

# Butterfly Farming: An Off-Farm Income Option for Mountain Farming Communities - Experience from Pakistan

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## Introduction

An integrated approach is needed for conserving, upgrading, and using the natural resources in mountains. Off-farm activities can be used to maintain specific mountain ecosystems. Butterfly farming in marginal mountain lands may be a potential option for income generation in the HKH.

## Concept of Dynamic Butterfly Farming

Butterflies are of great aesthetic, ecological, historic, recreational, and scientific value. The international demand for tropical butterflies is great and each year millions of them are sold throughout the world. The butterfly trade market previously based on dead and papered specimens from tropical countries, has developed into a live market with the advent of improved international delivery services over the past two decades. Many buyers are scientists engaged in research on the ecology, ethnology, evolution, and conservation of butterflies. Other buyers include individuals who like expensive curios that incorporate butterflies (Collins and Morris 1985). Increasingly, butterflies are used to decorate less-expensive items such as purses, trays, and other common objects.

Over the last two decades, butterfly farming and live butterfly houses have become popular in many countries (Dean 1999; McNeely 1988). The Stratford Butterfly Farm in England imported more than 500,000 live butterfly pupae during 1998 and sales are increasing 10%-15% per year (TSBF 2001). The butterfly business is also flourishing in many other countries and regions.

## Butterfly Farming

Butterfly farming is based on the utilisation of various species of plants that serve as food for butterfly larvae. A half-acre garden under fine nylon mesh can be planted with 500 food plants, including some flowering plants for adult diet. After a pair of butterflies is released inside it, the female will lay most of her eggs on the host plants within a few days. The larvae hatch and start feeding on the plants. The larvae will then pupate, and the pupae can be exported or kept for further captive breeding. Depending on the climate, a butterfly house can be a glasshouse or a simple mesh-covered cage inside which butterflies live wild. Apart from decorative spring waters, creeks, and fish ponds, the many flowers and larval host plants grown create the impression of a natural habitat with lots of colourful butterflies darting around from flower to flower.

## Potential of Butterfly Farming in the HKH

Butterfly farming and butterfly houses are gaining popularity in many countries, and there are many opportunities for butterfly farming in the HKH, which is rich in butterfly fauna.

For example, studies on the butterfly fauna of Pakistan revealed 453 species (Rafi et al. 2000 and 2001a). Rearing techniques have already been developed for some butterflies (Rafi et al. 1999), but these need improvement. *Papilio demoleus* has been reared for 25 generations in cages, showing that these butterflies can be reared if certain prerequisites are provided (Rafi et al. 2001b).

## **Tourism**

Butterfly houses are very good tourist attractions, especially if located in areas that already have large numbers of tourists. Most butterfly houses feature a restaurant, coffee shop, and a souvenir shop for extra customer service. In the souvenir shop, a great variety of the butterfly products already described can be sold. These parallel businesses often contribute the majority of income, while the butterfly house itself is merely an attraction with only small earnings from its low entrance fees.

## **Conservation of Nature**

Butterfly farming is one of the most environmentally sound ways to utilise and preserve nature, and a number of butterfly farming projects have been supported at various locations worldwide. It is a conservation effort that has also been endorsed by the Lepidoptera Specialist Group of the International Union for Conservation of Nature and Natural Resources (IUCN). However, it has not yet become a significant factor in the mountains of Pakistan.

## **Socioeconomic Benefits**

The product is a high value, low-volume crop that brings needed supplementary income to the people of rural areas. Butterfly farming is a business to which villagers quickly adapt. The farming of butterflies by rural communities will provide a potential alternative livelihood to many families, resulting in better purchasing power, in turn leading to increased spending or consumption, thus increasing production in other fields of the economy.

Compared with any other farming industry, butterfly farming requires less effort or land, and it involves minimal costs to the producer. Butterflies do not require the equipment or financing of a conventional farm; little capital is required except for purchasing a few square meters of fine nylon mesh for a breeding cage.

Women in rural Pakistan traditionally work in the house, a situation perfectly suited to rearing of butterflies. Butterflies can be nursed continuously in a protected environment, ensuring a high survival rate and a potentially higher earning to the farmers. The farming of butterflies does not demand any special educational skills, except a practical hand and a good deal of dedication. This means that even uneducated rural women will be able to participate and contribute to a new, unique export commodity.

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