

# Integrated homestead food production (IHFP)

## Food security and nutrition



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Peru - Management of Natural Resources in the Southern Highlands Project (MARENAS)

## Integrated homestead food production (IHFP) for enhanced food security and nutrition

Since its founding, IFAD has focused on enabling smallholder farmers to increase agricultural production and productivity as a means for reducing poverty. However, experience shows that increased productivity and incomes do not automatically translate into improved nutritional status of poor rural people, especially women, young people and children.

Approximately 75 per cent of undernourished people live in rural areas of developing countries and produce most of the world's food. Undernutrition contributes, inter alia, to loss of stamina, diminished physical energy, disability and even death.

Integrated homestead food production (IHFP) is considered to be a nutrition-sensitive, pro-poor and women-controlled approach to household food production that includes vegetable and fruit gardens, backyard livestock-raising and small fish ponds (Box 1). It can enhance poor rural people's access to a variety of nutritious fresh foods, grown in close proximity to their households and requiring relatively limited human, financial and productive resources.

IHFP is common in all tropical and subtropical regions, especially where subsistence farming predominates.

### Box 1: IHFP – what is it about?

IHFP refers to a food production system whereby homestead gardening is integrated with backyard livestock, beehives and/or fish ponds, and complemented with nutrition education promoting dietary diversity. Whether they are known as mixed, backyard, kitchen, farmyard, compound or homestead gardens, these are small-scale cultivated plots of land that are often adjacent to rural houses. They are used mainly for the cultivation of vegetables and fruit trees but often integrate one or two dairy cattle or buffaloes and small animals such as poultry, pigs, goats, sheep, rabbits and guinea pigs. Within the IHFP system, the fish pond provides water for the garden and nutrient-rich mud, the garden and home waste provide food for the animals and fish, and animal manure enriches the garden and fish. Therefore, IHFP contributes to increased dietary intake (in particular, of micronutrients) and increased income for resource-poor households.

The different components of IHFP interact in a symbiotic and synergetic manner, enhancing overall production, optimizing resource use and thus providing for the subsistence needs of the household<sup>1</sup> (Box 2).

However, IHFP is unlikely to achieve the desired impact unless it is combined with a strong nutrition education component that targets women in particular as main food providers at the household level but which does not exclude men, whose support is crucial. Successful nutrition education depends on the active participation of the people it targets (women and girls, as well as boys and men), their awareness of their nutrition-related problems and their willingness to change. It also requires intersectoral collaboration among the agriculture, education, health and communication sectors.

### Box 2: IHFP in Viet Nam: the “VAC” system

VAC is an acronym deriving from the Vietnamese words *vuon* (garden), *ao* (fish pond) and *chuong* (pigsty or poultry shed). It refers to a form of domestic agriculture in which food gardening, fish-rearing and animal husbandry are integrated. The VAC system can be found in irrigated lowlands, rainfed uplands and peri-urban areas. In a typical upland system, the homestead pond, the livestock pen and the garden are located close to one another to facilitate recycling of wastes. A mix of annual and perennial crops is cultivated, including vegetables and fruits, sugar cane, tea and cassava. Cattle, pig and poultry wastes are used to fertilize perennial crops once or twice a year and vegetables as needed. Pond mud is also used as fertilizer once every 3-4 years. The pond area usually ranges from 100 to 1,500 square metres, in which a polyculture of several species of Chinese and Indian carps is stocked. Kitchen wastes, livestock manure and green manure are generally used as pond fertilizers. After a culture period of three months, the pond is continuously harvested and restocked. Annual yields of 2,000 to 3,000 kilograms of fish per hectare are commonly achieved, while semi-intensive systems – especially with tilapia – may reach 4,500 to 5,500 kilograms per hectare.

Source: FAO. 2002. Small ponds make a big difference: Integrating fish with crop and livestock farming.

## Rationale

IHFP can make a substantial contribution to food and nutrition security and rural poverty alleviation, thus supporting the achievement of the Millennium Development Goal 1.

For resource-poor households, risk reduction and loss management are immediate priorities. Economic insecurity and lack of safety nets result in the lowest quintile of the population being highly vulnerable to external shocks, such as climate vagaries (e.g. drought, flooding, etc.), commodity price fluctuations, sickness, injuries, etc. Coping strategies are usually characterized by diversification of income sources, increased reliance on social networks and selection of low input/low risk activities with low potential returns. Past experience with rural development interventions targeting resource-poor and food insecure households indicates that beneficiaries consider it risky to invest household assets in income-generating activities, given their lack of capacity to sustain investment losses.

Instead, food security should be supported through approaches that focus on households' capacity to increase food availability and access to food, while concurrently diversifying dietary consumption patterns. Only when the households have the capacity to develop their assets and increase income will it be wise to facilitate their access to commodity value chains.

## Advantages and potential benefits

Experience worldwide confirms that while IHFP alone will not eliminate micronutrient deficiencies, it can be an effective approach to increasing year-round availability of diversified home-grown foods and to supplementing the diet with vitamin-rich vegetables and fruits, energy-rich staples and animal sources of proteins. In order to achieve these outcomes, IHFP should be implemented within a comprehensive package of interventions, namely: gender-sensitive provision of technical inputs and training on food production techniques; nutrition information and education on a diversified and nutritious diet, as well as on food preparation and storage, targeting women in particular without excluding men; and promotion of gender equality, so that women can access and control productive and financial assets and take decisions regarding food production, intra-household distribution, and purchases (Box 3).

<sup>1</sup> Landon-Lane, C. 2011. *Livelihoods Grow in the Garden*. Rome: Food and Agriculture Organization of the United Nations.

Women engaging in IHFP in the IFAD-supported National Program for Community Empowerment [Program Nasional Pemberdayaan Masyarakat] (PNPM Mandiri), implemented in Indonesia, used to consume only sweet potato and cassava. With the creation of vegetable demonstration plots, new vegetables and maize have been introduced and become part of the diet.<sup>2</sup> Benefits associated with IHFP in the DFID-funded Priority Support Programme in Lesotho include consumption of fruit and vegetables, enhanced nutrition and supply of food year-round.<sup>3</sup> According to a study conducted in Ghana,<sup>4</sup> IHFP plays a significant role in household food security and will continue to do so in the future.

### Box 3: IFAD-supported producer groups engaging in IHFP in The Gambia

The IFAD-supported Livestock and Horticulture Development Project (LHDP) is promoting horticultural and backyard livestock production among women and youth groups. The outcomes are promising in terms of greater access to vegetables, income generation, reduced food losses and better utilization of garden resources. In some rehabilitated gardens, the women produced a great variety of vegetables (namely onions, lettuce, hot pepper, okra, tomato, sorrel and amaranthus), of which part was consumed and part was sold, generating an income of GMD 15,925 (about US\$483). Furthermore, due to the provision of adequate fencing materials, farmers are increasingly reporting reduced production losses caused by stray animals. Some gardeners also grow the *Moringa oleifera* plant and use its leaves and seeds as a source of household food (providing all 10 essential amino acids and a wide range of vitamins and minerals) in order to improve the micronutrient intake, in particular for small children but also as supplementary feed for small ruminants during the dry season. The project has also adopted a community procurement approach to buying rams for breeding stock by procuring from within rather than outside the community. This is already proving effective in maintaining the indigenous breed and improving productivity and disease resistance.

Source: IFAD

Homestead gardening potentially has a positive effect on the caring capacity of mothers, who remain close to their children as they work nearby. Moreover, in insecure areas, it reduces the risk of physical assaults that women are exposed to when leaving the homestead for fieldwork or to travel to (vegetable) markets.

IHFP can maximize returns and provide additional indirect benefits to rural asset-poor households through the productive use of gardening by-products, such as animal fodder, manure and kitchen waste, as organic fertilizers, and wastewater for crop irrigation. Manure from backyard livestock can also be used as feed for other animal species (e.g. fish), soil conditioner and fuel for cooking and food processing. The bottom layer of mud in the ponds which contains waste matter can be used in crop production, while pond water can be used for irrigation of vegetables. Certain edible plants can also be cultivated in fish ponds.

IHFP systems are also rich in plant and animal biodiversity that can help prevent pest and weed outbreaks. For example, in the southern region of Mexico, homestead gardens were found to be an effective way to preserve agrobiodiversity by cultivating traditional crops and fruit trees.<sup>5</sup> Furthermore, trees that grow in homestead gardens absorb carbon dioxide, release oxygen into the environment and contribute to soil rejuvenation. Although it primarily addresses household's food security and nutritional needs, IHFP often enables households to accumulate savings by reducing food purchases, as well as to generate some income through the sale of surplus production, especially of small livestock and fish. It thus gives households access to "quick cash" for household expenses or emergencies. Studies indicate that this income is generally utilized to purchase other food items, seeds, fencing and chickens.<sup>6</sup> There is also evidence that increased income is used to purchase non-food items and pay for medical services and school fees.

A research study carried out in Turkey<sup>7</sup> shows that vegetables, fruits and livestock products (meat, milk and eggs) are primarily used for household consumption, while the sale of animals and animal products is a major source of income for households with garden sizes equal to or smaller than 100 square metres. However, the choice is very country- and context-specific. IHFP is often associated with women's economic and social empowerment. In 73 per cent of households participating in the Helen Keller International (HKI) project in Bangladesh women decided which crops to plant and how to spend the income they earned.

<sup>2</sup> Aide Memoire, PNPM Supervision Mission, June-July 2013

<sup>3</sup> Turner, S.D. 2009. *Promoting Food Security in Lesotho: Issues and Options*. Available at: <http://bit.ly/1e2Dfom>

<sup>4</sup> Bagson, E., and A.N. Beyuo. 2012. Home Gardening: The Surviving Food Security Strategy in the Nandom Traditional Area – Upper West Region Ghana. *Journal of Sustainable Development in Africa* 14(1). Available at: <http://bit.ly/1b1idjT>

<sup>5</sup> Perez, J.I.J. 2003. *Los Huertos Familiares en una Provincia del Subtropico Mexicano*. Universidad Autónoma del Estado de México. Available at: <http://bit.ly/1esCuzD>

<sup>6</sup> Helen Keller International (HKI). 2003. *Handbook of Home Gardening in Cambodia*. Helen Keller Worldwide.

<sup>7</sup> Bassullu, C., and A. Tolunay. 2010. General Characteristics of Traditional Homegarden Involving Animal Practices in Rural Areas of Isparta Region of Turkey. *Journal of Animal and Veterinary Advances* 9(3): 455-465. Available at: <http://bit.ly/1f6TA7X>

## Challenges and constraints

A number of factors can significantly constrain the sustainability of IHFP, especially among the poorest households. Inadequate **access to land** can be a key obstacle to achieving meaningful production outputs. Furthermore, land tenure insecurity may dissuade people from making any long-term investments (e.g. planting fruit trees), thus reducing crop productivity and outputs. IHFP can also be carried out on common land, but this toolkit deals with production on land that is individually managed by the household. Although farming practices and potential benefits associated with IHFP are the same in the two models, the institutional mechanisms for land access, management and labour division may be different and have implications for project design. Therefore, IHFP on common land is not specifically addressed in the present toolkit.

Although IHFP is primarily carried out under rainfed conditions, **water** may be a limiting factor and irrigation may be required during the dry season, depending on the type of crops grown and the agroecological environment (FAO. 2004. Small Homegarden Plots and Sustainable Livelihoods for the Poor. LSP Working Paper 11). However, accessing water for crops may be secondary to accessing water for other basic household needs. Additionally, irrigation by hand can be a time-consuming task, especially for women and households with limited **labour** capacity, though perhaps to a lesser degree than travelling to markets to purchase vegetables and other fresh foods.

Options to address water-related issues already exist (e.g. low-cost drip irrigation or roof water harvesting systems), which have been successfully tested by the IFAD-supported project for Scaling up Micro-Irrigation Systems (SCAMPIS). Other gardening materials are generally not prohibitively expensive, except for inputs to improve soil fertility and certain tools. Small-scale vegetable gardens such as keyhole gardens address water scarcity through the optimal use of the available water.

Moreover, practices such as composting, construction of terraces, crop rotation with leguminous species (which fix nitrogen in the soil) and planting of leguminous trees could help improve soil fertility. On the other hand, these methods can be labour-intensive, same as the initial garden preparation.

## The IHFP toolkit

- For operational guidance on how to design and implement projects that incorporate IHFP, see *How To Do: Integrated homestead food production (IHFP)*.
- Past experiences and lessons learned on IHFP are contained in the document *Lessons Learned: Integrated homestead food production (IHFP)*.



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