Plant diversity in homegardens in a socio-economic and agro-ecological context

Katja Kehlenbeck[1]*, Hadi Susilo Arifin[2], and Brigitte L. Maass[1]

[1] Department of Crop Sciences: Tropical Crops, Georg-August-University, Grisebachstr. 6, D-37077 Göttingen, Germany
[2] Department of Landscape Architecture, Faculty of Agriculture, IPB, Bogor, Indonesia

*corresponding author: Katja Kehlenbeck, phone +49-(0)511-393750, Email: katja_kehlenbeck@yahoo.de

Summary

Homegardens are generally regarded as a very complex, species-rich agroforestry system managed in a sustainable manner over decades or even centuries. In many densely populated tropical regions, homegardens appear to be the last forest-like islands surrounded by increasingly extended, uniform staple crop fields. With their multi-layered vegetation structure, homegardens serve as an important habitat for wild flora and fauna in these areas. They fulfil not only important ecological, but also many social and cultural functions. However, the major purposes of homegardens are subsistence production and income generation, particularly in rural areas. At forest margins, high production levels in homegardens might help to reduce deforestation. Furthermore, homegardens should be considered as a model for sustainable agroforestry systems, integrating both economic and ecological advantages. Plant diversity, as a basis for homegarden productivity and sustainability, is influenced by a combination of agro-ecological as well as socio-economic factors. The complex interactions of all these factors are not yet fully understood. This paper presents an overview of the existing knowledge and identifies gaps regarding the factors determining plant species diversity and composition in homegardens. We further illustrate this with two case studies from Indonesia (Central Sulawesi and West Java), in which temporal and spatial variations were investigated. In conclusion, plant diversity was mainly influenced by elevation as well as commercialisation, urbanisation, and fragmentation. It was fairly dynamic over time, particularly, when commercialisation was possible. To preserve the sustainability of homegardens and their suitability for in situ

Tscharntke T, Leuschner C, Zeller M, Guhardja E, Bidin A (eds), The stability of tropical rainforest margins, linking ecological, economic and social constraints of land use and conservation, Springer Verlag Berlin 2007, pp 297-319