Policy Brief

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KEY MESSAGES

Malnutrition in children is an urgent priority for interventions in Bhutan.

The School Agriculture Programme (SAP) exists in Bhutan to provide agriculture education and awareness toward food and nutrition security and self-employment opportunities in the agriculture sector.

Integrating school gardening with WASH and nutrition education in school feeding programmes provides comprehensive knowledge and skills for holistic health education

Better Nutrition for Schoolchildren in Bhutan

Combining School Garden Programs and WASH

Subsistence agriculture farming contributes 60% of livelihoods and 17% GDP in Bhutan. However, malnutrition still persists in the country among children and pregnant women. The National Nutrition Survey of 2015 indicated that stunting (21.2%), wasting (4.3%) and underweight (9%) among children between 0 – 59 months are still major public health concerns in the country. Although there has been a rapid decline in anaemia among the same group of children (from 80.6% in 2003 to 43.8% in 2015), according to WHO categorization it is still considered a moderate public health problem in Bhutan. Vitamin A status has not yet been updated; however, the World Bank reported it as 22% in 2005.

Therefore, integrated subsistence farming approaches and agricultural education are important to achieve food security and nutrition in Bhutan.

Bhutan introduced the School Agriculture Programme (SAP) in 2000 to provide agriculture education and creat self-employment opportunities in the agriculture sector to

supplement food and improve nutrition in local diets. However, agriculture, nutrition and WASH (water, sanitation and hygiene) subjects were taught separately in the school curriculum and lacked an integration platform to achieve nutrition and health impact among students.

In 2013, the Vegetables Go to School (VeGoTs) project partnered with the Ministry of Agriculture & Forests, Ministry of Education and KeserGyelpo University of Medical Sciences of Bhutan on pilot programmes in 35 primary schools across Bhutan. The SAP integrated with WASH (water, sanitation and hygiene) and nutrition education involving parents as local communities in the programmes. The impact of the VeGoTs project showed positive results on students' nutritional behavior, eating habits, food consumption and agricultural knowledge.

Vegetables Go to School

Vegetables Go to School (VeGoTs) is a multidisciplinary school garden project piloting the use of multi-intervention school garden programs in Bhutan, Burkina Faso, Indonesia and Nepal to improve food security and nutrition.

The project was designed by the World Vegetable Center, the Swiss Tropical and Public Health Institute (Swiss TPH), and the Albert Ludwigs University of Freiburg (ALU) in partnership with Bhutan, Burkina Faso, Indonesia and Nepal governments and Xavier University in the Philippines, and funded by the Swiss Agency for Development and Cooperation (SDC). The 4-year project ran from 2013-2017.

VeGoTs Bhutan

The Vegetables Go to School school garden programme was successful in 90% of the enrolled schools. Each school started to produce and consume fresh vegetables from the garden. Students are also processing vegetables for the winter.

Two rural schools started producing moringa powder and tea to enhance the nutritional value of their meals.

In feeding schools, 20-30% of the vegetables for students' meals came from the garden. All schools have supplemented student meals with fresh green vegetables from the school garden, thus resulting in increased consumption of new and nutritious vegetables such as moringa leaves, amaranthus and fat-hen.

The nutrition promotions and campaigns through the school outreach gained positive feedback from parents and community members. More families were willing to start their own gardens. Seeds and vegetable gardening training were given to the parents by the focal agriculture teachers, students and agriculture extension officers. While the parents used to buy vegetables, they now grow them, and some even supply safe and high quality vegetables to the schools.

Benefits of School Garden

1 Educating children determines the nutrition of the next generation. Education of parents, especially mothers, is found to decrease child malnutrition, and increase income, access to land, and healthcare.[4,5]

2 Agricultural and environmental education positively increases students' knowledge, understanding, and appreciation of the environment and food production system; provides them with skills to grow food for nutrition; and equips them for a career in agriculture.[6–9]

3 Nutrition education positively influences children's nutrition knowledge, eating habits, consumption of fruits and vegetables and nutrient intake.[10,11]

4 School garden programmes with nutrition education in US and Europe improved students' fruits and vegetables knowledge, dietary habits and food preferences for healthy foods, physical activity, academic performance, appreciation for the environment, well- being and communication skills.[7,13–30]

5 A school garden is a small food system involved in the processes of food production, distribution and consumption. Interventions in the food system can help improve food security and nutrition.

6 Fruits and vegetables from the garden paired with school feeding in the mess and distributed to families can increase students' intake of nutritious and balanced meals.[4] VeGoTs programme successfully supplemented 20-30% of green vegetables and livestock products in hostel mess.

7 Linking the school garden programme with the community through nutrition and health messages and campaigns can effectively promote healthy eating and lifestyle habits, food choices and WASH practices.[20,31–33] Involving parents and community members in the school garden programme and school feeding increases ownership and sustainability of the programme in the community.

Successful integration with SAP

To successfully achieve food and nutrition goals, the SAP should consist of the following elements:

- A curriculum integrating agriculture, nutrition and WASH concepts and practices
- A model school vegetable garden for hands-on learning
- Involvement of parents and the wider community for support and promotion

The integration of SAP with WASH and nutrition education among school-feeding programmes provides a powerful and cohesive education package for students to learn and apply lessons in real- life situations; and improve students' food and nutrition security.

Evidence / Support

The Vegetables Go to School project implemented a school garden programme with agriculture, nutrition and WASH education, and community outreach in 4 countries to generate evidence using randomized control trials (RCT) and measured the programme's nutritional impact on students in developing countries.

In Bhutan, the VeGoTs project was coordinated by SAP and overseen by a multidisciplinary team from the ministries of agriculture, education and health. **The results in Bhutan showed positive impact on students' fruits and vegetable awareness, agricultural knowledge, food preferences and vegetable consumption.[34]**

Several additional benefits were observed by the Bhutan VeGoTs team, including improvements in the nutritional behavior and WASH practices of students and families, and the availability and accessibility of nutritious and safe foods.

Policy recommendations

School vegetable gardens linked to complementary lessons in agriculture, food, nutrition and promotional activities for children and parents have the potential to address child malnutrition in Bhutan by increasing children's and parents' awareness about fruits and vegetables, including their knowledge about sustainable agriculture and sanitation.

The supply of vegetables is constrained in some poor rural communities. School garden interventions with home gardening activities are therefore important to ensure that children are able to improve their food choices.

Policy recommendations are as follows:

1 Integrate nutrition, WASH, school feeding (mess) and health programmes in School Agriculture Programmes for comprehensive learning and application of school lessons and activities in students' lives; and to improve students' food security and nutrition.

2 Develop policy and increase financial support to implement the integrated School Agriculture Programme with agriculture, nutrition and WASH education, and school feeding programmes, such as the school mess programme and feeding programme from the World Food Program.

3 Expand the integrated School Agriculture Programme in primary schools to positively influence children's dietary and WASH practices at an early age.

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