Preface

Recently men have become more aware than ever of the function of bees in nature and their importance for our food supply. Worldwide, millions of hives are kept for pollination of many crops and for the production of honey and other hive products. However, the number of hives is diminishing in many countries, often caused by men induced changes in the environment, like global climate changes from ever increasing carbon dioxide emissions and other gasses, unsustainable agricultural practices with large areas grown with monocultures, heavily sprayed with pesticides, and bee diseases and plagues spread all over the world with the international trade in queen bees and bee packages. Despite all adversities, beekeeping is still being practiced in almost all countries of the world, providing tens of thousands of households with income and healthy food. A large part of the honey produced today comes from developing countries.

For decades beekeeping has been used as a tool for rural development, and many examples of the successful establishment of beekeeping cooperatives, associations and companies in poverty regions can be cited. Beekeeping has proven to be such successful tool for many reasons, just to mention a few: bees are almost everywhere and can be obtained usually locally; it requires a relatively small investment to start with beekeeping compared to many other economical activities; much of the basic equipment and tools required, such as hives, frames, smoker, hive tool and protective clothing, can be made locally; a beekeeper does not necessarily have to own land to have his hives on, the bees will fly freely to flowers up to three to four kilometres away from the hive; beekeeping can be practiced complementary next to other activities at a flexible time schedule; beekeeping can involve several members of the family and is suitable for both men and women; and last but not least, beekeeping provides people with healthy food and medicine.

However, until now, no comprehensive book is available that addresses all aspects of how to develop beekeeping for rural development. *Beekeeping for Poverty Alleviation and Livelihood Security* aims to connect the technological aspects of beekeeping (Volume I) with bee based livelihood and food security in the developing world (Volume II). This will make it possible for beekeepers, students, academicians,
NGO staff, social workers, policy makers, and any other person interested in beekeeping for development, to find comprehensive and cohesive information about the latest apicultural techniques and practices, as well as how to convert beekeeping in a powerful tool for rural development.

In this first volume, general aspects of beekeeping are described, including the history of beekeeping in the developing world and taxonomical information about honey bees and their distribution. Beekeeping cannot be practiced successfully without basic knowledge about the biology of the bee species involved, because hive management should be according to the life cycle and needs of the bees during the different seasons. The reader will therefore find chapters on bee biology of different bee species, including stingless honeybees, beekeeping practices for Apis mellifera, Africanized bees and Asian bees, bee genetics and selection, bee pathology and parasitology, and prevention of bee diseases. Since beekeeping is done in different regions of the world with different bees and a variety of materials, a chapter is dedicated to beehives in different parts of the world. Several economical aspects of beekeeping are discussed in chapters about the role of pollinators in sustainable farming and livelihood security, bee products and their quality control, apitherapy and the use of bee products in local health care, innovative techniques in beekeeping and the impact of climate change on beekeeping.

With the publication of this book, we hope to hand out a practical guide that will assist all those who are involved in beekeeping for development. We hope it will stimulate beekeeping as an integrated activity with farming and nature conservation and will serve in many households for poverty alleviation and livelihood security.

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