



Review Article

IMPLEMENTING NUTRITION SENSITIVE AGRICULTURE TO ERADICATE THE PROBLEM OF MALNUTRITION

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Abstract: According to WHO (2012) on average malnutrition causes 4.39 percent of death rate /year as the micronutrient deficiency causes 20 leading health risk factors and 5 million children die before their fifth birthday every year, and that a third of these deaths are associated with under nutrition. One in three of the developing country children under the age of 5 (178 million children) are stunted due to chronic under nutrition and 148 million children are underweight.

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Introduction

Micronutrient malnutrition affects around 2 billion peoples in world (over 30% of the world population) with serious public health consequences. Micro nutrient deficiencies such as Fe-deficiency anemia led to the loss of over 46,000 Disability Adjusted Life Years (DALYs) in 2010 alone and Zn-deficiency leads to estimated annual deaths of 433,000 children under the age of five (WHO, 2009). Copenhagen Consensus Conference 2008 ranked the alleviation of iron and zinc deficiencies as a top priority for the developing countries. With the help of implementation of 'Harvest Plus' by CGIAR in mid-eighties, the researchers and the policy makers have started giving more attention for alleviating the malnutrition in India.

The National Nutritional Strategy of India targets to achieve a 40% reduction in the number of stunted children under-5, to achieve a 50% reduction of Anemia in women of reproductive age, to achieve a 30% reduction in low birth weight and to reduce and maintain childhood wasting to less than 5% by 2025.

Continuous efforts of Researchers and the Policy makers helped Cut down Population with ill effects of under nutrition from rate of 1.02 billion (2009) to 925 million people (2010). Strategies followed to eliminate malnutrition in global level were our Diversification in diets, Industrial and commercial fortification, Pharmaceutical supplementation, Agricultural bio fortification, Supply of Nutrient Rich Supplements were formulated to overcome the ill effects of malnutrition.

The Government of India and State Government of Tamil Nadu are implementing numerous developmental intervention programmes to combat nutritional insecurity. Some of the programmes were found be successful only at Earlier Stage and later on there was seen a continuous decline. Some of the Reasons where are lack of holistic Approach, lack of Sustainability, lack of Supervision etc. These Programmes Aimed at Healing the Effects but not treating its underlying Cause. People begin to expected continuous assistance from external agencies inform of Money, Foods and Supplements. Implementing nutrition specific intervention alone not yield will not yield sustained impact on improving nutrition. Nutrition specific intervention alone even if implemented with care may not yield sustained impact on improving nutrition to the targeted population.

Interventions are needed throughout the entire food system from production to processing, consumption, transport and waste management. Study and improvements will also be needed in complementary sectors such as health, education, water, and sanitation to eliminate the spread of infectious diseases and to share the knowledge on successful nutritional practices. Sectors like agriculture can potentially influence the underlying determinants of nutrition outcome.

Effectively addressing the causes of malnutrition requires an integrated and coherent set of nutrition-sensitive interventions which can addressing all functions of the food system, combined with investments in other relevant sectors (e.g. water, sanitation, health, education and social protection).

Governments must integrate to the nutritional sensitive strategies into their new agriculture development policies to ensure nutrition sensitive programmes that were funded and implemented I rural areas. Strategies and interventions should be formulated how agriculture can improve availability of food basket at the household level and offer diet diversity?, how income generated and accumulated if any was spent or reallocated towards the access to range of food acquisition? And lastly how well women in farm household apportion ate their timing between work and family care and its effect on nutritional security of the household.

Nutrition-sensitive agriculture is an approach that seeks to maximize agriculture's contribution to nutrition. It involves seeking causes of malnutrition, namely education, health and social protection, so that FAO promotes agriculture through a variety of partnerships and capacity development initiatives.

Nutrition-sensitive agriculture sector is a food-based approach to agricultural development that puts nutritionally rich foods, dietary diversity, and food fortification at the heart of overcoming malnutrition and micronutrient deficiencies. It aims to ensure the production of a variety of affordable, nutritious, culturally appropriate and safe foods in adequate quantity and quality to meet the dietary requirements of populations in a sustainable manner.

Making agriculture sector and food systems nutrition-sensitive necessitates taking action to address input quality of foods, production, post-harvest handling technology, processing, retailing and consumption, in order to deliver safe and nutritious foods all year round to the consumer [1-8].

Nutrition security

The important strategies to improve the nutrition security are by promotion of fortified products, homestead gardening practices, snacks-based supplements, diversified production, empowerment of rural women, strengthening the links between the agriculture - nutrition and health sectors, providing nutrition education etc. which needs to be addressed to achieve both food and nutrition security.

This approach stresses the multiple benefits derived from enjoying a variety of foods, recognizing the nutritional value of food for good nutrition, and the importance and social significance of the food and agricultural sector for supporting rural livelihoods. The overall objective of nutrition-sensitive agriculture sector is to make the global food system better equipped to produce good nutritional outcomes.

Several food pathways have been identified showing how nutrition sensitive agriculture interventions can more directly impact nutrition and food security. Interventions should be designed considering the food pathways most relevant to the value chain and the most relevant underlying causes of malnutrition. The important principles where are, increasing agriculture income, increasing food production and making more nutritious, Women's empowerment.

Increasing agriculture income includes food purchase and for health care and education expenditure. Food Production through reduced food prices, own consumption, and processing and storage. Women's Empowerment through women's decision -making in the household; women's time use and the impact on their ability to care for themselves and their children's; women's workload and the impact on maternal energy use; and women's control of income, participation in markets, and resource allocation.

Nutrition agriculture

Nutrition sensitive agriculture is a holistic approach which aims at increasing food production, Making the food more nutritious, making the diet with diverse range of foods (such as fruits, vegetables, nuts, greens). The main components were, diversification and sustainable intensification of agricultural production, promoting nutrition-sensitive livestock and fisheries, promoting urban and peri-urban agriculture, promoting nutrition-sensitive post-harvest handling, storage and processing, promoting food fortification, promoting trade for nutrition, promoting food price policies for healthy diets, promoting nutrition education and behavior change communication, promoting school food and nutrition, promoting nutrition-sensitive humanitarian food assistance. Diversification approaches refers to increasing the availability and affordability of diverse foods. Sustainable intensification refers to simultaneously improving productivity and environmental sustainability, through ecosystem-based strategies. It is defined as the growing of plants and the raising of animals within and around cities. It includes crop production, small animal rearing, growing of non-food crops (e.g. medicinal herbs) and trees managed for producing fruits and fuel wood, including within integrated systems (e.g. agro forestry, tree-aquaculture systems).

A balanced diet is needed throughout the year to maintain good health and nutrition. Post-harvest handling, processing and storage contribute to: maintaining a secure supply of food preserving the quality reducing losses and making fresh produce available in local markets as well as in distant locations. Post-harvest handling includes all the steps that a harvested crop has to go through to get from the producer to the. Storage helps to store the foods thus increasing its shelf life.

Now a days, micronutrient deficiency is a very widespread form of malnutrition, due to inadequate intakes of nutrient foods, fruits, vegetables, animal-source products and other micronutrient-rich foods. Food fortification is (WHO) as "practice of deliberately increasing the content of an essential micronutrient, *i.e.* vitamins and minerals (including trace elements) in a food, so as to improve the nutritional quality of the food supply and provide a public health benefit with minimal risk to health". Fortification programmes can be mandatory and implemented on national scale via mass fortification or voluntary, whereby the decision to fortify is taken by food manufacturers within the regulatory limits set by the government (e.g. fortification of porridge and other complementary foods for infant feeding). Nutrition education consists of a variety of educational strategies aimed at helping people to achieve long-lasting improvements in their diets and eating behaviors.

Nutrition education

Nutrition education and behavior change communication to consumers can be delivered through multiple venues and activities, and may include health and nutrition counselling during pregnancy, education on breastfeeding or improved complementary feeding of children under two years of age, nutrition education in schools and hands-on learning to enable families to practice good nutrition behaviors. Nutrition education study should target, and be adapted to, both men and women, to ensure that their respective roles and responsibilities in household nutrition are recognized and harnessed.

Application of research: The school food and nutrition approach are the portfolio of activities benefiting the nutrition of school-aged children. It encompasses several elements – from provision of nutritious meals to nutrition education, from school gardens to school environments that support nutrition and health – for addressing the immediate food and nutritional needs of school children. Good nutrition is key to children's physical and mental development.

Research Category: Agricultural Extension

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