



DRINKING WATER FOR SCHOOLS AND HEALTH CENTERS - EPECS PROJECT

BLUE SCHOOLS



HELVETAS
Swiss Intercooperation

BENIN

Swiss Water & Sanitation Consortium



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1 CONTEXT

The EPECS project (Drinking Water for Schools and Health Centers), a component of the HELVETAS Swiss Intercooperation Bénin program for Drinking Water Supply, Health and Sanitation, is instrumental in the improvement of access to drinking water and of health conditions in schools and health centers. These improvements are based on existing water installations, which are shared with local communities. Implemented in 5 communes of Northern Benin, Nikki, N'dali, Sinendé in Borgou, Pehunco and Tanguéta in Atakora, the EPECS project covers more than 100 schools where several activities are developed.

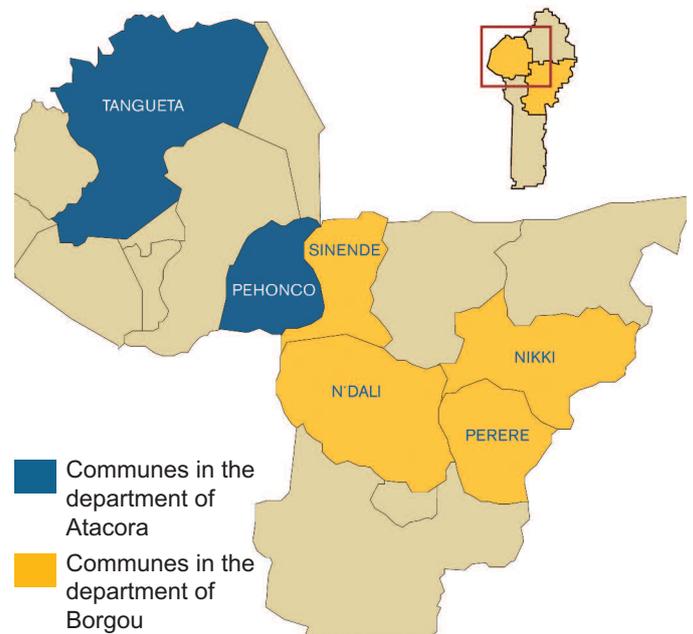
The issue of water in schools involves several dimensions (health, education, the environment) through which awareness-raising activities are organized regarding health, environmental education and social mobilization in order to achieve a behavioral change. Given that water is at the core of health activities in schools, it is important to highlight the different uses of water to enable the pupils to make the link between his or her health and his or her environment. It is to take into account these different dimensions that the “blue school” concept was introduced in the EPECS project. To implement this concept, several activities have been developed.

Since 2009, the project has enabled schools to have access to water and sanitation through appropriate installations (mini water supply networks, bored wells fitted with hand pumps, hand-washing facilities, drinking water stands with taps, urinals, etc.); concurrently teachers have also been trained on themes pertaining to health and sanitation. Further, the project has also promoted market gardening and reforestation areas.

The purpose of this short publication is to share lessons learned from this experience.



Map communes of the EPECS Project intervention



2.2. DEFINITION AND PRESENTATION

OF A « BLUE SCHOOL »

The concept of blue schools was launched with the implementation of the consortium's projects (Swiss Water & Sanitation NGOs Consortium) in reference with documents introduced by the Swiss Development Cooperation (SDC).

To operationalize the concept, EPECS conceived with the teachers, educational advisers and primary education inspectors, a common content for what we meant by a “blue school”.

Thus, a «**blue school**» is a school where:

- school children and teachers make the link between the different water uses, the environment and health. In this regard, such activities as market gardening, reforestation and tree nurseries have been implemented;
- appropriate hygiene practices are explained, understood and systematically applied. These include washing hands with water and soap, use and maintenance of latrines and urinals, maintenance of the school compound, waste management, etc.;
- basic health and sanitation infrastructures and equipment exist and are correctly used and maintained (latrines, urinals, waste pits, facilities for hand-washing with water and soap, drinking water stands);
- access to drinking water is improved by simple technologies, set up and repaired locally (mini-networks and bored wells equipped with hand pumps).

A «**blue school**» is a school with an operational and well maintained drinking water supply system, with appropriate materials and installations for sustainable health and sanitation (H&S) and with a space for linking the environment and efficient water management. Regarding this third aspect in the case of the EPECS project, the activities selected are, among others, the creation of market gardening plots and reforestation areas (tree nurseries).

The objectives are as follows:

- Improving school children's health by facilitating access to drinking water, ameliorating health conditions in the school and contributing to a balanced diet thanks to vegetables produced;
- Raising the awareness of school children and teachers to issues related to water, health and sanitation, and on how these are linked with preserving the environment;
- Promoting environmental education and encouraging market gardening and reforestation activities.

This document highlights the activities, the achievements / results and the challenges pertaining to the promotion of «**blue schools**».

3 ACTIVITIES IMPLEMENTED

Activities developed within the context of «**blue schools**» are undertaken together with teachers, school children and their parents.

They are in line with the initial process of the project which defines the commune as the contractor, having the overall responsibility for issues related to education, drinking water and sanitation.

3.1 INFORMATION AND SELECTION OF

BLUE SCHOOLS PER COMMUNE

The selection of «**blue schools**» is done in two stages. First, the commune, supported by the project, identifies the schools which need to be equipped with water points on the basis of the priorities set in the communal plan.

Regarding schools, the following criteria are used:

- Acuteness of the water problem in the locality or in the vicinity of the school;
- Number of school children (at least 200 pupils per school);
- Existence of official latrines in school for students and teachers;
- Equitable distribution of supported schools per district.

On this basis, the communal council proposes a list of schools. The technical validation of the proposed schools is undertaken after a field visit organized by the project team to assess the technological options pertaining to each site.

Once that stage is over, school district officials and the concerned schools are contacted, so as to inform them about the project offer and objectives.

For the school to be selected for the «blue school» approach, it must fulfill the following criteria:

- Availability of open areas close to the school to accommodate the school garden and the reforestation area;
- Market gardening is already ongoing in the school;
- A school canteen is in operation for the consumption of the vegetables produced;
- Readiness of the school children's parents association to provide support and to ensure the sustainability of the initiative.

At the beginning, the project had planned interventions in a dozen schools, but 100 blue schools are currently operational. Some don't have a school canteen. However, since they already had initiated market gardening with their own resources, the «blue school» initiative has reinforced that activity.

3.2 CONSTRUCTION AND MANAGEMENT

OF MINI NETWORKS AND BORED WELLS

FITTED WITH A HAND PUMP

To meet one of the priority objectives of the «blue school», the project enables the school to have access to water for drinking as well as for market gardening. This is achieved with mini water supply networks and bored wells equipped with a hand pump that are shared with neighboring communities. Within the context of the EPECS project, a mini network is a small water distribution system (storage tank and distribution pipes) whose technical input is the modification of a modern well or a bored well, connected with hand-washing devices equipped with 4 to 6 drawing taps.

Pumping is done manually (or by means of a solar system). The works are undertaken under the responsibility of the commune. All the contracting processes, the physical implementation and supervision/management are ensured by the communes.

TABLE 1

«Blue school» distribution by commune

Communes	Number schools	Number of schools with canteen	Number of schools trained and equipped
Borgou (Sinendé)	28	12	28
N'Dali	20	8	20
Nikki	22	13	22
Pehunco	16	13	16
Atacora (Tanguiéta)	10	8	10
Pèrèrè	4	0	4
TOTAL	100	54	100

**PHOTO 1**

Bored well equipped with a human energy driven pump

**PHOTO 2**

Hand-washing facility equipped with taps and constructed in the schools

The commune delegates the management of the water point to a private operator commonly called «delegatee» on the basis of a contract which specifies the responsibilities of each party. The delegatee organizes the sale of water, ensures the repair of small breakdowns, and pays a rental fee to the commune. According to this system, the school, as user of the water point, must contribute – just like the community – not only to the water cost, but also to the regular maintenance and small repairs of the mini network which supplies the hand-washing facilities. However, since the facilities are shared between schools and communities, their management and maintenance are sometimes difficult. Conflicts arise over the use of water points despite the presence of the delegatee.

The capacity of schools to meet the costs of water and of the networks' repairs is also quite limited, since school budgets don't always include these funds. Substantial efforts are required from the outset of a project to clarify the school's roles and responsibilities in project implementation.

3.3 PROMOTION OF HYGIENE AND

SANITATION IN THE SCHOOL

SETTING

The capacity of teaching staff on various hygiene issues requires to be built up so that they can provide appropriate training to school children. Communication tools and hygiene related equipment are provided, such as posters, hand-washing facilities, tap fitted water stands and urinals. These equipments permit a direct link between theory and practice.

3.3.1 TRAINING TEACHERS ON HYGIENE IN THE SCHOOL SETTING

Initiated by the project steering team, these sessions include the teachers in charge of hygiene and the principal from each school, as well as the education advisers of each school district. They are facilitated in close collaboration between the local hygiene and sanitation services and resource people specialist on the subject. The technical support materials for the trainings consist of manuals and H&S guides designed and provided by the National Department for Public Hygiene in Schools.

The priority themes which are addressed are as follows:

- Basic hygiene and sanitation in the school setting;
- Hand-washing with soap;
- Simple techniques to ensure that water is drinkable;
- Sanitation waste management in the school setting;
- School latrine management, use and maintenance;
- Strategies and techniques for the promotion of hygiene and sanitation related activities in the school setting and their planning design.

These training sessions enable teachers to realize the shortcomings concerning on-going practices in their respective schools. At the end of the trainings, a road map is elaborated which constitutes a planning as well as a monitoring tool for the H&S activities.



PHOTOS 3 & 4

Teachers and school children being introduced to the Tippy Tap

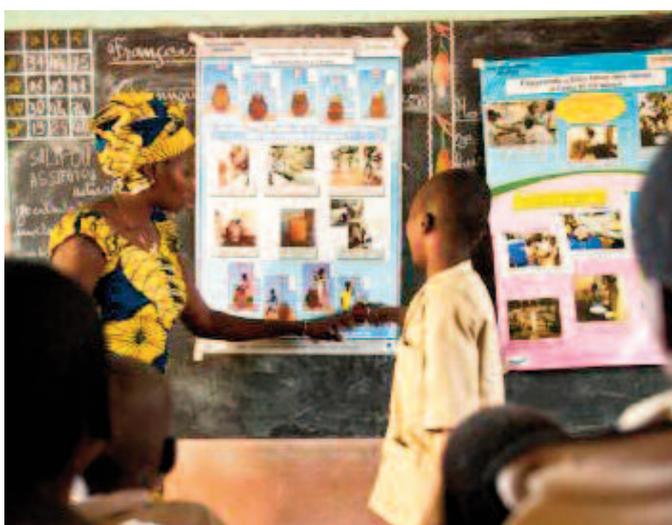
3.3.2 SESSIONS FOR COMMUNICATION AND IMPLEMENTATION OF H&S MEASURES IN SCHOOLS

Traditionally in schools, a teacher is in charge of hygiene and sanitation issues. The teacher sets up with school children a health committee whose role is to ensure maintenance of the school setting. The project has relied on this existing organizational set up. It is therefore the teacher in charge of hygiene who organizes and assists the other teachers with the support of the principal.

Throughout the year, teachers animate a series of class lessons on issues included in the road map.

These are often reinforced by awareness-raising sessions organized periodically with the support of assistants in charge of hygiene issues in the commune.

During these sessions, the posters are used as awareness-raising tools.



PHOTOS 5 & 6 Awareness-raising sessions on hygiene in the school

3.3.3 ORGANIZATION OF COMPETITIONS AND H&S SELF-EVALUATIONS

Competitions such as “The best songs on hand-washing”, “Clean schools” and “The best garden” are periodically organized to stimulate a constructive competition concerning the implementation of the H&S practices in schools. Nearly all schools get genuinely involved with the hope of winning the prizes on offer.

At the end of each school year, self-evaluation workshops are organized together with teachers on the implementation of H&S measures, for the

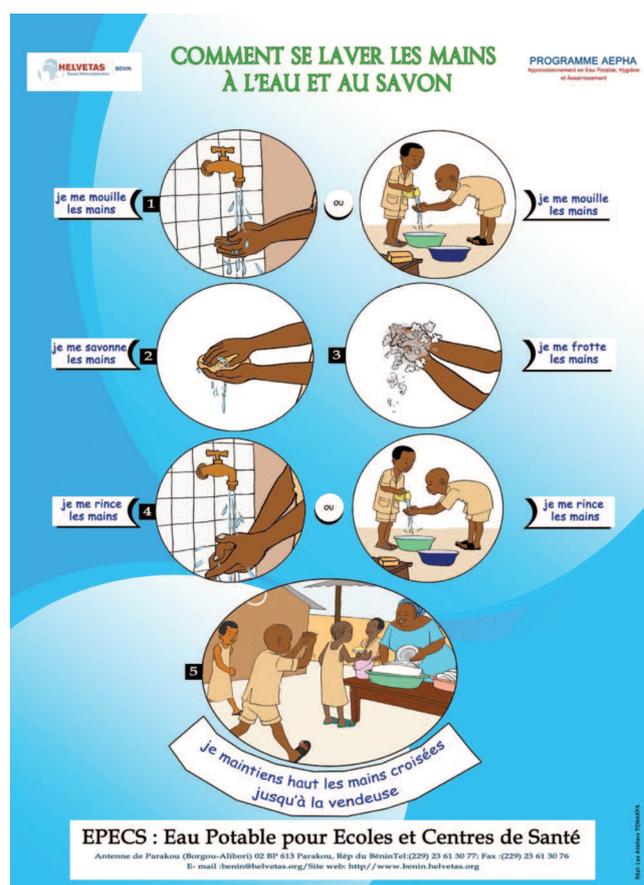
schools themselves to express themselves on the factors which have contributed to successes those to failures. The self-evaluations provide the basis for the following school year’s planning.

3.4 DESIGN OF POSTERS

FOR COMMUNICATION

Different kinds of posters have been designed as support material for communication sessions in schools. Several posters have been designed in the framework of for the implementation of the «blue school» approach. They cover the following sub themes:

- key moments for hand-washing with water and soap;
- techniques for hand-washing with water and soap;
- use of latrines and urinals when relieving oneself;
- maintenance and use of water stands for water consumption;
- maintenance of the school grounds;
- different uses of water in the school grounds setting;
- drinking water consumption.



3.5 PROMOTION OF GARDENING AND

REFORESTATION IN THE SCHOOL

3.5.1 TRAINING OF THE CONCERNED SCHOOLS IN GARDENING AND COMPOSTING TECHNIQUES

Three training sessions are conducted jointly with the teachers, school children and their parents. The following themes are included:

- techniques for setting up a market gardening production area (setting the boundary, construction of plant-beds, sowing, planting, hand watering, etc.)
- compost making for market gardening;
- garden maintenance and pest control techniques;
- tools for managing the profits derived from the school garden.

School gardens also generate income for the school, since production surpluses are sold in the community. Management tools are introduced to facilitate the monitoring of generated funds: income and expenditure registers. The income is primarily used to purchase new seed and equipment, and sometimes to repair the drinking water mini networks.

3.5.2 SUPPORT FOR SMALL GARDENING EQUIPMENT

Equipping schools has consisted in supplying them with small gardening equipment and improved seeds. The seeds have been selected according to the needs of the market and school canteens. The main varieties are: tomato, onion, pepper, French bean, amaranth, cabbage, okra, carrot, etc. The small equipment includes: wheelbarrows, cutlasses, watering cans, spades, ordinary shovels, buckets, gloves, scarves, and a small set of gardening tools (hoe, rake, small hoe, etc).

3.5.3 THE SETTING UP OF SCHOOL VEGETABLE PLOTS BY SCHOOLS

Each trained school has a market gardening plot of about 1/8 hectare with several crops cultivated.

Out of 100 schools trained and equipped, 95 schools are seriously involved in gardening.

The plots are not only used for practical in usual school subjects (mathematics, science and technology) but are also a space for learning in agronomy. The products from the plots are partly used in the canteen to improve the children's diet. The surplus is sold in the community. As for those schools without a canteen, products are sold and periodically shared among children. They are also used during annual school festivities.



PHOTOS 7 & 8

Setting up and looking after school vegetable plots

3.5.4 SETTING UP MARKET GARDENING COMMITTEES TO MONITOR SCHOOL GARDENING ACTIVITIES

In order to ensure the sustainability of the

undertaking, market gardening committees have been set up in each school to monitor activities. The composition of the gardening committees is as follows:

TABLE 2

Membres	Role	Tasks
Principal	President	<ul style="list-style-type: none"> • Supervises and coordinates gardening activities • Delegates his prerogatives in case of absence • Ensures the monitoring of income from the sales
President Association of Parents of pupils	Vice-President	<ul style="list-style-type: none"> • Ensures the interim when the Principal is absent • Assists the Principal in the day to day garden related activities • Raises the awareness of the population on the justification for the garden • Is responsible for the security of the market gardening site
School master in charge of production	Secretary	<ul style="list-style-type: none"> • Organizes and supervises school children concerning gardening activities • Keeps the sales book of garden products • Writes the minutes of meetings • Supervises the harvest of garden products
Man / Woman leader	Treasurer	<ul style="list-style-type: none"> • Assists the Principal • Organizes the sale of garden products • Reports to the Principal on the sales in the secretary's presence
School child	Organizer	<ul style="list-style-type: none"> • Organizes and mobilizes his/her peers for gardening activities

3.5.5 SUPPORT FOR PLANT PRODUCTION AND ESTABLISHMENT OF REFORESTATION AREAS IN SCHOOLS

Beyond setting up school gardens, schools have also been supported to undertake reforestation. This activity is in the framework of environmental education aiming at the production of seedlings through the establishment of tree nurseries.

Two species have been introduced: *Gmelina arborea* and *Moringa oleifera*. A total of 9,500 seedlings have been produced and about 6,000 planted in school grounds through a reforestation campaign which included elected local representatives, school children and their parents, teachers, and opinion leaders. Planting is still in progress in some schools.

**PHOTOS 9 & 10**

Seedling production, planting and construction of individual tree protection cages against roaming animals

3.5.6 TECHNICAL SUPPORT TO AND MONITORING OF SCHOOLS BY A PRIVATE SERVICE PROVIDER

A private service provider assists each school in the upkeep of crops until their harvest. This advisory support has permitted solving the day to day technical production difficulties and to train school children in operations such as watering, weeding and hoeing as well as pest control with indigenous products such as neem leaves, ashes, etc. Further, each school has been able to produce its own seedlings for use in reforesting school grounds.

4 SOME QUANTITATIVE RESULTS

- 100 schools are equipped with water infrastructure;
- 20,000 school children have improved access to drinking water;
- 43 new bored wells are constructed, 4 of which are equipped with a solar pumping system;
- 53 urinal systems, 330 water stands and 100 mobile wash-basins established in schools;
- 20,000 school children have improved their hygiene and sanitation conditions;
- 100 school vegetable gardens covering about 10 hectares are established;
- 9,500 *Gmelina arborea* and *Moringa oleifera* seedlings are produced; 6,000 are planted and protected against roaming animals;
- 420 school children trained techniques of tree seedling production in a nursery;

- 336 teachers and school children's parents are trained in market gardening and reforestation;
- 7 posters designed on the other uses of water, on reforestation and the upkeep of plants and gardening;
- Gardens generate income for schools. For example, some schools have recorded an income of up to FCFA 60,000/school during the current 2012-2013 school year.

5 LESSONS LEARNED AND CHALLENGES

As regards access to water, hygiene and sanitation, the following lessons have been learned:

- Water installations in schools greatly facilitate the promotion of hygiene, especially hand-washing at key times, the consumption of drinking water and the maintenance of H&S facilities;
- The existence of the hygiene promotion component in school curricula facilitates the implementation and application of hygiene measures within the school;
- Inter-school game competitions are an appropriate means to motivate teachers and school children;
- The self-evaluation workshops which are organized are very useful to promote greater responsibility among teachers for the implementation of the promoted H&S activities;

TABLE 3

Stakeholders and their roles in the promotion of «blue schools»

Stakeholders	Technical responsibilities	Financial responsibilities
Commune	<ul style="list-style-type: none"> • Selection of localities/schools taking communal priorities into account • Elaboration of public tender documents and selection of service providing enterprises • Monitoring of the construction works • Organization of the system of maintenance, management and repair of the facilities 	<ul style="list-style-type: none"> • Co funding of facilities • Payment of counterpart funds • Payment of craftsmen's repair service charges
Teaching staff	<ul style="list-style-type: none"> • Implementation of the «blue schools» concept • Organization and implementation of H&S activities • Establishment and maintenance of school gardens • Technical and financial management of the gardens • Adherence to the H&S measures introduced into schools for behavioral change • Behavioral model for their peers • Replication of acquired good practices at household level • Training in gardening and reforestation 	<ul style="list-style-type: none"> • Contribution to the upkeep and maintenance of facilities and equipment • Hygiene materials (soap, plastic buckets, etc.) • Contribution to water costs • Equipment and seed for gardening
School district	<ul style="list-style-type: none"> • Schools' proposals to the communal council taking into account the educational domains • Educational monitoring of schools • Facilitator between schools and the project 	
Ministry of Maternal and Primary Education (MEMP)	<ul style="list-style-type: none"> • Monitoring and coordination of school based activities • Support for the strengthening of positive outcomes • Dissemination of the experience among schools in Benin 	<ul style="list-style-type: none"> • Disbursement of school subsidies to meet the needs of the school
Community	<ul style="list-style-type: none"> • Assists teachers in the implementation of H&S measures • Support in gardening activities • Support in the management of the school 	<ul style="list-style-type: none"> • School children's equipment in individual mugs

On the basis of the acquired experience, the challenges concerning which the project team assists schools to find the most appropriate solutions include:

- In some locations, the mini networks or bored wells shared between schools and communities generate conflicts related to their use, thereby imperiling schools' access to water;
- Frequent teacher transfers do not facilitate the durability of the results and experiences necessary for the continuation of H&S activities. It is therefore necessary, every year, to organize new or follow up trainings in many schools.
- The limited financial capacities of schools to meet the costs of repairs in case of breakdown of the constructed installations;
- The consistency between good practices taught in school and their application in the home. For example, school children internalize and recite H&S practices by heart, but such practices are not always respected at household level due to the lack of adequate sanitation infrastructure.

As for the market gardening and reforestation component, one can remark that:

- Each school has a school garden in which all market gardening activities are conducted. This enables school children to practice the techniques necessary for certain crops according to their development calendar and to replicate these at the household level;
- The school garden constitutes a hands-on learning setting for school children and areas for practicals pertaining to various subjects such as Earth and Life sciences, environmental sciences and mathematics;
- The school garden has had multiplication effect in some areas. This can be observed on the one hand by the fact that school gardens have been initiated in several schools where the project barely intervenes and, on the other hand, by the number of kitchen gardens established at household level by some school children and their parents;
- The acknowledged achievements noted in the school gardening are mostly the result of the motivation of school principals to make school gardening a priority;
- The availability of advisory support by a private and experienced service provider has helped the development of activities in some schools that were lagging behind;

- School gardens generate income which can be put to use for the maintenance and repair of mini water supply networks in case of break down.
- School children are happy and proud to see that the produce from their own garden contribute to the preparation of the meals served to them in school canteens;

At this level, the existing challenges are related to:

- Water needs for market gardening are not always met due to the fact that the installations are shared between the community and the school. Indeed, watering needs are huge during the dry season, requiring the use of large quantities of water. This is also the period when large numbers of people come to the water points. This simultaneous pressure leads to conflicts in the use of the shared water source between the community and the school;
- The adaptation of the school schedule to gardening activities. This implies harmonization of the time allotted to gardening with the MEMP's requirements;
- Unsold harvested produce, especially during the rainy season when school children are on vacation;
- The active participation of parents is not always guaranteed in schools which have gardens, with a negative impact on garden maintenance during vacation time;
- Transparency in the management of income from some school gardens since records are not always kept;
- Through the «blue school» experience, school gardening has become a learning activity providing school children and teachers with various benefits. It would be interesting that the activity be integrated in the school curricula by the Ministry of Maternal and Primary Education, just as the hygiene and sanitation component has.

In the face of these challenges, activities have been implemented with a view of strengthening achievements, and also to involve authorities at the national level. Contacts were made with the Ministry of Maternal and Primary Education (MEMP) to inform official levels on the initiatives developed by HELVETAS, namely the EPECS project in schools.

This resulted in the organization of an exchange and sharing workshop between the MEMP's technical directors and the AEPHA team. A field visit followed the workshop to permit an on-the-ground appreciation of the various achievements in the schools.

Several recommendations and proposals were made by both parties for the continuation of this collaboration.

6 CONCLUSION

The setting up of «blue schools» has generally created a real enthusiasm among school children as well as the concerned teaching staff and communities. The school, being an important vector for development, is a particularly effective entry point to initiate awareness-raising and changes in practices.

But one realizes that theoretical knowledge is not always put into practice. For example, students know by heart the H&S practices learned at school, but their application at the level of their own household is not always guaranteed. This is partly explained by the difference between the school context with H&S facilities adapted to the school child's needs and that of his or her family where such facilities are almost inexistent. Many households don't have a latrine or a hand-washing stand. In such conditions, the role of the school child as a vector for practice change at household level is limited. The approach must therefore be more integrated to contribute to reducing these differences between the school and the household. Since the installed water facilities are shared between schools and communities, their management and maintenance are sometimes difficult.

Conflicts arise over the use of water outlets and this aspect must be considered. Ideally, the school should have its own water installation. Since this is not possible in most cases, market gardening activities must be adapted to the available resource.

In addition, the schools' capacities to meet the water supply network repair costs are fairly limited because school budgets rarely include the required funds. There again, these difficulties must be addressed from the start to give schools the

means to organize the maintenance of the water supply.

It is worth noting that the project's institutional set up had not foreseen an involvement of the MEMP, the institution responsible for coordinating all interventions in schools. This aspect must be sufficiently integrated at the outset, not only to provide information on the intervention, but also to promote the scaling up of experiences and results.

Further, the responsibilities of communes as project owners to ensure the maintenance and management of the constructed infrastructure are not always fulfilled. For the sustainability of the facilities, it would be pertinent to design with the communes a management system adapted for schools.

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