



Policy Brief

VGtS-PB-04-Indonesia-05.2017

KEY MESSAGES

Malnutrition among Indonesian school children is mainly due to poor access to clean water, hygiene and sanitation in schools. A school garden program integrated with school WASH (water, sanitation and hygiene) and nutrition education and activities is an effective approach in addressing malnutrition among school children. Collaborative efforts among the government ministries are necessary to ensure the sustainability of such an integrated program and positively impact the lives of children and their families. We advocate for the adoption of an Integrated School Garden and Sanitation Program as part of the Healthy School Model and School Health Unit activities in all schools in Indonesia to secure a healthy future for our children.



Ministry of Agriculture -
Republic of Indonesia
Food Security Agency
2017

School Garden, WASH, Nutrition and the Future of Indonesian Children

Malnutrition in Indonesian School Children Impairs Development

While adequate nutrition in the first 1,000 days of life is crucial to child development, nutrition for school-aged children is equally important to their healthy physical and cognitive development.² The National Basic Health Research (Riskesdas) 2013 showed that the prevalence of stunting among school-aged children (5-12 years) in Indonesia was 30.7% while wasted children was 11.2%.⁹ On the other hand, overnutrition leading to obesity is an emerging issue with a high prevalence of 18.8%. Studies indicated there is a strong association between stunting and low intelligence, and between obesity and non-communicable diseases. Moreover, low intake of micronutrients, especially lack of fruit and vegetable consumption weakened children's immunity in developing countries. In Indonesia, more than 70% of the population over 10 years of age have inadequate consumption of vegetables and fruit.^{9,10}

Diarrhea, skin and eye diseases, and intestinal worm infections are common health problems of school-aged children which can lead to malnutrition.⁹ These illnesses are mainly due to lack of access to clean water, poor environmental sanitation, and poor hygiene and health practices.³

Lessons from Past School Garden Programs' in Indonesia

The school garden, where vegetables and fruits are cultivated, can be a source of nutrients for children. Most schools in Indonesia have a schoolyard, however they are underutilized. The school garden approach to improved nutrition was introduced decades ago, for example, through FAO and UNICEF's Applied Nutrition Program in 1957. In the early 2000s, The World Vegetable Center school garden program in the Philippines demonstrated the integration of gardening in the school curriculum improved students' diet and nutrition. School children became agents of change and brought the garden concept and practice to establish gardens at home.⁶ The school garden program is well-known to enhance life skills or promote healthy diets and lifestyles.⁷

Since 2010, the Indonesian school garden program was part of the program "Sustainable Food Reserve Garden" led by the Agency for Food Security under the Ministry of Agriculture. In cooperation with other stakeholders, a school garden program was developed for elementary schools. Subsequently, approximately 11,000 school gardens were established in the country.

The government of Indonesia collaborated with World Vegetable Center to implement a school garden program in a Bali elementary school to research the potential benefits of a vegetable garden in improving family diets and nutrition. With appropriate cropping patterns, the small school garden (6x6 m²) produced a total of 240 kg in one year, equivalent to 160 gram of daily vegetable supply per person and can feed up to a family of four members. These vegetables could provide an individual with essential nutrients for a significant portion of their daily requirements: vitamin A (20%); vitamin C (96%); folate (11%); calcium (33%); and iron (28%). Children learned vegetable gardening at schools, and helped their parents set up home gardens contributing to household food and nutrition security.

Children Need Healthy Environments to Thrive

The school is one of the best places to cultivate good nutrition and health habits at an early age which will last till adulthood. School garden program provides an opportunity for children to learn the importance of safe and sustainable environments, and it is essential to integrate sanitation programs which promotes clean environments and WASH (Water, sanitation and hygiene) practices. Such integrated programs can ensure students are healthy through learning about gardening, nutrition and WASH, cultivating care and respect for the environment, and being physically active.



Access to Clean Water

Limited access to clean water, poor hygiene and sanitation has been linked to childhood illnesses that affect nutrition and growth, and even death. Empirical studies indicated that improvement of access to water, human waste disposal and good water quality effectively reduced diarrheal diseases.⁸ Access to clean water can reduce diarrheal diseases by 25%, while waste disposal and improved quality of water lowered diarrheal cases by 22 % and up to 6%, respectively.

Good Quality Gender-Separated Toilets

Existing data indicates that the ratio of toilets to students is currently far from ideal, which is 1:93 for male and 1:86 for female students. Only 1 out of 4 school toilets are in good condition, and only 65% of primary schools have separate toilets according to gender (sex). Girls who attend school while menstruating need proper female toilets, water supply for washing and containers for the disposal of sanitary napkins.¹⁵



Hand-Washing Facilities

A recent campaign to promote hand-washing with soap at 30 elementary schools in Egypt reduced diarrhea related to absenteeism by 30%.¹³ Similar results have been found in China and Colombia.^{4,11}

Indonesian Government Responds with School Health Units (UKS) and School Sanitation Programs

In 2016, UNESCO declared that “all children and young people (should) have access to safe, inclusive, health-promoting learning environments.” Indonesia followed with a joint commitment between the Ministry of National Education, Ministry of Health, Ministry of Religious Affairs and the Ministry of the Interior on “Fostering and Developing School Health Unit” (UKS). UKS supports learning and living in clean environments and a healthy lifestyle not only to students, teachers and school staff, but also to the community around the school.

The government also considered it necessary to develop and provide sustainable clean water and sanitation services. Nationally, these intervention programs are called school sanitation programs. Target activities include access to drinking water, separate toilets and hand-washing with soap for all schools. The objectives of school sanitation specified in the Sustainable Development Goals (SDGs) are as follows: (1) Ensure a healthy life and well-being, (2) Ensure quality education, (3) Achieve gender equality and empower women, and (4) Ensure the water is clean and well feasible.

Integration of School Garden and Sanitation Programs Is Necessary to Alleviate Malnutrition in School Children

Two main contributors to malnutrition among Indonesian school children are: (1) Imbalanced and undiversified diets characterized by low consumption of vegetables, fruits and other nutritious food; and (2) poor access to water and sanitation facilities, education and practices. Programs to improve nutrition are available in Indonesia, however they are mostly stand-alone programs without

multidisciplinary integration of agriculture, nutrition and WASH education to holistically address malnutrition in the schools. Moreover, current water and sanitation facilities in Indonesian schools are inadequate. To successfully improve nutrition and health of school children, school garden programs should integrate gardening, nutrition and WASH education with health and sanitation programs, and physical education.

Vegetables Go to School (VGtS) Project

In 2013, World Vegetable Center in collaboration with Swiss Tropical Public Health Institute (Swiss TPH), Albert Ludwigs Universitat Freiburg (ALU) developed an integrated school garden program called, “Vegetables Go to School” (VGtS), which aimed to improve school children’s diets and nutrition, and WASH practices. The project was funded by the Swiss Agency for Development and Cooperation (SDC) and implemented in Burkina Faso, Bhutan, Indonesia and Nepal. In Indonesia, the Agency for Food Security collaborated with World Vegetable Center and piloted the VGtS integrated garden program in 10 elementary schools in Batang, West Java from year 2014-2017.

The VGtS project takes a two-pronged approach: classroom curriculum and school garden. The 32-weeks school curriculum teaches students in good gardening practices, healthy diets, nutrition, and WASH. The school garden incorporates hands-on gardening activities and demonstrations to enhance the learning experience for students. Teachers observed the VGtS interventions increased students’

nutrition knowledge and preference of healthier items for snacking and meals.



The VGtS program further impacted students’ families and community through dissemination of agricultural information and technologies, and messages on nutrition and WASH. The program encouraged families to start their own home gardens by modelling the school garden. It required adequate school sanitation infrastructure, such as the provision of clean water, use of latrines, and clean and healthy lifestyle (PHBS) such as hand washing with soap.

Partnership Initiative for the Integration

Highlighting the important role of school garden and WASH to the future of Indonesian children, during the VGtS project time, Agency for Food Security initiated a joint partnership with related institutions in the Ministry of Education and the Ministry of Health to enhance mutually existing activities at schools. This effort sets an important milestone for collaborations among ministries at the central, provincial and district level to implement joint school activities for the improvement of school children’s nutrition and health.

Healthy School Model: A Committed Collaborative Effort

In 2016, the Ministry of Health cooperated with National Agency of Drug and Food Control (NA-DFC) developed the plan of “Healthy School Model” to cope with the health problems in schools. Subsequently in 2017, the Ministry

of Health with the Ministry of Education and Culture, Ministry of Religious Affairs, Ministry of Agriculture, Ministry of Environment, and NA-DFC are implementing the plan and has developed 340 healthy school models in 34 provinces.

This Healthy School Model is an integrated school program with the objectives of health and nutrition improvement and attitude or character-building of the students. Among the expected output of this model is to create the following:

- Smile, greet, be polite and courteous among students everyday
- Eat breakfast/snack together with the provision of balanced diet
- Wash hands and brush teeth together
- Physical activity at recess and stretch at the turn of each hourly lesson
- Literacy movement for health material (PKHS)
- Establish health cadres schools
- Establish school garden to plant vegetables and other food crops together with waste management and mosquito eradication activities

- Health care services such as immunization, anthelmintic, iron tablet

Recommendations for Central and Local Government

Considering the role of school garden programs and the importance of WASH to the future of Indonesian children, we recommend the following activities for better integration of school garden program and school sanitation program.

- 1 Ministry of Agriculture, Ministry of Education, Ministry of Public Works and Housing, Ministry of Health should cooperate with the local government to develop regional roadmaps for Integrated School Garden and Sanitation Programs.
- 2 Further integrate school gardens and WASH in School Health Unit (UKS) and School Meal Program.
- 3 Integrate both theory and practices of school garden, WASH, nutrition and healthy lifestyle (physical activity) in the school curriculum.
- 4 Integrate school garden program and sanitation program with structured activities and involve all students and teachers in the activities.
- 5 Train students to be agents of change to establish home gardens and promote WASH practices at home.

Build sufficient WASH facilities in all schools under the National Program on the Acceleration of Sanitation and Housing Development (Program Nasional Percepatan Pembangunan Sanitasi Permukiman, PPSP).

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Acknowledgments

This work was coordinated by Food Security Agency of the Ministry of Agriculture. Indonesian FSA acknowledges the materials and inputs from the Ministry of Health, Ministry of Education, Ministry of Public Works and Public Housing (PUPR), Ministry of Internal Affairs, Ministry of Religion Affairs, National Agency of Drugs and Foods Controls, National Development Planning Agency and World Vegetable Center. Special thanks to all contributors from project team and Ray-Yu Yang and Jen Wen Luoh from WorldVeg in this writing.

