

# Out of balance?

## Resilience in farm level food security

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Resilience can be defined as the capacity of a household to maintain basic sustenance in food and health. Farmers have developed manifold strategies to cope with frequently occurring minor stress factors resulting in fluctuating yields. Major disasters such as earthquakes or landslides, which occur periodically, are more difficult to prepare for. This article focuses on food securing strategies at farm and community level that contribute to a resilience capacity, and compares the disturbance factors and the resilience capacity of Nepalese farmers, then and now.

### Farming in Nepal

Subsistence farming and on-farm storage remain cornerstones in the livelihood of the majority of people living in remote and marginal areas of Nepal. Exposed to annual monsoon rainfalls in summer followed by a dry winter, farmers are highly dependent on seasonal production and storage of cereals. Production, moreover, is threatened by storms, periodic droughts, erratic rainfall, and unprecedented floods.

Efforts to modernise agriculture in Nepal were first initiated in 1956. As a result of the population growth after the 1950s, peasants encroached marginal farming environments and agricultural production per capita stagnated. Urged to cultivate risk-prone areas, farmers became extremely vulnerable to food shortages. Since then the moderate level of household food security has turned to chronic food deficits in many areas (Seddon 1987 and Adhikari and Bohle 2000).

### Resilience in the past

In response to seasonality and fluctuating yields, Nepalese farmers developed several strategies -technical, economical, social, and spiritual - to secure food. Interestingly, the majority of them aim at prolonging food availability rather than increasing yield.

The most important *technical method* is storage. Depending on the availability of resources, the locality and climate, a variety of

storage structures such as cribs, woven baskets, pots, mud bins, trunks, chambers, and ground pits are used, none completely insect-proof. Farmers generally tolerate insect damage and grain spoilage. Moulded grain is consumed even though the adverse health effects are known. Infested grain is used for brewing alcoholic beverages, while severely spoilt grain is used as livestock feed, allowing for optimal resource use.

Feeding livestock with grain is an important *economic solution* to enhance resilience. It could be argued that farmers would do better using it for human consumption. However, farmers reason otherwise. Livestock is a hidden storage system. Surplus and inferior quality grain is converted to protein and other products. In times of need, livestock can be sold with added value and used for buying grain, if necessary.

Apart from human consumption and livestock feed, grain is allocated for seed, barter, payment and communal events.

Surpluses are also sold and invested in gold ornaments, the common 'insurance' against food shortage.

Supplementary food such as wild yam, taro, mushrooms, fern, nettles and asparagus was collected in the forests that were abundant in old days.

*Social aspects* in food security are often neglected. Women control and safeguard the stored commodity, determine the rate of consumption, and take pest control measures to prevent food losses. In times of food scarcity, women adjust the household and individual food consumption. Apart from reducing the number of meals, women, children and elders cut down their calorie intake. In food deficit years, families postpone marriages that involve high costs in feeding the wedding party. To prevent high expenditure on life-cycle rituals, mourning households refrain from other celebrations for one year. Costs involved in death rituals can take years to recover.

In the past, social arrangements secured food at the community level for the needy. In Kathmandu, for instance, common property and giving of alms was common in former times. Until the 1950s, there was a system called *hundi*, under which needy persons were given everyday food items. In rural areas, two food securing systems were effective: the patron-client relationship and *dharma bhakari*, a grain store catering to the poor for religious merit.

*Spiritual means* of storage protection and food security have remained largely unnoticed. Grain is commonly stored inside the house to protect it from weather, theft and evil spirits. However, the storeroom is not an ordinary place; the presence of deities and spirits gives it a sacred character. For many Nepalese, children in particular, this room is an eerie location arousing fear and unease, and is entered only for storing and fetching grain.

Apart from the sanctity of the storeroom, the commodity contains supernatural qualities called *saha*, meaning 'an essence or life-force' or simply 'help' or 'plenty' - a phenomenon economising the grain use, therefore, prolonging food sufficiency. Adequate *saha* prevents food shortage and famine, and acts as a multiplying, replenishing force in the storeroom. In the past the preservation of *saha* was extremely important, as the



'Dehri-making': Tharu woman of Gobardiha, Deukhuri, building a mud bin for storage of food grain. Photo: Astrid Bjørnsen

**'Kutli-finishing':** Tharu woman plastering new mud bins with a layer of clay that is believed to have insecticidal properties. Photo: Astrid Bjørnsen

procurement of alternative food grain was hardly possible. Hence, various rituals, traditions, ceremonies were developed for the conservation of *saha*. Lavish handling and unnecessary spoiling of grain, for instance, was considered to have a decreasing effect on *saha*, triggering the anger of the Goddess of Prosperity resulting in dwindling stocks.

### Resilience at present

Perturbing natural disasters still occur today, but are accompanied by new man-made hazards. These hazards are created in the process of population growth and land encroachment, leading to deforestation and land degradation. Resilience capacity is being seriously threatened by modernisation in agriculture. Farmers encounter unexpected difficulties with field and storage pests, as the introduced improved varieties are more susceptible than the local landraces. Traditional knowledge, old practices, and proven technologies are turning obsolete in the wake of modern agriculture.

Similarly, formal schooling prevents younger generations from traditional sources of education, preparing them for non-farming professions, and finally withdrawing them from farming. Forced by these changing conditions, opportunities and needs, farmers are adapting their coping strategies.

On-farm storage *technology* is changing due to increased storage pest pressure. The use of low-cost dusts and fumigants for grain protection is becoming increasingly common. Fumigation is of special concern as the use of phosphine gas in traditional non-hermetic storage structures triggers pest resistance and poses health hazards to the farmers.

The new *economic* food securing *strategies* differ from the past. Livestock is losing importance in the face of labour shortage caused by the education system. Wild foods have become scarce and are consumed in insignificant amounts. Instead, more land is being allocated for staple crops to meet the household food demands. Cash crops are becoming important sources of income in regions having access to road and market. Farmers mortgage their lands and raise cash to purchase grain during food shortages.

Moreover, a higher incidence of storage pests is altering the pattern of food allocation. More and more households sell their grain soon after harvest to avoid storage pest losses even though the prices are unfavourable at that time. In addition, high-quality grain is sold in order to buy a larger quantity of low-quality grain.

The search for food security leads more and more to options outside the household. Patron-client relationships, i.e. labour service for wealthier households, are becoming a common risk-avoiding strategy, as annual wages are independent of yield fluctuations. Children are given away as servants to reduce the number of mouths to feed. There is also an increasing trend of male migration for temporary and permanent off-farm occupation. All this leads to increasing household fragmentation and individualisation with severe impacts on social structures and safety nets. Male out-migration particularly overburdens women, who have to take up increased control of farming and family welfare.

*Social arrangements* such as the *dharma bhakari* have disappeared due to growing food insecurity, the general



breakdown of social structures, the growing influence of individualization and the cash-based system, and the erosion of belief systems.

*Spiritual means* of stabilising food security and farmers' resilience capacity have been neither changed nor replaced by new strategies, but have simply lost their importance. Rituals concerning food security are still performed, yet the belief in the super-natural is declining. Rituals, however, form important links between farmers' past and present. They include ideological concerns such as the balance between human and nature, important for social stability and mental well being. Especially in times when formal schooling devalues agricultural work and local knowledge, these rituals allow the farmers to place themselves in the universe, and to attribute importance to their lives. If this feeling of identity is lost, then the farmers' capacity to maintain mental resilience will be seriously affected.

### Conclusion

The fact that more and more rural households face food deficit indicates that the Nepali farmers have partially lost their resilience capacity in terms of food security. The loss of resilience is closely linked to the loss of options rendering the farming system vulnerable and sensitive to disturbance.

Farming in Nepal is clearly out of balance and the multidimensional approach of farmers to deal with environmental fluctuations, instability and food deficits requires continuous adjustment. The primary responsibility of development professionals is to enable farmers to generate diverse options enhancing their resilience capacity. Suitable options, however, need to be generated in close collaboration with farmers considering all dimensions of their livelihood. Research as a means to widen farmers' options, therefore, needs to be highly participatory, action oriented, and responsive to local needs and priorities.

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