

# Tailoring food science and technology to local network needs, a tool to enhance food sovereignty - A case study of local cowpea food network

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**Abstract:** Conventional food policies have failed to address the issues of food sovereignty in developing economies where most of the people are poor and largely engaged in small scale Agriculture. On-going international and national food sovereignty debate points to the fact that conventional food policies focus on traditional agro-business models, marked by technological practices unsuitable for local food production and consumption systems. The research hypothesis is that conventional technology practices, developed from the idea of global chains, are not necessarily appropriate for local food networks. Therefore there is the need to re-design or tailor applied sciences and technologies to the needs of these networks. This is crucial for provision of the nutritional needs of large proportions of population, in particular the rural and urban poor.

**Keywords:** food sovereignty, local networks, future nutrition

## Introduction

Food Sovereignty has been defined as the right of people and communities to decide and implement their agricultural food policies and strategies for sustainable production and distribution of food (People's Food Sovereignty Network July 2004). It is a concept proposed by social movements for the governance of food and agriculture and addresses pressing issues of hunger and poverty that has characterized rural economies over the years (Windfuhr 2005). In the debate not much attention is paid to possible contributions of Science and Technology to food Sovereignty, therefore this research. The primary objective of the study is to bring indigenous knowledge to bear on technology development and to demonstrate the significance of strengthening the local food networks to enhance food sovereignty. As suggested in the literature, (bio)technology can be socially negotiated, manipulated and related to issues of food sovereignty, equity and sustainability (Altieri 2002, Ruivenkamp 2005, Feenberg 2005, Manzini, Ezio. 2005).

## Methodology

A conventional survey covering 100 sample sizes (farmers, processors, consumers and key informants) was conducted using a variety of data collection instruments including one-on-one interview, focus group discussions and semi-structured interviews.

Sampling technique and data collection

- a. **A snowball sampling technique** – This was used to locate 30 key informants (mostly community elders, youth representatives and extension agents) who have adequate knowledge about the cowpea network at both district and community levels; regarding production and consumption pattern, farming practices and cowpea varieties
- b. **Stratified random sampling** - To provide appropriate representation of subgroups (farmers, processors and consumers) in the population. Actual Sample size was determined based on the population of selected communities and availability of resources. A total of 70 people were interviewed using questionnaires. This comprised 30 farmers, 30 consumers and 10 processors in *Tibung, Wantigu, Nyamkpala, Gbanlilugu* and *Kpaligum* all in *Tolon- Kumbugu* District of Northern Ghana.

## Findings and Discussions

### Role of Cowpea in the Farming System

Survey findings established that the major role of cowpea in the local farming system in selected communities in Northern Ghana is its nitrogen fixation ability for soil fertility improvement. This was reported by 46.5 percent of the farmers interviewed. Cultivation of cowpea for domestic use was the second most important indicated by 32.1% followed by commercial purposes as reported by 21.4% of the farmers interviewed. Local farmers are concerned about biodiversity farming systems and ecological sustainability. During group discussions farmers also mentioned the use of cowpea for livestock feed and compost preparation.

### Social Significance of Cowpea

Primarily, the socio-cultural significance of cowpea is seen in its role in terms of food security; a stop-gap crop usually consumed during hunger and planting seasons. Cowpea features prominently in the consumption pattern of the people interviewed. The early maturing local varieties are the most significant in household food provisioning. Cowpea is also used in preparing local dishes during festive occasions. Farmers stressed the role of local varieties in food security; with local varieties one is assured of something though little but with improved varieties without spraying and good weather condition there is no hope. Very risky they say. Cost of production of local varieties was low. In terms of cost, a farmer will spend \$15/acre on improved seed as compared to \$3/acre for local seed. Cost of spraying in the case of cultivating improved variety was approximately \$20/acre.

### Food, Is it a commodity to be consumed or traded?

Food is first a commodity to be consumed before tradable. Farmers interviewed argued that local food supply must be internally generated instead of imports. This was clearly supported by over 90% of both producers and consumers interviewed in the local cowpea network. Production and consumption at the community level are interlinked; production-consumption network. Producers are themselves consumers and therefore crops produced largely reflect the consumption pattern of community. Food sovereignty advocates also argue that feeding a nations' people is an issue of national security. For their next meal if the population of a country must depend on the vagaries of the global economy, on the goodwill of a superpower, on the unpredictability and high cost of long-distance shipping, then that country is not secured.

Farmers must be empowered to produce and consumers encouraged consuming locally grown food. When markets are internally generated, jobs are created and local people (especially small-scale farmers and processors) regain their economic power. Food sovereignty has not been perceived as an enemy to market based policies but rather places emphasis on fair and equitable trade. Food is first a source of nutrition and only secondarily an item of trade. Primarily agricultural policies must focus on production for domestic consumption and self-sufficiency. Just and equitable trade policies that eliminate negative effects of subsidized exports, food dumping and artificially low price. Give all farmers irrespective of their origin equal platform to compete (Lockie 2004, Raynolds 2004, Rosset 2006, Quaye, 2007).

## Conclusions

This paper suggests understanding of social-cultural significance of production-consumption patterns in local networks in food science and technology research. The survey revealed that crops produced in the communities visited largely reflected their consumption pattern. The Operationalization of Food Sovereignty concept is demonstrated in the local food-consumption network as communities take responsibilities of their survival strategies for production and distribution of their own foods. Local network actors therefore need to be empowered to sustain this practice. Cowpea is important in household food provisioning and serves as a stop-gap crop during hunger periods. Preference for local cowpea varietal traits like tolerance to harsh weather conditions and disease tolerance will have to be considered in breeding programme to enhance food sovereignty.



*The current pride and future hope in localized food networks and food sovereignty*

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