Chapter 8

# Inga food and medicine systems to promote community health

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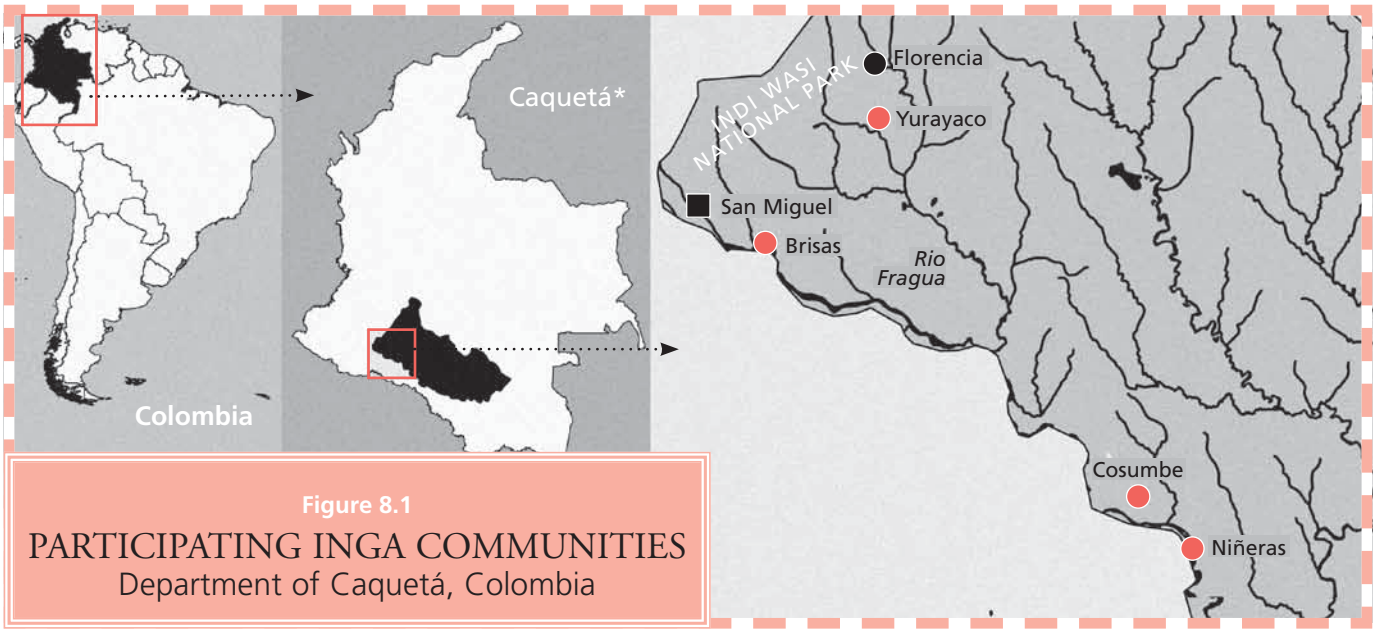


**Figure 8.1**
PARTICIPATING INGA COMMUNITIES
Department of Caquetá, Colombia

*Data from ESRI Global GIS, 2006.*
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Amazon Conservation
Team Colombia,
Bogota, Colombia

Key words > Inga community, Indigenous Peoples, traditional foods, Andean piedmont, biocultural diversity, nutrition, health, food security

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> “I am a nutrition promoter, which we call *Kawadurkuna Nucanchipa Micuy*, or keeper of our nutrition and health. I am the person in charge of promoting food security in the framework of the Life Plan Recovery of Inga Life and Culture. I conduct the health and nutrition diagnoses of the communities and promote traditional foods and crops so that families are able to recover traditional foods, recipes and drinks, seeking to make them less dependent on markets when it comes to health and food.”
>
> Libia Diaz, Inga local promoter, San Miguel Indigenous Reserve


## Abstract

This chapter describes the activities and results of a project developed in five indigenous reserves of the Inga indigenous group from the Department of Caquetá in Colombia. The project's objective was to promote indigenous traditional foods and medicine as a strategy for ensuring community health.

Support to family and school vegetable gardens (*chagras*), and the establishment of farming projects and medicinal gardens – in addition to family visits, workshops and courses on nutrition and health, culinary festivals, seed exchanges, traditional recipe collection and health brigades – were essential elements of a process whose general purpose was to strengthen the health component of the Inga community's Life Plan (see text).

The participation of community elders and traditional healers strengthened the project's results by triggering and encouraging broad consensus on its benefits. Health recommendations were promoted through pamphlets and booklets on nutrition, health and traditional recipes and through radio programmes in the Inga language, as part of a communications strategy that aimed to build community awareness regarding the importance of nutrition and health.


## The Inga ethnic group of the Caquetá region

Located in the eastern Andean piedmont (westernmost Amazon) in the Department of Caquetá (Figure 8.1), the project area, which is inhabited by numerous indigenous tribes, is known as one of the most species-rich sites in Amazonia and is considered a global conservation priority. Today, the piedmont is perceived as linking the mountains of the Andes to the plains of the great Amazon, “a staircase of earth that serves as a land bridge so that flora, fauna and people form a single landscape” (Ramírez, 2005). Characterized by flora and fauna that are globally diverse, the region displays unusual adaptations to dynamic environments, and has a high degree of local endemism. Located near the equator, it has

no significant seasonal differences and only minor variations in average monthly temperatures.

The region's biological and cultural evolutions have taken place largely in parallel. Among its biodiversity, the botanical species *Banisteriopsis caapi* (Spruce ex Griseb.) C.V. Morton is important as a sacred plant for the region's original inhabitants, who call it *yagé* or *ayahuasca*. Some local tribes[1] use this "vision vine" as a sacrament in rituals, and are therefore sometimes referred to collectively as the "*yagé* culture".

The Inga ethnic group of Caquetá is part of this *yagé* culture, and its cultural practices include ceremonies in which *yagé* is consumed. Considered a gift from God, *yagé* is believed to provide not only the capacity to manage and understand the Inga culture, but also powers of healing. "These practices include a special relationship with nature, in which [the Inga] invoke the strength of their mythical animals such as jaguars, parrots, and snakes, and also achieve knowledge on the use of medicinal, food, psychotropic, stimulant, timber, and craft plants" (Ramírez, 2005).

The Inga's relative isolation from Western society has allowed them to conserve linguistic and cultural knowledge and to continue practising their indigenous traditions, including specific dietary habits. For the Inga, nature gives life by providing animals, plants and seeds that are used for family and community support. During the project's first phase, groups of these traditional foods were collected and characterized: vegetables, tubers and trees or palms such as *chontaduro* (*Bactris gasipaes* Kunth), *milpés* palm (*Oenocarpus bataua* Mart.) and yam (*Dioscorea* spp.); fruits such as *zapote* (*Matisia cordata* Bonpl.), papaya (*Carica papaya* L.), pineapple (*Ananas cosmosus* L.), banana (*Musa* spp.) and *arazá* (*Eugenia stipitata* McVaugh); small animals such as ants (*Atta* spp.), *churo* (a snail, *Pomacea maculata* Perry) and *mojojoy* (a grub, *Coleoptera* spp.); and larger animals such as *boruga* (an agouti, *Cuniculus paca* L.), *morrocoy* (a turtle, *Geochelone carbonaria* Spix), *churuco* (a monkey, *Lagothrix lagothricha* Lugens), deer (*Mazama* spp.), *cucha* (a fish, *Hypostomus* sp.), shad (*Brycon* spp.) and *bocachico* (a fish, *Prochilodus nigricans* Spix & Agassiz). Correal *et al.* (2009) provide a fuller list of Inga traditional foods.

Inga leaders have stated their determination to defend their unique traditional lifestyle by asserting and implementing the five fundamental rights of Indigenous Peoples defined by the International Labour Organization's (ILO's) Convention 169: identity, participation, territory, autonomy, and autonomous development (ILO, 1989). These rights are exercised through the Inga Life Plan, an indigenous development plan designed in a participatory fashion by the Tandachiridu Inganokuna Association, supported by the Colombian Constitution – one of the most progressive in Latin America. The Inga Life Plan establishes the theoretical basis for future actions, the community's objectives, and the practical means of fulfilling these. Briefly, the plan seeks to achieve the holistic integration of all aspects of daily life, including education, health, agriculture, land tenure, nature and culture.

Organization of this Inga community started in 1988, when the Organization of Inganos of Southern Colombia (ORINSUC) was formed. In 2000, ORINSUC was transformed into the Tandachiridu Inganokuna Association of Senior Councils (Inga from the Caquetá), which has restored indigenous judicial and governmental structures, initiated a process for legalizing collective traditional lands in indigenous reserves, and established activities to improve communities' general health through primary health care programmes.

In February 2002, the Amazon Conservation Team and the Inga community, in partnership with the Colombian National Park Service, established the 77 380 ha Alto Fragua Indi Wasi National Park, located along the eastern Andean foothills of the Colombian Amazon at the headwaters of the Fragua River. The park was created to protect one of the world's greatest regions of biodiversity, as confirmed through inventories conducted by the *Instituto de Investigación de Recursos Biológicos Alexander Von Humboldt*. In addition to protecting several tropical Andean ecosystems, including highly endangered

[1] These include the Kametza in Sibundoy Valley; the Siona and Kofan along the Putumayo River; the Inga in Sibundoy Valley and the regions around Mocoa, Florencia and the Bota Caucana; and the Coreguaje in the vicinity of the Orteguaza River.

humid sub-Andean forests, the park also conserves endangered fauna, such as the spectacled bear, and sacred cultural sites designated by local Indigenous Peoples. Indi Wasi protects biological diversity in a vital area that links Andean and Amazonian biota and contains sites of high cultural significance for the Inga people.

The Inga community has also determined that younger generations must be educated under the guidance of traditional Inga authorities, many of whom have expert knowledge of the surrounding forests and their diversity. In response to the lack of suitable education for their youth, the Inga have developed a curriculum that embraces traditional knowledge areas such as botanical medicine and forest stewardship, as well as standard "Western" subjects at the innovative Yachaicurí Ethnoeducation School of Yurayaco, Caquetá.

At the school, approximately 90 Inga students aged five to 18 years are being trained to become conservation leaders. They participate in courses that emphasize sustainable agriculture, and record ancestral knowledge in their native language. Located on 55 ha, the school grounds include a natural science laboratory and an agro-ecological farm, where students learn first-hand the sustainable farming techniques that allow them to grow their own food, contribute to the food resources of surrounding communities, and provide an economic base for their school.

The Inga group that participated in the project is located in eastern Caquetá, 60 km south of Florencia, the capital of the region. Its territories cover approximately 19 778 962 ha, at 297 to 540 m above sea level, with an average temperature of 27 °C and relative humidity of 87 percent. In this region, the most readily available agricultural products, both cultivated and harvested from the wild, are banana, sugar cane, pineapple and maize. Other significant products are rubber, cocoa, *arazá* (*Eugenia stipitata* McVaugh), *cocona* (*Solanum sessiliflorum* Dunal), *copoazu* (*Theobroma grandiflorum* Schumann), *chontaduro* (*Bactris gasipaes* Kunth), *caimarona* (*Pourouma cecropiifolia* Mart), coffee and *borojo* (*Borojoa patinoi* Cuatrec) (Parra, 2004).

## Cultural and environmental challenges

The eastern Andean piedmont of Colombia is characterized by uncontrolled land occupancy and immigration resulting from the advance of colonization. In recent decades, government development planning for these territories has focused on extensive cultivation through the use of credit and subsidies, placing a strain on sustainable use of the local environment. There is considerable logging activity in the region, and this is extremely difficult to monitor. Seismic exploration and exploratory oil drilling have also taken place. The available hydrocarbons appear to be of insufficient quantity and quality to merit further exploitation, but petroleum extraction may still represent a threat for conservation of the region's ecosystems and Indigenous Peoples. Mining is another potential threat.

These territories have been a refuge for paramilitary groups and armed militias such as the Revolutionary Armed Forces of Colombia–People's Army (FARC–EP) and the National Liberation Army (ELN). Local people face constant uncertainty in the face of external efforts to control the territory. Conflict has directly affected the Inga ethnic group and has increased economic, social and environmental instability. Violence against citizens, including abductions and assassinations, is increasing. Among adult men and women (between 15 and 64 years of age), violent conflict appears to be an important cause of death, although there are no differentiated data for the region's indigenous population, which represents 2 percent of the total (Departmental Health Institute of Caquetá, 2006). The cultivation of coca for cocaine production and the resulting activities of the narcotics industry have triggered fragmentation of the social infrastructure and devastation of local ecosystems. All of this has serious environmental and cultural implications for the region's indigenous communities.

## Health and nutrition challenges

Through the partial loss of traditional lands and severe deforestation, access to the Inga's traditional cultivated and wild plants for food and medicine has

decreased significantly. This has had significant negative consequences on local economies and indigenous food and medical systems. In addition, the shrinking of the area available for traditional rotation crop production has reduced the Inga's capacity for self-subsistence. Difficult access to health services and the scarcity of these services in ethnic territories, as well as poverty and social and geographical marginalization add to the challenges.

The United Nations Millennium Development Goals[2] provide the foundation for the Colombian Government's social policies for overcoming these challenges. With the goal of upgrading the coverage and quality of the general health and social security system, two legislative reform initiatives have been brought before the Colombian Congress, "seeking to promote the inclusion of currently uninsured low-income population sectors; improve efficiency in the provision of public services, including health; and increase capacity building and accountability at the regional (territorial) levels" (PAHO, 2007).

The 2005 Colombian National Survey on Health and Nutrition indicates slight improvements in the department's indicators, including those for nutrition (PAHO, 2007). For example, in 2005, chronic malnutrition in children under five years of age had diminished slightly (to 12 percent) since 2000 (13.5 percent); acute malnutrition was observed in only 1 percent of children under five years of age; and among those aged five to nine years, 13 percent showed stunting and 5 percent low weight-for-height.

Nevertheless, problems persist, and the health statistics for the country as a whole obscure large differences among regions, between urban and rural areas and across social levels. Minority groups are characterized by high poverty rates, markedly inadequate basic sanitation services and a higher degree of health problems than other population groups. In the Department of Caquetá where this research took place, the predominant health concerns are acute diarrhoeal diseases, acute respiratory infections, malnutrition and nutritional deficiencies, tuberculosis (TB), periodontal diseases and skin disorders (PAHO, 2007).

[2] www.un.org/millenniumgoals/

In 2006, the year of the most recent government study, the Department of Caquetá's infant mortality rate was 32 per 1 000 (compared with a national rate of 20). For children under five years of age, mortality was 41 per 1 000 (compared with the national 26). The department therefore has one of the highest infant and early childhood mortality rates in the country (Departmental Health Institute of Caquetá, 2006). Prevalent childhood diseases are the main cause of death among children under five, with acute diarrhoea and respiratory infections being the most prominent. Figures for maternal and perinatal mortality are also above average: a maternal mortality rate of 98 per 100 000 live births compares with a national rate of 79, and a neonatal mortality rate of 18 per 1 000 live births with one of 7.4.

## Participatory research

Research for the project was developed in a participatory fashion using the Centre for Indigenous Peoples' Nutrition and Environment (CINE) methodology (Kuhnlein *et al.*, 2006). Working with the research team, the community determined the methods for collecting, recording and presenting the data. The data collection process also triggered and enabled community awareness building about the factors that influence nutritional and general health.

A multicultural team established at the beginning of the project was responsible for developing project objectives and recommendations. In addition to the project coordinator and support team, four indigenous local promoters collected and recorded key nutrition information and sensitized the communities to the importance of nutrition and health, using terminology and imagery common to the Inga. (Hereafter, the promoters will be referred to as "the team".)

The team participated in several meetings with leaders of the Tandachiridu Inganokuna Association to draft a cooperation agreement in which the role of each member was discussed, described and established. The signed agreement reflected the communities' expectations, guaranteeing a participatory decision-making process and protecting the rights of indigenous communities.

## Project objectives and participants

The project's general objective was to contribute to protecting the health and food security of the Inga people by promoting the maintenance and recovery of their traditional agricultural production systems, as part of their Life Plan. Specific project objectives were to:

- improve and increase the availability of traditional foods that are important for the Inga's health and nutrition;
- promote the maintenance and application of the Inga's ethical beliefs, knowledge and cultural practices related to nutrition and health;
- offer students of the Inga Yachaicuri School a primary health care programme;
- carry out an anthropometric assessment of the Inga ethnic group;
- develop and assess a programme for improving the health and nutrition status of the community sustainably.

## Intervention activities

The project lasted from 2005 to 2008. During the first year, meetings were held with the Senior Council of the Inga indigenous group of Caquetá, to establish a research framework and obtain permissions. Local health and nutrition promoters and traditional agriculture promoters were selected, and training workshops held for them. The project's team of four promoters conducted the fieldwork with participating families. The promoters were trained in and informed about health promotion issues. Among the subjects discussed were the definitions of health and illness; child care; health care for pregnant women, adults and elders; prevention of the most frequent illnesses within the community, including colds, diarrhoea, fever, malnutrition and anaemia; promotion of healthy foods; and the cultivation and use of medicinal plants.

In the project's first phase, research was conducted to define the sources and nutritional composition of key traditional foods. Nineteen traditional foods were selected for promotion, based on their cultural and nutritional values, ease of retrieval in the *chagras*[3] and daily use for family nourishment (Table 8.1) (Correal *et al.* 2009).

During development of the project's information and educational strategy, the promoters visited families on each of the indigenous reserves. These visits were to collect information on the composition of Inga families and their health status and environment; the Inga's beliefs and knowledge regarding traditional plants and medicine; the availability of traditional foods; Inga food use frequencies; environmental, social and economic indicators; the distribution of traditional seeds and knowledge; breastfeeding practices; and recipes.

The promoters worked closely with family members, highlighting the positive aspects of their health status as well as those that needed improvement. Areas of emphasis included: i) promoting the development of *chagras* for cultivating traditional foods; ii) exchanging traditional seeds among families; iii) maintaining the cleanliness of housing and local environments; iv) using plants from medicinal gardens to help treat diseases; v) implementing recommendations for the improvement of health care; vi) implementing recommendations on nutrition and health care for senior groups; vii) promoting breastfeeding; and viii) discouraging the use of powdered milk for babies.

Each family was visited at least three times during each year of the project. The first visit was used to obtain information on the Inga's knowledge of health and their commitment to making specific improvements, especially by implementing recommendations for improving health care. The second and third visits assessed families' implementation of these recommendations. During the visits, promoters observed that the communities and families showed the most interest in improving their *chagras* and in seed exchanges, culinary festivals, and *yoco* and *yagé* ceremonies.

[3] A *chagra* is a family and/or communally managed plot based on a diversified and sustainable production system that imitates the forest ecosystem's dynamics by combining agricultural and forestry technologies. Its fauna and flora components are closely interrelated and selected to ensure the protection and sustainable use of the soil and other forest resources. The project's indigenous partners perceived the *chagra* as being like a market store that provides indigenous people with a supply of daily nutritional needs near their homes. The *chagra* is an example of the application of accumulated, inter-generationally transmitted indigenous knowledge about the harvesting and use of plants.

**Table 8.1 Traditional foods promoted**

| *Common name (scientific name)* | *Nutrients provided* | *Importance to health according to female and male indigenous healers* |
|---|---|---|
| *Chontaduro* (*Bactris gasipaes* Kunth) | Protein, fat, fibre, vitamin A | Promotes proper growth of children; prevents malnutrition; protects against lung disease; helps maintain healthy skin and good vision |
| *Milpés* (*Oenocarpus bataua* Mart) | Fat, protein, fibre | Promotes proper growth of children and proper foetal development; provides energy for daily activities; prevents malnutrition; protects against heart disease; aids the digestive process |
| *Mojojoy* (*Coleoptera* spp.) | Protein, fat | Promotes proper growth of children and proper foetal development; provides energy for daily activities; facilitates weight gain; prevents malnutrition; protects against lung disease |
| *Zapote* (*Matisia cordata* Bonpl.) | Vitamin A, vitamin C | Protects against lung disease; helps maintain healthy skin and good vision; protects against colds; helps to heal wounds; protects against heart disease |
| *Yoco* (*Paullinia yoco* Schultes & Killip) | Not available | Mild stimulant and general health tonic |
| *Cayamba* (*Auricularia auricular-judae* (Bull.) Quel.) | Protein, fibre, minerals | Facilitates immune response; improves the digestive process; helps prevent the body from absorbing fats from foods, thereby protecting the heart and circulatory system |
| Ant (*Atta* spp.) | Fat, protein, niacin | Supports the functioning of the digestive system; protects the skin from infections; promotes a healthy nervous system; helps the body to produce energy |
| Snail (*Pomacea maculate* Perry) | Protein, phosphorus | Promotes proper growth of children and proper foetal development; prevents malnutrition; improves the body's defences against diseases |
| *Cucha* (*Hypostomus* sp.) | Protein, phosphorus | Promotes proper growth of children and proper foetal development; prevents malnutrition; improves the body's defences; facilitates the formation of bone and teeth |
| *Cimarrón* (*Eryngium foetidum* L.) | Iron | Prevents and treats anaemia; aids treatment of hepatitis |
| *Ají* (*Capsicum* L.) | Vitamin A, vitamin C, minerals, capsaicin, potassium | Protects against cancer; helps the digestive process; prevents bronchitis |
| Yam (*Dioscorea* spp.) | Carbohydrates | Prevents malnutrition; increases energy |
| Pineapple (*Ananas cosmosus* L.) | Vitamins, minerals, bromelain | Improves digestion and circulatory process; cleanses the intestines |
| Banana (*Musa* spp.) | Carbohydrates | Prevents low weight; increases energy |
| Sour cane (*Begonia plebeja* Liebm.) | Not available | Purgative and antipyretic |
| *Nina Waska* (not available) | Not available | Purgative; promotes internal cleansing |
| Papaya (*Carica papaya* L.) | Vitamin C, minerals, fibre, papain | Improves the digestive process; cleanses the intestines |
| *Arazá* (*Eugenia stipitata* McVaugh) | Vitamin C, fibre | Protects against colds; helps to heal wounds; protects against heart disease |

The following were the recommendations for family and community health care:

- Drink something bitter once a week.
- Apply nettle.
- Do not eat sweets from the town.
- Eat abundant fruits.
- Women should take care during their menstrual period.
- Purge three times a year.
- People should take care when they have a cold.
- Consume aromatic plants in teas and juices, to avoid diseases.
- Eat only traditional foods and meals made from traditional recipes.

The following recommendations for different age groups are based on traditional Inga knowledge, which is shared by Inga shamans and elders during family visits.

## Health care and nutritional support for children under two years of age

- Young children should be swathed in cloth diapers.
- To prevent skin ailments, bathe children with plants such as cane and maize leaves, *yarumo* (*Cecropia peltata* L.) and *balso* (*Ochroma pyramidale* Urban).
- Bathe children with herbs such as mint (*Mentha pulegium* L.) or wormwood (*Artemisia absinthium* L.), without rinsing.
- Leave children's clothes to dry in the air.
- Breastfeeding is recommended for at least the first three months. Bottle-feeding should be avoided.
- Remove parasites with mint (*Mentha pulegium* L.), purslane (*Portulaca oleracea* L.) and *paico* (*Chenopodium ambrosioides* L.).
- From one year of age, children should eat all categories of traditional nourishment. The only food that is not recommended for children under two years of age is chilli (*ají*).
- Animal heads should not be consumed by children under two years of age.
- Children can drink all kinds of *chicha*, as long as it is not too fermented.
- During teething, children should be given food with sufficient texture for biting and tearing.

## Health care and nutrition for children aged two to 12 years

- Parasites should be removed by using purgatives such as *yoco* (*Paullinia yoco* Schultes & Killip).
- Lice should be prevented by applying *achapo* husk juice (*Prochilodus nigricans* Agassiz).
- All children should be taught respect for family and traditions, and to accept advice from their grandparents and elders.
- Children should be taught to honour the indigenous culture, customs, language, clothing, myths and legends, games and food.
- Children should be fed with all types of traditional food.
- Children should not be breastfed or bottle-fed.
- Give children traditional drinks such as *chicha*, *anduche* and *guarapo* that are sweet but not strongly fermented.

## Health care and nutrition for adolescents, adults and the elderly

- Adolescents and adults can consume all types of animal.
- Traditional healers and apprentices should not consume pregnant animals or fish with teeth.
- Purgatives should be taken during a new moon.
- *Yagé* or *ambiwaska* (*Banisteriopsis caapi* [Spruce ex Griseb.] C.V. Morton) should be taken every two weeks.

## Health care for women during their menstrual period

- Do not bathe in cold water, unless special plants such as lemongrass (*Cymbopogon citrates* Stapf.) or other herbs are added.
- Do not swim in the river: "coldness" may be passed to the uterus and the woman will suffer during labour.
- Do not lift heavy things.
- Do not drink milk or eat cassava or fruits, to avoid cystitis or burning urination.
- Women should avoid eating *danta* (*Tapirus terrestris* L.), *gurre* (*Cabassous unicintus* L.), *cerrillo* (*Tayassu tajacu* L.) and deer (which are irritating meats) and chilli (*ají*) (*Capsicum* L.).

## Health care during pregnancy and breastfeeding

- Do not lift heavy things.
- Bathe in herbs such as basil (*Ocimum basilicum* L.), *altamiza* (*Artemisia vulgaris* L.), *ajenjo* (*Artemisia absinthium* L.) and orange leaf; these plants can be mixed.
- During pregnancy women should receive palpations from midwives or women healers to determine whether the baby is healthy.

The interviews conducted during visits were based on the individual physical health questionnaire (Annex

**Table 8.2 Activity indicators with projected and final numbers achieved**

| *Indicator* | *Projected number* | *Actual number* |
|---|---|---|
| Families benefiting from the project | 80 | 60 |
| Hectares supported | N/A | 81 |
| Sustainable production projects for food security | N/A | 19 |
| Nutritional and health promoters trained and working with communities | 4 | 4 |
| People participating in *yoco* ingestion | 100 | 140 |
| Health brigades | 5 | 5 |
| People participating in health brigades | N/A | 270 |
| Information activities on health subjects (workshops on health and nutrition information) | 5 | 7 |
| People participating in health information activities | N/A | 176 |
| Traditional foods recovered | 19 | 19 |
| Schools using school *chagras* | 4 | 4 |
| Schools using traditional foods in their cafeterias | 4 | 4 |
| Radio programmes on health and food | N/A | 50 |
| Promotional literature products (flipchart and cookbook) | 2 | 2 |

8.1), the dietary frequency questionnaire, a 24-hour recall, the infant food history survey (Annex 8.2) and the food security interview (Annex 8.3). The individual physical health questionnaire collected information on indicators including diminished visual perception at night, pallor, hair problems, oral lesions and bleeding of the gums. The dietary frequency questionnaire and 24-hour recalls were used to identify the main traditional and non-traditional foods and their frequencies of consumption in participants' families. The infant food history survey gathered data on breastfeeding practices and the health care status of indigenous children. The food security interview was used to assess families' perceptions regarding food availability. Among the questions asked and discussed were: Do you always have food? Do you buy food? Do you ever go hungry? Do you cook or provide food for others? Families' traditional food preferences were identified through analysis of the information collected through this tool. Anthropometric data were collected for youth ≤ 18 years of age; information was classified into the indicator categories weight-for-age, height-for-age, and weight-for-height.

In addition, workshops and courses were conducted to build awareness and understanding both in the communities and among the students of Yachaicuri School. Workshops and group activities on nutrition, nourishment and health were developed in each indigenous reserve. Traditional food recipes were collected and prepared during culinary festivals. Promotional literature and visual materials regarding the recommendations for improving community health were prepared by the local promoters using information collected from community elders, particularly traditional healers.

Community and school *chagras*, farming projects and medicinal plant gardens were established to increase the availability of traditional foods and medicine. Students helped to create school *chagras* where cilantro, *cimarrón* (*Eryngium foetidium* L.), onion (*Allium* sp.), cucumber (*Cucumis sativus* L.) and other vegetables were grown for the children, and medicinal plants were cultivated.

Culinary festivals, seed exchanges and recipe collections were organized to promote the use of traditional foods and to identify the plants used and encourage the cultivation of traditional food crops in *chagras* and family gardens.

Promoters visited the communities to evaluate the menus of school cafeterias. For each school, the project prepared menus that included at least one traditional food preparation. Ways of preparing foods harvested in the school's *chagra* were recommended. The Colombian Institute of Family Welfare's menus were revised to include traditional drinks such as *anduche*, *chicha* and *chucula* (banana whipped with water) and foods such as *tacacho* (cooked and mashed banana).

The local promoters visited schools on the indigenous reserves to develop educational activities and introduce traditional foods, especially the 19 foods identified during the preliminary research. The nutritional and cultural importance of these foods

**Table 8.3 Numbers of people participating in project activities**

| *Age range (years)* | *Female* | *Male* | *Total* |
|---|---|---|---|
| < 1 | 6 | 3 | 9 |
| 1–4 | 7 | 13 | 20 |
| 5–10 | 20 | 17 | 37 |
| 11–15 | 28 | 19 | 47 |
| 16–20 | 11 | 12 | 23 |
| 21–25 | 6 | 11 | 17 |
| 26–30 | 6 | 3 | 9 |
| 31–35 | 4 | 6 | 10 |
| 36–40 | 3 | 5 | 8 |
| 41–45 | 5 | 6 | 11 |
| 46–50 | 2 | 0 | 2 |
| 51–55 | 2 | 2 | 4 |
| 56–60 | 4 | 8 | 12 |
| 61–65 | 4 | 1 | 5 |
| 66–69 | 1 | 0 | 1 |
| ≥ 70 | 2 | 2 | 4 |
| **Total** | | | **219** |

was highlighted, and recipes were prepared for the students to taste.

The Inga consider frequent invitations to drink *yoco* (*Paullinia yoco* Schultes & Killip) as being vital to their nutrition and health, along with the periodic drinking of cleansing plants. *Yoco* has traditionally been used as a stimulant, owing to the high caffeine content of its bark; it is also used as a laxative and in many other traditional indigenous treatments in the foothills. In each indigenous reservation, five health brigades provided services through a *taita* (traditional healer) and an apprentice.

Table 8.2 lists the project activities, with the anticipated and actual numbers reached.

## Project results: improved health, nutrition and food availability

A total of 219 indigenous people from the five Inga indigenous reserves participated in project activities. Participants were from all age groups: 51 percent were women and 49 percent men. Children up to 15 years of age (51.6 percent) were the major population group participating in activities (Table 8.3).

**Table 8.4 Observed and self-reported health conditions (percentages)**

| *Condition* | *Baseline 2006 (n = 108)* | *Final assessment 2008 (n = 98)* |
|---|---|---|
| Presence of oedemas | 7.8 | 3.4 |
| Pallor of the skin | 48 | 44.8 |
| Self-reported bleeding gums | 13.9 | 11.5 |
| Self-reported hair problems | 13.1 | 13.8 |
| Self-reported oral lesions | 1.7 | 0 |
| Self-reported night blindness | 63 | 24.1 |

### Individual physical health questionnaire

Answers to questions on the self-perception of health status revealed that 60 percent of participants considered their health to be average; 36.7 percent considered themselves to enjoy good health; and 3.3 percent considered themselves to be in poor health. For the final evaluation, health status was deemed average in the presence of "pain in the bones", a common complaint resulting from work in the fields and, according to indigenous beliefs, snakebites. Noteworthy was that 100 percent of participants used traditional medicinal practices to prevent or treat health problems. An important improvement in night blindness was reported (Table 8.4).

### Food frequency and 24-hour recall

All Inga families used plants and animals from their *chagras* to prepare their daily meals. Foods such as plantain (*Musa* spp.), yucca (*Manihot esculenta* Crantz), *chontaduro* (*Bactris gasipaes* Nunth), *píldoro* (*Musa* sp.) and *yota* (*Xanthosoma* sp.) were regularly prepared. Eighty-two percent of families consumed fruits weekly. The types of fruit consumed depended on the harvest cycle, and the most frequently used were guayaba (*Psidium guajava* L.), orange (*Citrus sinensis*

**Table 8.5 Contributions of kilocalories, protein, iron and vitamin A to daily intake, traditional food (TF) versus non-traditional food, using 24-hour recalls (n = 58) (percentages)**

| | *kcal* | | *Protein* | | *Iron* | | *Vitamin A* | |
|---|---|---|---|---|---|---|---|---|
| | *TF* | *Non-TF* | *TF* | *Non-TF* | *TF* | *Non-TF* | *TF* | *Non-TF* |
| Baseline 2006 | 47 | 53 | 60 | 40 | 14 | 86 | 80 | 20 |
| Final assessment 2008 | 57 | 43 | 70 | 30 | 50 | 50 | 100 | 0 |

**Table 8.6 Anthropometric nutritional evaluation of youth ≤ 18 years of age**

| | | *2006* (n = 227) | | *2008* (n = 127) | |
|---|---|---|---|---|---|
| *Indicator* | *Age range* (years) | *No. participants* | *Participants < -2SD* (%) | *No. participants* | *Participants < -2SD* (%) |
| Weight-for-height | < 5 | 41 | 0.8 | 29 | 0.6 |
| Weight-for-age | < 5 | 41 | 3.6 | 29 | 3.5 |
| | 5–10 | 71 | 4.6 | 37 | 4.6 |
| Height-for-age | < 5 | 41 | 14.5 | 29 | 14.4 |
| | 5–19 | 186 | 14.7 | 98 | 14.7 |

Osbeck), mandarin (*Citrus reticulata* Blanco), banana (*Mussa* sp.), *guama* (*Inga edulis* Mart), pineapple (*Ananas cosmosus* L.), *zapote* (*Matisia cordata* Bonpl.) and *arazá* (*Eugenia stipitata* McVaugh). Traditional drinks were prepared daily: maize *chicha*, *chontaduro chicha*, *anduche* (a banana drink) and cane *guarapo* were the most frequent. Fish was the most frequently consumed animal food (three or four times a week), while eggs were consumed daily among families with poultry farming facilities. Traditional foods that were not consumed frequently included beef, yam and hard-to-obtain foods such as snails and *milpes* (*Oenocarpus bataua* Mart).

The contributions to energy (kcal) and protein of traditional and non-traditional foods were calculated in the project's first phase and during the evaluation activities. Interviews based on 24-hour recalls were conducted with approximately 15 people from each community – the majority were students chosen randomly in schools – to observe variations between the percentage contributions of foods consumed and the nutrition recommendations provided by the Colombian Institute of Family Welfare (ICBF, 2005).

The contributions to kcal, protein, iron and vitamin A of indigenous traditional foods increased between the first and second phases of the project (Table 8.5). The kcal contribution of traditional foods was high because the traditional Inga diet is rich in carbohydrates and kcal, mainly from plantain, yucca and yam. Non-traditional foods in families' food baskets included rice, pasta and sugar. Traditional foods' contribution of protein increased by 10 percent among participating

**Table 8.7 Duration of exclusive breastfeeding, mothers with children ≤ 2 years of age (n = 18)**

| *Months from birth* | *Exclusive breastfeeding* (%) |
|---|---|
| 1 | 16.7 |
| 2 | 5.6 |
| 3 | 10.0 |
| 4 | 5.6 |
| 5 | 18.9 |
| 6 | 32.0 |
| 7 | 5.6 |
| 11 | 5.6 |

families, owing to increased consumption of the eggs and meat produced by families with poultry. This, combined with the use of *cilantro cimarrón* (*Eryngium foetidium* L.) in the preparation of foods also increased the amount of iron in participants' diets. Non-traditional foods such as beans and lentils were used three times a week at lunch and dinner, completing the families' nourishment. Traditional foods such as chilli (*Capsicum* L.) and fruits such as *zapote* (*Matisia cordata* Bonpl.) and papaya (*Carica papaya* L.) supplied vitamin A.

## Anthropometric assessment

Despite improvements in health indicators and dietary assessments, there were minimal improvements in anthropometric indicators from 2006 to 2008. This was expected, because height indicators (stunting) are persistent. Few children had serious weight-for-age or weight-for-height deficiency (Table 8.6). This analysis emphasizes the need to generate specific parameters for comparisons of data from Colombia's indigenous communities, whose populations are on average shorter than those of the country as a whole.

## Infant and child nutrition: infant food history survey

Inga people consult both traditional health agents, such as midwives and relatives, and Western doctors and nurses. During childbirth, 50 percent of the mothers surveyed used Western medicine, and the other 50 percent used midwives or relatives trained to help with childbirth. This is well known by the region's health entities: regional health action plans for improving mother-and-child health include the training of non-institutional midwives, indigenous health promoters, etc. to assist indigenous women during pregnancy and childbirth (Ministry of Social Protection, 2008).

**Table 8.8 Reasons for stopping breastfeeding, mothers with children ≤ 2 years of age (n = 18)**

| *Reason* | *% mothers* |
|---|---|
| Child hungry | 27.1 |
| Work activities | 20.0 |
| Lack of milk production | 19.5 |
| Food support from government institutions | 13.3 |
| Introduced non-dairy beverages | 13.4 |
| Mother ill | 6.7 |

As a rule, the indigenous women of the community breastfeed: 100 percent of survey participants stated that they started breastfeeding soon after the child's birth, with 78 percent starting one hour after delivery. This is significantly higher than the 47.2 percent of women who reported starting breastfeeding an hour after childbirth in the National Survey of the Nutritional Situation in Colombia in the Department of Caquetá (ICBF, 2005). For the current study, local promoters visited pregnant women and assisted with childbirth, teaching the proper position for breastfeeding and advocating against the use of traditional drinks and baby bottles during the baby's first month of life. Of the women interviewed, 57 percent stated that they breastfed exclusively for the child's first four to six months (Table 8.7). Twenty-seven percent stopped breastfeeding altogether at one year, and 18 percent stopped at two years; 64 percent of women breastfed for at least one year. The reasons for weaning are listed in Table 8.8.

In response to these findings, recommendations were developed to promote the "golden rule" of breastfeeding ("the greater the stimulus, the greater the production of milk"), the benefits for children's food security from breastfeeding, and the associated reduced food costs for the family. In indigenous families, complementary feeding begins between the third and sixth month of life, when mothers offer their children traditional foods such as fish, vegetables and plantain drinks. By ten months of age, children are ready to consume all the traditional and non-traditional foods eaten by the family. Table 8.9 summarizes the main foods used during the introduction of complementary foods.

During their visits, the local promoters worked closely with family members to collect information on

**Table 8.9 Complementary foods offered**

| Food or preparation | Type: Traditional or homemade | Type: Non-traditional or purchased | Age at introduction (months) |
|---|---|---|---|
| Fish soup | √ | | 3 |
| Chicken soup | | √ | 3 |
| Meat soup | √ | | 4 |
| Plantain soup | √ | | 4 |
| Vegetable soup | | √ | 4 |
| Plantain drink | √ | | 4 |
| Pumpkin | √ | | 4 |
| Meat | √ | | 6 |
| Guava | √ | | 7 |
| Orange | √ | | 7 |
| *Chucula*[a] and *anduche*[b] | √ | | 7 |
| Pineapple | √ | | 8 |
| Yucca | √ | | 8 |
| Yam | √ | | 9 |
| *Pomo*[c] | √ | | 9 |
| *Cherimoya* | √ | | 9 |
| Grape | √ | | 8 |
| *Yota*[d] | √ | | 9 |
| Cucumber *archucha* | √ | | 9 |
| Eggs | √ | | 11 |
| Sweet *chichi*[e] | √ | | 14 |

[a] Cooked ripe plantain.
[b] Traditional drink made from fermented ripe plantain.
[c] Mountain apple (*Eugenia malaccensis* L.).
[d] Tuber (*Xanthosoma* spp.).
[e] Sweet drink made of fermented maize.

traditional food preparation practices. Of note is that the pre-mastication practices used by female ancestors to prepare traditional drinks for young children are no longer in use. Local promoters remembered drinking cassava *chicha* prepared through pre-mastication by their grandmothers and aunts. Following Inga traditional practices and beliefs, the *chicha* was prepared without sugar; the drink's sweet flavour resulted from the women's saliva mixing with the tuber. Younger mothers now believe that this is not hygienic, and have no memory of having participated in this type of food preparation. Occasionally, indigenous women chew lightly on foods of hard consistency (such as meat) to facilitate infants' consumption of complementary foods (from zero to four months). Today, no pre-mastication practices are used to prepare traditional drinks such as *anduche*, *chicha* or *chucula*.

## Food availability: food security interview

Twenty-four households participated in the food security interview. One of the programme's most important achievements was to increase the availability of traditional foods, especially the 19 that had been selected, through activities that included *mingas*[4] at the *chagras* (Correal *et al.*, 2009).

All of the families interviewed (100 percent) stated that they considered traditional foods to be healthy and nutritious: 64 percent stated that they had access to the quality and types of food they preferred, while 36 percent stated that their families still had insufficient traditional foods for consumption. The factors that prevented indigenous families from achieving their preferred food consumption – shortage of traditional foods, decreased hunting or fishing stocks, and/or lack of financial resources for purchasing other goods – were resolved by families working to improve the quantity and quality of the food they grow and through conservation strategies for preserving fauna species in nearby forests and rivers.

It is noteworthy that 100 percent of the families stated that both youth and adults had regular access to certain quantities and qualities of traditional foods, and that during the project period no family members lost weight because of a significant reduction in their food consumption or a lack of food for an entire day. All families interviewed stated that traditional farm and garden foods – including meat, fish, yucca, plantain, onions, tomatoes, fruits and foods derived from livestock, such as cheese and milk – were always shared in their immediate community.

Family food security among the Inga is based on plant cultivation and harvesting and animal breeding. Following the establishment and strengthening of

[4] A *minga* is a work project that engages many of the people in the community.

**Table 8.10 Production from *chagras* and farming projects, 2007 to 2008**

| | | *Area farmed* (ha) | | *No.* chagras | | *Area of* chagras (ha) | | *Species in* chagras* | | *Medicinal species** | | *Food species** | *Species for other uses** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ***Indigenous reserve*** | ***No. families*** | ***2007*** | ***2008*** | ***2007*** | ***2008*** | ***2007*** | ***2008*** | ***2007*** | ***2008*** | ***2007*** | ***2008*** | ***2008*** | |
| San Miguel | 15 | 16.25 | 29.88 | 18 | 25 | 11.5 | 13.75 | 42 | 61 | 0 | 24 | 34 | 3 |
| Brisas | 11 | 12 | 9.62 | 15 | 12 | 6.75 | 5 | 35 | 52 | 0 | 15 | 34 | 3 |
| Yurayaco | 9 | 0 | 11.44 | 9 | 12 | 7.25 | 7.5 | 28 | 47 | 0 | 7 | 38 | 2 |
| Niñeras | 14 | 33 | 29.5 | 21 | 30 | 11.75 | 12.51 | 70 | 106 | 0 | 27 | 63 | 16 |
| **Total** | **49** | **61.25** | **80.44** | **63** | **79** | **37.25** | **38.76** | | | | | | |

* Some species were grown and used in more than one community.

family and school *chagras*, 71.4 percent of the families participating in project activities expressed decreased anxiety regarding food availability because food was always available in their *chagras*. Other goods (rice, pasta, butter, oil and salt) were purchased to complete the families' diet, but these products were not consumed daily. Seventy-two percent of the families had poultry farming facilities, and 37 percent produced milk and cheese for family consumption.

The families interviewed believed that the availability of traditional foods increased over the two-year project period. Families are now growing more species in larger *chagra* and garden areas. The diversity of species found in the average family chagra increased by 54 percent during the project. Each indigenous reserve now contains between 47 and 106 species, including the 19 traditional foods identified in the preliminary research (Table 8.10). There was also a marked increase in the harvesting of plants for medicinal use. Culinary festivals and seed exchanges were key to strengthening the use and cultivation of *chagras*.

The local promoters' activities to improve community nutrition and health care also supported the promotion, recovery, sowing and use of traditional seeds in accordance with traditional customs. Some traditional practices and knowledge resurfaced for the community's use. Families showed great motivation and willingness to continue recovering traditional foods and agricultural practices. Inga youth participated actively in educational activities such as tending school *chagras* and community plant nurseries. The strengthening

**Table 8.11 Medicinal plants encouraged by local promoters**

| ***Plant*** | ***Use*** |
|---|---|
| *Ambar* (*Tetracera sessilliflora* Triana & Planch) | Infusion to calm nervous breakdowns and for fevers, headaches and kidney ailments |
| *Chondur* (*Cyperus* sp.) | For hair problems |
| *Descancel* (*Compositae* Bercht & J. Presl.) | For fevers and headaches, and to ease labour |
| *Paico* (*Chenopodium ambrosioides* L.) | For parasitic infection |
| *Chiricaspi* (*Bruntelsia grandiflora* Plum ex. L.) | For physical pain in general |
| *Yawar chondur* (*Cyperus* sp.) | For headaches |
| *Ruda* (*Ruta graveolens* L.) | For fevers |
| *Limoncillo* (*Cymbopogon cytratus* (DC) Stapf.) | For menstrual pain and colic |
| *Hojas de naranja* (*Citrus aurantium* C. *sinensis* Osbeck) | For menstrual pain and colic |
| Bitter cane (*Costus spicatus* L.) | For fevers |
| *Tabardillo/oreja negra* (*Calliandra californica* Benth.) | For fevers |
| *Kalambombo* (*Averrhoea carambola* L.) | For cuts and skin irritations |
| *Hoja Santa* (not available) | For headaches and acne |
| Nettle (*Urtica* L.) | To calm nervous breakdowns and for coughing |
| *Sauco* (*Sambucus mexicana* L.) | For eye irritations and as a purgative |
| *Toronjil* (*Melissa officinalis* L.) | To calm nervous breakdowns |
| *Flor de muerto* (*Cistus albidus* L.) | For stomach pains |
| Malva (*Malva sylvestris* L.) | For fevers |
| *Achiote* (*Bixa orellana* L.) | For cuts and skin irritations |
| Cat's claw (*Ucaria* spp.) | For kidney ailments and to clean the blood |

of family and school *chagras* through the recovery of traditional seeds provided an additional benefit beyond fresh, healthy and nutritious foods, by providing venues where Inga elders, adults and youth can come together to share their knowledge of ancestral agriculture techniques.

Ongoing project activities by promoters include assisting the expansion of *chagras* and the production of organic fertilizers for soil restoration; providing technical assistance and onsite advice; assisting the continued recovery of traditional seeds; and encouraging the consumption of traditional rather that purchased foods.

### Traditional medicine

Supplies of traditional seeds and oversight were provided during the project, to strengthen the communities' medicinal plant gardens. Awareness and understanding of the use of traditional medicine were increased through health brigades of *taitas* (shamans) and *mamas* (women healers) from the unions UMIYAC (*Unión de Médicos Indígenas Yageceros de la Amazonía Colombiana*) and ASOMI (*Asociación de Mujeres Indígenas: La Chagra de la Vida*). Local promoters encouraged the use of some medicinal plants (Table 8.11).

## Conclusion

### Barriers to implementation and data collection

Data were collected through informal interviews and discussions. Generally, the Inga feel more comfortable when activities are conducted informally. They believe that projects should support their Life Plan, rather than merely diagnosing or documenting their lifestyle. Notably, the Inga do not approve of the collection of blood samples and subsequent medical laboratory analysis.

The group of participants changed during the project. Some of the people who participated in the first phase left the indigenous reserve, while new indigenous people arrived in the research area during the course of the project. It was therefore difficult to develop precisely comparable information for before-and-after analysis of the intervention.

Armed conflict in the project territories occasionally hindered access to the Inga region during the project period. In addition, the Inga indigenous reserves in Caquetá are difficult to reach: travel is mainly by foot, so it can require hours to reach a community.

### Project achievements

Traditionally, the main staples of the Inga group were locally obtained foods such as manioc and wild game. Increased contact with the outside world and the associated increased consumption of processed foods caused deterioration in the health status of Inga communities. This project's goal was to emphasize the importance of forest resources in supporting the Inga's nutritional health.

The project's promotion of a sustainable economy based on indigenous communities' traditional values resulted in improved health and nutrition in Inga families. The support provided to family and school *chagras* and the establishment of farming projects and medicinal gardens – as well as family visits, workshops and courses in nutrition and health, culinary festivals, seed exchanges, the collection of traditional recipes and health brigades – were fundamental to strengthening the health component of the Inga community's Life Plan.

Support to indigenous families and the local indigenous association in developing and implementing the health component of their Life Plan strengthened communities' governance and facilitated their engagement with traditional authorities, health promoters and healers. The Inga youth population became involved in promoting and preserving both indigenous culture and indigenous knowledge regarding environmental conservation. The Inga's holistic integration of all aspects of daily life – including education, health care, agriculture, land tenure, interaction with the environment and cultural expression – allowed the project implementers to integrate health and nutrition activities into an overall health improvement plan. The project strengthened the conservation and application of traditional indigenous knowledge and traditional food consumption.

In the Inga group of the Department of Caquetá, nutritional, health care and environmental challenges persist, despite the significant increase in local awareness. Specific health care models have still to be defined with the community, and more work is needed to bridge the communication gap between community leaders and youth regarding health issues.

The project built capacity through training workshops, enabling the Inga indigenous association to implement the health component of its Life Plan effectively, and ensuring project sustainability. In addition, the expansion of ancestral territories – particularly links between the Alto Fragua Indi Wasi National Park and the Yurayaco and San Miguel indigenous reserves – allowed the development of conservation strategies for the sustainable use of the natural resources that nourish the Inga community.

The project results define a path for further community outreach. Three other Colombian indigenous communities have improved their health status through food security projects initiated by the project's implementing agency, the Amazon Conservation Team. These encompass 638 families from 38 indigenous reserves. As well as the Inga of the Caquetá, the beneficiaries are the Coreguaje ethnic group in the vicinity of the Orteguaza River; the Inga of the Baja Bota Caucana; and the Siona community along the Putumayo River. The traditional agricultural activities implemented include seed exchanges and training workshops on health, sustainable production and conservation. A total of 797 traditional *chagras* have been established and supported, covering a total of 440 ha. Agroforestry plots and poultry and cattle farms have also been installed. Future activities will include food security projects for the Inga and Kofán communities of the Department of Putumayo and the Uitoto community of the Amazonas Region


## Acknowledgements

The authors extend their appreciation to the Inga ethnic group of the Caquetá region, particularly to all the Indigenous People of the following reserves: Cusumbe, Yurayaco, Brisas del Fragua, San Miguel and Niñeras. The leaders of the Tandachiridu Inganokuna Association provided invaluable assistance to the development of an appropriate approach and planning methodology for this project. Many individuals and organizations contributed their expertise. The authors would like to thank Eva Yela, Antonia Mutumbajoy, Mayorly Oliveros and Libia Diaz for their critical assistance in locating data and motivating the communities. Finally, much appreciation goes to the Amazon Conservation Team, with special mention of David Stone and Mark Plotkin, and to the Centre for Indigenous Peoples' Nutrition and Environment, whose financial and technical support made this work possible.


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## Annex 8.1 Individual physical health questionnaire

| | |
|---|---|
| **Date:** | **No.** |
| **First name and last name:** | |
| **Gender:** | **Age:** |
| **Birth date:** | |
| **Height:** | **Weight:** |
| Presence of oedemas: | |
| Self-perception of health: | |
| Do you have or have you had a disease? | |
| What was the disease's cause? | |
| Are you under treatment? | |
| Are you taking *pharmacy medicines*, and which ones? | |
| Are you taking *traditional medicines*, and which ones? | |
| Can you see properly in the dark? | |
| Do you have hair problems? | |
| Pallor: | |
| Do you have wounds or scars in your mouth? | |
| Do your gums bleed easily? | |
| **Women** | |
| Are you pregnant? | |
| How many pregnancies have you had? | |
| How many childbirths have you had? | |
| How many of your children are alive? | |
| Are you breastfeeding? | |
| Have you breastfed your children? | |
| **Children** | |
| Are they being breastfed? | |
| How long were they breastfed? | |
| Did they take different kinds of milk, which ones and when? | |
| How old were they when you started giving them complementary food? | |
| How was it given? | |
| Do they take nutritional supplements or vitamins, which ones? | |
| **Family** | |
| Do you use iodized salt? | |
| Do you drink alcohol? | |

## Annex 8.2 Infant food history survey

| | |
|---|---|
| **Date:** | **No.** |
| **Child's name and last name:** | |
| **Age:** | |
| **Mother's name and last name:** | |
| **Indigenous reserve:** | |
| **Local promoter's name:** | |
| Who helped you with childbirth? *(midwife, local promoter, doctor, nurse, relative, other)* | |
| When did breastfeeding start? Hours after childbirth? | |
| For how long was the child breastfed? | |
| Did you offer the child other types of milk, and why? | |
| At what age and with what types of foods did you start complementary feeding? (*foods, age and preparation procedures)* | |
| At what age did you stop breastfeeding your child? *(months)* | |
| Why did you stop breastfeeding? | |

## Annex 8.3 Food security interview *(English translation)*

**Respondent's name:**

**Date:**

**Indigenous reserve:**

*These questions make it possible to know your family's food security status over the past year.*

Which of the following statements best describes what your family has eaten over the last 12 months?

1. In your family there is always the amount and type of food you want to eat.
2. Your family has the amount of food you want but not the kind of food you want to eat
3. Sometimes your family does not have enough food to eat.
4. Almost always your family does not have enough food to eat

If your family does not produce food, are you concerned that foods are gone before you have money to buy them?

a. Almost always
b. Rarely
c. Never

Are the foods that your family eats gone before you can obtain or produce more?

a. Almost always
b. Rarely
c. Never

If you do not produce food can you give the children in your family a balanced diet?

a. Almost always
b. Rarely
c. Never

Do you or another adult in your family eat less or skip a meal because there is not enough food for all the family?

a. Yes
b. No

If you answered "Yes" to the last question, how often does this happen in a year?

a. Almost every month
b. Some months but not all
c. Only one or two months

Have members of your family lost weight because they do not have enough food to eat?

a. Yes
b. No

Have you or another adult in your family not eaten all day because there is no food in the family?

a. Yes
b. No

If you answered "Yes" to the last question, how often does this happen in a year?

a. Almost every month
b. Some months but not all
c. Only one or two months

Has a child in your family had to skip a meal because there was no food in the house?

a. Yes
b. No

If you answered "Yes" to the last question, how often does this happen in a year?

a. Almost every month
b. Some months but not all
c. Only one or two months

Has a child in your family been hungry because there is not enough food in the house?

a. Yes
b. No

Has a child in your family not eaten all day because there is not enough food in the house?

a. Yes
b. No

Which of these factors or items prevents you from eating enough food or food that you would prefer to eat?

a. Age
b. Health problems
c. Lack of money
d. Lack of food in the area, or a place to buy it
e. Food markets are too far away
f. There are no traditional foods in the area
g. Do not know how to or cannot hunt or fish

**Comments:**

Do you and your neighbours share food?

a. Yes
b. No

If you answered "Yes" to the last question, which foods are shared?

List five foods that you buy for everyday use in feeding your family.

What foods do you produce for daily use in family meals?

What is good traditional food?

What are the problems with traditional foods?

In the last two years have you noticed changes in the amount of traditional food species? Please explain your answer.

In the last two years have you noticed changes in the quality of traditional food sources? Please explain your answer.

What are your favourite foods?