



Chapter 10

Culture-based nutrition and health promotion in a **Karen** community

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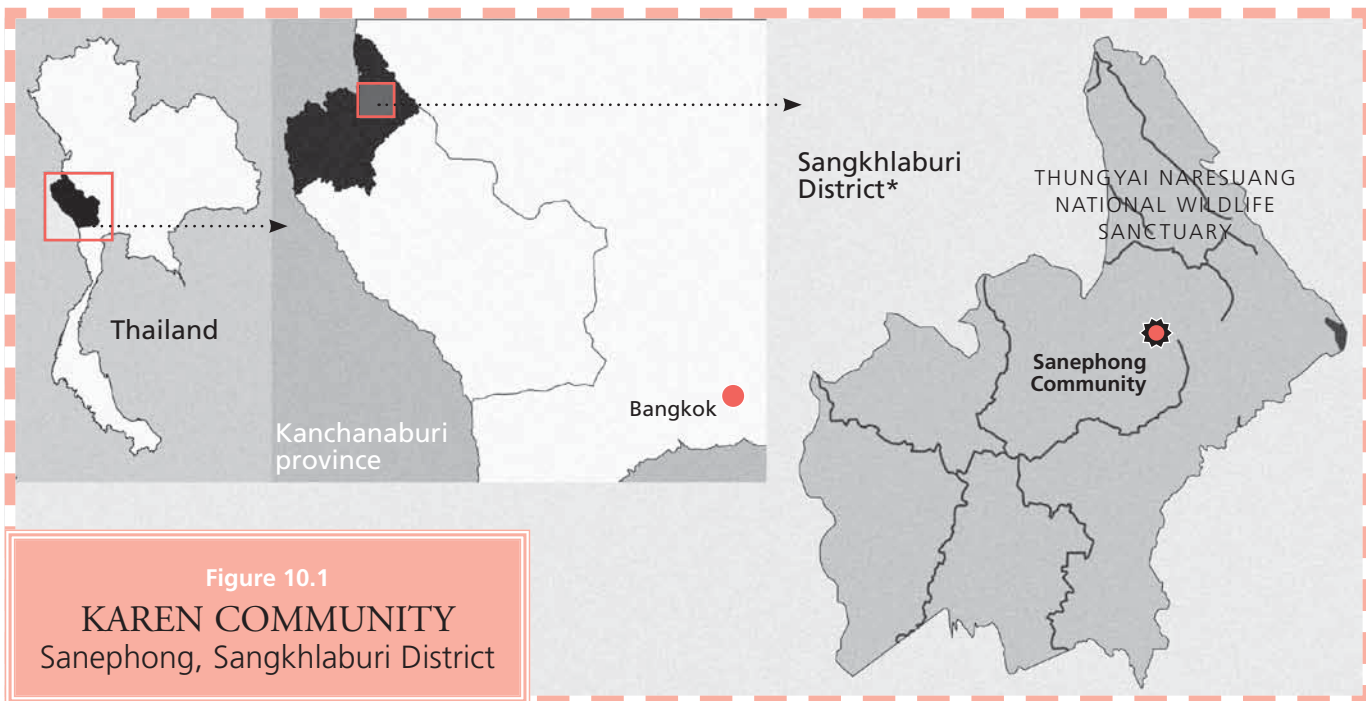


Figure 10.1
KAREN COMMUNITY
 Sanephong, Sangkhlaburi District

*Data from ESRI Global GIS, 2006.
 Walter Hitschfield
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“We work together.
We understand each other;
much more than when
we started the work.”

Suaijeemong Sangkhawimol (Sanephong traditional healer)

Abstract

Sanephong, a Karen community in western Thailand with a population of fewer than 700 people, benefits from the availability of traditional food, but the food system is deteriorating rapidly. The overall objective of this participatory intervention research project (2005 to 2009) was to use expert and community knowledge of the traditional food system and culture as a platform for working to improve community nutrition and health by: i) increasing awareness of the importance of traditional food sources; ii) promoting traditional food production and consumption, with a focus on children; and iii) increasing local people's capacities, knowledge and skills for enhancing children's food and nutrition security.

A culture-based approach, metaphors and social dialogue were used to develop four main intervention inputs: i) increased production of traditional foods at home; ii) motivation and nutrition education for schoolchildren; iii) women's empowerment; and iv) capacity strengthening for community leaders, local researchers and youth.

Results indicate that the project raised awareness and increased the availability and consumption of traditional foods, especially among children. Nutrition outcomes were also noted. Local change agents' capacity for continuing nutrition and food development was enhanced. The community became more aware of the importance of traditional foods and nutrition. High availability and use of local food sources confirmed that traditional food consumption remains common in the community. Researchers learned that successful nutrition and health promotion in an indigenous community relies heavily on processes that build trust and commitment among multiple stakeholders.

The design of intervention activities should be based on the community's own priorities, with academic researchers playing the roles of project catalysts and coordinators. Outside assistance is likely to be crucial in enabling indigenous communities such as Sanephong to achieve their development goals within a rapidly changing environment.

Introduction

Work in Sanephong, a Karen village in Thailand, began with a study to explore the indigenous food system, nutrition and health status.

Results indicated that this community's food system has both strengths and weaknesses. Although plenty of nutritious traditional foods are available, the local food system is deteriorating rapidly, owing to economic and external market influences. The presence of 14 underweight and 20 stunted children indicated both acute and chronic undernutrition, and most children were consuming low levels of iron. Perhaps even more important, the traditional culture was being challenged. These results suggested that culturally appropriate nutrition and health improvement was essential for the community, especially for children (Chotiboriboon *et al.*, 2009).

On 21 January 2005, the Mahidol University Committee on Human Rights Related to Human Experiment granted ethical approval to the intervention research project. The signing of an official contract between external academic researchers and local community researchers and leaders is not common in Thai indigenous cultures. Through an anthropological approach, good communications and an open relationship helped to establish good rapport with the community (Langness and Frank, 1981). When good relations and trust had been built, community leaders and representatives were invited to join a seminar at Mahidol University, Salaya in August 2005. At this

meeting, participants were encouraged to use the strengths and opportunities within their community to improve nutrition and health using traditional food sources. They affirmed their commitment to enhancing community food and nutrition security, especially for children, in collaboration with the academic research team and under the following principles:

- Indigenous culture, local food systems, traditional knowledge and the community's goals and expected outcomes are the foundation for the work.
- Intervention activities are jointly designed, are contingent on the results of the project's first phase (Chotiboriboon *et al.*, 2009) and build on the community's strengths and opportunities for development.
- Researchers' knowledge and other relevant information are used to raise the community's awareness and support its decisions.
- Social dialogue is used to encourage communication and learning among the community, other stakeholders and research partners.
- Use of vernacular language and metaphor is encouraged to provide a communication tool for wider sharing of the project's vision and successes.
- Relationships among the community, other stakeholders and research partners are on equal terms and based on Karen tradition.

Context

Sanephong village is located in a mountainous tropical forest region of the Thungyai Naresuan National Wildlife Sanctuary, 336 km northwest of Bangkok, adjacent to the Myanmar border, at latitude 14° 55 and 15° 45 and longitude 98° 25 and 99° 05 east (Figure 10.1). Lying about 12 km east of Sangkhlaburi Municipality, the community can be reached only by four-wheel drive vehicle or on foot. A 2005 census reports the population of Sanephong at 661, with 345 males and 316 females (52 and 48 percent, respectively) living in 126 households. There is no electricity, but

solar panels provide an energy source for charging batteries that are used in homes for television¹ and lighting. Social organization is based on kinship. Vernacular Karen is the everyday language, but Thai is also spoken, particularly among community leaders and the younger generation. Although community people identify themselves as Buddhists, indigenous animistic rituals are common. People worship Mother Earth and the Rice Mother to empower their indigenous spirits and ensure food security and well-being.

Most people live in extended families, with three or four generations in the same household. Men clear the forest for traditional farming, while women take charge of the household (e.g., gathering and cooking food and caring for children). Complementary activities are also carried out, and during periods of peak labour demand, whole families work on their farms, weeding and harvesting. At the household level, children are taught life skills by older siblings, and are brought to the Buddhist temple to observe community rituals from an early age. Food sharing, labour exchange and food *dhana*² for monks contribute to more equitable access to food. Socialization in the community occurs through day-to-day interaction at homes, local shops and the temple. Watching soap operas on television is the most popular leisure activity. From 2005 to 2008, the proportions of households with television sets increased from 18 to 39 percent of the total, with motorcycles from 15 to 21 percent, and with mobile telephones from 12 to 26 percent.

The food system

Sanephong people benefit greatly from the availability of local food. Domesticated local rice varieties, maize, taro roots and potatoes are the main sources of carbohydrates, while animals, particularly fish, are the main sources of protein, fat and oil. Vitamins and minerals come from traditional foods such as wild seasonal vegetables, fruits, cereals and animal

¹ Televisions are more common in affluent households. They are bought with income from selling crops (e.g., chilli, coffee), while some are gifts from family members who work in town or city centres.

² *Dhana*, meaning to give, provides merit in the Buddhist tradition, through gifts of living things such as food to monks.



sources. Rice is the staple food, supplemented by food items from traditional farming and seasonal natural resources. Most people still value traditional foods as medicines that make them strong and healthy. Local food species are grouped into four categories: i) cereals and roots (14 percent); ii) animal proteins – aquatic animals, insects and small mammals (17 percent); iii) vegetables and mushrooms (53 percent); and iv) fruits (16 percent). Although animal food sources are plentiful, people tend to prefer fishing, as hunting is strictly prohibited in and around the community. Vegetables and mushrooms from outside sources are now available in small local shops, as are chickens from industrial farming, pork, fish and canned fish, string beans, eggplant, cabbage and snacks of low nutritional quality.

Traditional farming techniques suit the local topography. Slash-and-burn for field rice cultivation is used on higher levels where irrigation is not possible. Paddy rice farming is practised on the alluvial floodplain. Harvested rice is stored for household consumption, sharing, offerings and occasional sales to neighbouring households. Food items such as cucumbers, gourds, sesame, taro roots and vegetables are grown on the same plots as the rice. Seeds are preserved for the next growing season. These traditional farming practices are also found in other Karen communities in northern Thailand (Ganjanaphan *et al.*, 2004). It should be noted that although most households grow rice for their own consumption, rice yields are low in Sanephong. Fewer than 30 percent of households produce sufficient rice for their yearly consumption.

Project objectives

The overall objectives of this intervention project (which is ongoing) are similar to those of other projects described in this book: to use expert and community knowledge of the traditional food system and culture as a platform for working with the community to improve its nutrition and health. Specific objectives are to: i) increase awareness about the importance of traditional food sources among community people; ii) promote traditional food production and consumption, especially

among children; and iii) increase community capacities, knowledge and skills to take action on children's food and nutrition security.

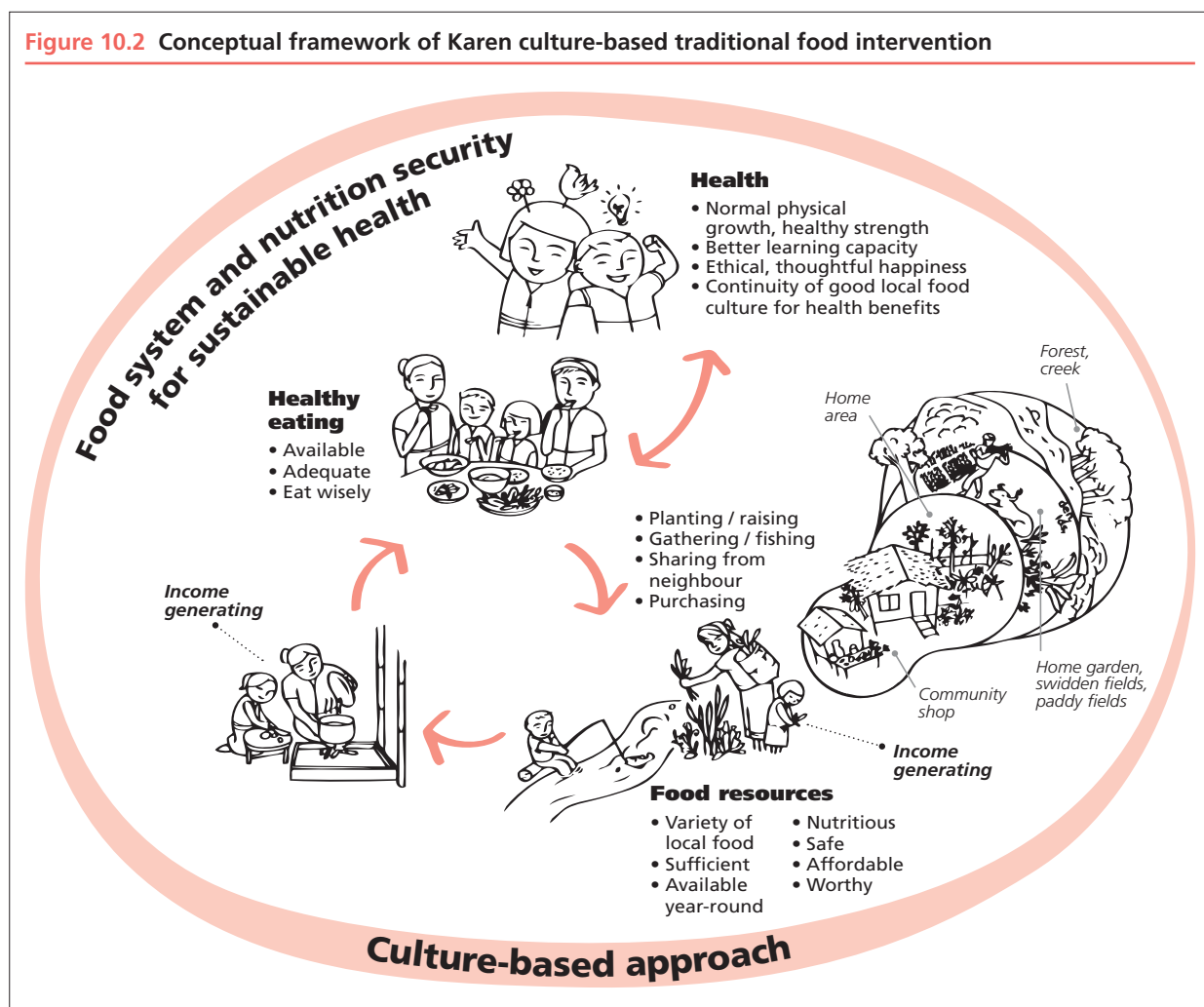
Intervention concepts and methods

Figure 10.2 illustrates the project in a form that helps the community, researchers and other stakeholders develop a common understanding of the project vision. This communication method was found especially helpful for working with community people whose way of thinking is more concrete than abstract.

The project encourages villagers to grow more traditional foods in household and school backyards. Villagers also gather foods from natural sources (the forest, rice fields, ponds, canals, etc.) or buy them from small shops in the village. Both men and women are encouraged to increase the range and year-round availability of local foods, based on economic and nutrition considerations. Mothers and daughters are encouraged to use fresh food and a variety of foods, and to practise clean and safe food preparation and cooking that is both economical and nutritious. Families are encouraged to ensure that all family members, particularly children, have enough food and eat wisely (for food and nutrition security). All villagers are encouraged to take action to improve nutrition and health. In this way, the people of Sanephong can become healthy, strong and intelligent through improved nutrition and food security. For sustainability, traditional Karen culture and values are promoted among the local people, especially children and youth.

The project adopted Prawase Wasi's (2009) culture-based development approach. He compares this people-centred approach to building a pagoda, which normally starts from the ground, not from the top. He holds that it is wrong to initiate a community development programme from the "ivory tower" of expert knowledge while ignoring local knowledge. Wasi urges all those involved in community development to build a deep understanding of the local people, to learn from them, and to use their local knowledge as a driving force for development. Demonstrating respect for local people right from the start makes it easier for project workers

Figure 10.2 Conceptual framework of Karen culture-based traditional food intervention



to win trust. Diverse stakeholders (community people and outsiders) should think together, and local resources and knowledge – or “cultural capital” – should be combined with adaptive knowledge, building on the community’s strengths to improve the quality of life of its members (Wasi, 2009).

Using this culture-based approach, the participatory project integrates indigenous knowledge and researchers’ knowledge, to promote food and nutrition security by using local foods and to carry out interdisciplinary research based on community collaboration. The project is implemented within the context of the community’s culture, through dialogue among community people, local authorities and academic partners. All are key players throughout project processes (equitable

involvement): the project is guided by the community and its cultural preferences; and project implementation uses resources and strengths available in the community (Israel *et al.*, 1998).

For outside researchers, a culture-based approach is challenging because it requires them to build trust, find culturally appropriate ways of communicating with indigenous people, and ensure that intervention activities are in tune with cultural preferences (Grenier, 1998). The project uses social dialogue as a communication strategy because it allows participants to listen to one another and express themselves and their wishes freely. Indigenous partners are not seen as underprivileged or victimized, because all share equally in the dialogue and all views are recognized. Trust usually develops easily



in such a context (Yankelovich, 1999; Isaacs, 1999; Wheatley, 2002).

Bohmanian dialogue (BD) (Bohm, 1996) is used for team learning and decision-making. This method has been found to be particularly effective in situations where wide diversity among actors leads to a tendency for certain academic disciplines to dominate, thereby creating a strong social hierarchy. BD can briefly be described as an attempt to tackle fragmented and diverse thoughts and ideas. Innovative interventions and community empowerment are hard to achieve because individuals usually try to impose their own mental models of reality on others. If not properly handled, advocating and arguing tend to block the tacit development of thoughts and consensus. In groups or organizations – including rural communities – this generally results in forced acceptance, which leads to silent resistance. BD’s effectiveness relies on having a natural and peaceful setting that allows equal opportunities for each individual to reflect on her/his experiences and generates collective thinking about the group’s future. Mutual respect and trust are important elements. With appropriate facilitation, BD can lead to collective innovation and a sense of community. Project meetings are therefore conducted in peaceful, open and – when possible – culturally symbolic settings, such as Buddhist temples, mosques or mountain tops. To maximize the potential for a creative surge of insight and innovation, rituals and images such as prayers or sacrifices are also included when appropriate.

The project design is therefore based on a clear vision of collective action and shared expectations, a culture-based approach with multi-stakeholder participation, and good communication platforms. To facilitate collective action in an indigenous cultural context, metaphor has been found to be a simple and effective tool. For example, when working with an indigenous group in Latin America, Friulian lexicalized plant species by assigning them animal attributes that brought out their properties and colours (Pellegrini, 2006). A similar practice occurs in corporate organization culture, where people with different backgrounds often use metaphor as a tool in knowledge management and the generation of

common goals and thinking, using imagination and intuition to develop a shared vision (Nonaka, 1998). Metaphor helps people to understand complex realities by using the common intuition they have developed from day-to-day experience and encapsulated in their vernacular language (Lakoff and Johnson, 1980). The community and research team developed “SWA” as a metaphor for communicating the project’s shared vision among stakeholders (Figure 10.3).

“SWA” is a Karen vernacular term denoting a fish sanctuary in a running stream. The fish in a SWA are safe from predators and can resist the current of the flowing stream. In the metaphor, the SWA is the community, while the community members are the fish. Living in a SWA gives Sanephong people a safe space for their own culturally appropriate lifestyles, but it must also allow them to develop resistance so they can face rapid changes outside their community. Living in a SWA does not mean that people are trapped in their community for safety. Those who want to leave the SWA need to prepare themselves physically, mentally and spiritually to survive well outside. The SWA metaphor thus conceptualizes the “how” of the project. Working in Sanephong, for Sanephong people, intervention efforts should assist the community in

Figure 10.3 SWA – a visual model used to communicate shared vision among project stakeholders



building a strong *SWA* (i.e., in preserving an ecological niche and creating a living space that is suitable for them and future generations).

Intervention activities to date

Based on these concepts and methods, the community, other stakeholders and the academic research team planned and implemented four main intervention inputs: i) increased production of traditional foods at home; ii) motivation and nutrition education for schoolchildren; iii) women's empowerment; and iv) capacity strengthening for community leaders, local researchers and youth.

Increased production of traditional foods at home

A home garden is analogical to having a *SWA* at home, and this activity was designed to put the *SWA* concept into practice. First, 50 participating children were asked to list the traditional vegetables and fruits they found in a demonstration garden, and then to draw them, to create a visual model (Figure 10.4). Next, they explored the traditional vegetables and fruits in their own home gardens. Rare and endangered traditional plants were cultivated in a nursery and transplanted to home gardens. To stimulate the children's learning and action, they also visited other home gardens and recorded and drew pictures of what they found there. To endorse these activities, community adults advised the children on how to select good traditional food varieties and grow them. This was followed by a competition in which the children grew varieties of traditional vegetables and fruits in their home gardens. Three important criteria for selecting competition winners were easy access to traditional plant foods, self-reliance and diversity of plants. Agriculture experts were brought in to advise on the value of traditional agricultural techniques, such as growing several varieties of food in the same plot, storing seeds for the following season, and respecting nature, which sustains the environment and home food security. As water shortage can be an important

constraint during the dry season, the research team also assisted the community with writing a proposal for the building of a small community dam, to present to the local administration.

Motivation and nutrition education for schoolchildren

To increase schoolchildren's confidence in their culture and traditional foods, four motivation and education camps were organized (Henderson, Bialeschki and James, 2007; Bialeschki, Henderson and James, 2007; Goldstein *et al.*, 2004) for a total of 350 children aged eight to 15 years. The children were conceptually seen as small fish in a *SWA*. Topics at the camps included: i) re-establishment of traditional food crops at the household level; ii) environment and natural resource conservation; iii) nutritious cooking of traditional foods; iv) basic health care; and v) nutrition. The process emphasized holistic learning development (language, music, arts and life skills), and included an introduction to traditional food sources from forests, waterways and households; food and nutrition songs; drawing; lectures; brainstorming; presentations for friends and community members; and "edutainment" (educational entertainment) activities, which included traditional indigenous ways of learning by doing. The children were encouraged to cook local dishes. Based on traditional knowledge, they were also encouraged to plant more local vegetables in upstream areas, to safeguard community water resources.

Information about the importance of traditional foods, and nutrition education were later integrated into primary school curricula. This involves parents, elders, community leaders and school teachers, to ensure continuation in schools. Education tools emphasizing the importance of food diversity include games and poems promoting traditional foods. Elders are also involved in educating children in school. Community women volunteered to share their cooking knowledge and skills, emphasizing the concept of "fresh, clean, nutritious and safe" food preparation with the schoolchildren. During these sessions, children were taught to be careful about money, especially regarding their habit of buying sweets

Figure 10.4 Household traditional food plant diversity in Sanephong



and snack foods from community shops. Nutritious local sweets were promoted as alternatives. After each session, schoolchildren were encouraged to share what they had learned with their families. Interpersonal communications and home visits were used to encourage the community to endorse the children's activities and to promote healthy traditional food sources. Scientific information about local food and nutrition helped stimulate discussions on local foods and enhanced the community's knowledge, attitudes and participation.

Women's empowerment

Fifty women volunteers were trained in techniques of "fresh, clean, nutritious and safe" cooking. This resulted in the creation of nutritious traditional food snacks, such as glutinous rice mashed with sesame, which the volunteers then prepared for the monthly community

meetings where project activities are discussed. Two local shop owners were invited to join the women's group activities and to help organize a competition for local nutritious recipes, such as traditional vegetables in noodle soup and other common local dishes. Through the competition, the women's group gathered 20 nutritious local recipes and one modified healthy local snack, which they promoted in the community. The women volunteers were also trained in monitoring the nutrition status of their children and themselves, including education on achievable daily nutrition intakes from local foods, to ensure good nutrition and health for their families.

Capacity strengthening for community leaders, local researchers and youth

To strengthen the confidence and communication capacities of community leaders and local researchers,

the academic research team provided opportunities for them to share their knowledge and experiences on issues such as subsistence practices, health and the community's future with non-governmental organization (NGO) officers working in the area, border patrol police, local district administrators and others. Study visits were also organized for the local leaders and researchers to learn more about organic farming, ecotourism and ecomarketing. Five local researchers were trained in financial management and traditional food recipe development. In addition, 100 community youth were trained in conserving traditional knowledge and culture, and good communication skills. Nine community leaders and the local researchers participated in a national seminar at Princess Sirindhorn Botanical Museum, Bangkok. Five community leaders and researchers joined international workshops in Italy, Japan and Canada, to exchange ideas and worldviews with international indigenous leaders, academics from universities and activists from NGOs.

Indirect project contributions

These four main intervention activities were not the project's only inputs for food and nutrition security in Sanephong. Following the capacity strengthening activities, community and local leaders, youth, women and children can now help bring about changes that will contribute to the continuing achievement of project objectives. For instance, community leaders – supported by the local administration – are now mobilizing the community and managing the budget for a community garden project, to provide vegetables for consumption and income generation. Project activities were designed not only to effect direct changes but also to generate additional changes through training and capacity building of community researchers and other agents.

Intervention results

This participatory research in a Thai Karen community was conducted through collaboration among the community, other stakeholders and the academic research team. These groups therefore represented

both the research network and the tools of the research. To collect the necessary data, both qualitative and quantitative research methodologies were applied in Sanephong community between 2005 and 2009. The process for studying indigenous food systems described by Kuhnlein *et al.* (2006a) provided guidelines for this. In-depth interviews, focus group discussions, participatory observations, community walks and surveys, and nutrition and health assessments were used. The following subsections summarize the evaluation results.

Trust and commitment

One important indicator of successful work with an indigenous community is the building of trust between collaborators in and outside the community. Throughout the project, the external research team generated community participation and involvement. Results of a community survey³ indicated that people in the community recognized the project's contributions to providing knowledge (65 percent, n = 44), changing attitudes (15 percent, n = 10) and changing behaviours (20 percent, n = 14). Opinions from community people and leaders, recorded from interviews and group discussions, suggest that the community trusted the research team:

Many community people participated in the project activities ... more than half.

(Villager)

This group does not deceive us ... they are good and diligent ... they talked to us nicely ... and they explained rather well.

(Deputy Village Headman)

I talked with them [community people] before but they were not interested ... no action. It's heartbreaking for me again and again ... When the research team came in and worked with us, things became clearer ... I felt such relief.

(Sub-district Headman)

The research team and the community are like husband and wife now, we have good relationship.

(Villager)

³ Survey respondents were the mothers of 68 primary school children in Sanephong.

Figure 10.6 Children’s activities in the traditional plant activity programme, as reported by parents

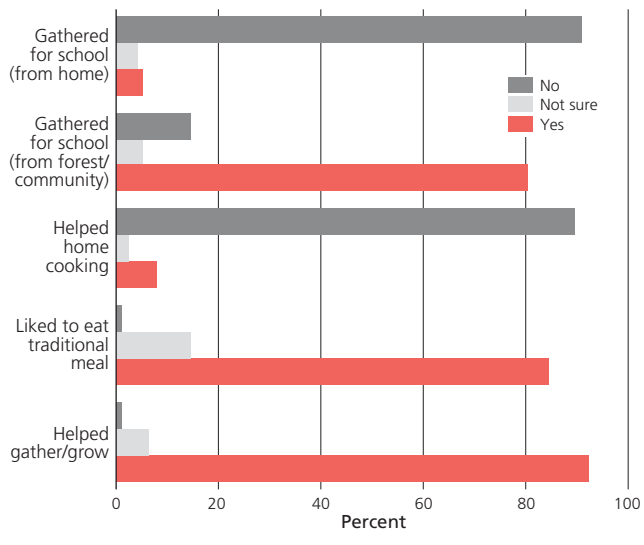


Table 10.2 Reported food preferences for families, children and community festivals

Dish	% preferring item (n = 77)		
	For family	For children	For festivals
Chilli paste and vegetables	61.5	1.3	17.9
Vegetable soup	12.8	14.1	–
Fish and vegetable soup	14.1	28.2	–
Chicken/pork and vegetable soup	1.3	15.4	2.6
Fried foods (stir- or deep-fried)	5.1	34.6	1.3
Curries (e.g., pumpkin with chicken, pork in coconut milk)	5.1	–	66.7
Dessert	–	–	3.8
Others (e.g., <i>Kanom Jeen</i> /Thai vermicelli)	–	6.4	6.4

Children as change agents⁷

Children are the future. To preserve Karen culture and traditions, community leaders gave priority to children’s education. Figure 10.6 shows that community people were aware of the many activities

⁷ A change agent is an individual with capacities for influencing changes in the community. By empowering the children through active participation in project interventions, the project team helped them become valuable project advocates and important players in future development.

for teaching children about traditional vegetables and fruits. According to the survey, children had become more involved in growing or gathering traditional vegetables over the previous year (92 percent, n = 69). They also gathered traditional vegetables from the forest and waterways to cook for school lunches, although traditional vegetables and fruits grown in household gardens did not contribute to school lunches.⁸ Most respondents (89.5 percent, n = 68) mentioned that children helped with home cooking, and 84.2 percent (n = 64) agreed that “community children like to eat traditional meals very much”.

Traditional food uses

Food preferences in the community indicate that people in Sanephong still have a rather simple lifestyle. Table 10.2 shows that there are only five categories of dish eaten by families and children and at festivals: chilli paste with vegetables, soups, fried foods, curries, and desserts. Those interviewed (n = 77) reported that chilli paste with vegetables⁹ was the most popular food for the family (61.5 percent, n = 48) and was also used at festivals (17.9 percent, n = 14), but not for young children. Soups were the most popular dish among children, who also liked fried foods (34.6 percent, n = 27). Curries such as pumpkin with chicken or pork in coconut milk were the most popular festival foods. Based on these food preferences, it can be seen that family diets could rely on traditional food sources (i.e., traditional vegetables and fish), but children’s preferences for chicken/pork soups and fried foods indicate a need for families to purchase some foods (chicken, pork and cooking oils). If this trend continues, family expenses on food can be expected to increase in the community.

Respondents often mentioned health and safety (32.1 percent, n = 25) as their reason for maintaining traditional diets: “eating our food makes us strong and healthy”. Some (29.5 percent, n = 23) simply liked

⁸ This indicated that there were still plenty of traditional vegetables in the area around the community, and that households probably grow traditional vegetables in small amounts for their own consumption.

⁹ Chilli paste is prepared by pounding red chillies and garlic together with salt or shrimp paste. Karen chilli paste is generally very strong, so it is usually eaten together with raw or boiled vegetables.



traditional foods: “eating chilli paste and vegetables makes me happy”. Self-sufficiency (23.1 percent, n = 18) was another reason: “eating food grown by ourselves is marvellous”. Some (14.1 percent, n = 11) felt at home and proud: “I am proud to eat our local foods like my grandparents”. Thus, increased exposure to mainstream communication and food marketing had not changed community dietary patterns, and positive attitudes towards traditional diets remained intact at the end of intervention.

Although the project promoted the use of traditional foods in general, it focused on the food items identified in the phase 1 study as being of high nutritional value and available in the community. For example, *Pak Man Moo* is a good source of vitamin A and folate, and an excellent source of vitamin C; *Pak Kood* is a good source of iron and an excellent source of vitamin C; and the shellfish *Khlu-mi* is a good source of calcium and an excellent source of iron (Chotiboriboon *et al.*, 2009). Mothers (82.4 percent, n = 61) mentioned that they cooked more of these foods (some up to two or three times per week) during the intervention.

Change agents as examples for others

Local researchers reported that persuading Sanephong people to take action to improve their food and nutrition security by using traditional foods takes both time and effort. After the nutritive values of traditional foods (the phase 1 results) were presented to the community, one of the local researchers decided that she would act as an example. Similar to many others in the community, her family included three adults (her husband, herself and a grandmother) and four children aged two to 12 years (three boys and one girl). Her husband played a major role in traditional farming while she took care of the household by gathering and cooking food and looking after the children. Her husband occasionally earned some extra cash from daily wages.

By January 2008, she was growing 58 different traditional vegetables and fruits in an area of about 0.2 acres (0.08 ha) around her house. From this home

garden, she was able to pick 15 traditional vegetables in about 15 minutes, to cook a good meal for her family. This meal included stir-fried roselle with canned fish, a mung bean noodle soup with ivy gourd omelettes, pumpkin and canned fish curry and chilli paste. In terms of dietary reference intakes (DRIs) (Banjong *et al.*, 2003; Changbumrung, 2003) these four dishes with steamed rice were found to provide adequate energy and macronutrients (carbohydrate, protein, fat), at more than 40 percent of the DRIs. The dishes also provided 30 percent of the DRIs for iron and vitamin C, 28 percent for vitamin A, 78 percent for vitamin B₁, 26 percent for vitamin B₂, 18 percent for calcium, and 13 percent for niacin. The calculations of vitamin A content did not include the vegetables eaten with chilli paste, which is a rich source of carotene, so the family’s vitamin A intake may have been more than 30 percent of the DRI. These percentages of DRIs represent good dietary contributions, especially of macronutrients, iron and vitamins C, A and B₁. However, intakes of other nutrients, especially calcium, vitamin B₂ and niacin, were inadequate. This meal required the purchase of canned fish, eggs and vegetable oil, and was estimated to cost about baht (THB) 6 or USD 0.16 per person.

This demonstrated that growing a variety of traditional vegetables and fruits is not only feasible but could also lead to increased dietary variety at minimum cost to the family. This local researcher was able to share her home-grown vegetables with neighbours, which is a highly regarded practice in the community. Even more important, her children’s nutrition and health improved significantly. For instance, her eldest son’s weight-for-age increased from 89 to 95 percent of the Thai standard, his height-for-age from 94 to 96 percent, and his weight-for-height from 105 to 107 percent. His haemoglobin level also improved, from 9.8 to 12.7 g/dl. As is the case for many women in developing countries, these positive changes were possible because of the local researcher’s contributions to food production, food access and nutrition security (Quisumbing *et al.*, 1995). Based on this success, she has become an effective promoter of traditional foods in Sanephong.

Figure 10.7 Nutrition status of children up to 12 years of age, before and after intervention

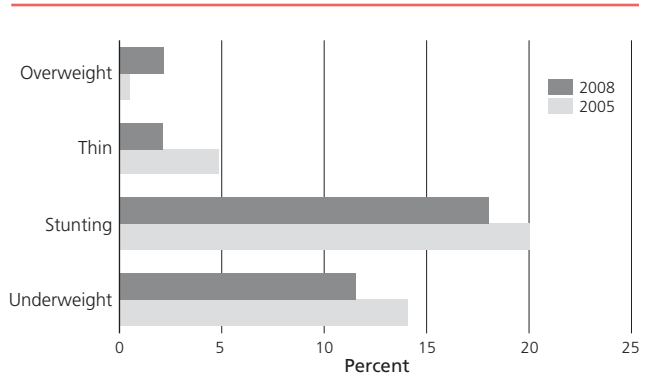
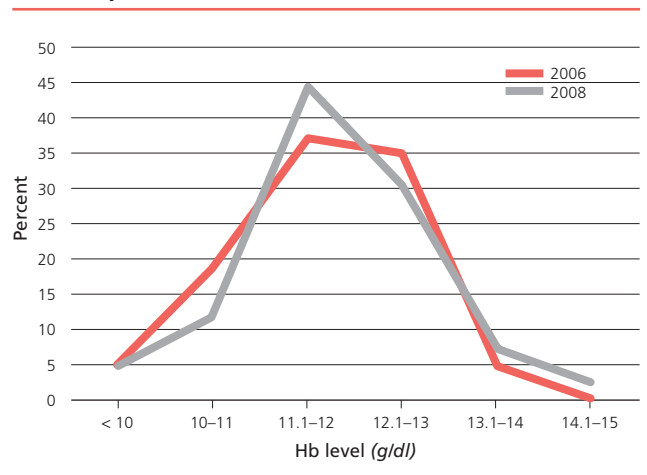


Figure 10.8 Distribution of haemoglobin values among children aged eight to 12 years at initiation (2006) and follow-up (2008)



Local capacity strengthening

The community and the research team made capacity strengthening their highest priority as a way of helping to maintain and sustain the changes long after the project ended. Throughout the project, change agents – including community leaders and local researchers – were observed to become more confident in their communications on food and nutrition security within their community, at the national and international levels. In January 2009, Her Royal Highness Crown Princess Sirindhorn visited Sanephong and the project’s change agents gave a

good presentation. The Crown Princess encouraged them to continue their efforts to protect traditional food sources and to eat traditional foods with their families. The efforts of Sanephong change agents and the community at large are now widely recognized, and a Web site¹⁰ reports on progress to the outside world. In addition, community leaders have allocated THB 200 000 (about USD 6 000) to developing homestead gardening activities, and a local youth group has organized its own learning camps, with support from elders and local officers.

Nutrition outcomes

The project focused on increasing awareness about the importance of traditional food sources, and strengthening local capacities, knowledge and skills to take action on children’s food and nutrition security, but it did not have resources to influence directly the quality or quantity of diets. Changes in nutrition status thus rely on the community’s abilities to adjust within their own means. It was observed that nutrition among children aged 0 to 12 years improved during the intervention. Figure 10.7 shows that the overall incidences of underweight among children decreased from 14.1 percent (n = 26) to 11.6 percent (n = 22), of stunting from 20 percent (n = 37) to 18 percent (n = 34), and of thinness from 4.9 percent (n = 9) to 2.1 percent (n = 4). The proportion of overweight children increased from 0.5 to 2.1 percent, reflecting the global nutrition trend (Khor, 2008).

Iron nutrition status among children aged eight to 12 years (n = 43), as measured by haemoglobin, indicated average levels of 11.7 mg/dl (SD = 0.9) before and 11.9 mg/dl (SD = 0.9) after the intervention, and a tendency for improved distribution of haemoglobin concentrations was also noted (Figure 10.8). According to World Health Organization (WHO) criteria (Gleason and Scrimshaw, 2007), the proportions of children with normal concentrations increased from 65.1 to 69.8 percent, those with mild shortages decreased from 30.2 to 25.6 percent, and those

¹⁰ www.rdpb.go.th/rdpb/front/news/rdpbnewsdetail.aspx?rid=123&catid=1

Lessons learned

While nutrition and health problems related to environmental change and the deterioration of local food systems are emerging in indigenous communities all over the world, enhancing traditional food systems can serve as a strategy for coping with malnutrition and sustaining development (Kuhnlein and Receveur, 1996). The participatory project in Sanephong demonstrates this (Chotiboriboon *et al.*, 2009). The project team set out to work with and for the people of Sanephong community, by combining team members' knowledge of community food systems with local knowledge and wisdom about Sanephong's traditional food system, to improve nutrition and health, especially of children. Although a culture-based approach was used, academic partners were crucial at the start of the project in ensuring that the process adopted allowed all community members to participate and identify their own priorities (Kuhnlein *et al.*, 2006b). As outsiders working with the consensus of community people from the outset, the academic researchers were catalysts and project coordinators. Multi-stakeholder partnership was key to project success. To work well in this context, members of the participatory research team needed trust, openness and deep respect for each another. Outsiders had to accept that changes would come only at the community's own pace.

Similar to experiences of the global network (Kuhnlein *et al.*, 2006b), the project team learned that using local foods to improve the nutrition and health of children requires more than technical knowledge. Project success relied heavily on human processes and factors, such as establishing long-term relationships, building mutual trust and developing effective communication among multiple partners. Individuals tend to see things from their own perspectives, which are derived from fragmented thoughts and personal experience. People's actions are driven by their own perspectives, and occasionally conflicts emerge. The project team learned that the different ways of thinking of the indigenous people and the urban-based researchers could be connected through socializing activities. Partnerships

were created through exchanging ideas and sharing experiences from working together. Once mutual trust had emerged, appropriate implementation could follow. This process took both time and effort for all stakeholders. It is therefore recommended that future work to improve food and nutrition security in an indigenous community such as Sanephong should consider applying a culture-based, free-formed and organic approach rather than a mechanical and controlled approach with expected outcomes that are set by others without the community's participation.

Although the project turned out to be positive for both the Sanephong community and the academic research team, the road to better nutrition and health using traditional foods in this community is long. Similar to many other indigenous communities around the world, Sanephong is no longer isolated. It is connected to the global community through socio-economic and cultural aspects, together with the newly introduced market economy, media and transportation. Sanephong people should still be able to choose how they wish to live; the community has made great efforts and has expressed a strong interest in maintaining its own culture and traditions, which may include preserving traditional food diversity and traditional farming. Community people still firmly believe that retaining biocultural heritage nourishes the spirit of the Karen people. Nevertheless, the community needs outside assistance to help its members achieve their goals. Interested outsiders should act like fish from other *SWAs*, coming in to help people in the Sanephong *SWA* prepare their younger generation for a brighter future, so they can live proudly in their own *SWA* within the running stream of the rapidly changing social and global environment ✨

Participatory research team

A team of community and academic partners made this work possible. Major contributors from Sanephong community were Anon Setapan, Mailong-ong Sangkhachalatarn, Nutcharee Setapan, Sompop Sangkhachalatarn, Benchamas Chumvaratayee, Sanu, Jongkol Pongern, Plubplueng



Kamolpimankul and Suwatchai Saisangkachawarit. The academic team included Charana Sapsuwan, Sopa Tamachotipong, Prapa Kongpunya, Pasamai Eg-kantrong, Saifon Phonsa-ard, Waragon Khotchakrai, Suwarin Yunaitum, Prangtong Doungnosaen, Kamontip Srihaset and Tharaporn Graigate of the Institute of Nutrition, Mahidol University; Winai Somprasong, Pramote Triboun and Bordintorn Sonsupab from the Division of Plant Varieties Protection, Ministry of Agriculture and Cooperatives; Rattanawat Chairat of the Faculty of Environment and Resource Studies; and Ariya Thanomsakyuth of the Faculty of Medicine, Ramathibodi Hospital, Mahidol University.

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>> **Photographic section** p. XIX

