planting materials, proper cultural management and crop protection technologies being demonstrated should be adopted by farmers to improve farm productivity.

CMI: Land for planting and farming is limited or unavailable for most individuals. For those who have land and have started planting, they noticed that their plants were infested by bugs and pests. The RMIEPA has banned the use of pesticide control.

According to the RMI Water Survey 2009, the percentage of total population in households without water catchments on Ebeye and Majuro is 37.5. More than half of the population in the Republic of the Marshall Islands rely on rain water for human consumption purposes. It has been discovered that 75% of the households' water is contaminated of pathogen and E-Coli. Due to lack of knowledge and information on proper water treatment, people are bound to experience health issues.

COM-FSM: It has been one of the college mandates to provide technical assistances to the communities as requested in order to improve health, status and the environment. Trainings provided would improve skills, knowledge and confident of participants to pursuit in home garden/container gardening.

Many in the client base are not aware of the opportunities in agriculture whether as farmers or professionals. Career training and entrepreneur training and input support are needed to encourage ne-comers to develop farms and markets. Understanding of the limitations of tropical soils is critical.

What has been done: (500 Char Max)

PCC: PCC-CRE- Continuous effort and collaboration between health agencies, environment and water agencies in promoting the protection and conservation of the water resources and environment are on going to ensure safe and healthy water and environment to the people of

Palau. Other outside sources have realized the importance of water so education program to protect water resources (including rainwater catchments) has been implemented to support local agencies with funding and technical assistance to improve the current conditions of water resources.

PCC-CRE- High quality disease-free and high yielding planting materials were distributed and proper cultural management, adequate fertilization and crop protection technologies were adopted as key elements for successful production of root crops in Palau

CMI: After meeting with the farmers, the Agriculture Extension Agent discovered that they did not have enough knowledge or information on pest management. So the Agriculture Extension Agent provided translated brochures on pests and pest controls to the farmers. He has begun collecting pictures of local plant pests for training and awareness purposes.

The Water Quality Extension Agent worked with partner agencies to address this important issue by offering awareness trainings and workshops. Tested the water sources for bacterial contaminants. Also worked with schools and the communities. Introduced and demonstrated the First Flush Device concept. These activities were conducted in the highly populated atolls and islands.

COM-FSM: CES agents completed trainings to all Centers on Pohnpei and established vegetable garden at each site. The parents/guardians and teacher(s) from these centers participated in these training/demonstration and would continue to maintain their site in preparation for the ECE wide agriculture fair to be held in January 2011,

Students have been recruited into the college programs in Agriculture. Agro-forestry and Sustainable Agriculture programs have been promoted. Basic skills and knowledge on agriculture were provided as well as seedlings and planting materials in order to start gardens. Extension level publications are being distributed and direct farm visits are conducted to support entry level producers.

Results: (1000 Char Max)

PCC: The collaborative efforts and promotion of conservation and protection of the natural resources (water & land) have improved most of the quality of water and environment.

Use of disease-free and high yielding planting materials and adequate fertilization were essential for high yield and productivity of root crops. Visitors touring the R & D Station are interested to adopt the practices showcased in the demonstration farms.

CMI: The Agriculture Extension Agent continued working with Ministry of Resources and Development personnel and the ROC Taiwan Technical Mission staff to find environmental friendly methods to kill the pests so that people can continue gardening and farming.

Homeowners have expressed their appreciation for the program's ongoing effort to address the water quality issues. Before and after test results indicated that people's understanding and knowledge of water safety and management have improved. There is plan to continue working on introducing few more devices for people to use in their homes to have safe water for human consumption.

COM-FSM: 100 demonstrations to 22 ECE Centers regarding home garden training for some 337 parents/guardians of Early Childhood Education Program these home and ECE gardens have supplemented the school menu in reducing cost and increase utilization of locally grown vegetable. Total of fifty-seven gardens in Kosrae and 39 in Pohnpei were established. On farmer in Yap reached sales of \$2000 per month by the end of the year. Farmers in Chuuk planted leguminous trees as hedgerows to provide mulch and compost materials to improve soils. The President of the FSM included the statement of "Go Local" in his State of the Nation address. Vegetable products are used in the kitchen to improve family meals.

3. Associate KAs from the Planned Program. (Check all that apply).

	KA Code	Knowledge Area
x	102	Soil, Plant, Water, Nutrient Relationship
x	111	Conservation and Efficient Use of Water
	112	Watershed Protection and Management
x	133	Pollution Prevention and Mitigation
	136	Conservation of Biological Diversity
x	202	Plant Genetic Resources
	204	Plant Product Quality and Utility (Preharvest)
x	205	Plant Management Systems
x	212	Pathogens and Nematodes Affecting Plants
x	216	Integrated Pest Management Systems
	315	Animal Welfare/Well-Being and Protection
x	601	Economics of Agricultural Production and Farm Management

IV (I): Planned Program (Evaluation)

1. Evaluation studies Completed. (Check all that apply)

- 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 (individual, group, organization) & non-participants
- Comparison 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(s) _____

What are your Evaluation Results? (3200 characters)

PCC: PCC-CRE- The participants showed a little knowledge, skills and awareness but after the education, training and demonstration they were more comfortable with what they have acquired. Some of the participants valued the water resources and environment that they took for granted.

The root crops germplasm collection at PCC R & D Station has been a reliable source of planting materials of high yielding varieties of taro, sweet potato and cassava which are essential components to increase productivity. Biocontrol agents have effectively controlled pests of taro and cassava.

CMI: Working with clients on addressing water quality issues was challenging and educational. More funding for water quality program will allow the Extension Agent to target the populated islands and atolls. It will also allow to conduct follow up visits to monitor for program impact.

The Agriculture Extension Agent got to know the significance of agriculture and especially on the practical skills that a farmer must possess in the field.

COM-FSM: Experiments are showing positive results and farmers are showing increased interest in developing agricultural farms. The extension activities have improved knowledge, created awareness and developed skills of participants in sustainable agriculture systems. Ultimately the projects have developed positive attitudes, zeal for learning techniques and farming aspects, and have changed the behavior of the participants. More than 19,500 elite seedlings of different varieties of banana, taro, sweet potato and vegetables were produced through micropropagation and/or nursery management system. Total 10,031 seedlings of different varieties of banana, taro, sweet potato and vegetables were distributed to 213 interested farmers. New varieties of banana are bearing fruits and farmers are very happy to harvest excellent bunches of banana.

- Need to institute effective monitoring and evaluation system to obtain accurate records from extension agents outside Weno
- Lack of integration of production, marketing and processing of local produce
- Lack of sustainability in traditional crop production
- Develop strategies to uplift the image of farming as a stable source of family income

Families that participated in the program produced their own vegetables and continue to maintain their gardens. And municipalities that participated in the program displayed more vegetables during their perspective agriculture fairs this year. Farmers in Yap are producing enough noni to require external markets. More yellow varieties of bananas and other crops are available in markets. More farmers are treating animal diseases using local medicines and are requesting less services from Extension staff. Farmers are accepting agro-forestry techniques for soil improvement.

Experiments are showing positive results. High efficiency protocols and nursery techniques have been developed for mass-multiplication of different varieties of banana, taro and sweet potato. Initial grafting experiments on citrus are showing positive results. Ultimately the

projects have developed positive attitudes, zeal for learning techniques and farming aspects, and have changed the behavior of the participants.

Key Items of the Evaluation(s) for CSREES Attention. (3200 characters)

PCC: PCC-CRE- Water Education campaign and dry litter waste management workshops and demonstrations has been successful in providing continuous education and awareness to farmers, youths and community people as well as government and private organizations.

The tissue culture technique has been successful in providing a continuous supply of taro and banana planting materials to farmer clients. Biocontrol agents have been successful in controlling pests of root crops and invasive weeds in Palau.

CMI: 180 farmers from Laura village have acquired the basic skills in farming. The Agriculture Extension Agent plans on working with farmers from other populated island/atoll. In order to do so, funding should be increased.

Additional funding to cover all thirty islands in the Republic. More programs in schools and in the communities.

COM-FSM: Increased germplasm types,

- Increased seedling production,
- Increased number of farmers,
- Increased number of agricultural farms,
- Presented results of research and extension project during scientific conferences and meetings,
- Published publications related with the projects,
- Developed High efficiency protocols for rapid multiplication of banana, sweet potato and taro
- Extension activities resulted in improved knowledge, created awareness and developed skills of the participants in sustainable agriculture systems

Positive results of the evaluation:

- Use of local plants and farm residues as fertilizers and pesticides
- Conserving local plants for food, medicinal and other uses
- Revival of traditional farming through Agroforestry approach

For improvements:

Developing crop growing less laborious and low-demanding technologies matching with the socio-cultural activities hampering agricultural production such as at least no work for three days during funerals, etc

There are increased number of students with interest in farming for profit and increased number of commercial farms,

Research is effective in small programs if targeted efficiently such as developing high efficiency protocols for rapid multiplication of different varieties of banana, sweet potato and

taro, and in vivo and in vitro grafting experiments in lime showed positive results and sour orange rootstock accepted Mexican lime and Mexican lime thorn-less budwood. There is a definite need to develop strategic plans in Food security and in responses to climatic change including identifying or developing salt tolerant root crops and skills in sustainable agriculture systems. Stakeholders are in need of marketing guidance and processing techniques to add value and lengthen shelf-life of local foods.

IV (J): Planned Program (Outcome)

1. External factors which affected outcomes. (Check all that apply)

- Natural Disasters (drought, weather extremes, etc.)**
- Economy**
- Appropriation changes**
- Public Policy changes**
- Government regulations**
- Competing Public priorities**
- Competing Programmatic Challenges**
- Population changes (immigration, new cultural groupings, etc.)**
- Other**

Brief explanation of external factors which affected the outcomes. (Opportunity to discuss Unmet Goals). (3200 characters).

PCC: Economy would affect the outcome for farmers who can't afford the Dry litter system and the supplies to operate the dry litter system as well as rainwater catchments and their maintenance. There is a need to hire a Crop Protection Specialist to assess and develop effective techniques to control new crop pests at may seriously affect crop production in Palau.

CMI: The arrival of the chemical reagents to test for bacteria took over 6 months, which hindered the testing component of the awareness activities. The Regional water quality project fund was reduced which made it difficult to do all proposed activities. The arrival of the chemical reagents to test for bacteria took over 6 months, which hindered the testing component of the awareness activities. The Regional water quality project fund was reduced which made it difficult to do all proposed activities.

COM-FSM: Limited supplies and funding to carry of planned activities played one of the major constraints in the program. Additionally, transportation, extreme bad weather, scheduling of field trip boats to the outer islands with no advance notice of ship scheduling. Drought, heavy rains and low government budget for agriculture hampered the delivery of efficient services especially to far-flung villages outside the lagoons due to unavailability/lack of travel money. Likewise, local populace looked down in farming as a dirty and low-paying job. Wildfire during hot days caused crop losses in affected areas. The weather has contributed to the effect of the outcome, especially with cucurbits and is a strong limiting factor in the production of tomatoes. Duplication of efforts through the Department of Resources and Economic Affairs and local and international NGOs in programs

which are similar to the backyard garden program create misunderstandings with farmers. The tidal surges of December emphasize the need for Food Security initiatives, management for atoll food systems as sea levels rise and salt tolerant crops and/or rapid generating crops for post-disaster relief.

Other factors affecting production are the number of working age Micronesians who are emigrating each year. Local statistics indicate close to 2800 emigrants per year.

IV (A): Planned Program (Knowledge Area)?

Name of Planned Program: Families, Youths & Communities

1. Enter the program Knowledge Areas (up to 20) and a percentage for each (total of each column must equal either 100% or 0%).

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

IV (B). Planned Program Inputs

1. Enter the actual amount of professional FTEs/SYs expended for this Planned Program.

	1862 Extension	1890	1862	1890 Research
Plan	12.4		0.0	
2010	6.5		0	

2. Enter Actual dollars Expended in this Planned Program during FY 2007 (includes Carryover Funds from previous years). The values must be whole number i.e. no commas or decimals are allowed.

	Extension		Research	
	Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
2010		0	0	0
	1862 Matching	1890 Matching	1862 Matching	1890 Matching
2010	0	0	0	0
	1862 All Other	1890 All Other	1862 All Other	1890 All Other
2010	0	0	0	0

IV. (C): Planned Program (Activity and Participation)

1. Brief description of Activity (What was done?): (3200 characters)

PCC: Continuous promotion of science and school outreach such as, after school science program, summer program for Upward Bound, school outreach and presentation, Earth Day mini fairs, STEM fair were conducted in the schools and community to promote and provide awareness on major environment and water issues in the island as well as the entire micronesia. Students were involved in short classroom lectures, hands on activities, science projects contests, mini fairs, field trips and summer programs.

CMI: The 4-H/Youth Extension Agent conducted couple of life skills activities targeting students and youth dropouts. The activities were on traditional weaving and basic knitting workshop for 44 female participants, a Human Resource Development training for 12 out of school youth, and an After school tutoring session in math took place within three months with 15 Laura High School seniors and 35 Eight graders in Laura. The Extension Agent also ran a basic computer training for the Majuro Middle School 8th graders. The Extension Agent went to Ebeye Island and conducted an awareness program with all the middle and high school students, both in the private and public high schools. The Extension Agent also participated with partner agencies during several sponsored events throughout the year, such as World No Tobacco Day, RMI Youth Day, and RMI Clean Up Day. Also took part in performing science demonstrations during World No Tobacco Day, having partner with the Prevention Fellow Team.

COM-FSM: • Culinary Arts Participants employed measurements of ingredients and cooked some local recipes like fish soup, breadfruit chips, banana chips, coconut meat soup, tapioca chips banana jam egg omelet with local vegetables, fish soup, baked breadfruit in local charcoal oven and pancake. They earned and saved from these recipes served for the families, guests and neighbors.

- Sewing: Participants mostly homemakers and few Chuuk campus employees made patterns and sew boys' and men's shorts, pants and polo shirt and girls' and ladies skirts, ordinary blouses and muumuus.

- Wood carving: Trainees had to carve story board; octopus, turtle and love stick which they sold locally or in Guam.

- Handicrafts – Participants made mwaramwar, necklaces, trays, decors and leis, which were saleable items during special occasions and to the visitors.

- Youth program- Teaching and refresher modules in English, Math and Science were patterned from the FSM National Standards and Benchmarks for non-passers of high school and college entrance tests and high school drop-outs.

Awareness activities by Extension and collaborators (YAP)

Substance abuse: A total of 34 youth representing 2 youth groups from the outer islands and 5 from Yap Island properly successfully completed 3-month training on the topic of Substance Abuse. Participants were exposed to issues related to or directly as a result of substance abuse like drunkenness, disturbing peace, causing family problems, other petty crimes, and illnesses. The main resource persons were experts from Public Health, Public Safety, Rehabilitation, SAHMS. Nine of the 34 participants attended as resource persons and they shared their experience as they under-going rehabilitation activities.

Beautification: A total of 232 youths in two municipalities participated in clean-up of main and secondary roads, filling potholes, maintain existing beautification flowers on the roadsides, replant, planted new plants where needed.

Cultural preservation: A total 12 youth participated in a Cultural Preservation program conducted over the summer in one of the municipalities (Weloy). The Youth Extension Agent and Elderly were the resource persons for this activity. Participants learned traditional dances, chants, tradition sports like throwing spears, and a number of skills-related strings games.

Handicrafts: A total of 15 youths in one municipality (Weloy) completed a summer-long hands-on workshop in making head and necklaces, tray and various types of wall decorations. To graduate each participant is required to make two types of basket, two kinds body decors including head or necklaces, ring; and two types of wall decors for female participants. Male participants had to complete a bamboo raft, lime-shaker, and a mat. Most handicraft materials like shells, hibiscus and pandanus plants are abundant making possible for all participants to complete the stated requirements and graduated. Also because of the availability of the raw materials there are potentials for young people to go into handicraft entrepreneurship.

With the collaboration of Yap Youth Service the CRE Youth Extension Agent also was involved with about 465 youths at 9 elementary schools on skills and sportsmanship activities including volleyball, softball, soccer, and table tennis in preparation for an annual competition on those sports.

Total contact made by Extension during the reporting period was 1,408 youth thru reported activities and 2010 Annual Youth Summit where about 650 youth participated.

Families, Youth and Communities are offered in Chuuk, Yap and Kosrae. Kosrae received support from a special CYFAR Grant for Entrepreneurship Training for youth. A volunteer Food technologist collaborated with the extension service in Pohnpei to promote new value added food products from local commodities. Specific youth rehabilitation programs are conducted in Chuuk to reintroduce troublesome children back to school. On Chuuk and Kosrae there is a strong effort in small scale entrepreneur development through the teaching of sewing, food processing and handicrafts to producers and community groups in Knowledge areas 802 and .

All states are addressing this program although in Pohnpei it is listed under aquaculture since the parent program includes developing items such as production of handicrafts. The other three states have programs that fit under the three programs but focus primarily on Communities and Youth programs. Conducted program trainings on food processing, entrepreneurship and sewing programs in the four communities.

Youth Development: Finished a 3-month Youth-at-Risk training involving lectures and hands-on experiences from experts from Public Health, Safety and other public and private agencies and victims of substance abuses and law breakers (felony and other petty crimes). Youth are also heavily involved in cultural preservation and community beautification programs, sport

programs and are directly addressed in entrepreneurship development funded through a CYFAR grant.

Culinary Arts: As newly implemented project, it offered simple but saleable food items such as cookies, spaghetti, banana cake, white bread and pancakes. Communities throughout the FSM are requesting more food preservation and value added training to increase use of local produce and extend the market life.

Handicrafts: Most handicraft materials like shells, hibiscus and pandanus plants are abundant. New development in the pearl and shell handicrafts have potential. To graduate, participants had to finish making head and necklace maramar, tray and two kinds of wall decors.

Sewing: For three months, each participant had to finish making pants and shirts for boys and men and regular and special dresses for girls and ladies like skirts, blouses, dresses for office and parties like muumuu and gowns.

1. Brief description of the target audience. (3200 characters)

PCC: The Youth development program in Palau caters students in elementary, high school and college level, teachers, school administrators, school cooks and parents.

COM-FSM: Target audience included youths, homemakers, students, employees, unemployed and other interested individuals and groups like churches.

Youth groups in different municipalities and youth in school grades 7 and 8.

FSM is a country of 4 states comprised of 607 islands in an ocean area close to the size of the United States with which it is associated in a Compact of Free Association status. Farming is confined to a few islands and to primarily subsistence, traditional crops and systems.

Unemployment is high and few communities have opportunities for outside income. Youth are often disillusioned and see no real future in education. Suicide rates are high. People that are capable to learn and apply new skills to improve health and social situations. CRE programs have reached and trained different groups of people in the communities such as unemployed women, school children, vocational staff, youth and families at-risk, community women groups, local food producers and care-takers. Target audience included youths, homemakers, students, employees, unemployed and other interested individuals and groups like churches. Youth in the ages of 9-25 are included.

IV (D): Planned Program (Outputs).

1. Enter the actual number of persons (contacts) to be reached through direct and indirect methods. (Standard Extension Output).

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

2010	781	1870	7616	2800
------	-----	------	------	------

2. Number of patents (Standard Research Output).

Patents Received

Year Target

Plan	0
2010	

If patents received, please list them here.

3. Publications (Standard General Output Measure).

Number of Peer Reviewed Publications.

	Extension	Research	Total
2010			

IV (E): State Defined Output Measure

1. Output Target

Number of training conducted targeting youths.

Year	Target	Actual
2010	12	17

1. Output Target

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

Year	Target	Actual
2010	6	20

1. Output Target

Total number of youth clubs organized.

Year	Target	Actual
2010	3	1

IV (F): State Defined Outcome Measures

5. Outcome Target - Number of youth with increased awareness and understanding of roles and relationship with parents.

6. Outcome Type

Change in Knowledge Outcome Measure

Change in Action Outcome Measure

Change in Condition Outcome Measure

Enter by Quantitative and/or Qualitative Method Below as appropriate.

Quantitative Outcome

Year	Quantitative Target (If appropriate)	Actual
2010	900	3500

Qualitative Outcome or Impact Statement

Issue (Who cares and Why?): (500 Char Max)

PCC: Youths, classroom teachers and their families are now knowledgeable and aware of local issues that impact the environment and marine resources on the island. More youths are now enrolled in science related field in the post secondary education.

Emerging threats of climate change, invasive species, pollution, industrial development and other environment and marine issues are arising in the island, therefore PCC-CRE in collaboration with other government and non government agencies are working together to conduct education awareness and activities to educate youths about the emerging threats to our island.

COM-FSM: Youth are disenfranchised and at risk due to family and cultural breakdown. Offering opportunities to re-introduce youth to the future saves them, their family and community much distress. Entrepreneurship training and skills training at all levels encourages opportunity for all community members but the greatest encouragement to youth. Acquisition of skills in domestic activities such as sewing, handicrafts, wood carving and culinary arts is necessary to develop sustainable sources of livelihood to indigent families. Educational achievement for the youth is important to assure sustainable growth and development of the nation with competent labor force. The national, state and local governments of FSM are highly concerned about the improvements in the quality of life of the youth and families. For the indigent families, gaining skills for domestic activities will assist the family to survive with their needs for food, clothing and others. Likewise, youth as future leaders and developers of the nation's economy have to be given appropriate education and training to be competent and competitive in job markets to reduce dependence in expatriates. Positive youth development in terms of knowledge, behavior, and health is a major issue with families with children and adolescent especially. Every parent is concern with safety of the children and wants the children to grow up with positive behavior and contributing persons in the society.

CMI: According to the statistics, the top three issues affecting the youths in the Marshall Islands are: (1) teen pregnancy; (2) suicide; and (3) unemployment due to lack of educational qualifications. The CMI-CRE will contribute by providing trainings to assist the participants in providing them useful information that they can use to improve their quality of life.

What has been done: (500 Char Max)

PCC: After-school programs, mini fairs, science fairs, summer programs, fieldtrips and lots of hands on activities and community clean-ups have been conducted in the schools and community to educate the youths and their teachers and parents on the environmental and marine resources protection and conservation.

COM-FSM: Entrepreneurship training is provided to youth in two states. Handicraft and other craft development training is provided and collaboration with Development Bank personnel improves the outcome results. Kids received carving, weaving, food processing, sewing training and entrepreneurial counseling. Selected drop-outs were re-introduced to the school system to continue their education.

The CRE provided hands-on training skills in culinary arts, handicrafts, wood carving and sewing based on the requests of local leaders, which were open to all interested individuals

through public announcement. On the other hand, results of the recent entrance tests for high school and college tests served as benchmark information on areas in English, Math, and Science to be tutored to the concerned non-passers.

Youth participated in training programs to learn life skills activities including cultural skills and knowledge, leadership and sports; and how to socialize even during sports and other competitions.

CMI: Youth and students were trained to be responsible in helping out their parents and other family members. They were provided trainings on life skills and income generating activities.

Results: (1000 Char Max)

PCC: Students, teachers, parents, school cooks and school administrators, government and non-government agencies who have been participants of the PCC-CRE program are much aware and knowledgeable of the environment and marine resources issues. They are more confident with what they've already learned in the program.

COM-FSM: In Kosrae, 2 youth sought business development, 2 participated in village fairs selling products learned for the program, 1 continues to carve food pounder and 20 women continue to make jam at home. A total of 111 women attended and completed their sewing projects satisfactorily. Most of the participants can sew their own dresses that they don't have to spend money on. Some don't even have their tailor shop but already make income from their sewing.

In Chuuk Participants learned and applied the skills they learned from culinary, handicrafts and sewing for their family needs and to augment family incomes. Youth-at-risk participants learned from experts, convicts and health-related patients how and why to avoid abusing body in using drugs, alcohol or making troubles.

Participants learned and applied the skills they learned from culinary, handicrafts, wood carving and sewing for their family needs and to augment family incomes.

Students with low proficiencies in English, Math and Science for high school and college entrance exams were equipped with needed skills to be successful passers of these tests.

CMI: The 44 females who completed the handicraft training all now put into practice the learning experience they've had, by making and selling their products and helping with family incomes. The participants in the Human Resources Development training have jobs that help contribute to family income. The Laura High School seniors who attended the after school tutoring session in math have all enrolled at the College of the Marshall Islands as full time students. The 8th graders have passed the high school entrance test and are in the sy2010 - 2011 freshmen class.

3. Associate KAs from the Planned Program. (Check all that apply).

	KA Code	Knowledge Area
x	608	Community Resource Planning & Development
x	801	Individual and Family Resource Management
x	802	Human Development and Family Well-being

x	804	Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures
x	806	Youth Development

IV (G): State Defined Outcome Measures

- 5. **Outcome Target - Number of families adopting interpersonal skills to improve quality of life and harmony in the family.**
- 6. **Outcome Type**
 - ___ Change in Knowledge Outcome Measure
 - __x_ Change in Action Outcome Measure
 - ___ Change in Condition Outcome Measure

Enter by Quantitative and/or Qualitative Method Below as appropriate.

Quantitative Outcome

Year	Quantitative Target (If appropriate)	Actual
2010	300	150

Qualitative Outcome or Impact Statement

Issue (Who cares and Why?): (500 Char Max)

PCC : Continuous environmental science education and natural resources protection and conservation education have changed youths, parents and teachers and school attitudes toward science and protection/conservation of the natural resources of the island.

COM-FSM: Positive youth development in terms of knowledge, behavior, and health is a major issue with families with children and adolescent especially. Every parent is concern with safety of the children and wants the children to grow up with positive behavior and contributing persons in the society.

How to provide skills in order for the youth and families to be assets rather than liabilities to the societies are concerns of the national, state and local governments, line agencies and other concerned civic-oriented organizations.

Youths and program participants are not participating in business development or entrepreneurial activities. Youngster exhibited respect and increased positive activities for parents at home, for village clubs and schools, and for the island community. Skills translated to economic action are ultimate goals that the CRE programs and other public and private entities would like to attain at specified budget and timeline for the youth and the families.

CMI: Statistics showed that most of the unemployment burden is fallen on the youth. Too much is depended on the parents.

What has been done: (500 Char Max)

PCC: After-school programs, Earth Day clean up, mini fairs and field trips have been conducted to the schools and community where youth involvement was encouraged; more youths are engaged in the activities so they can appreciate the or feel the importance of science as well as protection and conservation of the island’s natural resources.

COM-FSM: The CRE offered training in culinary arts, handicrafts, wood carving and sewing to its target audience. Later on, 10 % of the successful participants measured in terms of gaining self- or under company employment will undergo training in business skills. This training will open up opportunities for them to avail of bank loans/credit to augment their existing capitals.

Students tutored in English, Math and Science would pass either high school or college entrance exams.

Entrepreneurial training along with sewing and food processing trainings provided to youths and families involved in the program. Kosrae Small Business Development Center (SBDC) collaborated with CRE to carry out entrepreneurial trainings. In Yap, youth spent time with meaningful gardening, challenging sport activities, creative art and craft classes, and community beautification activities. A 3-month training was offered to At-Risk Youth by responsible individuals in their communities.

CMI: Twenty- seven females completed a handicraft training. Twelve out of school youth now have jobs and students have progressed into the next level of learning with better improved self-esteem.

Results: (1000 Char Max)

PCC: Now there is a great increase of students' involvement in community clean up, recycling, science contest, and science clubs. Students are now sharing information to their siblings and even their parents regarding environment and marine issues. Increasing number of students is pursuing their college education in agriculture and environmental and marine science in the local college and even abroad. Several schools are also conducting their own after school science program at their school sites to motivate their students in science field.

COM-FSM: Culinary Arts: Participants helped their own families, friends and relatives by sharing learned skills in cooking nutritious local foods for healthy diets.

Handicrafts: Participants utilized their skills in making handicrafts to be sold for additional money to their families or as gifts during special occasions like birthdays, graduation, etc.

Sewing: Participants saved money from buying clothes for the families, friends and relatives during special occasions or earned money for family use.

Woodcarving. Participants could make extra incomes from selling wood carving.

Youth program Teaching and refresher modules were appropriate to the needs of students needing further skills in English, Math and Science tests for successful completion of GED, admission to high school or college.

Two youth sought business development, 1 enrolled back into post-secondary education and the rest of the trainees continue to weave marmar, making local jam for the family. Clients are able to sew their own clothes and save the amount spent on locally sewn dresses. Some clients are considered as tailor as they are now making their own income out of sewing. Clients are now aware of some offices or agencies that can help them to create their own business. Graduates of the 3 month re-entry program are recommended for return to their

schools. Program found more responsible youngsters respecting not only their parents, but their peers as well and readily taking the leadership in supervising younger club members in youth activities. Increased number spends more time to help around the house and in the community.

CMI: The participants of the 4-H activities and trainings have better improved self-esteem.

3. Associate KAs from the Planned Program. (Check all that apply).

	KA Code	Knowledge Area
x	608	Community Resource Planning & Development
x	801	Individual and Family Resource Management
x	802	Human Development and Family Well-being
x	804	Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures
x	806	Youth Development

IV (H): State Defined Outcome Measures

2. **Outcome Target - Total number of families and youths benefiting from the use of learned skills.**

3. **Outcome Type**

___ Change in Knowledge Outcome Measure

___ Change in Action Outcome Measure

x Change in Condition Outcome Measure

Enter by Quantitative and/or Qualitative Method Below as appropriate.

Quantitative Outcome

Year	Quantitative Target (If appropriate)	Actual
2009	300	302

Qualitative Outcome or Impact Statement

Issue (Who cares and Why?): (500 Char Max)

PCC: More and more students who have participated in the youth development program are choosing science as their field in higher education. More modification of the science subjects with the local environmental issues and threats are being taught in the classroom with the local environmental agencies instead of just teaching thru the text books.

Youths and their teachers and school administrators who participated in the program are more considerate now and they are influencing the youths to view science as important and their future depends on their actions in the schools and community.

COM-FSM: Immediate and extended families of these participants experienced the immediate impacts from savings and extra incomes for them. They could positively contribute to the general economic and social well-being of the FSM. Tutored students would have confidence and skills to pass specific entrance exams, a situation of big delights to the families and friends.

Living condition is not suitable and inflation makes purchasing difficult. Families prefer to preserve and possibly market some of their produce rather than buy their needs. All clients

experienced the same issue that they all need to learn to preserve or sew in order to generate income as well as for themselves and for their kids.

CMI: Statistics showed that most of the unemployment burden is falling on youth. Programs were conducted to prepare the participants for job interviews to seek employment and/or to be self-employed. Inadequate parental support and supervision is having a profound negative impact on young people.

What has been done: (500 Char Max)

PCC: Youths who did not really care about science are now showing interest in science. Students' involvement in the science clubs and other science projects illustrates the shift of mentality and stereo typing toward science. Students are now more proactive toward science field than before

COM-FSM: The CRE, in collaboration with the private sector grants under the local government and other government and non-governmental agencies, responded to the needy and disadvantaged families in Chuuk by offering training skills in handicrafts, culinary arts, sewing and wood carving. Tutoring lessons in math, English and science were also offered to interested students with limited skills in taking entrance exams in high school and college.

Counseling toward standard of life, behavior, attitudes, and being responsible for life has been integrated into the Entrepreneurial training. Sewing and food processing trainings were conducted to program participants.

CMI: Trainings on basic life skills were conducted in the communities, elementary and high schools to teach participants on how to strengthen their relationships with parents and families and ways to improve their livelihoods.

Results: (1000 Char Max)

PCC: The program is ongoing and it is a long term goal to really change the condition of the outcome but almost half of the participants population has changed their attitude toward conservation and protection of the environment and marine resources as well as their academic choices by considering science as an option to further their education on.

COM-FSM: The participants transferred their learned skills in culinary arts, handicrafts, handicrafts and sewing and positive attitudes to earn a living for themselves, their families, relatives and communities. The tutored students in English, Math, and Science develop positive attitudes to learning and open up opportunities for better competition in the job markets. They served as models of change for better results, if and only when they have developed the skills and attitudes to love work and care for others.

Immediate results indicate that at least a few of the participants have attempted to establish their own small businesses. At least one youth returned to school and most families indicate they are saving money by producing their own clothing and preserving food. Longer term results are not available.

CMI: More than two hundred youth and students were taught on basic life skills. The twenty seven students who completed the handicraft training displayed their products to the public and having presenting few as donations to CMI, Land Grant, and MIEPI.

3. Associate KAs from the Planned Program. (Check all that apply).

	KA Code	Knowledge Area
X	608	Community Resource Planning & Development
x	801	Individual and Family Resource Management
x	802	Human Development and Family Well-being
x	804	Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures
x	806	Youth Development

IV (I): Planned Program (Outcome)

1. External factors which affected outcomes. (Check all that apply)

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriation changes
- Public Policy changes
- Government regulations
- Competing Public priorities
- Competing Programmatic Challenges
- Population changes (immigration, new cultural groupings, etc.)
- Other

Brief explanation of external factors which affected the outcomes. (Opportunity to discuss Unmet Goals)

PCC: PCC-CRE finds it very challenging to offer programs to public schools because of the schools annual calendar of events that has to be followed by all the schools. Another factor is competing programmatic challenge where different government and non government agencies who are conducting science programs to the schools are not networking their topical issues with each other so some of the information is repetitious and the schools and the community get frustrated and don't show up or participate.

Last factor is the government regulations-this would affect the program if the government regulations changes during the program. It could be positive impact or negative depending on the regulation.

COM-FSM: Outcomes are affected by natural disasters like heavy rains when participants failed to show up for training. Competing public priorities and programmatic challenges determine the focus and direction of program activities and funding.

Priorities on projects are focusing on larger scale and not directed on youth. Unexpected impact from weather contributed to success of project. Poor economy of the state caused lesser attention on youth programs that can develop youth entrepreneurship and contribution to the society's economic development. Lack of funding to start business. Even though the clients learn all the techniques of sewing, they can not start their business without funding.

Most selection for those who will be funded goes only for those who have money to pay back the loan.

National statistics show that a high number of youth 15-40 years of age leave the country each year. Income generation and business development are impacted by the lose of this group.

CMI: Due to limited funds, not all proposed activities were implemented.

IV (J): Planned Program (Evaluation)

2. Evaluation studies Completed. (Check all that apply)

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 (individual, group, organization) & non-participants

Comparison 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(s) _____

What are your Evaluation Results? (3200 characters)

PCC: Evaluation results illustrate that although there are lots of programs out there about science and water issues, youths and school administrators and teachers are not familiar or aware of them. Although the issues are mostly local issues the schools overlook them and just concentrate on the text books that are aligned with foreign context. The evaluation results show that the students and adults have limited knowledge or no knowledge at all about the issues discussed or presented.

COM-FSM: In some cases Evaluation is done before and after activities where participants would complete a pre and post tests to see level of awareness. In all cases Evaluation is done by observation and discussions during program.

Participants learned and shared expected skills at culinary, handicrafts, wood carving and sewing to their families, friends and communities.

They earned for themselves, their families and friends to buy what they need for food, clothing, medication or social activities and provided assistance to others whom they deemed they had to assist financially

The concerned students learned adaptive skills in taking exams and further developed confidence in learning.

Observation of participants reveals improved self-esteem, responsible citizens, participate in community activities and seek assistance to develop their own business. Individual interviewing also states that 100% of participants are willing to explore more traditional & other skills which will lead to entrepreneurship. Some participants were able to sell their products

during the community fair. Knowledge and skills learned from extension programs has helped programmed families reduced expenses on clothing and dollar spending on family needs. Participants learned and shared expected skills at culinary, handicrafts and sewing to their families, friends and communities. Youth-at risk participants learned to be responsible children to their parents, good students and good law abiding citizens. They earned for themselves, their families and friends to buy what they need for food, clothing, medication or social activities and provided assistance to others whom they deemed they had to assist financially

CMI: Results indicate that the participants had expanded their knowledge and livelihood opportunities after completing the trainings provided by CRE. There is a need to expand the program to other participants both in the capital city and in the outer islands.

Key Items of the Evaluation(s) for CSREES Attention. (3200 characters)

PCC : The CRE program must help to address the low level of awareness and knowledge that the schools, administrators, teachers and students have in regards to environment and marine science issues. The program must help the schools to change the mentality of students toward science subject by proving exciting techniques or activities that will motivate the students as well as help them to understand difficult problems in science.

COM-FSM: Substance abuse – less use of drugs and less disturbance and juvenile delinquency.

Beautification – No of participants, quality of beautification and condition of roads.

Cultural preservation – No of participants showing skills learned

In all program and project activities leadership and the spirit of volunteerism, cooperation are assessed.

Culinary Arts: Learning to cook for the family and earn from culinary art skills

Handicrafts: Opportunities opened for domestic and foreign exports if and when an association could be established for marketing their fine handicrafts

Sewing: Essential to be adopted by women in Chuuk where they preferred tailored to ready-made clothes to save and earn.

Wood carving. Life-long skills that can definitely augment family income.

Youth Program. Results from entrance tests conducted at high school and college levels reflecting CRE intervention in learning and pursuing higher degrees of learning for slow learners

Micronesians are enthused by programs which offer the chance to be more self-sufficient. There is a robust entrepreneurial spirit here that needs to be cultivated and stimulated with available support. Youth are not bad, they are disillusioned by hat they see as their future. Emigration is appealing for many youth therefore programs should be developed to prepare them for that future.

CMI: The population of RMI is very young with an increase over 73% under the age of 25. The youth unemployment rate is estimated at 80%. There is a need to expand livelihood opportunities through targeted program and life-skills trainings.

IV (A): Planned Program (Knowledge Area)?

Name of Planned Program: Food, Nutrition & Health

1. Enter the program Knowledge Areas (up to 20) and a percentage for each (total of each column must equal either 100% or 0%).

KA Code	Knowledge Area	%1862 Extension	%1862 Research
501	New and Improved Food Processing Technologies	15	25
502	New and Improved Food Products	15	25
701	Nutrient Composition of Food	10	10
702	Requirements and Function of Nutrient and Other Components	20	20
703	Nutrition Education and Behavior	10	10
711	Ensure Food Products Free of Harmful Chemicals, including, Residues from Agricultural and Other Source	20	20
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxin	20	20
724	Healthy Lifestyle	20	20
	Total	100	100

IV (B). Planned Program Inputs

1. Enter the actual amount of professional FTEs/SYs expended for this Planned Program.

	Extension		Research	
	1862	1890	1862	1890
Plan	10.0		0.0	
2010	6.5		1.5	

IV. Enter Actual dollars Expended in this Planned Program during FY 2007 (includes Carryover Funds from previous years). The values must be whole number i.e. no commas or decimals are allowed.

	Extension		Research	
	Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
2009	\$	0	\$	0
	1862 Matching	1890 Matching	1862 Matching	1890 Matching
2009	0	0	0	0
	1862 All Other	1890 All Other	1862 All Other	1890 All Other
2009	0	0	0	\$

V. ©: Planned Program (Activity and Participation)

Brief description of Activity (What was done?): (3200 characters)

PCC: PCC-CRE- Six human nutrition and food safety programs were conducted in Palau to increase knowledge and impart skills in nutrition and health related issues.

PCC-CRE-Implementation of two researches was continued this year, namely, (1) Product Development for Food Security in Palau, and (2) Product Development of Rabbitfish and Crustaceans in the Republic of Palau. Forty six (46) processed food products from fish, coconut, bananas, rabbitfish, and crabs were developed. Seven hundred twenty (720) clients tasted these products which they rated “like very much”. The products are being studied for their storage properties.

CMI: The CRE Nutrition program and Ministry of Internal Affairs’ Women bureau, conducted a two days food processing and safety workshop which was held at the Women’s Training Center. More than twenty ladies participated in the event and received Certificate of Completion.

The EFNEP Extension Agent participated in this year’s 2nd Annual Bob (Pandanus) Day Festival. Demonstrated few recipes using Bob (Pandanus) as the main ingredient.

The EFNEP Extension Agent presented and demonstrated some products and recipes of Pandanus to the participants of the 29th Annual PIBBA (Pacific Islands Bilingual Bicultural Association) Conference.

232 females completed the EFNEP classes that were conducted throughout the year

COM-FSM: • Taught were EFNEP lessons, healthy lifestyle and cooking demos of nutritious local foods participants at Sefin, Mwán in Weno and Northwest Islands of Pulusuk, Polowót, Tamatam, Polap, Nómwin and Ulul.

- Demonstrated were safe handling of foods from cooking to serving foods to reduce food-borne diseases
- Lectured and demonstrated consumption of local produce such as fish/sea foods, fruits and vegetables through preparation of local nutritious recipes, observing healthy diet and physical fitness/exercises in preventing NCD’s (Non-Communicable Diseases): UFO Fefen on May 5-6: Go Local-Traditional Agroforestry Food Crops and Health Improvements Workshop at UFO Fefen on May 5-6: Children’s Diabetes Fair held on July 15 at Saramen Chuuk Academy Gym and Siis in July -
- Provided dietary counseling, follow-up, and BMI (Body Measurement Index) on previous EFNEP clients
- Formed Chuuk Advisory Council composed of local government and non-government entities for stronger stakeholders’ participation in planning and designing effective CRE program implementation, monitoring and evaluation strategies

Conducted Food, Nutrition & Health awareness programs thru workshops and trainings in the communities to both adults and youth population.

During the year, several community trainings on Nutrition, Education and Behavior have been conducted in different communities around Pohnpei include Metipw, Sokehs Pah; Meropwlap

Nan Madap; Nett, Kolonia, Ohmine and Pohnrakeid Early Childhood Education (ECE) centers; Kepin Kep; and Sekere. A total of two hundred seven individuals including those attending the EFNEP trainings have been reached or assisted in this knowledge area. The communities and individuals participated in the programs have increased skills and knowledge, thus improving livelihood socially, economically, physical and health. More locally nutritious dishes have been served at functions in the family, communities and the government.

One hundred forty-eight homemakers participated in the EFNEP program covering training ranging from young breastfeeding mothers to young pregnant mothers from October 2009-September 2010.

During the World Food Day 2009, the EFNEP agents engaged in all the activities carried out including preparation, setting up, public awareness programs/activities, and finally coordinating the cooking contest with judging the recipes quality (nutrition, ingredients, and presentation) of each recipe and awarding of prizes. Twenty-three individual registered for the events

Seven presentations and cooking demonstrations were carried out during the year in Kapinga Village and National Campus with two separate events, Rohi, Eirike, and Pohnpei Campus. A total of 426 people participated in these events to learn and be encouraged to utilize local produced in meals prepared for households and families. Participants range from college students to teachers and parents/guardians of Early Childhood Education (ECE) centers.

During the year, EFNEP agents were fortunate to have visited Sapwuahfik, Pingelap and Mwoakilloa to monitor and evaluate success of programs delivered during previous years. One of the major or if not the major constraints facing the programs is 'length of time' between visits due to limited transportation to the remote island of Pohnpei. People lose interest and momentum and as such affected the sustainability of these programs. One hundred and one homemakers from the islands participated in the evaluation assessment and activities.

Additionally, EFNEP Agents have completed reviewing and revising of the EFNEP recipe book, assisted of the JICA Senior Volunteer Food Processing Technician, mainly fish products and were able to lean and have hands-on on recipes testing and preservation processing on fishes, sea cucumber, papaya jam, and sour sop jam. The Senior Volunteer had conducted six demonstrations on college campus, communities and private establishments and entertained catering ventures with local food outlets. A total of 144 individual attended these demonstrations.

One success story that worth noting is at least 40 percent of the clients showed improvements in their second food recall vegetable intake. During the training in Sapwuahfik, one of the homemaker shared with the EFNEP staffs the problem she encountered with one of her child. The problem was that the five year old daughter had low vision at night. The EFNEP staffs shared and encouraged the mother to prepare and served her family meals with local crops, especially yellow-flesh crops. Later visit she indicated that there was improvement in her child vision. Whether that was a coincidence, its worth noting.

The Food, Nutrition and Health program is centered around the Expanded Food and Nutrition Education Program (EFNEP). In these program areas, a number of community workshops, school enrichment programs, EFNEP sessions, Lets Go Local Food Campaign and a Child Find survey were carried out. A total of over two thousand adult individuals and 175 youth including those attending the EFNEP trainings have been reached or assisted in this knowledge area. Groups of homemakers and young mothers successfully completed the EFNEP course. Homemakers were given vegetable cuttings and seedlings for backyard gardening after completion of the course. All planting materials given to homemakers were planted and used in their cooking.

More collaboration is evident in this program than most CRE Activities. Government agencies such as Departments of Education and of Health are critically aware of the health effect of poor diets. NGOs such as Island Food Community of Pohnpei have increased the research and exposure of the nutrition status of islands. It is poor and every source of information is being called upon to promote better diets, local foods, vitamin rich varieties of food and food safety.

The EFNEP staff also participated in an island wide Child Find survey. The purpose of the survey was to identify any disability that can be found from ages 0-5 yrs for intervention/prevention services to those identified with special needs. Nutrition counseling is an important component. The 24hrs food recall was taken on the child and counseling on the nutrition requirement for the age group was delivered to the parents and caretakers. Follow-up and focused school visits are conducted throughout the country to encourage youth to eat local, reject 'junk' foods and exercise. School gardens were started in many places.

Go Local Campaign was carried in many communities. There were also recipes prepared for display, cooking demonstrations were conducted and food safety lessons were presented.

1. Brief description of the target audience. (3200 characters)

PCC: The targeted audiences included families and individuals with: limited income, young children, low formal education level, and youth ages from 9-19 and home and school food handlers as well as food processors, people in the food business, women who prepare food in the home, and prospective food entrepreneurs.

CMI: Target audience include housewives, young mothers, dropouts, youth, school aged students, Ministry of Health staff, NGOs, nutritionists, farmers, church leaders, traditional leaders, local businesses, bakeries and restaurant owners, local and national government leaders and community in general.

COM-FSM: Adults including homemakers and church members; youth include youth groups, church youth choirs; and two member of the private sectors, like YCA (Yap Cooperative Associations, and Satawal Association.

Target audiences include women, home makers, youths, political/traditional/church leaders, students/staffs, interested community members.

Target audiences for the Nutrition, Education, and Health; include school children, youth, home-makers, males and females of all walks of life, and interest groups (NGOs, Women Group, Community Group, etc.)

FSM is a country of 4 states comprised of 607 islands in an ocean area close to the size of the United States with which it is associated in a Compact of Free Association status. Farming is confined to a few islands and to primarily subsistence, traditional crops and systems. As commercialization encroaches, and traditional diets change, programs have shifted to encourage entrepreneurship and to correct the deteriorating health problems due to nutrition related diseases and conditions.

Food Nutrition and Health Program is in effect throughout the country. Research indicates that 20-30% of Micronesians suffers from diabetes and heart related diseases while 80% are overweight or obese. This contributes to the escalating cost of health care throughout the country. The Extension services in all states provided nutrition related training through CSREES EFNEP programs and independently in collaboration with state Departments of Health, Dept. of Education, and with NGOs such as the Island Food Community of Pohnpei. Primary Knowledge areas addressed are 702; 703 and 712 in all states.

Target audience consisted of young mothers with children aged 0-5, young mothers with children (EFNEP clients, school children, youth, and interested individual.

IV (D): Planned Program (Outputs).

1. Enter the actual number of persons (contacts) to be reached through direct and indirect methods. (Standard Extension Output).

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contact Youth
Year	Target	Target	Target	Target
Plan	600	3000	300	1500
2010	3739	6564	1853	1850

2. Number of patents (Standard Research Output).

Patents Received

Year Target

Plan	0
2010	

If patents received, please list them here.

3. Publications (Standard General Output Measure).

Number of Peer Reviewed Publications.

	Extension	Research	Total
2010			

IV (E): State Defined Output Measure

1. Output Target

Number of community workshops conducted.

Year	Target	Actual
2010	12	51

1. Output Target

Number of coalitions strengthens.

Year	Target	Actual
2010	6	53

1. Output Target

Number of intervention conducted to individuals or small groups.

Year	Target	Actual
2010	134	55

IV (F): State Defined Outcome Measures

7. Outcome Target - Number of program participants who increase awareness of nutrition related health issues.

8. Outcome Type

Change in Knowledge Outcome Measure

Change in Action Outcome Measure

Change in Condition Outcome Measure

Enter by Quantitative and/or Qualitative Method Below as appropriate.

Quantitative Outcome

Year	Quantitative Target (If appropriate)	Actual
2010	900	2827

Qualitative Outcome or Impact Statement

Issue (Who cares and Why?): (500 Char Max)

PCC: Locally manufactured processed food products were not available in the market for tourists and local consumers alike. Many food resources like taro, tapioca, sweet potato, fish, coconuts, and bananas abound in Palau, but these food were not tapped for food processing. The PCC-CRE program aims to increase knowledge and improve nutrition and health of clients.

CMI: Diabetes is a condition that has plagued generations of Marshallese. Furthermore, the trend of diabetes is affecting the younger population with a gradual increase of cases in the 20 – 35 years of age. The increase in the number of diabetic patients and people at risk for diabetes is mainly due to the changes in the lifestyles of the Marshallese population.

COM-FSM: The national, state and local governments as well as the public are concerned about the geometric increase in NCD prevalence, the stress to the family and government expenditures in terms of medical referrals, medications and soaring mortality rates. It has been one of the college mandates to provide technical assistances to the communities as requested in order to improve social, economic and health of people of Pohnpei. Trainings were provided to improve skills, knowledge and confident of participants in the planned program.

Surveys indicate over half of the children have sub-clinical Vitamin A Deficiency, (Englberger 2002) from poor diets. Chronic diseases, such as cancer, heart diseases, and diabetes, have also become serious problem among FSM adults. Both concerns in FSM are related to dietary shift and changes in lifestyles. Increased consumption of locally produced crops like the yellow variety bananas, and giant taro will reduce the pressure and cost on the health care system.

What has been done: (500 Char Max)

PCC: Programs on human nutrition and food safety were conducted to men and women, elementary and high school students to increase awareness and knowledge and to impart basic skills in nutrition and health related issues. Also a result from the research on product development, food taste tests created awareness among adult and youth consumers of processed food products that can be prepared locally.

CMI: Five hundred clients participated and received certificate of completion after participating in nutrition workshops. The EFNEP Extension Agent continued to be an active member of several task forces organized by the Ministry of Health to address diabetes and to promote healthy living and wellness in the Marshall Islands. Not only did she worked in the community and outer island, but she collaborated with the college's school nurse and both screened the employees and students for diabetes.

COM-FSM: Through CRE/Inter-agency efforts Information, Education and Communication (IEC) campaigns, public campaigns, workshops, community events and celebrations including food demonstrations/ display were conducted to educate the public about the escalating prevalence of NCD and food-borne illnesses and different ways to address these problems. Seventeen communities, schools and groups participated in trainings on Nutrition, Education and Behavior around Pohnpei including the outer islands. These participants, 819 of them have increase knowledge in the taught topics. CES Agents conducted training/workshops in the communities and schools addressing the effect of poor diet and benefit of healthy diet for the diabetic people and none diabetic people; nutrition presentation; and cooking demonstrations. In the training/workshop CES Agent shared with clients the importance of balance diet during pregnancy, lactating and growing stage of a child

Series of community workshops were conducted, EFNEP sessions, Nutrition workshop, nutrition counseling to parents of children aged from birth to five years. School enrichment program to ninth graders, Nutrition promotion on local foods and Food Safety training was conducted in the communities.

Results: (1000 Char Max)

PCC: PCC-CRE- Ninety two percent of total participants followed all recommended practices in nutrition and food safety during preparation of selected healthy recipes.

PCC-CRE- A total of 720 clients consisting of 376 adults and 344 youths have tasted processed food products from local food resources. Thirty three participants of Food Technology Classes in two States of Palau have acquired knowledge in food processing.

CMI: Follow up visits with clients indicated that the clients diets have changed where they were reported to eating healthy food. The EFNEP Extension counseled individuals whose

blood sugar level was high. She provided cooking lessons for them on how to prepare healthy meals.

COM-FSM: CRE clients have improved food and eating habits through eating more local nutritious foods with high vitamins, minerals, fibers, proteins and proper food portions/servings.

Four hundred and sixty-two participants learned and be encouraged to utilize local produced in meals prepared for households and families. Participants range from college students to teachers and parents/guardians of Early Childhood Education (ECE) centers

Of those completing the EFNEP course, 100% increased knowledge in nutrition based on the 2nd food recall, and food behavior checklist data. People are more aware of the importance of having a well balance diet. Former trainees, especially those in government agencies and NGOs have returned as volunteers in training programs and as community emissaries. Local market surveys indicate a demand and delivery of more high Vitamin A varieties of crops.

3. Associate KAs from the Planned Program. (Check all that apply).

	KA Code	Knowledge Area
X	501	New and Improved Food Processing Technologies
X	502	New and Improved Food Products
X	701	Nutrient Composition of Food
X	702	Requirements and Function of Nutrients and Other Food Components
X	703	Nutrition Education and Behavior
X	711	Ensure Food Products Free of Harmful Chemicals, including Residues from Agricultural and Other Sources
X	712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxin
X	724	Healthy Lifestyle

IV (G): State Defined Outcome Measures

7. Outcome Target - Number of program participants adopting recommended practices after completing educational programs.

8. Outcome Type

Change in Knowledge Outcome Measure

Change in Action Outcome Measure

Change in Condition Outcome Measure

Enter by Quantitative and/or Qualitative Method Below as appropriate.

Quantitative Outcome

Year	Quantitative Target (If appropriate)	Actual
2010	600	860

Qualitative Outcome or Impact Statement

Issue (Who cares and Why?): (500 Char Max)

PCC: Eighty nine percent of 239 participants adopted recommended practices in nutrition and food safety and 45% are now engaged in physical activity programs.

To reduce obesity among participants and their families. Development of food businesses in processed food products stems from the growing demand from tourists and local consumers.

CMI: According to the Juumemmej: RMI Social and Economic Report 2005, malnutrition is a condition that does not appear to be improving. A recent study revealed that 60% of children in this age group (1 - 5 yrs) suffered vitamin A deficiency, and 25% were iron deficient (World Bank 2005).

COM-FSM: The national, state and local governments including the public are concerned about:

- Geometric increase and prevalence of NCD's leading to disability
- Expensive medical referrals
- Loss in productivity
- Stress to the family

It has been one of the college mandates to provide technical assistances to the communities as requested in order to improve social, economic and health of people of Pohnpei. Trainings were provided to improve skills, knowledge and confident of participants in the planned program.

There are approximately 27% children aged birth through five who are not in the correct weight categories for their weight and height, as reported by the state division of Public Health. Therefore, more awareness

What has been done: (500 Char Max)

PCC: Participants of Human Nutrition learned to plan meals using 6 food groups; portion control and to prepare, cook and taste selected recipes that are healthy, affordable and accessible. - Two Food Technology Classes were conducted in the States of Ngatpang (Kokusai) and Koror (Ngerbeched). Thirty three (33) participants have been trained in the preparation of fifty (50) food products from local food sources. The participants plan to go into food business to cater to the growing demand of tourists, as well as local consumers.

CMI: The EFNEP Extension Agent is a member of the RMI Malnutrition Referral Team. Public Health provides her with names of their patients' parents. She visits the parents in the homes to counsel them on nutrition and also to demonstrate cooking healthy recipes for them to learn to prepare for their sick child(s) who suffers from malnutrition.

COM-FSM: •Inter-agency efforts conducting public awareness, campaigns, and public celebrations and events.

- Informal education and cooking demonstrations on the role of healthy food choices and physical fitness i.e. gardening, brisk walking in the prevention and control of NCD's
- Growing and consumption of nutritious local foods

CES Agents conducted training/workshops in the communities and schools addressing the effect of poor diet and benefit of healthy diet for the diabetic people and none diabetic people; nutrition presentation; and cooking demonstrations. In the training/workshop CES Agent shared with clients the important of balance diet during pregnancy and lactating.

Conducted community workshops, conducted interviews, nutrition counseling to young mothers in the communities. Cooking demonstrations also conducted during workshops. Inter-agency efforts doing public awareness, campaigns, and Non-formal education and cooking demonstrations on the role of healthy food choices and physical fitness i.e. gardening/walking in the prevention and control of NCD has led to increased use of nutritious local foods

Results: (1000 Char Max)

PCC: PCC-CRE- Eighty percent of 239 participants applied some of the skills learned and have increased vegetables in their diets. The same number of participants was also able to prepare same recipes prepared in the program and shared with friends, relatives and family members.

PCC-CRE- Armed with skills in food processing, the trainees can now prepare food products that they can sell to tourists and local consumers. Some participants who own food businesses have added new food items to their usual product lines.

CMI: Her before and after surveys indicated positive changes in behavior and attitude of the parents. They requested for more recipes from the Extension Agent.

- COM-FSM:
- More local foods especially fruits and vegetables used/eaten
 - More people observe serving portions of their regular meals and snacks
 - More people do gardening and other physical fitness exercises
 - Less people get sick from contaminated foods

Increase numbers of groups have put in requests to CES PNI office for the extension of program in their community. Family members are enjoying delicious, nutritious and affordable meals and have been sharing dishes during celebrations and community functions.

Homemakers, graduates of the program shop for nutritious foods in stores for the family and grow local foods to supplement the family diet. They continue to grow fresh local crops for food security for the family, they constantly remind, educate kids to stay away from sweets, fats and preservatives and they join forces with others to help educate other families and the public on food, nutrition and health. President Mori of the FSM included the “Go Local” moto in his State of the Nation Speech to encourage better diets.

3. Associate KAs from the Planned Program. (Check all that apply).

	KA Code	Knowledge Area
X	501	New and Improved Food Processing Technologies
X	502	New and Improved Food Products
X	701	Nutrient Composition of Food
X	702	Requirements and Function of Nutrients and Other Food Components
X	703	Nutrition Education and Behavior
X	711	Ensure Food Products Free of Harmful Chemicals,

		Including Residues from Agricultural and Other Sources
X	712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxin
X	724	Healthy Lifestyle

IV (H): State Defined Outcome Measures

4. **Outcome Target – Annually increase the number of healthy food snacks or lunch programs in schools and communities.**

5. **Outcome Type**

Change in Knowledge Outcome Measure

Change in Action Outcome Measure

Change in Condition Outcome Measure

Enter by Quantitative and/or Qualitative Method Below as appropriate.

Quantitative Outcome

Year	Quantitative Target (If appropriate)	Actual
2010	6	251

Qualitative Outcome or Impact Statement

Issue (Who cares and Why?): (500 Char Max)

PCC: PCC-CRE= Forty five percent reported to have increase vegetables consumption by 2-3 servings per day, at least 1 serving of calcium rich source and have increased their physical activity from 30 minutes to 1 hr. or more.

Issue (Who cares and Why?): (500 Char Max)

PCC-CRE- Many participants have a sedentary life style which makes them overweight/obese and lack the basic knowledge in nutrition needed to make healthy food choices for them and their families.

PCC-CRE- Production of locally manufactured processed foods can reduce food importation and boost domestic food production.

CMI: According to the Juumemmej: RMI Social and Economic Report 2005, malnutrition is a condition that does not appear to be improving. A recent study revealed that 60% of children in this age group (1 - 5 yrs) suffered vitamin A deficiency, and 25% were iron deficient (World Bank 2005).

COM-FSM: Leaders, families and general public care about:

- Increasing hospital admissions and referrals
- Increased burden, decreased economic productivity
- Increased morbidity and mortality

One hundred forty-eight homemakers participated in the EFNEP program covering training ranging from young breastfeeding mothers to young pregnant mothers from October 2009-September 2010.

Unhealthy food choices and cultural pressures have led to a serious diet related increase of Non-Communicable Diseases (NCDs) such as diabetes, hyper-tension and vitamin deficiencies. All citizens of Micronesia are affected through increased health care and loss of productivity. Most families are relying more on imported foods as it is more affordable and available.

What has been done: (500 Char Max)

PCC: PCC-CRE- Skills in meals planning using 6 food groups, lessons in reading food labels, portion control, essential vitamins and minerals and physical activity were provided to them. PCC-CRE- Food businesses in processed foods prepared from local food resources have been established as a result of training conducted in Food Technology Classes.

CMI: During her presentations and workshops, the Extension Agents usually choose simple and healthy recipes that children, teenagers and adults can prepare easily at homes. The coconut jam seems to be a popular recipe where everyone can easily prepare. The Extension Agent began experimenting by using other varieties of fruits in place of coconut. She also worked with the CMI Dorm students to teach them about nutrition, and how to prepare healthy meals.

COM-FSM: • Inter-agency public IEC campaigns,
• Gardening and cooking demonstrations on local foods.
• Healthy food choices and physical fitness
• Monitoring and evaluation of clients in waistline measurements, survey food intake of the families for a week

CES Agents conducted training/workshops in the communities addressing the effect of poor diet and benefit of healthy diet for the diabetic people and non-diabetic people; nutrition presentation; and cooking demonstrations. Agent shared with clients the importance of a balanced diet during pregnancy and lactating.

Promotion on healthy eating conducted in the schools and the communities. Let's Go Local Campaign also conducted in the communities with displaying of local foods, recipes and cooking demonstrations were also conducted during these campaigns.

Results: (1000 Char Max)

PCC: PCC-CRE- Participants became aware of what they were eating and what kinds of food they were feeding their children with. They began to plan healthy meals and serve healthy breakfast to their school-aged children. And 45% reported to have started physical activity or have increased their physical activity to at least 1 hr. for 4 days a week.

PCC-CRE- Locally manufactured processed food products are now available in the market. These products were prepared by participants of Food Technology Classes.

CMI: Her students are able to prepare healthy snacks at home. The dorm students now know how to cook delicious meals instead of just eating fried chicken at all their meals.

COM-FSM: One success story that worth noting is at least 40 percent of the clients showed improvements in their second food recall vegetable intake. During the training in Sapwuahfik, one of the homemaker shared with the EFNEP staffs the problem she encountered with one of her child. The problem was that the five year old daughter had low vision at night. The EFNEP staffs shared and encouraged the mother to prepare and served her family meals with local crops, especially yellow-flesh crops. Later visit she indicated that there was improvement in her child vision. Whether that was a coincidence, its worth noting.

Health monitoring to establish any condition change will take many years. No results should be reported at this time.

3. Associate KAs from the Planned Program. (Check all that apply).

	KA Code	Knowledge Area
X	501	New and Improved Food Processing Technologies
X	502	New and Improved Food Products
X	701	Nutrient Composition of Food
X	702	Requirements and Function of Nutrients and Other Food Components
X	711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources
X	712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxin
X	724	Healthy Lifestyle

IV (I): Planned Program (Outcome)

1. External factors which affected outcomes. (Check all that apply)

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriation changes
- Public Policy changes
- Government regulations
- Competing Public priorities
- Competing Programmatic Challenges
- Population changes (immigration, new cultural groupings, etc.)
- Other, brain-drain

Brief explanation of external factors which affected the outcomes. (Opportunity to discuss Unmet Goals)

PCC: PCC-CRE- The actual number of targeted clients was not met due to public priorities and others such as funerals, women’s conferences, states’ campaigns and elections. Also prospective food processors who have attended Food Technology Classes could not immediately go into business because of strict government regulations on food preparation and expensive permits to operate.

COM-FSM: • Low attendance of participants was observed when training coincided with bad weather.

- Population migration of young and professionals to Hawaii, Guam, Saipan and the mainland USA puts burden on those left behind
- Limited funding for projects restricts frequent monitoring of far-flung clients.
- Social obligations, e.g. funeral when participants will not attend for training for 3 or more days, hamper the development of skills of the intended clients.

Constraints are limited funding, long turn-around time for PO processing and lack to limited proper equipment and tools in order to carry out the activities of the program. And in between visits/monitoring is too long due to boat scheduling and limited transportation means Increased importation of foods, more people are depending on the imported foods due to the high cost of the local produces and to increased exposure to outside diets due to frequency of travel. Statistics indicate a high rate of emigration which removes many of the best educated and most productive citizens from the region. Social changes have increased the use of processed foods and imported foods in community functions. On the positive side, may levels of government have mandated that local foods must be provided at state sponsored functions.

CMI: No report

IV (J). Planned Program (Evaluation)

1. Evaluation studies Completed. (Check all that apply)

- 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 (individual, group, organization) & non-participants**
- Comparison 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(s) _____**

What are your Evaluation Results? (3200 characters)

PCC: PCC-CRE- A pre and post test were administered at beginning and end of each program and interviews with clients done after each program to show if there was an increased in knowledge and changed in behavior.

PCC-CRE- Results of evaluation after conducting the Food Technology Classes which the participants have written in their narrative evaluation that they have benefited from the training. The skills in food processing which the participants have obtained are long lasting. Also, the 720 clients who have tasted PCC-CRE food products have rated them very much acceptable.

CMI: Clients' diets improved slightly during and after the participating in the workshops. The Extension Agent received numerous calls from clients wanting more recipes.

- COM-FSM: • Knowledge about healthy foods, diets and physical fitness gained was retained.
- Improved food practices such as use of more local foods, vegetables and local protein foods i.e. fish and sea foods as against canned meat were observed and reported during follow-up surveys with the participants.
 - Improved hygiene and decreased incidence of food-borne illnesses were also noted.
 - People are more active such as gardening and other exercises.

Increased awareness, skills and knowledge for participating groups and communities in regards to nutrition, health, and management of meager resources available to them as compared with the non-participating groups or communities.

More people are selective in what they're buying, eating and planting, the yellow fruits/vegetables over the other varieties. More people are using the yellow banana (taiwang) for baby foods. Local markets report an increased demand and delivery of Vitamin A rich varieties of local bananas and taro. More people are interested in preservation techniques of local foods. Former trainees of nutrition programs often volunteer to help future efforts in their communities. Anecdotal observations indicates that more stores are displaying out-of-date food items prominently signed for use as animal feeds only.

Key Items of the Evaluation(s) for CSREES Attention. (3200 characters)

PCC: The 24-Hour Food Recalls and Checklists were used with Adult EFNEP and pre and post tests, consisting of 15 questions on nutrition and health were used with Youth EFNEP. The conduct of Food Technology Classes in the communities have been requested by participants to be continued as they have been benefited by the outreach program.

COM-FSM: Knowledge gained and application of the following:

- Relationship of non-communicable diseases such as hypertension and diabetes to good diet, especially foods to avoid such as high salt, high saturated fats and high refined carbohydrates to prevent NCD
- Monitoring of NCD incidences and cost to the public health system over extended years is needed.
- Regular physical fitness such as walking and gardening is being accepted and should be encouraged.
- Food safety handling of local foods prior to and at market needs monitoring
- Superiority of local foods over imported and junk foods in healthy and nutritious diets are becoming internationally known and market demand may lead to export possibilities.

CMI: Diabetes and malnutrition are two major health issues in the country. More funding is needed to be able to reach out to the rest of the communities. Want to try out different recipes.

V. Expenditure Summary

1. Total Actual Formula dollars Allocated (prepopulated from C-REEMS) and Actual Total Formula, Matching and Other dollars Expended for FY 2009 (automatic addition from Planned Programs)

	Extension		Research	
Year:	Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
Allocated	\$ 0		0	

2. Total Actual dollars from Planned Programs input Screens

Actual Formula	0	0	0	0
Actual Matching	0	0	0	0
Actual Other	0	0	0	0
Total Actual Expended	0	0	0	0

3. Amount of Above Actual Formula Dollars Expended for FY 2007 which comes from Carryover funds from previous years.

Carryover	0	0	0	0
------------------	----------	----------	----------	----------