

# Pohnpei, FSM Case Study in a Global Health Project Documents its Local Food Resources and Successfully Promotes Local Food for Health

**Englberger L**, Research Advisor, Island Food Community of Pohnpei, Kolonia, Pohnpei 96941 FSM. Email: nutrition@mail.fm

**Kuhnlein HV**, Professor Emerita, McGill University/Centre for Indigenous Peoples' Nutrition and Environment (CINE), Montreal, Canada, Email: harriet.kuhnlein@mcgill.ca

**Lorens A**, Chief of Agriculture and IFCP Chairman, Pohnpei Office of Economic Affairs, Kolonia, Pohnpei 96941, FSM. Email: pniagriculture@mail.fm

**Pedrus P**, Mand Community Leader, Pohnpei, FSM. Email: mmservices.perdrus@gmail.com

**Albert K**, Community Leader, Mand Community, Pohnpei, FSM

**Currie J**, Vice President, Cooperative Research and Extension, College of Micronesia – FSM. P.O. Box 159 Kolonia, Pohnpei, FM 96941, FSM. E-mail: jimc@comfsm.fm

**Pretrick M**, Environmental Health Coordinator and IFCP Vice-Chairman, FSM Department of Health and Social Affairs, Palikir, Pohnpei FSM. Email: mpretrick@fsmhealth.fm

**Jim R**, Chief of Primary Health Care, Pohnpei State Department of Health Services, Pohnpei, FM 96941. Email: rjim@fsmhealth.fm

**Kaufer L**, Masters of Science candidate – Center for Indigenous Peoples' Nutrition and Environmental and School of Dietetics and Human Nutrition, McGill University, Montreal Canada, Phone + 647-994-4582. Email: laura.kaufer@gmail.com

## Abstract

*This paper presents a summary of Pohnpei, Federated States Micronesia's involvement in a global health study focused on documenting traditional food systems in different parts of the world and providing evidence that local resources are critical for food security, nutrition and health. The Pohnpei study was based in Mand Community, Madolenihmw. The study found that there was a great diversity of foods locally available (381 food items documented), but these were underused. Overweight, obesity, diabetes, and vitamin A deficiency were identified as serious problems. Interventions included community meetings, school activities, and agriculture workshops, cooking classes, charcoal oven development, weight loss and planting competitions, poster campaigns and other relevant mass media. Significant dietary improvements were achieved following the intervention efforts, as well as positive changes in attitude towards local food including: decrease in average daily rice consumption from 846 g/person in 2005 to 544 g/person in 2007 ( $p=0.0002$ ); increase in provitamin A carotenoid intake from 227  $\mu\text{g}$ /person in 2005 to 475  $\mu\text{g}$ /person in 2007 ( $p=0.02$ ); increased frequency of consumption of local banana (53%), giant swamp taro (476%), local vegetables (130%); and increased dietary diversity (4.8 local food groups consumed in 2005 to 5.5 in 2007). Another positive outcome in Pohnpei was the popularization of the slogan "Let's Go Local."*



## Introduction

In 2005, Pohnpei, Federated States of Micronesia (FSM) joined a global health project on indigenous peoples' food systems led by the Centre for Indigenous Peoples' Nutrition and Environment (CINE), based at McGill University, Canada. The overall goal was to gather a spectrum of data from 12 diverse case studies of Indigenous Peoples in different parts of the world to document the inherent strengths of traditional food systems and circumstances of the nutrition transition in indigenous communities. Also the goal was to provide evidence that local resources are critical for food security, nutrition and health.

The objectives were to address scientific issues and public health improvement. Ultimate goals aimed to influence local, national and international policies for improving and protecting well-being and health, and protect cultures, the environment and land and food resources. In each case study, academic and community partners collaborated on research in two phases: 1) documentation of the cultural food system with a defined protocol (see <http://www.cine.mcgill.ca/documents/manual.pdf>) and 2) implementation of health promoting interventions using culturally sensitive and environmentally relevant elements of the local food system.

Professor Harriet Kuhnlein, Founding Director of CINE, led the overall program. Chief Bill Erasmus, also based in Canada, led the overall program as the community leader partner. An important feature of the project was that of including academic and community leaders from each case study and involving them in planning and developing the project.

The overall project was initiated in 2001, with the establishment by the International Union of Nutritional Sciences of the Task Force on Indigenous Peoples' Food Systems and Nutrition (Kuhnlein 2009) due to the recognition that traditional food systems are eroding on a world-wide basis along with lifestyle changes and shift to processed food, and that this has led to increased health problems. Efforts first focused on the development of the documentation methodology and the selection and initiation of the first case studies.

From 2004 to 2006, CINE selected the remaining case study partners and sought funding for the preliminary documentation phase. The case studies included indigenous communities in Canada, Japan, Peru, India, Nigeria, Colombia, Thailand, Kenya, and FSM. Figure 1 CINE map of the 12 case studies.

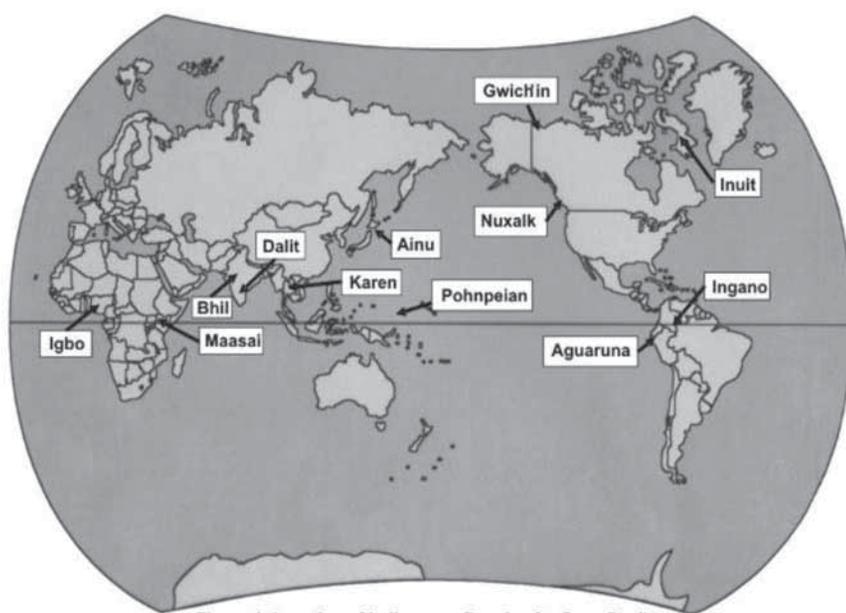


Figure 1: Location of Indigenous Peoples for Case Studies

The Island Food Community of Pohnpei (IFCP) coordinated the Pohnpei case study, working closely with its main partner agencies, including Pohnpei Agriculture of the Office of Economic Affairs, Pohnpei Department of Health,



Pohnpei Department of Education, Pohnpei Department of Land and Natural Resources and the College of Micronesia-FSM Cooperative Extension Services.

In March 2005, Mand Community, IFCP and CINE signed a research agreement towards working together in the 12-case study program with CINE to demonstrate that traditional food resources of Indigenous Peoples around the world should be protected.

The overall plan was to document the traditional food system, to find out what are the local food resources, dietary practices and the health problems, and then based on the findings and community interests, to implement a two-year intervention to improve diets, lifestyles and health to address the problems identified. Another aim was to learn from this experience by evaluation, with the goal of possibly applying this approach to additional communities in Pohnpei and throughout FSM and the region.

## Methodology

Mand Community in Madolenihmw was selected as the target village, as it fit the set criteria (Englberger et al. 2009): a rural community, population of about 500 people; accessible, and willing to work together toward project goals. An informal census of the village identified 71 households, which were then numbered. Random numbers were electronically generated and 47 households were randomly selected, aiming at reaching over half of the households in the community. Due to migration, death, and household composition changes, there were several changes that reduced the number of households included in the final evaluation. Diet interviews were conducted with one adult woman per household in the random sample, who responded about her diet and the diet of one child in the household between the ages of one and ten.

The two phases of the project were:

- Phase 1: May to August 2005: the documentation of the traditional food system
- Phase 2: September 2005 to June 2007: the intervention to promote the traditional food system; and June to August 2007: the evaluation

The documentation of the traditional food system followed the methodology guidelines established by CINE (Kuhnlein et al. 2006). Dietary intake methodologies used standard methods of quantified 24-hour recalls and 7-day food frequency questionnaires (Kaufert 2008). Of the randomly selected households, 26 were included in the final evaluation of the 24-hour recalls and 40 were included in the 7-day food frequency.

Yellow-fleshed banana, giant swamp taro and breadfruit varieties were recently analyzed and found to be rich in provitamin A carotenoids and other nutrients, providing important health benefits (Englberger 2003, Englberger et al. 2006, 2008). These findings were essential to this intervention, establishing the basis for promoting these foods and providing data for developing new posters, postcards and other promotional tools.

A participatory, community-based, inter-agency approach was used in both the documentation and intervention phases. The community was involved in deciding what activities should be carried out and how, and these were carried out in the community by different agencies, including Island Food Community of



Pohnpei, Pohnpei Agriculture of the Office of Economic Affairs, Pohnpei Department of Education, Pohnpei Department of Health, College of Micronesia-Cooperative Extension Services, Pohnpei Department of Lands and Natural Resources.



**Figure 2: Pohnpei case study community members at one of the film documentation activities**

baskets to roofing; building and using a traditional earth oven, and harvesting giant swamp taro), and promotional incentives such as planting tools, t-shirts, and photographs. The “Let’s Go Local” phrase became an overall slogan for the campaign.

Several international meetings were held to bring the case study partners together annually to discuss issues of mutual interest, concerns and to share experiences for successful interventions. The evaluation consisted of comparing the baseline dietary and health assessments (July 2005) to the end period (June and July 2007) after two years of intervention. The baseline and evaluation assessments were taken during the breadfruit season. The project was evaluated with the assistance of project personnel and McGill University (Kaufer 2008).

Some of the activities used in the intervention included: bi-weekly or monthly community meetings for participatory activity planning, on-going health and agriculture training, recipe presentations and documentation of the traditional food system (Figure 2), container gardening training, cooking classes, newspaper articles, radio releases, schoolroom activities, youth drama club (Figure 3) slogans, songs, games, a breastfeeding club, charcoal oven development, planting local foods competition, weight loss competition, planning and organization of traditional food system activities that were filmed as a community workshop (preparing preserved breadfruit recipes; traditional weaving, from food



**Figure 3: Mand Drama Club**

## Results and Discussion

The documentation of the traditional food system was completed in August 2005 (Englberger et al. 2009). A great diversity of foods and varieties was found, with a total of 381 food items. However, there was a great neglect of the local food system. Only about 27% of the daily calories were from local food, the rest was from imported foods, mostly of processed foods energy-dense and poor nutritional quality.

Other major findings of Phase 1 of the Pohnpei case study included these:

- There was a great diversity of foods and varieties available, despite underutilization and irregular use of local foods



- Of the 44 female adults participating in the dietary study, only 27% of their daily calories was from local food and the rest was from imported foods
- Very few women or children met the estimated vitamin A and C requirements
- Over 85% of the adult women aged 20 years and above were overweight or obese
- Over 60% of the adult men aged 20 years and above were overweight or obese

The evaluation at the end of Phase 2 showed these major findings:

- Decreased average daily rice consumption from 846 g/person in 2005 to 544 g/person in 2007 ( $p=0.0002$ ).
- Increased frequency of consumption of banana (53%), giant swamp taro (475%) and vegetables (130%).
- Increased number of varieties of yellow-fleshed banana consumed (three in 2005 to seven in 2007).
- Dietary diversity by 7-day food frequency improved (mean local food groups<sup>a</sup> increased from 4.8 in 2005 to 5.5 in 2007,  $p=0.001$ ).
- There was a positive change of attitude toward local food in the community as shown by the high level of exposure (participation) and awareness relating to intervention activities. Examples are: 60% exposure to and 93% awareness of the community working group; 50% exposure to and 90% awareness of the charcoal ovens; 29% exposure to and 88% awareness of the youth drama club; 50% exposure to and 86% awareness of the planting material distribution; and 50% exposure to and 83% awareness of the cooking training.
- The % of calories from local food increased but not significantly (23% to 24%,  $p=.71$ ).
- Overall responses indicated that less money was spent on food in 2007 compared to 2005 (as 63% responded that they spent more than half of their monthly salary on food in 2005 compared to 33% having that response in 2007).

There were no significant improvements in health measures (health risks relating to Body Mass Index and waist circumference; fasting plasma glucose, blood pressure), admittedly, difficult to achieve in a two year period. Some activities, such as tree planting, did not show an improvement as they require extended time in order to reap the benefits. The Mand Community Working Group was most widely known about, followed by the charcoal oven training and distribution, youth school education activities, youth drama club, breastfeeding support group, planting material distribution, container gardening (growing introduced vegetables such as cucumbers and eggplants), cooking training. The social marketing campaign was also noticed by a large audience. The Pohnpei Bananas poster was recognized by 95%, the Go Local billboard had been seen by 98% (compared to 76% in 2005), and 76% knew about the regular media reports. The container gardening project appeared to show great activity during the intervention period but later interest waned. Still it appeared that all activities contributed to the increase in local food production and consumption.

Additional benefits of the project included:

- DVD: Pohnpei and their Traditional Foods: Produced by kpstudios, CINE and IFCP 2008
- 4 Poster Set on Indigenous Foods highlighted food diversity for the International Decade of the Worlds' Indigenous Peoples: Global, Asia, Africa, and Pacific Islands, all four supported by FAO and IDRC. Pohnpei's Karat banana was included in both the Global and Pacific Islands poster.
- Photographic Collection: Micronesia Nutrition Project, Produced by kpstudios, CINE, IFCP 2005

a. The food groups were starchy staples, meat and nuts (including fish), fruit, vegetable, fat and snacks.



- Book: Indigenous Peoples' Food Systems (Kuhnlein et al. 2009). A rich compilation of data from the documentation of the traditional food systems from 12 case studies
- Recipe Collection: Women of Mand Share Local Recipes (Levendusky 2006). 34 recipes/photos.
- Pohnpei Food List: Database of local foods and their varieties prepared showing local, English, and scientific names and other data.

A further book on the implementation of the interventions is expected to be completed in 2010. An article was also published in a prestigious scientific journal relating to a menu of intervention activities and background of the project (Kuhnlein et al. 2006).

Some of the lessons learned in Pohnpei, determined from on-going informal focus group discussions and key informant interviews, included the following: to work together with an inter-agency, community-based, participatory approach; to repeat messages many times using multiple methods; to provide scientific evidence of the value of local foods; to have enjoyable activities such as competitions, drama, film, photographs, song, media and community planting; to maintain funding and have a passion and commitment to this campaign. The slogan "Let's Go Local"

(Figure 4) was extremely important as it had a unifying effect on mobilizing local food promotion efforts and relaying the message in a powerful way. A Mand community leader expressed his feelings as follows, "God made us to eat our own food. We need to go local." Facilitators stressed the need to "go local", most importantly for health, but also to use the land to grow food so that one does not go hungry.

A further study was carried out in 2009 to assess the diets of the same random sample of Mand households and determine whether the dietary improvements have persisted. Results of this study are expected to be completed in 2010.



**Figure 4: The Go Local billboard, located at Pohnpei State Hospital**

## Conclusions

The challenge ahead will be to stem the trend towards imported processed food and drink and to alleviate the epidemic of diet- and lifestyle-related diseases such as diabetes, cancer and heart disease. However, this approach presented positive outcomes and there is growing support. It also provided a "road map" for further activities. As the President of FSM stated at the close of his speech at the 2009 Pohnpei World Food Day activities, "Let's Go Local!"



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*“Strong people have weak moments too,  
without those weak moments they would have  
not become the strong person they are today.”*

*Eloisa Finch*

