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SCHOOL GARDEN IN RWANDA

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1. Background

The Rwandan school garden project was conceived following distressing reports on children's health. A survey carried out in 2000 showed that children of all ages suffer from serious nutritional problems.
The survey showed the following:

- 43% of children under 5 experience stunted growth;
- 29% of children under 5 are underweight;
- 7% of children under 5 suffer from chronic malnutrition;
- High dropout and repetition rates(10% in each case) in primary schools;
- Poor health due to students' poor diet, which in secondary schools mainly consists of starchy food and a few beans; and
- Insufficient calorie intake (1650 Kcal per person per day).

These problems are the result of poverty and traditional Rwandan diets (fruit, vegetables and animal products are seldom consumed). The government of Rwanda set the 2020 goals to reduce poverty and hunger and raise average calorie intake in Rwanda from 1650 to 2100 Kcal per person per day. To help reach these goals, the Ministry of Education initiated a long-term school gardens and nutrition education program in primary and secondary schools. This program aims to:

- Improve pupils' knowledge, attitudes and life skills related to food security and nutrition;
- Promote production, distribution and consumption of fruit and vegetables in order to diversify food access.

2. School garden pilot project

The project started in 20 schools (10 primary and 10 secondary schools) and its aims were:

- The integration of practical garden skills and nutrition education into primary and secondary school curricula;
- The promotion of school gardens as living laboratories;
- The enhancement of synergies between the existing development programs such as the school feeding program funded by the World Food Programme (WFP) in primary schools; and
- The involvement of parents in creating school and community gardens.

The pilot project was funded by FAO with a grant of US$ 374,012. This sum provided 20 schools with seeds, fertilizers, tools, livestock buildings (cowsheds and henhouses) and twenty ¾ crossbred Friesian cows. Under the supervision of a volunteer teacher, pupils created a garden of at least one and a half hectares at each school and cultivated vegetables such as tomatoes, onions, eggplants, beans, Soya bean, night shade, spider plant, cabbage, Amarantus cruentus, leek, spinach, carrot, maize, potatoes and sweet potatoes. During the first three months, hard ploughing work was carried out by laborers paid by WFP on a food for work basis. Each class was given a plot where pupils grow a kind of vegetable every term. All pupils were involved in school garden activities. The work they carried out depended on their age and the physical demands of the tasks. The pupils' activities were mainly:

- Transporting waste from the kitchen, classes, dormitories and gardens for making compost;
- Transporting and spreading compost in the garden;
- Watering at the nursery and the garden. This is, of course, one of the pupil's favorite tasks;
- Hoeing and weeding:
- Mulching in plantations; and
- Harvesting. This is the pupils' favorite activity.

Schools intend to follow up school garden and farm activities through pupil's nutrition clubs. These groups of students supervised by teachers discuss nutrition problems in each school and come up with solutions to tackle them.

Each school was provided with a crossbred Friesian cow to produce milk and their dung improves soil fertility. Most schools built cowsheds themselves while 8 primary schools received support from the pilot project for this. School authorities benefited from trainings on cow farming organized by the pilot project. 25% of the cows are now producing between 4 and 8 liters of milk per day. This quantity is still insufficient to be distributed to the whole school. The milk, therefore, is blended with maize gruel in order to improve its nutritional value and consumed by pupils at breakfast.

3. Achievements

According to the pupils and their parents at the pilot schools, the advantages of the projects were:

- Improvement of children's knowledge of growing vegetables, which will be a life and vocational skill;
- Balanced diets which enable children's good physical and intellectual growth;
- Development of children's interest in manual work;
- Improved health and reduction of the incidence of diseases related to malnutrition (eg. eye problems, disturbances to the digestive tract);
- Reduction of the dropout, repetition and lateness rates;
- Improvement in pupils' academic performance;
- Nutrition education;
- Providing a practical learning field for school subjects such an biology and mathematics;
- Reduction of schools' spending on food due to a food supply from the school garden;
- Reduction of parents' spending and the time take for children's lunch due to school feeding by WFP and vegetable harvests from the school garden (children once needed to bring vegetables to their school);
- Improvement of family diet through the replication of what students learn at the school garden and pupils bringing seedlings to their family from school;
- Stepping up of crop production;
- Job creation paid for by WFP;
- Environment protection through organic gardening and rainwater harvesting;

- Reduction of hunger and starvation;
- Income creation through the sale of surplus harvests from the school garden, which assures the sustainability of school garden activities. (eg, the profit per year was US$245 at Cyanika primary school, US$2,698 at Buyoga secondary school, US$576 at Rebero primary school and US$450 at Shyogwe secondary school).

Families of schoolchildren described the importance of school garden activities as follows.

Ms. Makakibibi whose daughter attends Stella Matutina secondary school stated that vegetables protected people from diseases such as blindness and kwashiorkor, and children who consume vegetables grow normally since vegetables contain essential nutrients for growth.

Ms. Nyiradivayi whose daughter also attends Stella Matutina secondary school said, "The project has had a major impact on our community. When our children came home in the holidays, they asked us for plots to grow vegetables. When the crop was harvested, some of them were sold and we earned money to buy other items such as clothes."

School authorities are also interested in school garden activities and the resultant benefits. Mr Tugireyezu Eugène, headteacher of Buyoga secondary school described how producing vegetables throughout the year gave children constant access to vegetables. Consequently these children had a deep appreciation of the importance of what was taught to them.

Sister Aurea at Stella Matutina secondary school stated, "Thanks to the project now it is common knowledge that vegetables are essential to help to fight disease and hence they decided to produce them in large quantities. We distributed them to our students to ensure that they stay healthy and to improve their learning capacity".

Mr Twahirwa, headmaster of Rebero primary school, described the school garden's impact on the community. "We see parents and other members of the local community in the neighborhood observe the different vegetables we grow in our school garden. They show great interest in improving their farming skills. We sometimes offer children some seeds or seedlings to be grown at home. The outcome is very positive because many parents are now aware of the importance of vegetables in their diet.

4. Parents and community participation in the project

Parents contributed greatly to promoting school gardens in the following ways:

- Motivating their children by helping them to grow vegetables at home;
- Supporting school gardens by providing compost and water. The water is brought by children in small containers such as plastic or glass bottles (½ or ¾ liter) and used to prepare food, to clean the kitchen equipment and the classrooms. Children also sometimes bring compost in small locally made baskets or bags from their families to schools when it is requested by school authorities;
- Protecting school garden. Indeed, parents asked school neighbors to take care of school property and keep their livestock away from school premises;

- Visiting school gardens and providing advice to school authorities;
- Offering free veterinary services to schools: one family(a husband and wife team of veterinarians) come regularly and treat sick cows at the Stella Matutina secondary school; and
- Allowing their children to take care of the school gardens during holidays.

Local administrative and religious authorities have also offered schools plots of land for garden activities

5. Problems

Schools are eager to see the school garden and nutrition education curricula developed and implemented. The procedure for approving and integrating such activities in the curricula is taking time even though schools are ready. The proposed new curricula will mean that teachers have enough time for school garden activities to be inserted in the syllabus. Other problems are as follows:

- Problems related to bad weather and water shortages;
- Lack of compost, which is produced only in small quantities;
- Plant diseases, pest and predator problems, especially in the dry season;
- Lack of water conservation systems;
- Lack of agriculture and livestock technicians in every school; and
- Lack of appropriate clothes for school garden activities.

Despite these problems, Rwandan school gardens have shown themselves to be successful and are having a major impact on nutrition education.