

# Food security in Sri Lankan homegardens – what does science tell us?

Agroforestry and other types of multifunctional land-use systems have increasingly been highlighted as win-win-win solutions to meet the challenges of climate change, agricultural intensification, secure ecosystem services as well as support to food security. In this brief the authors seek in the literature for evidence and information on the food security link to homegardens; a traditional agroforestry system common in Sri Lanka, and promoted by the Sri Lankan government.

**A**GROFORESTRY SYSTEMS are getting more attention and are increasingly seen as sustainable options to many of the land management practices in developing countries. In current attempts to identify methods of sustainable agricultural intensification and food production, agroforestry is put forward as a key future land-use practice due to its large potential for climate change mitigation and adaptation, as well as its role in protecting households from soaring food prices.

In Sri Lanka, agroforestry systems such as homegardens constitute a majority of Sri Lanka's total annual crop and timber production. Despite Sri Lankan homegardens being considered desirable and sustainable land-use systems, their role in food and nutrition security is not yet entirely understood.

In a recently published research article we study Sri Lankan homegarden systems, by synthesising articles from scientific databases and selected grey literature. The aim is to investigate the links between homegardens and food security, in terms of quantifying homegarden products or services, and identifying whether the characteristics of food security are assessed as direct- or indirect impacts, synergies or trade-offs.

## Ecosystem services dominated

A majority of the articles (47 out of the 92 articles analysed, i.e. 51%) quantified indirect aspects that have relevance for food security, including ecosystem services, climate adaptation, carbon uptake, soil, structural and floristic diversity and economic aspects (Fig. 1). Direct impacts relevant to food security were found in 27 percent; such as number of edible crops, production of food trees and crops and nutritional information including nutrient supply of for example vitamins and carbohydrates.

The review shows that homegardens in Sri Lanka do offer food security in dire times by providing multiple benefits and services, particularly for the poorer segment

### Homegardens – a safety net for land owners

- Privately owned land areas close to homesteads.
- Multiple benefits; such as perennial vegetation, cash crops, animal rearing or trees for fruits and timber or fuel used for subsistence farming.
- Similar systems can be found in many parts of the world under different names.

One of the strongest food security evidence found in the literature is that poor people benefit from the products that homegardens provides.

Homegardens cover more than 13 percent of Sri Lanka's land area.



Nissanka and Mattsson interviewing homegarden owners. Photo: Madelene Ostwald.

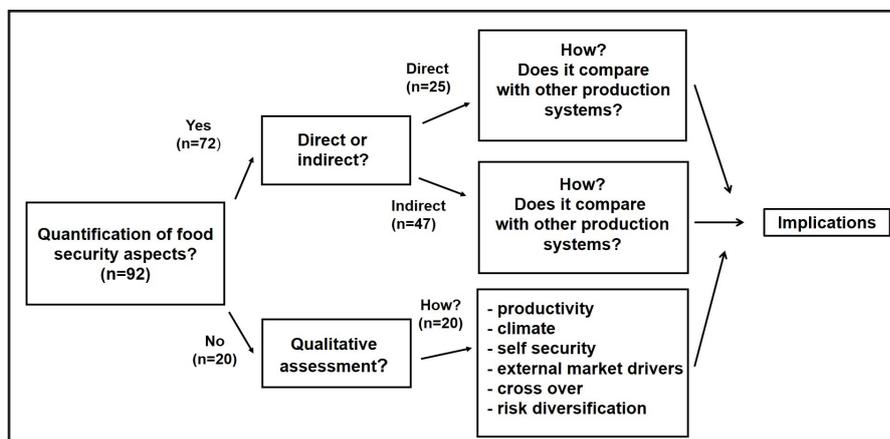


Fig 1. Flow-chart and the categorization results of a review article based on 92 documents, both peer-reviewed articles and grey literature (Mattsson et al. 2017).

of the land users. This included delivering a mixture of annual and perennial crops, which provide a range of supplemental nutritious products throughout the year at a low input cost.

## Sri Lankan government promotes homegardens - in times of urbanization

On a governmental level, there are high interests and hopes in promoting homegarden development as a key solution to increase self-sufficiency and food nutrition in Sri Lanka. Homegarden developments are core components in many development aid programmes including the AusAid funded Sri Lanka community forestry programme and GEF (Global Environmental Facility) Small Grants Programme, which aims to reduce deforestation and forest degradation and contribute to poverty reduction. Also, the national community based REDD+ Programme has identified increased productivity in homegardens as a central activity to mitigate climate change by addressing the drivers of deforestation and forest degradation, as well as meeting national timber and fuel wood requirements.

Sri Lanka is undergoing economic, environmental, demographic and socio-political change and in the process the homegarden land-use systems are facing various threats and challenges. Land fragmentation due to urbanization is one threat to the sustainability of homegardens, according to both governmental and academic stakeholders in Sri Lanka. Current urbanization trends often leave the migrant little room for a garden in the city, causing loss of the traditional agroforestry knowledge. The rural-to-urban transition also makes it hard and expensive for remaining rural families to manage their gardens due to labor shortage, which in turn forces families to sell their gardens, spurring homegarden fragmentation.

## Main conclusions

Homegardens in Sri Lanka are evidently the poor land users' insurance or safety net in times of increasing food prices or harvest failures.

In terms of homegardens and food security, the indirect effects are the most common, including both adaptation to climate change and a variety of ecosystem services.

Commercial development and market interest, such as value addition, certification schemes or development of marketable goods are lacking – which could give a lock-in effect of the systems and their users.

In Sri Lanka, homegarden systems are going through a transition due to urbanization, leading to fragmentation in populated areas. Also, the rural-to-urban transition makes it expensive for remaining rural families to manage remaining gardens due to a lack of labour.

Policy recommendations include; higher degree of inclusiveness of stakeholders aligned with long-term commitments, and guidelines that differentiate between biophysical variations (e.g. dry vs. wet climate zone) or socio-economic differences (e.g. urban vs. rural areas).

## Way forward

Long-term transdisciplinary, stakeholder inclusive and data-dense research programs with clear monitoring and evaluation methods are needed to understand the dynamics of homegardens in relation to changes in society and environment. The policy focus should expand the use and benefits of homegardens beyond merely collecting fruits and nuts, to promote value addition and market access. Stakeholders often view homegardens differently and have different goals and expectations about how to best develop and improve them. It is relevant to consider biophysical and socio-economical differences both policy programs and implementation; e.g. the wet and dry zones of Sri Lanka have different climatic preconditions, and there are different drivers and opportunities between rural and urban homegardens.

Well maintained Sri Lankan homegarden systems can promote infrastructure development and new employment opportunities. It is important to find funds to increase the profitability of the homegarden systems while maintaining ecosystem services such as biodiversity and water regulation. By seeking synergies rather than trade-offs, it can be possible to protect the multi-storied and multi-species nature of the homegardens. Other important actions are to improve market channels and value additions, as well as taking measures to reduce harvest losses. Certification plans can be one way to support commercialization of local products, promote socially inclusive and ecologically sound production criteria, and provide economic benefits.

This brief is based on the article "Mattsson. E, Ostwald. M, Nissanka. S.P. What is good about Sri Lankan homegardens with regards to food security? – A synthesis of the current scientific knowledge of a multifunctional land-use system" in *Agroforestry Systems* 2017:1–16. Financed by the Swedish AgriFoSe2030 program (<http://www.slu.se/agrifose>).

### This brief can be referenced as:

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