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"Utilisation of diversity in land use systems:
Sustainable and organic approaches to meet human needs"

Assessing Agricultural Sustainability and Food Security in Nagaland (N.E.-India)

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Abstract

Little is known about the sustainability of the landuse systems and people's food security in Nagaland (North-East India) where a population growth of 6.3 % leads to an apparent shortening of the fallow period and concomitant decline in soil productivity. This situation is especially severe in the study area of the Mon District, where 93 % of the population depend on shifting cultivation. An initial survey revealed that fallow periods have been reduced to five years and additional land for cultivation is hardly available. This study was carried out in two villages, Hongphoy and Minyakshu of the Mon District to quantify the gap between local farmers' food demand in cereals and amounts harvested on the so-called Jhum fields as dependent on population density. Data collection comprised comprehensive interviews of family size, food consumption, crop yields and duration of fallow period in households as well as the determination of field sizes over two years.

The data revealed that the available per caput area for Jhum cultivation averaged 1,800 m^2 in Hongphoy and 1,200 m^2 in Minykashu, compared to a minimum requirement of 2,000 m^2 for subsistence purposes. The daily caloric intake from harvested cereals such as rice (*Oryza sativa* L.), millet (*Pennisetum glaucum* L.) maize (*Zea mays* L.) and from additionally bought rice from Assam was about 8190 to 8715 KJ (1,950 to 2,075 kCal) in the years 2004 and 2005. These values are far below the food-security thresholds defined by FAO. While in Hongphoy 16 % of the caloric intake came from bought Assam rice in 2004 and 29 % in 2005, these figures were about 83 % and 85 %, respectively, for Minyakshu, which means that the formerly autonomous village of Minyakshu depends much more strongly on additional food supplies than Hongphoy.

This leads to an almost Malthusian scenario. Even improved agricultural practices such as improved fallow systems with *Alnus nepalensis*, the construction of irrigated rice terraces or the cultivation of higher yielding rice varieties were unable to fill the food gap of 277 tons rice in Hongphoy and of 1,219 tons in Minyakshu in 2004.

Keywords: Agricultural sustainability, food security, India, Nagaland, per caput area, population growth, shifting cultivation

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