



# Policy Brief

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## KEY MESSAGES

School children need adequate nutrition, along with clean water, sanitation and hygiene so that they grow to their full potential and can lead a healthy life.

This policy brief has been prepared to inform policymakers about the potential to extend school gardens, WASH (water, sanitation and hygiene) and home gardens as a national program in Nepal.

The aim is to reduce malnutrition and maintain good health for schoolchildren.



**NARC**  
Nepal Agricultural Research Council

# Better Nutrition for Schoolchildren in Nepal

## Combining School Garden Programs and WASH

The nutritional status of the Nepalese population, particularly in rural communities, is poor (WHO, 2008). Major nutritional problems prevalent in Nepal are protein-energy malnutrition and micronutrient deficiencies mainly iron, vitamin A and iodine. A nationwide study (NDHS, 2011) revealed that about 11% children are affected by wasting (low weight for height) and 29% are underweight in Nepal.

Considering the negative effects of malnutrition on national productivity, the government has formulated various policies, plans and strategies to address the problem. Such policy documents include the 2004 National Nutrition Policy and Strategy, the 2006 National School Health and Nutrition Strategy (SHNP), and the 2013 Multi-sectoral Nutrition Planning Framework.

Vegetables are mankind’s richest source of vitamins, minerals and bioactive phytochemicals required for maintaining good human health. However, vegetables are largely underconsumed in Nepal (Sah et al., 2004). The use of school vegetable gardening as a nutritional education tool is a promising approach to raise children’s awareness about the importance of vegetables as part of a healthy and diversified diet and for good nutrition and health. With

increased awareness and knowledge about nutrition, children will gain a more positive attitude towards eating micronutrient- dense foods such as vegetables, which will promote the production and consumption of a diverse range of vegetables among families and communities.

This policy brief has been prepared based on the experience and evidence gained in the project “Vegetables Go to School: Improving Nutrition through Agricultural Diversification” and aims to make an effective contribution to program planning to overcome child malnutrition in Nepal.

## Vegetables Go to School

Vegetables Go to School (VGtS) 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.

## VGtS Nepal



In Nepal, thirty schools from the mid- hills (Dolakha and Ramechhap districts) were randomly selected to evaluate the nutritional outcomes of school vegetable gardens (Schreinemachers et al., 2017). The study uses a randomized control trial (RCT) design to obtain robust estimates of outcomes and impact. **Three intervention components** were implemented in all intervention schools:

1. A **school garden** was established for the cultivation of nutrient-dense vegetables by the schoolchildren under the guidance of teachers and with the support of parents and the local community. The project team taught the teachers how to establish and manage the school garden.
2. **23-week curriculum** to teach schoolchildren about gardening, nutrition and WASH was developed and teachers received training on how to use it. The teaching took place every Friday during a 1.5-hour dedicated class, and also during regular subjects such as health, environment and agriculture. The teaching emphasized learning by doing and was regularly conducted in the school garden.
3. **Promotional activities** were conducted to reinforce the lessons learned and to strengthen impact. The activities included poster displays and the distribution of handouts about nutritious food and hand washing. Furthermore, children were encouraged to establish a garden at their home with their parents' support.

### Establishment and maintenance cost

The establishment cost of school gardens was calculated by taking into consideration the expenditure incurred to establish school garden during the pilot period (2014-2015) for schools in Dolakha and Ramechhap districts.

The cost for establishment of one school vegetable garden was NRs. 95000 (USD 950) excluding the cost of teacher training, curriculum development and project management. After establishment NRs 5000 (USD 50)

per month was enough to maintain the garden by the students and a focal teacher (Bhattarai et al., 2016).

### Benefits of School Garden

**Knowledge and awareness:** By growing vegetables, students become more aware of healthy eating and nutrition. Students can study the variety of products that come from plants and the type of plants that can be grown easily in their local environment. Bhattarai et al. (2016) reported that school vegetable gardening in Nepal significantly increased the knowledge, awareness and preference toward nutrient dense vegetables and their importance. Parmer et al. (2009) also reported that school gardens as a component of nutrition education can increase vegetable knowledge and lead to positive behavioral changes among children in the United States.

**Advantage for communities:** Schoolchildren can be effective mediators to promote vegetable gardening by households in rural communities. Miguel and Ivanovic (2011) reported that a school garden program had a positive impact on children, their families and the community in Brazil. Bhattarai et al. (2016) reported similar findings for Nepal.



**Environmental awareness:** Working in the school garden, students will learn to understand how their actions affect the environment. A school with a garden provides a unique opportunity to activate a child's awareness of the environment in a lasting way. When children are immersed in an enriched environment their awareness and thinking is stimulated and inspired.

**Practical learning:** The school garden offers a safe environment for children to study various subjects like health, agriculture, and science through hands-on practice. Many lessons can be associated with the garden activities. Hence, a school garden can be a living laboratory for the children.



**Increase in consumption:** The school garden helps children to realize the importance of nutrient-dense vegetables and promotes a liking for them. If vegetables are available within their household then this is likely to increase vegetable consumption at home. Increased availability of vegetables can be promoted by motivating children to establish their own vegetable garden at home together with their parents and other family members.

## Importance of nutrition, WASH and health

Nutrition, WASH (water, sanitation and hygiene) and health are intricately linked. The results of a baseline study conducted in Nepal in 2015 showed that the prevalence of malnutrition and intestinal parasitic infections is very high among school-aged children in Ramechhap and Dolakha districts.

The study also showed contamination of drinking water supplies and deficiencies in sanitation facilities and hygiene practices in schools (Shrestha et al., 2017). Various diseases, particularly diarrhea, can be prevalent if food is not of good quality, if it is contaminated with microorganisms, if children don't wash hands with soap, or if open defecation is commonly practiced. Therefore, teaching children about sanitation as well as nutrition is necessary to reduce child malnutrition.

## Evidence / Support

Evidence for scaling the school garden program was generated by the project through research papers, training manuals, video documentary, technologies, and the VGtS curriculum; all are readily available

## Policy recommendations

School gardens linked to complementary lessons in agriculture, food, nutrition and promotional activities for children and parents have the potential to address child malnutrition in Nepal by increasing schoolchildren's 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:

- Establish one garden in each school linked with school curriculum.
- Provide adequate latrines and hand washing facilities to ensure hygiene.
- Provide clean water supplies.
- Link school gardens to home gardening activities to ensure sufficient and year-round vegetable supplies.

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