

Learning from Others: Synthesis of Experiences in Garden-Based Learning for School-Age Children in Five Southern African Countries

Based on papers prepared in Lesotho, Malawi, Mozambique, Swaziland, and Zimbabwe for submission to the Workshop “*Garden-Based Learning for Improved Livelihoods and Nutrition Security of School Children in High HIV-Prevalence Areas in Southern Africa*”, Harare, 19-21 June 2007

WORKSHOP REPORT PART II

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Executive Summary

Country papers were received from Lesotho, Malawi, Mozambique, Swaziland and Zimbabwe. All reported that adverse climatic conditions and high rates of HIV and AIDS infection have had a dramatic impact on children's food security, nutritional status, education and livelihood prospects. School gardens are conceived as a potentially powerful strategy for improving children's diet, extending knowledge and skills in nutrition and food production and transferring such skills to the community.

The purpose of school gardens is, however, mainly perceived in the five countries as food production for generating income for school funds, for supplementing school meals, or for providing food for children to take home. Gardens are also seen as fieldwork for training in agriculture. Their potential for learning practical nutrition, environmental practices, business skills, and life skills features less frequently and sometimes the learning and food production agendas are at odds.

The Ministries of Education have principal institutional responsibility for school gardens, assisted by Ministries of Agriculture and their extension officers. Health and Environment ministries are less involved. NGOs, aid agencies, and other organizations, including Junior Farmer Field and Life Schools (JFFLS) and other FAO projects, are promoting gardens for school-aged children.

Garden work is usually either extra-curricular or covered in the curriculum under agriculture or environmental science. New curriculum disciplines in some countries, and new or revised agriculture curricula, show trends toward more practical and vocational relevance, environmental awareness, and the promotion of business skills and life skills, although it is not clear how far these match the situation on the ground. Nutrition education remains largely information-based and not linked with food production and processing. Concerns are expressed that gardening and agriculture have low status in the eyes of children, schools, and communities.

School meals are available in some areas and some use garden produce. Nutritional adequacy is taken into account but school food is not perceived as contributing to nutrition education.

At the local level, the perception of school gardens is usually negative, since they were traditionally used as punishment. Garden achievements are not generally promoted or publicized by schools. The gardens are usually run by a teacher as the garden manager and overseen by a committee, variously constituted of teachers, parents, community members, and agricultural experts (but not apparently nutrition or health experts). Student representatives and student management, though commended by the writers, are only found in NGO projects and JFFLS. Integration of the community into garden activities is weak, suggesting the need for a wider concept of community involvement and more outreach by schools and pupils to raise conviction about garden benefits.

The type of garden produce grown is mostly vegetables. Organic or sustainable approaches are adopted by projects but it is not clear how prevalent these are generally. As regards inputs, water supply and irrigation infrastructure are the main concern, followed by garden security. The cost of inputs is usually met through sale of garden produce. There is general concern that garden accounts and records should be more consistently maintained. Garden work is mostly done by children in the afternoons, with a roster for vacations. Some children complain that they have to work while hungry.

The main constraints mentioned are understaffing and underfunding in the ministries and extension services; lack of involvement of nutrition and health institutions; mistaken, negative or missing

perceptions about nutrition, food production, environment, gardening, and the roles of learners; lack of capacity in teachers and the school council; lack of a platform for sharing information and experiences; lack of water; and lack of in-service training opportunities.

The main shared recommendations are to establish a well-grounded shared concept of school gardening, giving priority to children's learning and health; to sharpen the focus of food security and applied nutrition education in this concept; to draw up procedural guidelines for school garden development; to turn around the image of school gardening and enhance its status in the curriculum; and to convince family and community of the garden's value and involve them more closely.

The Country Papers

Country papers on the state of school gardens and garden-based learning in the participating countries were commissioned for the workshop, on the basis of a suggested outline (Annex 1). Lesotho, Malawi, Swaziland and Zimbabwe submitted such reports. A further paper from Zimbabwe was submitted which reported on the general state of horticulture in 2005. Mozambique contributed an evaluation of an FAO school garden project from 2004-6, and Zambia's contribution is in preparation. Thus the six documents¹ have different briefs, different perspectives, and different degrees of relevance, as explained below.

Lesotho *Enhancing the effectiveness of garden-based learning for improved livelihoods and nutrition security of school children in HIV prevalence areas in Southern Africa*, by Rapelang Ramoema (May 2007). This review was written for the workshop, covering both primary and secondary schools in Lesotho and dealing with policy as much as practice.

Malawi *Review of Garden-Based Learning and Nutrition Education in Primary and Secondary Schools*, by Daimon Kambewa (June 2007). A report written for the workshop, dealing mainly with the two FAO initiatives in Malawi, one promoting school gardens and backyard gardens through primary schools (9 months old), and one with JFFLS in 8 primary schools (5 months old). Other public-sector Malawi initiatives are not covered.

Mozambique *Internal evaluation of the project "Promotion of activities for diversified livelihoods and healthy living through strengthening environmental awareness and garden-based learning in primary schools in Gaza, Inhambane and Tete Provinces in Mozambique OSRO/MOZ/303/DEN"*, written for the FAO Emergency and Rehabilitation Unit in Mozambique by Simiao A. Mahumana, MSc and Sabina M. Silaula, PhD (2006). The report evaluates the project in terms of its objective: to explore the fitness of school gardens to extend livelihood options, enhance food security and mitigate the impact of HIV and AIDS by reducing the rate of infection, with a strong emphasis on garden-based learning. It assumes knowledge of the project and does not give the overall Mozambique picture, but is highly relevant.

Swaziland *Review of garden-based learning in Swaziland (school gardens, pre-vocational agriculture, agricultural education, nutrition education, junior farmer field and life schools)*, by Lima (Pty.) Ltd. (May 2007). An overview of the present status of gardens for school-age children in Swaziland, identifying lessons learnt and constraints, written specifically for the workshop.

Zimbabwe *Review of Garden Based Production Activities for Food Security in Zimbabwe (2005)*, written by Victoria Machakaire and Alexandretta Hobane for Great Minds Investments (PVT) Ltd. This is an extensive survey of Zimbabwean horticulture. The main emphasis is agro-technical, and

¹ The full text of the country papers can be requested from FAO (Margaret.McEwan@fao.org).

school gardens are hardly considered, but many relevant issues are raised and there are numerous references.

Zimbabwe *Review of Garden-Based Learning: school gardens, agricultural education, nutrition education, Junior Farmer Field and Life Schools* (2007) by Zwanyadza Soroti. This document was written specifically for the workshop, with tables on decision-making structures and institutional support to school gardens.

The outline framework for the country papers was not comprehensive. A number of important questions which were not asked were nevertheless answered, indicating their importance, and these points have been included in this synthesis. Significant gaps in the information supplied are also noted.

A. Food Security, Nutrition and Health

The reports describe a situation in which food security is drastically threatened by HIV and AIDS; by adverse climatic conditions and events, in particular prolonged drought and flood; by increasing economic insecurity due to rising cost of inputs, and in one case hyperinflation and “economic meltdown”; and by poverty, especially severe in rural areas and among female-headed households, and in some places acute. In some areas a high proportion of rural households are unable to meet their own food requirements.

Regarding children’s health and nutrition status, most countries report “chronic”, “severe” or “grave prolonged” malnutrition, stunting and wasting for children under five years of age. However, illness and malnutrition during early childhood are likely to have a negative impact on children into their school going years.² Dips in nutritional status are sometimes linked to periods of drought. Widespread illness in children is due to tuberculosis, malaria, worms, and HIV and AIDS, and is exacerbated by food insecurity.

A variety of statistics illustrate the high rates of HIV and AIDS infection and its socio-economic effects in terms of sickness in the household, loss of wage-earners and earnings, the steeply increasing number of AIDS orphans and child-headed households and the loss of education. OVC are having to cope with food insecurity, loss of caregivers, loss of livelihood skills and life skills, difficulties of access to education, especially for girls, and the attendant psychological trauma and loss of hope and self-esteem.

The agricultural context is seen as important, representing the “capacity hinterland” to which school garden learning should closely respond. In the worst cases there is shortage of arable land, underdeveloped agriculture and soil degradation. Horticultural capacity in communities varies: in some areas educational standards are generally low, while in others there is high literacy (e.g. Lesotho). Mozambique reports poor natural resource management, while Zimbabwe has strong crop production technology hampered by poor disease and pest control strategies and post-harvest processing. Home gardens in Zimbabwe are reported to be almost universal where water is available; in Malawi they appear less widespread.

Gender issues are noted in Zimbabwe with women being traditionally considered “users and not owners of land”. Women decide what to grow at home and do the work, while men decide what to

² No data on school children’s nutritional status was available from the countries; most of the data provided was for children under five years of age.

sell and how to spend money. It would be useful to know how general this picture is in southern Africa.³

B. Overall Policy Framework and Institutional Linkages

Given the above context, the report authors agree that school gardens might play a valuable role by:

- developing practical learning in food production and natural resource management for improving livelihood options
- improving children's health and nutrition knowledge and skills, especially practical decision-making for good nutrition
- improving children's nutrition and disease resistance by supplementing school meals nutritionally with fresh vegetables, fruit and protein-rich foods
- developing business skills for marketing garden produce
- transferring nutrition and agriculture knowledge and skills to home and community.

As the Zimbabwe paper notes, "The main benefit of school gardens is that children learn how to grow healthy food and how to use it for better nutrition".

Historical status

School gardens have been embedded in national tradition to different degrees. In Swaziland, there has been support and high capital investment over a long period in school facilities, administrative centres, and housing for agriculture education inspectors. In Zimbabwe, school gardens have also been long established, but government support has dwindled and some gardens are now receiving external support. In Lesotho, there are as yet no clear operational guidelines for school gardens.

Main aims

It is not clear if school gardens figure in government emergency or food security strategies, but their importance is acknowledged in government policy and support for projects and a national vision is usually implicit.

The aim of the school garden is most widely conceived as food production, often for income generation for the school. They are sometimes intended to provide food to supplement school meals (as in the Swaziland School Garden Scheme and the Zimbabwe Early Childhood Development Centres) and sometimes (as in the FAO Malawi project) used as a way to transfer skills to the home garden with the vision of increased production for sale.⁴ A second main aim is training in agriculture, more or less directly realized through the garden (see D. Curriculum), usually at secondary level but sometimes extending throughout the school system, as in Swaziland and Zimbabwe.

Aims less frequently mentioned are to:

- produce food specifically for better eating, better health, stronger immune systems
- provide practical action to protect and improve the environment (sometimes included in the agriculture syllabus)

³ Since children's knowledge is determined by what they learn at home and since many projects aim to influence home gardening through the school, it is important to explore the prevalence of home gardening and home gardening practices, including gender attitudes and practices in cooking, collecting water and firewood etc.

⁴ The High Commissioner of the Republic of South Africa at a graduation ceremony at Kamwanya Primary School in Malawi on 10 May 2007 "gave a vision that the garden-based learning project should enable the farmers in Malawi to supply products to super shops such as PTC and Shoprite." The report comments, "These are words of inspiration and vision of the project, which show that the project has a potential to economically build the capacity of the members of the communities."

- learn about and practise good nutrition
- learn about the environment
- promote urban gardening
- develop garden management skills (planning, organizing, budgeting, evaluating, etc.)
- develop other life skills (leadership, decision-making, etc.)
- develop business skills in market gardening
- transfer practices to home gardens (the FAO programme in Malawi has accelerated the establishment of home gardens)
- use the garden as a learning laboratory for science and other school subjects.

FAO, GTZ and JFFLS project gardens generally put learning first, with a range of learning purposes which include nutrition education, life skills, environmental awareness, and skills transfer to the community, in addition to agricultural skills. Thus there is potential for significant tension between the goals of production and learning. In some countries one response to food insecurity has been a drive to increase food production in schools. An example is the Zimbabwe government policy of “promoting education with agricultural production”.⁵ In Mozambique likewise the Ministry of Education (MoE) is moving toward a full food production policy which does not dovetail conceptually or practically with the educational emphasis of the FAO Mozambique project which views the garden as providing “a meaningful survival tool kit”.⁶

Policy development

Several reports stress aspects of the process of policy development (situation analysis, surveys of Knowledge, Attitude, Perceptions and Practices (KAPP), etc.), noting the “very limited sharing of information, lessons learnt and best practices” (Zimbabwe) and the lack of information on, for example, school policies, variations in soil condition and water availability, cultural attitudes to certain crops, what happens to garden produce, parental attitudes, children’s eating habits and practices, and existing capacity of community representatives. The designation of beneficiaries also varies. When garden produce is sold, the school is presumably the beneficiary. When learning is the primary aim, the main beneficiaries are assumed to be the children. However, in the Malawi FAO project, families and the community are also seen as target beneficiaries. This suggests the possibility of a wider learning net embracing school cooks, the school as an institution, agricultural extension services and education services, both as learners and as sources of learning.

C. Institutional Roles and Responsibilities

Government institutions

School gardens are by their nature multidisciplinary and cross-sectoral. The disciplines directly involved are agriculture, science, health and nutrition, business studies, environmental studies, and management, with cross-cutting issues of life skills and communication. Ministries and extension services potentially involved are therefore Agriculture, Education, Health and Environment, Social Welfare/Social Services, Youth Ministries and Community Services).

Generally, the MoE is the lead ministry responsible for school gardens, supported by the Ministry of Agriculture (MoA) and agricultural extension services. Less involved are the Ministries of Health and Environment. School health and nutrition interventions are seldom mentioned (unfortunately the questionnaire did not cover this point), but in any case nutrition and nutrition education are

⁵ The meaning of the preposition *with* is not entirely clear.

⁶ The concept of the garden as a learning area may in itself present difficulties. The Malawi report noted the challenge of translating “pupils learn by doing in the garden” into Chichewa, where it came out as “pupils work in the garden”.

generally under-represented institutionally. All government services are overstretched and underfunded and two reports note the difficulties of scaling up projects which depend upon strong support from agricultural extension services. For instance, in Mozambique each agricultural extension officer is supposed to assist at least one school but there are 8,000 schools and only 700 officers.

The following table sums up the very partial information reported:

Table 1: Roles and responsibilities of government bodies in relation to school gardens

	Lesotho <i>public program</i>	Malawi <i>FAO program with MoE and others</i>	Mozambique <i>FAO project with MoE and others</i>	Swaziland <i>public program</i>	Zimbabwe <i>public program and JFFLS</i>
Ministry of Education	Responsible for agric education in schools; coordinates with Min Ag on nutrition ed.	School gardens fall under MoE school H&N initiative	Active partner in the project	Responsible for agric education; MoE agric officer for each region	Responsible for agric education in schools
Ministry of Agriculture...	Responsible for national food security; resp. with MoE for nutrition ed.	<i>No information</i>	Active partner in the project	Provides input to MoE, with Min Regional Devt & Youth Affairs	<i>No information</i>
.. and agricultural extension services	Remit is to advise schools, carry out agric training – could support schools more	On SG project committees but ext. officers reluctant to pay school visits	Active support to project, but too few officers to allow for scaling up with same level of input	Ext services have no mandate to assist schools but some do	AREX (Agric Ext) support JFFLS but at high cost. AREX has severe resource constraints
Ministry of Health (and nutrition agencies)	<i>No information</i>	<i>No information</i>	Very little participation – evaluators recommended more, esp by nutritionists	<i>No information</i>	Role in establishing country nutrition gardens 1992-3
School Health Services			UNICEF interventions (micro-nutrients & deworming) not integrated with project	<i>No information</i>	<i>No information</i>
Ministry of Environment	<i>No information</i>	<i>No information</i>	Very little participation, with resulting neglect of environmental education in project	<i>No information</i>	<i>No information</i>

NGOs, organizations and aid agencies

A partial picture emerged of NGOs, organizations and aid agencies involved in garden activities for children, raising the question of how such initiatives can complement each other and support public programmes. Some of the programmes described are:

ATA

The Agriculture Teacher's Association in Swaziland organizes a school garden competition and displays and publishes an occasional newsletter

NCPs	Neighbourhood Care Points in Swaziland sometimes grow vegetable gardens which contribute to local feeding schemes for OVC
PACE	Participatory Agricultural Curriculum for the Environment, Zimbabwe
RSDA	Rural Self-help Development Association, an NGO in Lesotho promoting integrated land use design for improved food production in schools and households
SCOPE	Schools and Colleges Permaculture in Zimbabwe, runs extra-curricular garden projects

Other groups briefly mentioned in the Zimbabwe paper are Catholic Relief Services (CRS), Community Technology Development Trust (CTDT), World Agroforestry Centre (ICRAFT), Natural Farming Network, Food for Asset work groups, Tree Africa, and World Vision International (WVI). Also mentioned in the Lesotho review is the Agricultural Information Service of the MoA, which broadcasts radio and television programmes, produces a quarterly magazine and runs campaigns on agricultural production.

Junior Farmer Field and Life Schools

JFFLS, an FAO-led initiative, caters for children aged 12 to 17 both in and out of school. JFFLS provide training in life skills and livelihood skills with an emphasis on gardening to increase household production and generate income while protecting the environment. Another objective of the programme is to improve students' understanding of HIV and AIDS prevention and mitigation strategies. Some nutrition information is part of the programme and a JFFLS curriculum has recently been developed.

In Mozambique and Zimbabwe, the JFFLS programmes are substantial and plans are afoot to link them to the formal school system. In Swaziland, a pilot programme was established in 2005 and communities have selected garden sites in five schools and provided volunteers to be trained as facilitators. The JFFLS are now collaborating with 4S, a youth organization. The Malawi programme, set up very recently in collaboration with UNICEF, WFP, and the MoE, involves eight primary schools and aims at reaching families and communities through schools.

JFFLS has faced some teething problems with attendance, the choice of facilitators, the concept of life skills, community mentors, water supply and the distance of the garden sites, but these are being resolved. The first JFFLS graduates are producing and selling for themselves and are also able to act as facilitators for the new intake, reducing the need for support from agricultural extension services. Several reports commend the participatory approach of the schools, whereby students carry out their own field studies and make their own decisions about what to grow.

D. Curriculum

Curriculum framework

Extra-curricular

Much garden work is more or less extra-curricular, carried out after school or out of school, in particular FAO and NGO projects. It is hard to estimate what portion of garden activity is purely extra-curricular since some may be linked to classroom lessons. Reports comment that since extra-curricular work has no scholastic status and is not reflected in students' marks, it is often seen as simple manual labour and risks losing the interest of teachers, parents and children. In an education-hungry environment, exam status is almost essential to gain respect for a school subject, a point that independent school garden initiatives may need to take up with curriculum developers.

Cross-curricular integration

This involves the use of the garden to illustrate not only the garden's core subjects (agriculture, nutrition, environment, marketing and science), but also less closely related subjects such as history, mathematics and language. In Lesotho, agriculture in primary schools is integrated into the curriculum but does not count for many marks and hence is not of great interest to many teachers. The value of the garden for concretising abstract concepts is pointed out in the reports several times, with some lengthy descriptions of what can happen in a successfully integrated curriculum, but there is no direct evidence that gardens are often exploited in this way. The impression is that garden work is mainly constructed educationally as agricultural learning.

Local curriculum

A local curriculum has special potential for local reference in terms of indigenous crops and local attitudes to food and nutrition, but again may lack recognition and status if it does not contribute to national qualifications. The Mozambique report recommends exploring the possibility of including the garden in the local curriculum, where provisions exist.

Mainstream curriculum

In Zimbabwe primary schools, school gardens fall under the Environmental Science curriculum, which has good potential for giving theoretical backing to garden learning. New vocational/technical disciplines are being introduced in Mozambican and Zimbabwean secondary schools which will include agriculture and food processing. In Zimbabwe, a new vocational and technical curriculum thread ("voc/tech") is also soon to be introduced in primary schools. Agriculture is, however, the predominant umbrella subject for school gardening. In Zimbabwe, "agriculture-based education" is mandatory for all schools, starting in the Early Childhood Development Centres (ECDs) and continuing through secondary school, in which the agriculture syllabus includes a practical research project. In Swaziland's extensive school agriculture programme, a School Gardens Scheme provides practical garden learning (and food) for basic schools, while the Modern Agriculture Programme (three levels, all examinable) and a Pre-Vocational Agriculture programme develops practical skills in gardening and livestock production, using MoE assessors for practical work. The Lesotho secondary agriculture syllabus, developed in 2003, has examination status, with an element of continuous assessment, a test and a practical assessment. In Malawi, school gardens have just been included in the curriculum.

Academic "cover" does not necessarily mean integration of theory and practice. Some teachers are said to neglect garden practice in favour of passing exams, and a great deal of practical garden work is apparently not linked to the school curriculum or associated with any explicit learning framework. Theory and practice are easily dissociated unless (a) ownership is established, (b) purpose is understood and (c) (for exam subjects) extensive provision is made for monitoring and assessing practical work, as in Swaziland and Lesotho.

Status of agriculture in curriculum

Some teachers in Lesotho stress the low academic status of agriculture in the curriculum and the importance of recognition, saying, "The winners should be those who produce quality product not the highest grades in English". They feel that schools and pupils who perform well in food production should be recognized. In Zimbabwe, some secondary students choose to do agriculture because it is cheaper, there being no industrial fee. The importance of agriculture being on the same footing as all other school subjects is stressed by teachers from Swaziland and is reflected in the inclusion of "improving attitudes to agriculture" in the agriculture curricula in both Swaziland and Lesotho.

Curriculum content and links

In the absence of a stand-alone school garden curriculum, it matters that existing curriculum provision is sufficiently flexible to allow schools to establish coherent school garden learning programmes, to accommodate and link the core agriculture, nutrition, environment, marketing and science components, and to provide for children learning to manage their own gardens and take lessons home. This is not always the case.

Agriculture syllabuses centre on technical aspects of horticulture, with some livestock production. Not so strongly represented are practical nutrition (in the sense of choosing, growing and preparing or processing food for a good diet), business skills, environmental issues, garden planning and management, and the cross-cutting issues of life skills and communication. However, updated secondary school agriculture syllabuses are filling out this wider framework. The relatively new Lesotho syllabus (2003) is livelihood-oriented, establishes bonds between home, school and community and links between science and practical living, dealing with economic aspects of agriculture, and has a project/discovery learning orientation and strong assessment of practical work. The Zimbabwe curriculum is under revision for more sustainable agricultural practices. The Swazi pre-vocational agriculture syllabus emphasizes livelihood training, including some Information Technology (IT) and entrepreneurial skills, while the new JFFLS curriculum gives prominence to environmental issues and life skills. In Mozambique, the new vocational discipline is to offer both agriculture and food processing and, it is hoped, make links between them. For the Mozambique project, the evaluation recommends including a business management component, especially for small livestock, together with basic accounting, budgeting and record-keeping.

Direct linkages with nutrition and nutrition education, business education and the development of capacity in garden planning and management remain weakly represented.

Nutrition education

It has been extensively demonstrated that simply providing nutrition information seldom results in changes in dietary practice. The trend is toward a more dynamic concept of nutrition education that:

- concerns eating practices as much as scholastic knowledge
- is based on understanding how to improve one's diet for health, protection from infection, growth and mental development, and energy for playing, learning and working
- puts children in charge of planning and managing their own and others' eating
- links nutrition and gardening through decisions about what to grow and how to process it
- involves families in the process.

Many aspects of this action-based approach are proposed by the Mozambique evaluators. In general, however, reports note both quantitative and qualitative gaps in the concept of nutrition education and its connection with the school garden. Nutrition is sometimes covered in Home Economics or in a separate module, but without any active connection with choosing, growing and preparing food. The Zimbabwe paper reports a weak link between school gardens and the essential component of nutrition education. The Lesotho review sees no link in teachers' perceptions between school gardens and improved nutrition. In the Mozambique project, children reportedly "have no idea of what informed the selection of crops" and make no connection between the garden, its vegetables and the nutritional value of meals eaten. In the FAO Malawi projects children learn cooking, drying and processing, and it would be good to know if they were also able fully to interpret these activities.

Environmental education

The questionnaire did not ask about environmental education but any discussion of school gardening must touch on environmental concerns at many action points (e.g. soil and water conservation, agro-forestry, Integrated Pest Management, school greening), both in establishing practices and in countering existing practices such as overuse of pesticides and charcoal-making (see gardening methods below). As with nutrition education, there is scope for practical needs-based educational objectives alongside pure science in the environmental studies syllabus. Some projects and organizations (e.g. PACE and SCOPE in Zimbabwe and the RSDA in Lesotho)⁷ appear to have contributed significantly to practical environmental education. Observations from the Mozambique evaluation suggest that environmental issues are often as much a blind spot as nutrition to teachers, parents and children. This area needs to be explored in greater depth.

E. School Gardens and School Meals

The importance of school meals is stressed in the Lesotho review, which points out that children walk long distances to school, often without breakfast. Children need food frequently during the day to maintain energy levels and help them learn. The added value of consuming food from the garden in school is partly nutritional, partly motivational and partly educational.

Lesotho has an extensive school meals programme, but generally does not use garden produce for it, although a few schools have made attempts at food self-sufficiency. In the Mozambique project, school gardens supply food for school meals. In Swaziland and Zimbabwe, school meals are supplemented with vegetables from the garden, while projects such as SCOPE contribute produce for taking home. Fruit, snacks and drinks are not mentioned explicitly. The Mozambique government wishes to link school gardens more strongly with the school feeding programme. Where school feeding is enriched with garden produce, nutritional adequacy is generally taken into account, but this does not extend to raising nutritional awareness in the school, prompting the Mozambique report to stress that school garden contributions must not only be nutritionally valuable but must also be *perceived* as nutritionally valuable by children.⁸

F. Gardening and Garden Management (School and Community Level)

Motivation and image

The school garden must develop a positive image which reflects its positive offerings. The country papers however report a largely negative image for the garden among children, parents, teachers and all adults with long memories, due to:

- garden work historically being used as a punishment (the most frequently mentioned)
- garden work seen as exploiting learners, as child labour or as taking children away from work at home
- poorly equipped gardens run by untrained teachers
- garden work considered an activity for deprived children, partly because of the JFFLS association of garden work with provision for OVC
- lack of enthusiastic leadership by teachers and school inspectors
- (for teachers) no enhancement of their status (e.g. through credits or extra pay).

⁷ PACE: Participatory Agricultural Curriculum for the Environment; SCOPE: Schools and Colleges Permaculture; RSDA: Rural Self-Help Development Association

⁸ And, it should be added, by teachers, school cooks, parents, the school as a whole and the community. If produce from the garden is used in school meals or snacks it should also be seen by children as an achievement, the culmination of their work, their contribution to healthy living, a subject of discussion and an opportunity for promoting healthy food.

As regards counter-motivations some suggestions from Zimbabwe are to involve pupils right from the inception, provide take-home food and run competitions with prizes. One Mozambican school reports that “they cannot imagine their schools without the garden activities”. In Malawi, families are interested in the new technologies which allow development of backyard gardens for production and sale of vegetables, and (where teachers are using the garden for practical training) children find the gardens good for helping to understand class work. However there is still a lot of room for a motivational turnaround, and especially for motivation for teachers.

Publicity

The garden needs to send out positive messages about improving life and livelihoods with good nutrition, marketing, new techniques in agriculture and care for the environment. The Zimbabwe paper mentions a number of newsletters, guidelines, manuals and reports produced by SCOPE, PACE, FAO, ICRAF, CRS/CTDT,⁹ but notes that publicity is not a feature of school garden programmes at local level. The Malawi school garden project has used demonstrations, elements of cascade training, field days and demonstration plots, messages taken home by pupils, and (it would appear) discussion, apparently to good effect, since the number of backyard gardens has risen considerably. Homework, which has the advantages of being regular, frequent, free and reaching a wide and attentive audience, is not often mentioned as a publicity device, nor are the use of local media, poster campaigns, school Open Days, etc.

Aims

Swaziland reports a consistent policy across the country whereby children grow food in individual plots and take home the produce. In other countries, schools generally have a free hand and hence there are few data on garden objectives and outputs. The impression is that, as with government policy, funds and food come first and learning lags behind. Many schools sell produce, sometimes for general school funds, sometimes to pay for school fees and uniforms for OVC (Zimbabwe). Marketing projects planned and carried out by learners are not mentioned. Some schools, as mentioned before, grow vegetables for school consumption and for improving nutrition (e.g. in Swaziland and Mozambique). Food processing and preservation using garden produce are mentioned only in the FAO Malawi project. The garden is used for projects in secondary school agriculture studies (Swaziland), in which case the crops are determined by the curriculum and such practical work is monitored for exam purposes. Otherwise the educational use of the garden appears to be the choice of individual teachers.

Garden management

Garden management structures at local level vary in size, representation, scope and level of control. Some projects, such as SCOPE and JFFLS, have widely representative committees including agricultural experts, teachers, community members and students. In the FAO-facilitated project in Malawi, teams of facilitators consist of teachers, agricultural extension workers, child protection workers, PTA members and members from the community. Nutritionists, health workers and school cooks are not mentioned as members of any of these groups.

More information is needed on the quality of these management structures. For instance: how and how much members participate; who are the sleeping partners; who makes the critical decisions; what processes in the project cycle are followed; what criteria are adopted; what accountability is built in, etc. Schools might appreciate a number of models to choose from. In two FAO projects it is felt that FAO retains too much central control over decisions, reducing flexibility in adapting to

⁹ ICRAF: Internal Centre for Research in Agroforestry; CRS: Catholic Relief Services; CTDT: Community Technology Development Trust

local needs and diminishing local ownership (Mozambique) or blocking capacity development in the implementing partners (Malawi).

In the normal school situation the garden is usually overseen by the PTA, school development committee or school council, while day-to-day decisions are taken by the head teacher and garden manager. Decisions about the choice of crops may or may not take into account the views of children or parents, depending, as the Swaziland review put it, on “leadership style”. The possible involvement of pupils in decisions about what to plant and why, how to organize the work and what to do with the produce is not discussed in relation to schools, although the Mozambique and Zimbabwe reports commend the JFFLS in giving this responsibility to students.

Garden managers

The impression is that in primary schools the job of garden manager falls to whoever is willing to undertake it, usually someone with personal experience of home gardening. In secondary schools it may be an agriculture graduate. The Malawi and Mozambique projects employ paid garden managers or “garden technicians”. Reports discuss the sustainability of this input and the paid workers’ relationship with their educational counterparts. Questions are also raised about what technical expertise a garden manager can access locally, whether (given a choice) a garden manager should be a specialist in agriculture, education, management or public relations, and what incentives can be offered within the system to encourage teachers to specialize in running the garden, especially where in-service training or teacher development credit systems have lapsed.

Community support and involvement

A community “garden support group” is usually recommended for resource mobilization, practical help, advice and contacts, local expertise and as a bridge to community education. Integration of the community into garden activities is reportedly weak. In Lesotho, a government study is awaited on how best to engage communities in resource mobilization for the education system. In Swaziland, family/community support is reported to be variable, with some individual generosity but a general lack of contact between schools and support organizations. None of the Swazi schools investigated has a garden support group. In the Malawi project, there has been some difficulty mobilizing community members who feel excluded or uncommitted for a number of reasons. In the Mozambique project, the evaluators feel that community members on the School Council do not contribute significantly and need training.

The reported perception of the role of the community is relatively narrow, consisting mainly of supplying assistance and resources on demand.¹⁰ The Lesotho paper notes that agriculture is “not taken as a source of innovation that children can take home to their families” (and apply) “in their own household gardens and farms”. Presumably the potential contribution of the garden to children’s health and education is also unrecognised by the community, suggesting some need for social marketing and greater involvement. The Mozambique report advocates participatory approaches in designing and implementing programmes, utilization of local knowledge to add technical capacity, capacity building for community members, and exchange of information between school and community, with children as messengers who “bring their backgrounds to the school and take back lessons to homes and community”. Transfer of agricultural knowledge and skills to the home/community forms part of the FAO Malawi project.

¹⁰ Family and community are particularly important in nutrition, agricultural and environmental education because they are the child’s learning base, provide role-models, can support or negate the school’s messages, are a secondary learning target, and are the locus of improvements in practices. They are also sources of information, expertise and advocacy for school and students and a natural audience and public for the school’s activities.

Garden produce

Garden produce responds to garden purpose. A range of vegetables are being grown, although it is not clear whether individual gardens aim at producing this range for nutritional variety or not. The Mozambique report offers a table of crops for the ideal HIV and AIDS garden. Some field crops are also mentioned (maize, sorghum and field beans in Swaziland, and pulses and cassava in the FAO projects in Malawi) and some small livestock (in the SCOPE permaculture approach chickens are essential). Fruit trees are promoted in FAO projects and Zimbabwe school orchards, but not mentioned elsewhere. Other products rarely mentioned are herbs and insecticidal trees (except in Zimbabwe), plants for mulch and compost, woodlots (for stoves and fuel), living fences, non-food products (e.g. gourds, loofahs), fodder trees, and companion plants for warding off insect predators. The concept of “garden produce” may however need to be more explicit in future investigations.¹¹

Gardening methods

FAO projects promote an integrated organic approach for school gardens on the grounds that it is more economical, better for the environment and safer for children. Permaculture projects such as SCOPE have an even more comprehensive approach. The FAO Mozambique project aims at minimizing the use of agrochemicals. In Malawi, the FAO school garden project promotes composting, water conservation with mulching and sunken beds (and raised beds for the rainy season), and IPC. These techniques are generally accepted by farmers except in the case of termites, which they find to be resistant to natural pesticides, and sunken beds, which they deem excellent but too much work. The Mozambique project reports that cabbage pests warrant the use of pesticides. Outside the FAO and NGO projects, it is not clear whether there is a firm trend in this direction in the region and how far schools could lead the way. In Zimbabwe, most schools are said to have adopted sustainable approaches with some use of inorganic fertilisers and pesticides and the secondary agriculture curriculum is being revised in favour of sustainable agriculture practices. It would be interesting to know the stance of the agricultural extension services in each country.

Inputs

Water

A recurring theme in the reports is water supply. Three (Mozambique, Swaziland and Zimbabwe) note that the main infrastructural inputs required in schools are for irrigation. In some cases, water has to be shared with the community, which puts restrictions on the school’s water use (Malawi). In other cases, schools are distant from water sources, which is important not only practically but motivationally as children have to put in “so much work for so little return” (Lesotho).¹² Care has to be taken to ensure that equipment (e.g. pumps, drip kits) for water is appropriate, suitable for children and good value for money. Technical solutions worth exploring are windmills and solar pumps. Water harvesting is not mentioned.

Garden security

Crops are under threat from theft and from damage from domestic and wild animals (Malawi). Living fences take time to establish, meaning interim security is needed (Zimbabwe).

Other points

¹¹ The division of crops between garden, orchard and field crops seems very clearly defined and may explain why questions about “the garden” are taken to deal only with vegetables. The outline questionnaire should have elicited information about each of these separately, and also about livestock. This distinction does not however explain why fruit, although frequently eaten, does not figure in discussions of the diet.

¹² Where water is carried manually, attention should be given to the methods used: carrying water in buckets or on heads can be physically damaging, according to WaterAid.

Local *soil conditions* need to be assessed to ensure against crop failure (Mozambique). Inputs should be *sourced locally* rather than bought in or centrally distributed, to counter the rising price of inputs (Zimbabwe). *Child-friendly equipment* (e.g. hoes) can be damaged if used by adults (Malawi). Schools need *access to technical information and advice* on what inputs are most durable, economic, effective and suitable for children. *The cost of seeds* and *seed-saving* are not mentioned.

Garden work

Time spent in the garden ranges from one to four hours per week per child. SCOPE projects in Zimbabwe take up one afternoon per week. In some schools children do almost all the garden work, while in others members of the community or parents help with heavy jobs. In some projects there is a paid garden manager or technician (Malawi, Mozambique). In Swaziland, each child usually has his or her own plot but some activities like weeding may be done by the whole class or the whole school. For the vacation, schools generally arrange a roster for students to come in to water and weed (Swaziland) or children and teachers take turns maintaining the garden (Zimbabwe). JFFLS organizes its programme so as to have a break during the late winter pause in the crop cycle.

The Malawi paper, which (like the Mozambique report) should be congratulated for talking to students, mentioned that children complain about being hungry when they work in the garden, as this work is done in the afternoon. The report comments that this is their choice, as students prefer to do garden work before going home. However, when lunch is not available and children do not bring lunch boxes, this situation must be quite widespread. The image of hungry children gardening to produce food which they never consume is unacceptable. The case needs to be explored.

Finance

It appears that (outside of projects) the cost of inputs is generally met out of garden income. In Swaziland, parents pay an 'agriculture fee' for inputs. In Zimbabwe, secondary schools vocational courses require an 'industrial fee' but it appears that this is low for agriculture.

Record-keeping and accounts

The importance of keeping financial records and of transparency in accounting is stressed. In Zimbabwe, it is noted that schools are not keeping full records of produce sold, distributed, cooked etc. The Swaziland project makes it a principle (which should be more widely discussed) that funds raised from individual plots belong to the children must be accounted for, but manpower is lacking for auditing.

Educational record-keeping seems more thorough than book-keeping. Projects recording growth, yield, pests etc. are part of the secondary school agriculture course in Swaziland, while in Zimbabwe pupils kept daily diaries and records of date of planting, yields etc. The question arises in what ways it might be possible to coordinate these two kinds of record-keeping to the benefit of both school and students, giving the book-keeping exercise an educational dimension while at the same time contributing to and cross-checking the school's records.

G. Capacity Building

Capacity building was not mentioned in the outline framework, but is often alluded to in the papers. It is generally conceived in terms of agricultural education for teachers, and several degree courses are mentioned. In Swaziland, in-service courses in agriculture have been cut back. Taking a wider view, the Mozambique paper points out that teachers have limited capacity to mobilize other technical assistance (e.g. forestry and environmental specialists, nutritionists, livestock and gender experts) and conclude that an extensive multi-disciplinary in-service training package is needed. It

also notes that since schools are “not in the habit of making educational use of the real-life environment” this package should include methodological training. Capacity building is also recommended by the Mozambique report for community representatives on school garden committees. Comments in several papers highlighted the need for a platform for information, advice, learning, sharing of experience and continuing professional development at all levels. An analysis is needed of how best to use limited resources and maximise the multiplier effect to achieve sustainable results for both institutions and individuals.¹³

H. Constraints

The main constraints mentioned are:

Understaffing and underfunding in the ministries of education and agriculture, resulting in

- insufficient in-service training provision
- insufficient agricultural extension services
- insufficient subject inspectors
- unfilled posts

Lack of involvement on the part of the Ministries of Health and the Environment, in particular the lack of nutritionists and nutrition advice

Perceptions and attitudes, for example

- negative perceptions of the school garden among children, school and community
- links not made between nutrition and agriculture, agriculture and the environment, school meals and nutrition, the school garden and nutrition, and learning in relation to all of these
- thought rarely given to children’s potential roles in the management of the garden (planning, decision-making, organization, monitoring and evaluation)
- the missing concept and practice of learning from life as an educational approach
- the narrow perception of the role of the community in relation to school gardens

Inputs and infrastructure

- lack of adequate irrigation infrastructure
- insufficient assessment of school soil conditions

Capacity-building and IEC

- lack of capacity in teaching staff and in the school council
- lack of data and limited sharing of information, lessons learnt and best practices
- absence of relevant training and training materials, local advocacy and publicity

I. Recommendations

The section below assembles most of the recommendations in the reports, whether offered in separate sections or *ad hoc* in the text. The most frequent recommendations are highlighted in bold.

National policy should:

- be based on studies of stakeholders’ knowledge, attitudes and practices and on data on agro-economic conditions and children’s nutrition and health status
- establish a holistic concept of the school’s role in promoting children’s health and food security and in protecting the environment
- **clarify and agree on the concept and purpose of school gardens, recognizing their primarily educational function and their role as a necessary element of basic education**

¹³ The role of materials was mentioned only incidentally, yet good materials used in powerful ways can break the mould. Guidelines need to be developed for the identification and design of new materials and the re-use of old ones.

- give guidance on the ownership of garden produce
- **draw up procedural guidelines for school garden development**, allowing scope to schools for individual planning and decision-making and including criteria for developing individual school policies.

Institutionally, national policy should:

- integrate garden-based learning with national agricultural, food security, nutrition and education programmes, including school health interventions and school meal programmes
- establish institutional coordination between agriculture, education, health and environment bodies for the purpose of promoting garden-based learning
- **explore linkages and collaboration** between public bodies, aid organizations, NGOs and other relevant organizations
- **explore the most economical and effective ways of using agricultural and health extension services** to support school gardens
- maintain or increase government posts related to school garden development.

The process of school garden development should:

- require individual schools to develop an integrated concept in school gardening of health, food security and environmental awareness
- require schools to develop a school garden policy based on acceptable criteria
- involve all beneficiaries, including children, effectively in participatory planning, decision-making and implementation
- **enhance motivation and incentives for children, teachers, schools, parents, community**
- motivate and recognize schools and pupils who perform well in food production
- explore local community expertise to supplement schools' technical capacity
- define gender strategy and indicators
- carry out evaluation of beneficiaries, including children, parents and teachers.

The school curriculum should:

- **be reviewed with a view to giving status and coherence to school garden programmes**
- be flexible enough to allow for (a) links to be established between agriculture, nutrition, environment, marketing/business management and science, and (b) the practical application of any or all of these in action-based garden-related programmes
- define the school garden component according to type of school, organize it by grade/level
- **include a nutrition education component in all school years which focuses on healthy living, is learner-centred and action-based, and can be integrally linked to the garden**
- **include a business management component which can be applied to marketing garden produce and includes accounting, budgeting and record-keeping for garden activities**
- explore the potential of the local curriculum for garden-based learning, where this provision exists.

The educational approach should:

- **fully exploit the potential of the garden for direct, hands-on learning**
- **ensure educational links between gardening, nutrition, environment, marketing and science**
- enable learners to manage the garden project, including planning, decision-making, organization, monitoring and evaluation.

School gardens should:

- adopt crops and practices in line with the school’s garden policy and objectives, in particular **aiming at a variety of vegetables, fruits and protein-rich foods for consumption by children**
- promote sustainable agriculture and environmental conservation, and encourage informed discussion and experimentation on the use of pesticides
- aim for local inputs and indigenous crops
- adapt choice of crops to local environmental conditions, practices and cultural attitudes
- **invest advisedly in water saving technology**; investigate eco-friendly solutions,
- **prioritize garden security** to avoid theft and damage from animals
- organize marketing of crops on a proper business footing
- **ensure good financial record-keeping in schools**; explore creative approaches to coordinating school accounts and educational record-keeping.

As regards involvement of the family and community, schools should:

- adopt participatory design, planning and implementation of school garden programmes
- **improve links with the community** and extend the concept of community support, e.g.
 - utilize local knowledge and recruit local experts
 - collaborate with community garden groups
 - use local gardeners as garden mentors
- explore means of transferring nutrition and garden knowledge and skills to the community, (e.g. through homework, recipes, cooking demonstrations, “copycat” gardens at home, demonstration plots in schools and households, other local advocacy and publicity).

As regards children’s eating, schools should:

- do everything possible through education or school meals to ensure that children eat before school and at midday, and that they do not study or work in the garden when hungry
- **ensure that learners follow their produce “from plot to pot” through choosing, growing, processing and consuming the foods they grow**
- **where possible, incorporate school garden produce into school meals or use it for snacks and drinks in school**
- ensure that school meals and the consumption of garden produce are not only nutritional but perceived as nutritional by children, teachers and parents.

As regards capacity and IEC, the needs are to:

- **establish an information platform for access by schools and extension services**
- **improve documentation and dissemination of garden activities, best practices, experiences**
- **reinforce the agricultural extension service to enable it to support school gardens,**
- build capacity in school councils and see them as critical links with the community
- **retrain teachers and improve their awareness of links between gardening and food security**; maintain / extend / revive in-service teacher education in agriculture
- encourage schools to develop a publicity and promotion strategy for the garden.

J. Some Recommendations for Projects

1. Standardise the concept of the school garden, its purpose and use.
2. Agree with partners on the project objectives and indicators.
3. Improve functional linkages between units, programmes and institutions, both vertically and horizontally, with clear roles and responsibilities.
4. Ensure that activities are led by objectives (e.g. learning needs) rather than by inputs or projected agricultural outputs.
5. Adopt the role of facilitator rather than implementer and build the capacity of implementing partners.
6. Devise a tool to define and assess project sustainability.
7. Use vouchers rather than direct inputs.

Annex 1:

Outline for Country Paper

Review of Garden-Based Learning (school gardens, agricultural education, nutrition education, junior farmer field and life schools)

- 1. Introduction (describe purpose of this paper).**
- 2. Food security and nutrition situation of school-aged children and youths**
 - situation of school children; health and nutritional status, HIV and AIDS
 - orphans and vulnerable children in school and out of school
- 3. Overall policy framework and institutional linkages**
 - national policies, strategies and programmes that respond to the current crisis, including national strategies/policy frameworks that expand access to education and food security/nutrition for children and youths, school feeding, etc.
 - is there a national policy on school gardens/school agriculture? Does government have a vision on how they fit into the country's overall educational goals?
 - are school garden encouraged by the local education authority, NGOs, parents, civil society?
 - are school gardens linked wit school feeding/nutrition programmes?
- 4. National school garden, agriculture and nutrition programmes and their linkages: primary and secondary education; and non-formal education**
 - school gardens
 - nutrition education
 - agricultural education
 - junior farmer field and life schools
 - open community schools
 - linkages/integration of gardening into the curriculum; linkages with school feeding
 - is there any duplication, **overlap or lack of coordination among these activities?**
- 5. Review the following aspects of school gardens/agriculture or junior farmer field and life schools in your country:**

Purpose and garden produce:

 - purpose (agricultural production, learning about food, agriculture and nutrition, environment, life skills, etc...)
 - what does the garden produce? (types of crops/animals, quantities)
 - who decides what to produce (e.g. teachers, parents, children)?
 - who decides what to do with the garden produce (sold, distributed, school meals)?
 - what gardening methods are used?
 - availability of technical support, water, seeds and others inputs?
 - any constraints?

Garden work:

- who decides about the management of the gardening work? is there a committee/support group (membership?)
- who works in the garden? (students, teachers, helpers, gardeners, parents)
- how is the work organized? (who does heavy work; work divided by age group, class or task?);
- are there any rules (gardening days, how much time?)
- what records are kept?
- how does gardening fit with the school year? how does gardening fit with the local crop cycle? who looks after the garden in the vacation?
- apart from gardening work, what other activities are included (trips to market, demonstrations)?
- technical support; water?

Funding

- where from?
- income: how used?
- are accounts kept?

Links with family, community and others

- family, caretakers, community – how involved?
- others, NGOs, charities, ministry of agriculture?

Motivation

- how do children see garden work?
- for all involved, what motivations and incentives are there?

Classwork

- how much classtime is devoted to the garden? Is there a “garden syllabus”?
- what kinds of study are children expected to do in relation to the garden? (e.g. counting, measuring, recording, drawing, doing experiments, keeping accounts, market research)
- is garden work integrated with other subjects (e.g. science, maths, language)?
- do children have “garden homework”?
- are there any good teaching materials/visual aids? (please bring materials to the workshop)
- Have children done any interesting class work that you can bring to the workshop? (e.g. garden experiments and observations, charts or maps or plans, writing about gardens or plants)

Publicity

- Is the garden work publicised in any way in the school or outside?

6. Other issues/constraints (institutional, integration)