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Nutrition-sensitive Agriculture for Rural and Urban Health

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Introduction

Current predictions about the development of world population and their nutrition status are dire: over nine billion people are expected to live on the planet by 2050. While currently over two billion live with constant nutrient deficiency, 840 million are severely undernourished. A trend towards increasing undernutrition is visible, especially in urban areas where it is often caused by the migration of unskilled rural workers who increase the numbers of the urban poor dramatically (Crush et al., 2011). At the same time, overnutrition and obesity are phenomena not only of developed Western societies but are increasingly found in poor countries, and often within poor families, where obesity and stunting can be observed within the same household (Garrett and Ruel, 2005).

Population increase, social development and changed food habits put an enormous pressure onto existing agro-food systems causing land and water degradation, which is often exacerbated by climate changes. Although in total sufficient calories are produced to feed the world population, the increased need for fuel energy linked to the increased energy prices and expanded demand for other use of biomass have also led to increasing competition for agricultural land. Beyond the production of mere food calories however, it is evident, that our current agrofood systems are insufficiently situated to address these global developments and that more flexible systems need to be promoted.

Nutrition-sensitive agriculture is an approach that aims to provide a framework in which agricultural production (yield or quantity) can be combined with the objective of producing and providing healthy and nutritionally dense food and food products (content or quality). It looks at agriculture with a specific 'nutrition lens' and highlights the nutrition-related aspects of agriculture and the whole food system. It provides options for agricultural food systems to deliver highly nutritious products and to improve access to it for the people who need it. The main objectives of nutrition-sensitive agriculture are:

- to promote the design and adaptation of cropping and farming systems and food systems which specifically combat nutritional deficiencies (providing improved access to a diversified diet rich in micronutrients);
- to overcome and prevent malnutrition by improving the nutritional status of specific beneficiary groups (women, children, the urban poor) through improving the availability of, and the physical and economic access to, nutritious food.

The system hence provides a paradigm shift from „producing tons“ to „supplying nutrients“.

A desk review (Virchow, 2013) had been commissioned to look into nutrition-sensitive case studies in several countries (Bangladesh, Brazil, Cambodia, Egypt, Malawi, Mongolia, Philippines and South Africa) and in specific cross-cutting themes (plant breeding, gender,

production and processing, home and community gardens, urban agriculture and market integration) as well as reviewing some of the current views on food and nutrition security, which allowed to identify a number of entry points into a nutrition-sensitive agriculture.

Case studies

Two case studies are presented below to illustrate aspects of successful interventions.

Case Study 1. School feeding programme (PNAE) in Brazil

The PNAE, which is coordinated by the National Education Development Fund (ENDF) of the Ministry of Education, offers about 46 million daily free meals in almost all Brazilian municipalities. ENDF is also responsible for the transfer of funds from the Federal Government to the states governments, Federal District and municipalities for the purchase of food. The federal budget for the implementation of the programme in 2012 was approximately R\$3.3 billion (US\$ 1.6 billion).

Since 2003 PNAE has undergone changes in the programme design aiming at strengthening its strategic role in promoting food and nutrition security, such as the establishment of guidelines for promoting healthy eating in schools, the redefinition of the criteria for the formulation of menus aiming at articulating the nutritional dimension with respect to food culture of each region, and prioritization of fresh raw or semi-processed food. In 2009, a new law established a new set of regulations in the programme design. One of them demands an allocation of at least 30 per cent of the funds transferred by the federal government to states and municipalities to purchase foods directly from family farmers and rural family entrepreneurs or their organizations. The individual limit for sales per household is of up to R\$ 20,000 (US\$ 10,000) per year.

The acquisition can be done without bidding – via Public Call Purchasing – which defines the foodstuffs and quantities to be purchased, based on the menu prepared by a dietician. This menu must consider local production and seasonality, and include a variety of fresh foods respecting local culture and eating habits. The inclusion of at least 200 g of fruit and vegetables per child a week is mandatory. Drinks with low nutritional value, such as soft drinks, are banned from the menu. The inclusion of canned food, sausages, semi-prepared foods and ready-concentrated powder or dehydrated products with a large amount of sodium (salt) or saturated fats is restricted. The programme has a steering committee and an advisory committee composed of 14 representatives of social movements, organizations and civil society networks.

The law brought important innovations that can contribute to greater coordination and integration between agriculture, nutrition and education. More than a supplementary feeding programme satisfying the nutritional needs of students during their stay in the classroom, PNAE has great potential to promote healthy eating practices, reinforce regional food habits, strengthen local family farms and their nutrition-sensitive agricultural production and contribute to local sustainable development and the achievement of the Human Right to Adequate Food. However, the purchase from family farmers, especially in big cities, still represents a major challenge. The legal requirement of purchasing at least 30 per cent of the food for the school meals directly from local family farmers or rural entrepreneurs has not been reached by all municipalities. Studies are now required to assess the extent to which the programme has contributed to the diversification of diets and improved the nutrition status of the children.

This example (Maluf et al., 2013) shows how agricultural production and local market structures can be changed to give attention to more nutritious foods by a supportive policy framework which showed awareness of Human Rights, focussed on a specific beneficiary group and fostered intersectoral collaboration.

Case study 2. Helen Keller International (HKI) home gardens programme in Asia

Through its Homestead Food Production (HFP) program, HKI helps to improve local food production systems by creating gardens and small farm which supply micronutrient-rich fruits

and vegetables and provide space for poultry and small livestock year-round. The programme has been implemented in Bangladesh, Burkina Faso, Cambodia, Nepal, Philippines. HKI provides technical and managerial support as well as start-up supplies, such as seeds, seedlings, saplings and chicks to local NGOs, which integrate HFP into their ongoing activities. The fruits and vegetables from the gardens ensure the availability of vitamins and minerals essential for proper immune system function and full physical, intellectual and cognitive development of household members, especially women and children. The eggs, poultry and other animal foods raised by the gardeners support the body's ability to utilize the micronutrients. Studies showed that children in households with gardens consumed 1.6 times more vegetables and had a lower risk of night blindness than children in homes without homestead gardens (Iannotti et al., 2009). The gardens also provided families with income from the sale of surplus goods and increase the technical knowledge and capacity of local NGOs.

The programme also contributed to the empowerment of women, who organized 90 per cent of the gardens, by providing them with own income from marketing surplus produce. Women are contributing to the economic stability of their families and make sure their children consume the nutritious food they grow (Helen Keller International, 2012).

This example (Zamora et al., 2013) demonstrates the importance of producing diverse and nutritious food at home for the nutrition of specific vulnerable groups. By showing gender awareness the programme assured support to the entire community which made the programme more sustainable. It also shows the importance of strategic alliances and intersectoral collaboration in raising awareness amongst the beneficiaries. Further important aspects of the success of the HFP were market access and the extra income this provided to the families.

Entry points to a nutrition-sensitive agriculture

The analysis of these and additional cases collated through the desk reviews allowed to suggest specific entry points through which current agro-food systems can be modified to become more nutrition sensitive. These include (i) enabling policies and government structures expressing the political will to fight malnutrition and micronutrient deficiencies, (ii) appropriate mechanisms for intersectoral and inter-organizational collaboration within the countries, (iii) increased awareness of nutrition-sensitive agriculture and capacity to design and implement relevant projects at different levels, (iv) appropriate focus on those groups who will benefit most from nutrition-sensitive approaches without being exclusive, (v) an approach cognizant of the elements of the food chain and recognizing the links between its various elements from production through to consumption as well as relevant technological, economic and societal innovations (Jaenicke and Virchow, 2013).

It is important to note that these entry points signify components within the agriculture-nutrition continuum through which positive changes can be triggered, keeping in mind that the system as a whole is interrelated and works best when all components are in place.

A range of external drivers was also identified which play important roles to support or threaten nutrition-sensitive agriculture approaches but which cannot normally be directly influenced by the agrofood system.

Recommendations

In order to support the development of nutrition-sensitive agriculture projects and programmes, a range of recommendations, primarily addressed towards development practitioners, were developed (Virchow, 2013):

1. The **Human Right to Adequate Food** should be given strong consideration, and any policies affecting nutrition should routinely be subjected to human rights assessments prior to as well as after their implementation.
2. **Incentives** for improved quality, productivity, diversity and competitiveness of domestic agricultural production should be targeted more clearly **towards nutrition aspects**.

3. Public and private funding organizations should set up **funding streams that focus on nutrition-sensitive agriculture** and target the various aspects of food and nutrition security and the relevant impact pathways in a systemic way. Appropriate guidelines and incentives should be provided to foster sustainable institutional partnerships.
4. Mechanisms and space needs to be created that allows for **transsectoral discussions** to take place and foster joint planning, programming and evaluation.
5. Broadly implemented and coordinated public awareness schemes could stimulate and support local or regional initiatives that are active in **agrobiodiversity**.
6. **Awareness should be raised about specific nutrition aspects** amongst all, from the people affected by food and nutrition insecurity to those who can make decisions for large-scale change.
7. Studies and projects need to be designed so that meaningful data and knowledge can be generated. This also includes relevant **monitoring and evaluation processes** which should be built into research and development programmes from the outset.
8. Nutrition-sensitive agricultural interventions must take into account the specific needs of the **individual household members** to be successful.
9. **Food assistance programmes should be expanded** and designed in a way that integrates local producers and provides local incentives for the production of healthy and nutritious food.
10. Nutrition-sensitive agriculture needs to operate along the entire **food value chain** and it is crucial that the concept of "food value" chain incorporates nutrition value and – where applicable – health value.
11. **Home and community gardening** activities should be critically assessed and only supported where appropriate.
12. **Value chains need to be strengthened** that foster the inclusion of smallholders, small-scale processors and service providers, that provide consumers with sufficient and nutritious food at affordable prices, and that provide additional income generating opportunities, especially to women.
13. The use of traditional or **underutilized crops and animal breeds** should be considered as nutritious alternatives and additions to improved varieties of staple crops and breeds.
14. Where they exist, **legal obstacles to widespread use of seed of local and improved crop varieties need to be removed** in order to provide a basis for widespread adoption and use of nutritionally valuable crops.
15. A major effort should be made to survey food availability and food consumption on a **regional level**, in order to track progress and be able to provide tailor-made solutions to fill (seasonal) nutrition gaps for specific regions and specific user groups.

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