African Water Facility
Facilité africaine de l'eau
Mobilising Resources for Water in Africa

African Water Facility

African Water Facility Supports Primary School Education through Cost Effective and Improved Water and Sanitation Facilities

November 2010

African Water Facility | Facilité africaine de l'eau
African Development Bank | Banque africaine de développement
BP 323 – 1002 Tunis Belvédère - Tunisie
Tel : + 216 71 102 055 Fax: + 216 71 103 744
E-mail: africanwaterfacility@afdb.org
www.africanwaterfacility.org

African Water Facility Supports Primary School Education through Cost Effective and Improved Water and Sanitation Facilities

CASE STUDY REPORT

ON

THE KISUMU PRIMARY SCHOOLS WATER AND SANITATION PROJECT

November 2010

CASE STUDY REPORT

ON

THE KISUMU PRIMARY SCHOOLS WATER AND SANITATION PROJECT

November 2010

Table of Contents

List of Tables

List of Figures

List of Boxes

Abbreviations

AWF	-	The African Water Facility
AMCOW	-	African Ministers' Council on Water
AWV	-	African Water Vision
STIPA	-	Support for Tropical Initiatives in Poverty Alleviation
WSS	-	Water Supply and Sanitation
ECOSAN	-	Ecological Sanitation
RWH	-	Rainwater Harvesting
NETWAS	-	Network for Water and Sanitation
KEWASNET	-	Kenya Association of NGOs in Water and Sanitation
AfDB	-	African Development Bank
GoK	-	Government of Kenya
NGO	-	Non-Governmental Organisation
KP	-	Knowledge Products
ISSB	-	Interlocking Stabilised Soil Blocks
UD	-	Urine Diversion
KWAHO	-	Kenya Water and Health Organisation
SANA	-	Sustainable Aid in Africa
AN	-	Action Now
RWH	-	Rainwater Harvesting
CLTS	-	Community-Led Total Sanitation
SearNet	-	Southern and Eastern Africa Rainwater Network
UNEP	-	United Nations Environment Programme
LVSWB	-	Lake Victoria South Water and Sanitation Board
DEO	-	District Education Officer
PCR	-	Project Completion Report
KEFO	-	AfDB Kenya Office
DWO	-	District Water Officer
WESCO-ORD	-	District Water and Sanitation Co-ordination Committee
PHASE	-	Personal Hygiene and Sanitation Education
FGD	-	Focus Group Discussions
SMC	-	School Management Committee
WSCs	-	Water and Sanitation Committee
SHC	-	School Health Club
GoK	-	Government of Kenya
KCPE	-	Kenya Certificate of Primary Education
FPE	-	Free Primary Education
DEO	-	District Education Office (r)
KAPs	-	Knowledge Attitudes and Practices
VIPs	-	Ventilated Internal Pit
KIHBS	-	Kenya Integrated Household Baseline Survey

SWASH	-	Sustaining and Scaling School Water, Sanitation and Hygiene
WASH	-	Water Sanitation and Hygiene

Summary

1. The African Water Facility (AWF) is an initiative led by the African Ministers' Council on Water (AMCOW), to support the achievement of the objectives of the African Water Vision (AWV) and the more immediate Millennium Development Goals on water and sanitation (WSS). AWF supported a partnership of Horizont3000 and Support for Tropical Initiatives in Poverty Alleviation (STIPA) to undertake the Kisumu Primary Schools Water and Sanitation Project in line with its focus. The project's objectives were consistent with the commitment of the Government of Kenya (GoK) to achieve the MDGs of universal primary education as well as access to improved water supply and improved sanitation.

Kenya's Nyanza Province, of which Kisumu District is a part, has some of the worst socio-economic indicators in the country, notably: the highest incidence of poverty (60%), highest prevalence of HIV/AIDS (14%), highest infant and child mortality rates. It is also among the lowest in coverage for water (27%) and sanitation (10%). On a positive note, the province has a high primary school attendance (86.3%) which is above the national average (78.8%). However WSS facilities in schools are inadequate and unsuitable local conditions and insufficient budgeting means that school children's health is often at risk. The **€235,806** Kisumu Project was designed to contribute to addressing these concerns and to draw lessons for subsequent interventions.

The 3 key objectives of the project were: (i) improved knowledge about hygiene and environmental sanitation in the institutions and in households; ((ii) improved access to water supply and pilot ECOSAN in 6 selected schools in Kisumu District / Kenya; and (iii) improved capacity to manage, maintain and scale up the project model in the district and beyond. Natural conditions in the Kisumu area – reasonable rainfall, frequent flooding, unstable soils – justified the choice of ECOSAN and Rainwater Harvesting (RWH) to deliver cost-effective and improved water and sanitation facilities to the selected primary schools. There were 3,200 pupils and 75 teachers in 6 primary schools who were direct beneficiaries of the Kisumu Project, whilst in total over 30,000 people benefited in the 6 communities were impacted through sanitation and hygiene promotion.

The impact of the project is already showing in: improved hygiene practices (70% of children wash hands after using the toilet); improved water supply (reliable access almost all year round); improved sanitation (90% of children use ECOSAN toilet); sharply-reduced absenteeism; increased enrolment (13%), especially among girls (17%); and community adoption of hygiene and improved sanitation practices.

Several observations and lessons emerge from situating the Kisumu Project in the wider context of WASH delivery in Kenya and from the implementation of the project itself. These include the following:

1. Poor and rural communities can be served through cost-effective and sustainable interventions that are tailored to their needs. The impact is immediately visible.
2. Several projects have been implemented in Kenya with similar objectives as Kisumu's and following similar technology choices. Improved sector learning will reduce the need to 'pilot' so projects can go to scale, reduce high software costs and enjoy lower unit costs.
3. Kenya's WASH sector has many actors in policy, facilitation, regulation, service delivery and advocacy. Donors and NGOs are very active and have demonstrated a good appetite for financing the sector, driven in large part by the sector reforms. To address challenges for sector co-ordination, there is a move to SWAp to implement the sector programme. This means sufficient visibility should be created for projects and activities

that are expected to inform the sector policy and the national programme, as the Kisumu Project was conceived to do;

4. Implementation of the Kisumu Project set out to demonstrate cost-effective and viable approaches of WASH delivery to schools and associated communities through ECOSAN toilets and rainwater harvesting. The two concepts, while receiving mention in national policy and strategy documents, are yet to be fully mainstreamed into major projects, in spite of their obvious advantages. This calls for the need for more effective communication and advocacy.
5. The 2 NGOs, Horizont3000 and STIPA, delivered the project professionally and in a timely manner. This presents them as effective partners for the implementation of AWF's agenda, particularly in interventions in rural and poor communities. However they have limitations in size and ability to undertake large scale interventions and to influence policy at the highest level.
6. Local Government officials in the Ministries of Education, Health, Water and Irrigation and the Lake Victoria South Water Board are very pleased with the results that the project has demonstrated, and are willing to promote its uptake. So are the children and communities.
7. The true test of success of the project lies in the extent to which the project's findings can feed into district and national level planning, inform policy and engender increased adoption of the ECOSAN and RWH technologies. AfDB and its Field Offices can play a significant role in bringing the results of interventions to the attention at the highest levels of government. This can be done in 3 ways: (i) by bringing the lessons learned to the attention of GoK and its partners through the regular GoK/Partners meetings; and (ii) incorporating technologies and lessons into projects funded by the Bank itself.
8. Effective engagement of advocacy, capacity-building and learning organisations, such as NETWAS and the Kenya Association of NGOs in Water and Sanitation (KEWASNET), will be a useful path to pursue during project implementation to be able to place findings and lessons within the sector's agenda.

A number of recommendations have been made from the Case Study. These include:

1. AWF should scale up its engagement with NGOs. NGOs should be encouraged to partner with others so that more reasonably-sized projects – with enhanced visibility – can be supported;
2. Supported NGOs should demonstrate a link with a Learning Alliance or a national network that will help bring its interventions to public knowledge and increase the opportunities of informing the national WASH agenda;
3. Pilot/demonstration projects should not only allude to their conformity with national policies and strategies, but should demonstrate a fair chance of the findings being adopted. This implies that the appraisal of any new project should include a detailed mapping of existing technologies, players, previous and ongoing pilots and how the new project will add to existing knowledge.
4. Greater emphasis should be put on direct investments to impact poor people as the 2015 MDGs timeline approaches. There are enough technologies and delivery approaches to bring meaning into the lives of rural and poor communities.

5. Interventions should be defined to impact entire communities rather than isolate schools from communities. This will prevent conflicts that in project areas. Leveraging funds with governments and other donors so as to get greater mileage for such interventions, whilst (more importantly) reducing the unit cost of delivery through scale economies, will be a good course of action.
6. ECOSAN and RWH are concepts which have greater environmental value to society than to individuals or households who are to benefit from it; therefore GoK and partners should spend more resources in promoting the concepts.

CHAPTER 1 : INTRODUCTION

This introductory section provides a broad sense of the nature of the problem and the justification for the intervention. It looks at some of the key issues that informed the selection of the project area and the impact it was required to deliver to the intended beneficiaries. The section situates the intervention in the context of the African Water Facility's focus areas to examine consistency and discusses the purpose of the Case Study in relation to the Facility's overall objectives.

1.1 Background

1.1.1 The African Water Facility

The African Water Facility (AWF) was established as a response to the regional and international consensus to address the need for increased investments for the development and management of water resources in Africa. The AWF is an initiative led by the African Ministers' Council on Water (AMCOW), to support the achievement of the objectives of the African Water Vision (AWV) and the Millennium Development Goals on water and sanitation. At the request of AMCOW, the Facility is hosted by the African Development Bank (AfDB). The AWF became effective in 2005 and started its core operational activities in January 2006 after receiving and processing requests for funding based on a five year operational programme spanning to 2009.

In accordance with the Facility's Operational Strategy (October 2007), the resources of the Facility are applied primarily to projects and programmes focused on the following four aspects/pillars:

- *Strengthening water governance*;
- *Investments to meet water needs;*
- *Strengthening the financial base;*
- *Improving water knowledge.*

As of mid 2010 the AWF Portfolio included 61 approved projects of which 8 had been completed, 30 were under implementation, and the remaining 23 were progressing through project start–up activities. The Facility's 2010 Work Programme included the appraisal of another 20 projects. The AWF is desirous of generating knowledge products (KPs) on the projects it has funded as part of its contribution to the water and sanitation sector and to lend credence to its work. This Case Study on the Water Supply and Sanitation for Primary Schools in the Kisumu District Project (Kisumu Project) is one of the knowledge products commissioned by the Facility in July 2010.

1.2 The Kisumu Primary Schools Water and Sanitation Project

The Kisumu Project included: construction of ecological sanitation Urine Diversion (UD) toilets; water tanks using ferro-cement and Interlocking Stabilised Soil Blocks (ISSB) technology; and hygiene and environmental sanitation education. Rain water harvesting systems adopted for this project used school roofs as catchments. It also involved the construction of composting sheds for the faecal waste. In terms of capacity building, in each of the six targeted schools, 30 pupils from the school health club (SHC) were trained and were to further train the rest of the

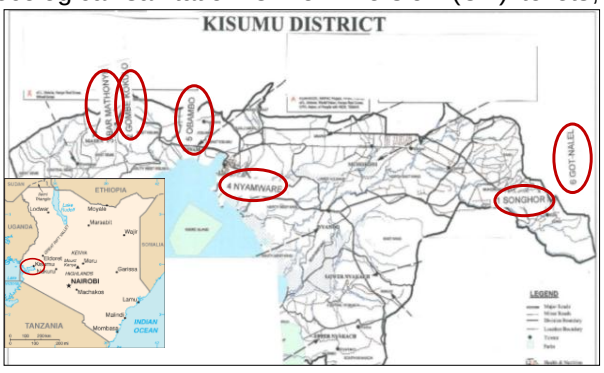


Figure 1-1: Kisumu Project Areas

school on good hygiene practices. Furthermore, 3 teachers in every school and an average of thirty 30 community members in each of the six communities were also trained on hygiene and environmental sanitation.[1] The project sites were spread across Nyanza Province (and one in Rift Valley Province to improve their demonstration effect.

The total cost of the project was **€235,806,** shared between AWF (€228,606) and the communities (€7,200).

1.3 Context of the Project

1.3.1 Achieving national goals

Achieving universal primary education is one of the Millennium Development Goals (MDGs), a goal which is shared by the Government of Kenya. To achieve this goal, the GoK has implemented a policy of free primary education, and this has resulted in high school attendances. The policy led to a rise in school population from 5.9 in 2003 to 7.2 million in 2006 [NETWAS], without corresponding expansion of sanitation facilities to cater for the needs of school children. And yet attaining all the MDGs - including those relating to poverty reduction, school enrolment, girl-child education - is inextricably linked with the attainment of the water and sanitation goals.

It is in line with the broad goals of reducing poverty, achieving universal education, reducing the incidence of diseases and improving on the health of school children that the Kisumu Project was conceived and delivered. The project was designed by Horizont3000, funded by AWF and implemented by Support for Tropical Initiatives in Poverty Alleviation (STIPA), a local NGO.

1.3.2 Project justification and drivers

Nyanza Province, in the western part of Kenya, consists of 12 districts, including Kisumu District[2]. Its headquarters is Kisumu City, which is also the main commercial centre in western Kenya. The main economic activities are subsistence agriculture and fishery on Lake Victoria. The population is mainly youthful with two thirds (67%) aged below 25 years, putting considerable pressure on the available educational, health and other social facilities. There is a high incidence of poverty in Nyanza Province, with 60% of the population considered poor (living under $1 a day), higher than the national average of 45.9% [KIHBS, 2005/2006].

In relation to health, Nyanza Province has consistently trailed the national averages for child and infant mortality and has topped the

> "Nyanza province had the highest levels of both under-five and infant mortality rates in 2008. Almost one in seven children in Nyanza dies before attaining his or her fifth birthday (149 deaths per 1,000), compared with one in 20 children in Central province (51 deaths per 1,000), which has the lowest rate. Thus, the risk of dying before age five is almost three times higher in Nyanza than in Central province. Infant mortality is also highest in Nyanza province (95 deaths per 1,000) and lowest in Eastern province (39 deaths per 1,000)".
>
> KDHS 2008/9

[1] More details on activities can be found in Annex

[2] Throughout the report the Kisumu District is used to refer to the Greater Kisumu area which currently comprises a number of districts. References to Kisumu Project also include areas outside the Nyanza Province, as in the Rift Valley Province where one of the school interventions was located. Greater Kisumu covers …% of Nyanza's population and in the absence of district level data, indicators for Nyanza are used as proxy

list in HIV/AIDS prevalence. In spite of the relative poverty, low health indicators and high prevalence of HIV/AIDS, school attendance in the Nyanza Province has been impressive and is above the national average for both primary and secondary schools. In 2008 86.3% of children attended primary school, compared to the national average of 78.8%. In terms of gender parity, many more girls attended schools than their male counterparts [KDHS, 2008].

For water and sanitation, Kisumu District is one of the most deprived areas of the country with coverages as low as 27% and 10% respectively [KDHS/Impact]. At the school level, whilst a number of schools had rainwater facilities, in reality other means of improving health outcomes were notably absent. Schools hardly practised handwashing with soap, none had treated water, and none had a clear budgetary allocation for recurrent repair, operation and maintenance of WASH facilities, [SWASH]. School children fetched water from ponds or streams or carried this from home to school, particularly during the dry season when the small water tanks in their schools had drained out. In some of the communities, women and children had to walk between 1-5 kilometres to fetch water.

Box 1-1: Project justification and drivers

Justification

- High incidence of poverty, prevalence of HIV/AIDS and diseases
- High school attendance above national average
- Low water and sanitation coverage
- Inadequate WASH facilities
- Unsuitable local conditions to sustain??? delivery in schools
- Insufficient budgeting for school WASH

Drivers

- Capable NGOs ready to implement intervention
- Willingness of AWF to support intervention as this was in line with their areas of focus
- Consistency with national policy

Outcomes

- improved knowledge about hygiene and environmental sanitation;
- improved access to water supply and pilot ecological sanitation in 6 schools
- increased capacity of the SMCs, Local Government Agencies and others

In many of the schools the swampy lands and frequent floods made it difficult to dig pit latrines or to have a sustained use of existing facilities as they filled up quickly. An allocation of KSh185 per year per pupil was deemed totally inadequate to cover all the activities of the schools, and in these circumstances water and sanitation delivery suffered.

The Kisumu Project would contribute to poverty reduction in low income communities within Greater Kisumu through the provision of water and sanitation facilities, based on cost-effective and sustainable technologies. Whilst it was confined to only 6 primary schools and adjoining communities, the project was expected to serve as a pilot whose lessons could be replicated in other communities and country-wide.

To undertake the intervention 2 NGOs came together to apply their community development and empowerment skills (STIPA) and the substantial knowledge of water and sanitation technological options, project development and implementation acquired several years (Horizont3000).

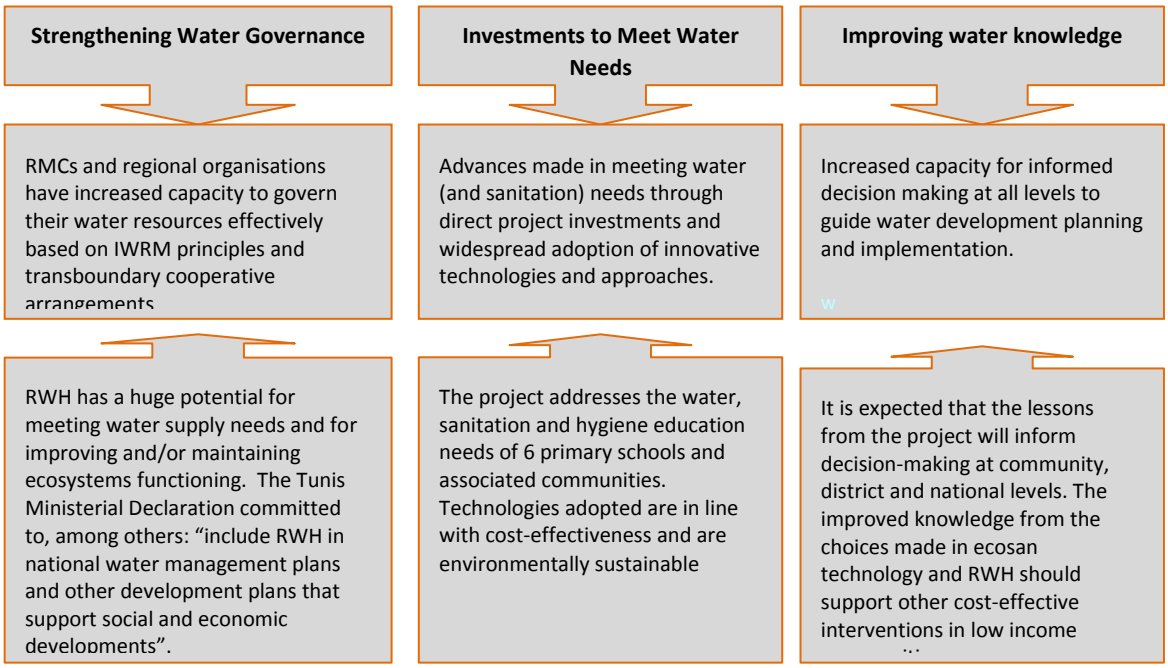
1.4 Project within the Context of AWF Operational Strategy and Focus

AWF has adopted the Africa Shared Water Vision (AWV): “An Africa where there is an equitable and sustainable use and management of water resources for poverty alleviation, socio-economic development, regional cooperation, and the environment.” Informed by its 4 main focus areas, AWF’s support is given to regional governments, regional bodies and NGOs, as long as the

projects that are defined are consistent with the Facility's operational strategy and focus. The Kisumu project objectives and outcomes are very much in line with AWF's focus. This is presented in Figure 1.1 below in which an assessment has been made on the project's relevance to AWF's focus and national priorities.

For a relatively small project such as the Kisumu Project, the expected mileage from the support is the level of knowledge that it generates and the extent to which its lessons can inform policy and the multiplication of the interventions.

Figure 1-2: How Kisumu Project fits into AWF's Focus Areas



1.4.1 About the case study

The Kisumu District Primary Schools Water and Sanitation Project Case Study examines the context, definition and implementation of the Kisumu Project and the outcomes of the intervention. The Case Study situates the intervention in the context of water, sanitation and hygiene (WASH) delivery in Kenya, with particular reference to schools, in order to draw lessons on originality and innovation, impact, sustainability and uptake. It further attempts to address the following questions:

i) What has been the project experience in roof-water harvesting and Ecological Sanitation in rural schools?

ii) What are the lessons learnt from the project?

iii) Are there potential lessons from elsewhere that could be drawn to support the lessons from this project?

iv) Has the project led to potential for behaviour change from the perspective of beneficiaries e.g. students, teachers and parents?

v) How has the project considered gender issues differences and the implications thereof?

The primary objective of the Case Study is to draw fundamental lessons that will aid AWF's planning, as well as support the decision-making of Governments, donors, NGOs and other sector actors as they pursue similar, and hopefully larger, projects in schools and communities.

1.4.2 Methodology and approach

The report is based on a review of documentation on the project, including the Project Appraisal Report (PAR), progress and completion reports and an extensive review of Kenya's WASH sector landscape.

A field visit was made to Kisumu with the primary objective of cross-checking and updating information, engaging with the African Development Bank's Kenya Field Office (KEFO) and other Development Partners, relevant government officials, parastatals, local NGOs and beneficiaries on a wide array of issues from policy relevance to the impact of the projects.

The findings of the *Assessment Report: Kisumu District Primary Schools Water and Sanitation Project*, [Horizont3000, 2010] prepared a 2-person team – Jimmy Twebaze and Keziah Njeri Ngugi – has been used extensively for the preparation of the case study. Many of the report's conclusions have been cited in this Case Study, in as far as the field visit did not provide contrary or new evidence [Kisumu Project Assessment Report].

CHAPTER 2: WATER AND SANITATION DELIVERY IN SCHOOLS AND COMMUNITIES

This section provides a short review of literature on water and sanitation provision in Kenya, with particular reference to Kenya's communities and schools. It also discusses the two technologies for water and sanitation delivery that have been used in this case study – ECOSAN and Rainwater Harvesting – and their relevance in the Kenyan context. A number of interventions in school water and sanitation delivery in Kenya, and in particular in the Kisumu area, are also cited with a view to situating the project in the wider country context and subsequently draw parallels with those interventions.

2.1 Water and Sanitation Delivery in Kenya

Water supply and sanitation in Kenya is characterized by low levels of access - in particular in urban slums and in rural areas - as well as poor service quality in the form of intermittent water supply. Only 9 out of 55 water service providers in Kenya provide continuous water supply. Seasonal and regional water scarcity exacerbates the difficulty to improve water supply. According to the Kenya Demographic and Health Survey 2008-9 [KDHS], water supply coverage in Kenya increased from 43% in 1990 to 59% in 2008, and at current rates of performance, only 65% of the population will have access to improved water supply by 2015, which is below the MDG target of 73%. The national figures mask the wide differences between urban (83%) and rural (52%) populations. Over the period 1990 to 2008 access figures for water decreased from 91% to 83% in the case of urban areas but increased from 32% to 52% in rural areas.

In sanitation only 31% of Kenya's population has access to an improved sanitation facility (27% of urban and 32% of rural).[3] The low figure for urban areas is explained by the fact that as many as 51% of the urban population use shared facilities, which are considered unimproved by current definition [KDHS]. In rural areas as many as 18% (4.5 million) practise open defaecation. Achieving the goals of sanitation faces more daunting challenges, given Kenya's MDG target of 63%.

The Water Services Regulatory Board (WASREB) gives even lower figures than the survey data, as it applies a different definition to access called "weighted access" which takes into account the quality of service.[4] In its 2009 Impact Report, WASREB noted that only 37% of Kenyans had access to sufficient and safe drinking water close to their homes at an affordable price in 2006/7. [WASREB, 2008/9]. WASREB also noted significant regional differences in access – ranging from Tetu Aberdare (72%), Kisumu, the project area (27%) and Meru South District (4%). In the capital Nairobi access for the same period was reported at 35%.

2.2 Water and Sanitation Infrastructure for Schools

Infrastructure for water and sanitation is essential for a healthy standard of living and it must be effective in preserving public health and environmental quality while being affordable, socially acceptable and sustainable. School Hygiene and Sanitation Education (SSHE) became an area of focus when a study by MOEST (2003) showed that the majority of public primary schools in Kenya

[3] An improved sanitation facility is defined to include a flush or pour-flush to piped system, septic tanks, ventilated improved pit latrines and pit latrines with slabs.

[4] WASREB defines 'water coverage' as the population served by a WSP compared to the population living within the service area of the water service provider. Access is defined to take into consideration the aspects of quantity, quality, distance, cost, and waiting time.

did not meet the standards for sanitation set by the Ministry and were in a category considered as dangerous'[5].[UNCEF/IRC, 2007].

The study further established that over 90% of primary schools in rural Kenya lacked access to safe water and did not have even the simplest hand washing facility. The increasing attention that followed the findings has led to a number of interventions dedicated to WASH in schools to enhance effective learning, attract enrolment in schools, particularly for girls, and sustain a reduced burden of disease and worm infestation among pupils.

Classification of School Latrine Facilities

Fair:	**Less than 40 children share one latrine**
Bad:	**When 40-100 children use one latrine**
Dangerous:	**If over 100 pupils share a single latrine**

2.3 Project in the Context of Primary School Education

Among 185 schools included in a baseline survey undertaken by SWASH in Kenya in 2006, average enrolment was established at 373 pupils per school. Schools were largest in the Kisumu/Nyando District cluster (400) [SWASH] The SWASH survey also established that approximately 18% of all schools relied on an unprotected surface water source during the rainy season. Over 77% of schools used an 'improved source' as the primary source of drinking water during the rainy season, ranging from over 88% in Kisumu/Nyando to only 67% in Suba District.[6] However the safety of the water could not be vouched as there was little evidence of the water being treated or tested on a regular basis.

In respect of sanitation, the survey found that the mean girl pupil-to-latrine ratio among schools included in the baseline assessment was 72.1 girl pupils per latrine. This was highest in Kisumu/Nyando (83.4 girl pupils per latrine). The mean number of boy pupils per latrine was 81.2 for all schools included in the baseline assessment. Over 97% of schools exceeded the recommended pupil: latrine ratio in the case of girls and 96% in the case of boys.

Table 2-1: Summary of School and Pupil Sanitation Indicators 2006

	Pupil: Latrine Ratio Findings				
	GoK recommended	SWASH Survey Total	Kisumu/Nyando	Project Schools*	
				Nyamware	Bar Mathonye
Girls	35	72.1	83.4	190	70
Boys	40	81.2	82.1		

* This is taken from the Assessment Report and is not part of survey undertaken by SWASH

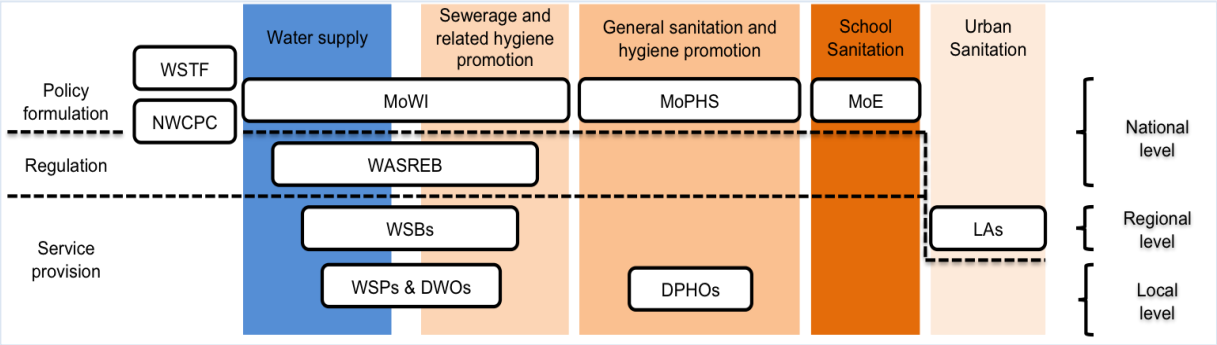
[5] This was a study on the impact and sustainability of WASH in schools in Kenya and Kerala, 2006-2007, supported by UNICEF and carried out by IRC International Water and Sanitation Centre, NETWAS Network for Water and Sanitation, Nairobi, Kenya, and the London School of Hygiene and Tropical Medicine (LSHTM).

[6] Improved sources were identified using standard definitions – water from an "improved" source is one that is more likely to provide "safe" drinking water located within one kilometer. In the specific case of Kisumu, rainwater is the primary source of drinking water supply

2.4 Institutional Roles and Relevance to Community and School WASH Interventions

It is instructive to state the roles played by various actors – public/private, national/local, community, NGOs – as this helps to put the scalability of any intervention into context. Kenya's water sector landscape is dominated by many actors, including several NGOs. In this connection issues of co-ordination and harmonisation become critical in driving sector performance and in ensuring that service delivery beyond the provision of facilities can be sustained. It also raises the issue of the extent to which any organisation's interventions can or cannot drive policy, and how networking with the relevant institutions can help in this direction. Figure 2.1 depicts Kenya's WASH Sector landscape.

Figure 2-1: Institutional landscape for WASH delivery in Kenya



Credit: Water and Sanitation Program, Kenya Country Status Overview for Water and Sanitation, 2010

The roles of the various institutions are briefly summarised below:

MoWI: Ministry of Water and Irrigation. Policy lead on water supply, oversight of WSBs and WSPs (including their sanitation activities); limited service provision

MoPHS: Ministry of Public Health and Sanitation. Policy lead on Environmental Sanitation and Hygiene (ESH)

MoE: Ministry of Education. Supervision of ESH in schools

LAs: Local Authorities. Supervision of urban sanitation

WSTF: Water Services Trust Fund. Provides grants for capital investment in underserved areas

NWCPC: National Water Conservation and Pipeline Corporation. Bulk supply development

WAB: Water Advisory Board. Dispute resolution (principally between institutions but may include users providers.

WASREB: Water Services Regulatory Board. Technical standards and tariffs, issues licenses and tariff guidelines

WSBs: Water Services Boards. Ownership of assets previously belonging to central government, MoWI or parastatals; Can operate as Water Service Providers (below) or bulk service

WSPs: Water supply and sewerage provision. Can include local government owned companies, NGOs and CBOs

DPHOs: District Public Health Officers, MoPHS representatives

DWOs: District Water Officers, MoWI representatives

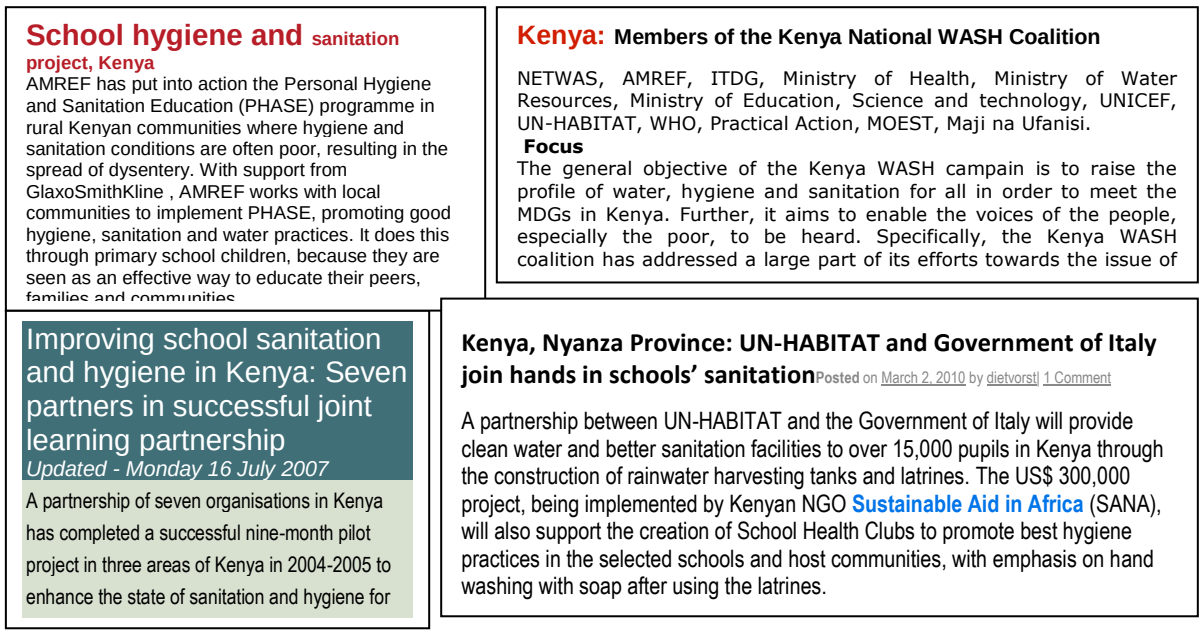
Water Appeal Board: Dispute resolution

Additional bodies: Kenya Water Institute (capacity development), Kenya Water and Sanitation CSO's Network , (KEWASNET), NETWAS, Kenya Rainwater Association

2.5 Significant Interventions and Donor Support to WASH Sector

A number of projects informed WASH policy and impacted the delivery of services in schools and communities. Many of these activities have been carried out in partnership with the Ministries of Education and/or Health and through that have informed policy as well as national plans. Figure 2.2 provides a birdshot of WASH projects undertaken in schools and communities in recent years.

Figure 2-2: Birdshot of School WASH interventions by various actors [picked from web]



Kenya's water and sanitation sector receives considerable support from donors who include the African Development Bank (€70m), France (€105m), Germany (€80m), Sweden and Denmark (€80m), as well as the World Bank (€159m). Others include the European Commission, Italy, Finland, Japan (through JICA), the Netherlands and UNICEF. As of 2010 a total project volume of € 627 million was ongoing. The Kenyan Government has initiated a Sector-Wide Approach (SWAp) to improve sector harmonisation, co-ordination and implementation of the sector programmes. An Annual Water Sector Review is currently in place. The Ministries of Finance, Water and Irrigation and donors have a regular platform for discussing sector activities. External donors currently contribute about 53% of the sector financing, whilst NGOs also contribute an estimated 10% [*en.wikipedia.org/wiki/Water_supply_and_sanitation_in_Kenya*]. Many of the project interventions have school WASH components.

There are several international and local NGOs in the WASH sector delivering financing, building capacity and advocacy. These include CARE, WaterAid, Plan International, Concern, NETWAS, Maji Na Ufanisi. The Kenya Water and Sanitation Network (KEWASNET) draws its memberhsip from civil society organizations that are working to improve water resource management and increase efficiency in service delivery in water and sanitation services. Broadly, KEWASNET provides a linkage between service providers and consumers by facilitating partnerships between policy makers and stakeholders and encouraging equitable participation by all parties in governance and decision-making mechanisms.

2.6 State-Sponsored interventions: Community Project Development Cycle

The Community Project Cycle (CPC) is an approach to support improved access to water and sanitation in the poorest locations in Kenya. It is a common approach applied by all Water Services Providers (WSPs) and supported by the Water Services Trust Fund (WSTF) under the co-ordination and guidance of the Ministry of Water and Irrigation. CPC encourages all women and men in a community to participate in mobilisation, planning, implementation and management of WSS projects, among others. For water supply, communities are required to put up 15% of the capital cost of the intervention (which could be given in cash or in kind). In respect of sanitation the cost share is 25% by the community.

In respect of the 49 Districts in the Nyanza Province, 12 of them have been identified as very poor. Communities whose projects are approved receive up to KSh8 million ($100,000) in addition to KSh1.2 million for project preparation.

Discussions with officials of the Lake Victoria South Water Board (LVSWB) appeared to suggest that once communities are able to go through the processes outlined in the CPC, then it was easy to get funding for the facilities required. This was corroborated by the District MOWI Officer who indicated that 31 proposals submitted in 2008-9 had received approval, and he had been impressing upon communities to submit applications. Whilst this may be so, in reality the first step of 'selection of target locations' is largely determined by the availability of funds, and less so by an inability to go through the various application phases. For example it was conceded that some applications had been approved after 2 years of submission.

It needs to be indicated here that the construction of school WSS facilities does not have to go through these demand-driven processes.

Box 2-1: Finance and Equity in WASH Delivery in Kenya

Finance routed with an equity focus through the WSTF is a small proportion of the sector total (0.3% on average, set to increase to 4% of the projected 2011/12 budget). By June 2008 it had reached total a population of 1.4 million, around an eighth of the population requiring access between 2009-2015.

Other funds can provide finance for the sector amongst other priorities, and MoPHS has a Health Sector Service Fund (HSSF) in the pipeline to channel finance to environmental health and sanitation activities.

Water and Sanitation Program, Kenya Country Status Overview for Water and Sanitation, 2010 (Draft)

CHAPTER 3: CHOOSING THE OPTIONS FOR SCHOOL WATER AND SANITATION DELIVERY

This section starts with a discussion of the choice of technology options for the Kisumu Project. It situates ECOSAN and RWH in the context of contemporary approaches to water and sanitation delivery and how local conditions and enabling factors influenced the choices that were adopted. The section also discusses the consistency of the options adopted with national policies, strategies and priorities

3.1 Choice of Option for Sanitation and Water Delivery

3.1.1 Concept of ecological sanitation

Many conventional excreta management arrangements across Africa treat faeces as a waste rather than as a product that has commercial value, and more importantly that addresses the environment in a more sustainable way. Sanitation facilities used by households in Kenya are either: (i) Flush/pour flush to piped sewer (4.4%); (ii) Flush/pour flush to septic tank (1.5%); (iii) Ventilated improved pit (VIP) latrine (8.4%); (iv) Pit latrine with slab (9.5%); (v) Pit latrine without slab/open pit (40.%); and (vi) Open defaecation (14.5%). In rural areas as many as 4.5 million Kenyans (18%) may be involved in open defaecation. Except in the case of piped sewers, little or no treatment takes place and certainly the value that can be obtained from the final waste is not factored into the sanitation options used.

'Ecological sanitation' (ECOSAN) refers to a system of excreta management that makes use of human waste – urine and faeces - and turns these into useful material for agriculture or for biogas. It is based on an overall view of an ecologically and economically sustainable excreta management system tailored to the needs of the users and to the respective local conditions. It does not favour a specific sanitation technology ECOSAN systems provide two ways to render human excreta harmless: dehydration and decomposition. Unlike pit latrines, urine-diversion dehydration toilets (UDDTs) do not rely on soil infiltration, and are more suitable than pit latrines in dense urban settlements, in areas with high groundwater table, hard rock, collapsing ground or seasonal flooding [Rahul et al].

Unlike pit latrines, the urine-diversion dehydration toilets (UDDTs) do not rely on soil infiltration, and are more suitable than pit latrines in dense urban settlements, in areas with high groundwater table, hard rock, collapsing ground or seasonal flooding.

Considered against the backdrop of the sanitation value chain, ECOSAN consists of capturing (collecting), storing, transporting, treating and reuse of the final product (waste). This chain is often broken due to a lack of appreciation of the importance of treatment and reuse, or simply for cost reasons.

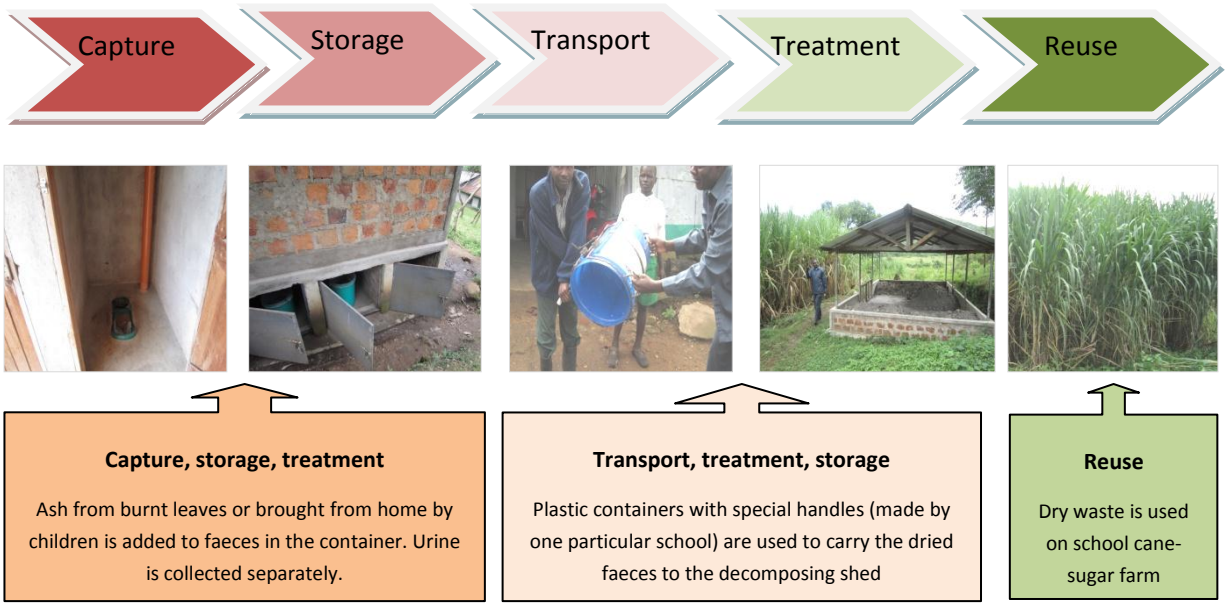
3.1.2 Use of ECOSAN toilets in Kisumu Project

The ventilated improved pit latrine (VIP) is the predominant type of sanitation used in schools and most rural communities.[7] The typical school toilet in Kisumu is a pit latrine, and with poor design and unsuitable local conditions, many of these overflow, are odorous and have few options to empty the pits when they are full, or when there is a need to dig new ones [PAR]. For example, the AWF team visiting the Nyamware Primary School saw evidence of several disused pits spread across the school's compound, which were not only unsightly but also dangerous. For these schools, the adoption and use of ECOSAN toilets provided one of the best means of addressing the problems faced.

It needs to be pointed out that the Kisumu Project was not the first to utilise the ECOSAN technology in Kenyan schools or the Greater Kisumu area. Other interventions had preceded it. ECOSAN-type technologies were introduced in Kenya in the late nineties through NGOs with urine-diversion dehydration toilets (UDDTs), Arborloos and Fossa Alternas.[8] The EU-Sida-GTZ Ecosan Promotion Project had utilised this existing experience in "dry excreta management" and engaged the respective NGOs to kick-start activities in their areas [Rahul et al].

The Kisumu Project responds to good practice in excreta management as its various stages fits into the sanitation value chain.

Figure 3-1: Kisumu Project in the context of Sanitation Value Chain [Ref: Gates Foundation Working Paper]



[7] The ventilated improved pit latrine, or VIP, is a pit toilet with a vent pipe fitted to the pit, and a screen (flyscreen) at the top outlet of the pipe. VIP latrines are an improvement to overcome the disadvantages of simple pit latrines, i.e. fly and mosquito nuisance and unpleasant odours. The smell is carried upwards by the chimney effect and flies are prevented from leaving the pit and spreading disease

[8] The *arborloo* is a simple pit latrine built over a shallow pit. The slab and superstructure are portable and move on a *never-ending journey* from one shallow pit to the next. Soil, wood ash and leaves etc are regularly added to the pit as well as excreta which assists in the formation of soil-like humus in the pit. Full pits are topped up with soil and planted with young trees. The end result is a "sanitary orchard," "wood lot" of fruit and other trees scattered around the garden. The *Fossa alterna* is similar to the *ArborLoo* but the slab and superstructure are alternately placed on one of two permanently sited shallow pits.

3.1.3 Different motivations for ECOSAN

Various stakeholders will have different motivations for promoting, financing or adopting ECOSAN. For example in the case of Governments, the possibility of helping poor people gain access to reasonablly cheap and environmentally sustainable technology is a good reason to promote ECOSAN. But it has to weigh this against the speed of uptake and adoption of the technology given the need to meet its national or MDG targets. Similarly for other stakeholders there may be potential reasons for acceptance of rejection of the concept. These reasons include (stakeholder in parenthesis): (i) if communities are against it (GoK, DPs); (ii) it does not comply with relevant policies (DPs, INGOs); (iii) it is financially not viable (communities/households); (iv) it smells (users); (v) it needs too many supplementary activities (users, NGOs); (vi) the end product is not safe (all stakeholders); (vii) there is no request from counterparts (INGOs), and (viii) where only small numbers are produced (private sector). Any intervention aimed at promoting ECOSAN should be mindful of these interests and prepare appropriate communication and advocacy responses.

3.1.4 Harvesting Rainwater for Schools in the Kisumu area

More than 80 percent of Kenya is arid and semi-arid.[9] The annual rainfall amount varies significantly across the country, ranging from 200-400 millimetres in northern and eastern Kenya to more than 1,600 millimetres in western and central Kenya. In Kenya the current per capita water supply stands at 630 cu m which is far below the global benchmark of 1000 cu m. The Kisumu area is comparatively better-endowed (Figure 3.2).

Within the Kisumu Project area, the rainfall pattern varies from district to district and is characterized by a long rainy season (March-June) and a short one (November-December). In 3 of the project areas however – Gombe Kokulo, Obambo and Bar Matonye - there is relatively less rainfall. Five of the schools are found in the plains and have often experienced flooding, with a mean annual rainfall of 1,280mm.

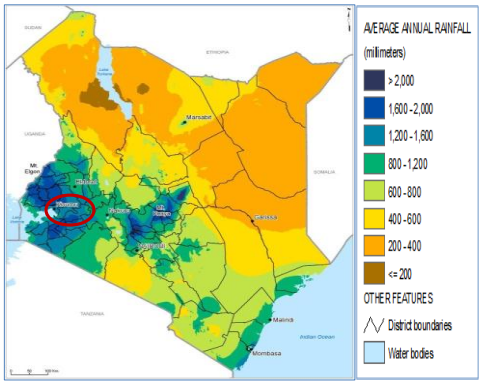


Figure 3-2: Precipitation map of Kenya showing a reasonable rainfall pattern for the project area

The short rains average 450-600mm per annum. Rainwater harvesting presents a cost-effective way of reducing poverty and sustaining the development of rural livelihoods and has a huge potential for meeting domestic water supply in communities where water infrastructure is unavailable or is unlikely to be available for some time.

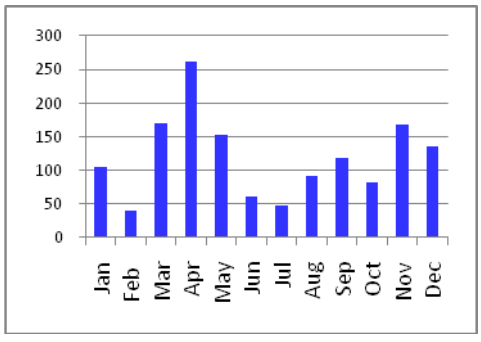


Figure 3-3: Monthly rainfall averages in Kisumu District

RWH is a popular activity in Kenya that supports agriculture and provides the needs of communities and schools. According to STIPA, all the schools in the project area had previously been supplied small storage tanks (about 2,500 litres) under a GoK programme. Many NGOs and groups have also implemented interventions in schools adopting RWH, including the

[9] Kenya is one of several African countries categorised as 'water-stressed' or 'water-scarce' Currently, the per capita water supply stands at 630 cu m which is far below the global benchmark of 1000 cu m.

Kenya Rainwater Harvesting Association, Kenya Water and Health Organisation (KWAHO), Sustainable Aid in Africa (SANA) and Action Now.[10]

Monthly average rainfall amounts for 2002 – 2006 show high variability throughout the seasons and over the years (Figures 3.3). Thus whilst RWH provides a very viable option for water supply for the deprived schools and communities, the probability of having seasonal shortages pose serious challenges to all year-round supply. Suffice to note at this point that some of the schools reported facing such shortages during the dry months when schools have been in session[11].[12]

3.1.5 Consistency of approaches with national policies and strategies

It is useful to understand how the approaches fit into current national policies and strategies to appreciate whether the lessons from the Kisumu Project can inform these. ECOSAN and RWH are technologies mentioned for particular application in rural areas and the Kisumu project contributes to spreading its know-how and the lessons that can inform its uptake. In the case of sanitation, GoK policy has been to encourage the construction of the more popular VIPs.

The lead Ministry of Public Health and Sanitation (MoPHS) has already shown commitment to scale up sanitation using the CLTS approach, in line with the Kenya Government policy on environmental sanitation and hygiene that was launched in July 2007. This promotion has gathered momentum among various sector agencies and NGOs. The focus is the promotion and marketing of improved sanitation, and not on a particular type of technology, leaving the choice to households. This is prudent and informed by the caution not to carry too many messages and dilute the main objective of the promotion, given that there are diverse cultural and social factors - varying from one community to another - that hinder sanitation and hygiene promotion.

In Kenya today, the key players in rainwater harvesting include the following government ministries: Ministry of Water Resources Management and Development, Ministry of Environment, Natural Resources and Wildlife and Ministry of Agriculture. Several NGOs and other Community-Based Organizations at national and local levels have played a major role in putting rainwater harvesting in the limelight. Through Southern and Eastern Africa Rainwater Network (SearNet), Kenya has been able to exchange information on rainwater harvesting with other countries in the east and southern Africa sub-regions.

[10] While RWH should definitely be promoted, it is important to appreciate that a lot of contamination of water occurs during collection and storage. If the catchment areas have dust, dirt, animals faeces and plant debris such as leaves, these could be a major of source of contamination and could lead to diseases if adequate measures are not taken. Such adequate measures include good management of the roof gutters, foul flash system and storage tank as well as simple treatment such as filtration and disinfection equipment to improve the quality of rainwater.

[11] On the other hand it could be argued that the rainfall pattern shows that there is some rain in all months of the year and therefore shortages could be a design or water management.

[12] The first term starts January and ends late March - the break is in April. Then Second term starts late April Beginning May ends late July beginning August- then a break in August. Third term begins late August early September and ends late November With a break till January. The first term coincides with the dry season.

At the local levels, church organizations and women Groups have been very active in this field. The United Nations Environment Programme (UNEP) and other UN agencies have conducted pilot projects and workshops in Kenya to promote rainwater harvesting at national and local levels. Some partners have also supported the use of RWH. The private sector has been instrumental through manufacture of components needed to implement rainwater harvesting projects such as gutters, roofing material, concrete and water tanks. Household and indigenous approaches have also been a regular source of rain water supply, albeit often limited by constraints of storage.

CHAPTER 4: PROJECT IMPLEMENTATION AND OUTCOMES

Horizont3000 commissioned an assessment of the impact of the Kisumu Project in July 2010 based on the logical framework, seven months after its completion. The assessment report [Horizont3000, 2010] noted that "while key activities, outputs, outcomes and impact are indicated in the log-frame, the Objectively Verifiable Indicators were not expressed in quantitative terms and no clear baselines were therefore available". Thus, for the most part, the team only observed 'as is'. [13] *This chapter examines the project outcomes based largely on that report. It summarises the project's implementation approaches, outcomes, relevance, efficiency, effectiveness, sustainability and impact in relation to the requirements of the logframe. The assessment of these outcomes is tied into the discussions preceding this chapter in the hope the outcomes will be seen in the wider context of water and sanitation delivery to meet Kenya's international commitments, promote environmentally sustainable solutions and directly impact deprived communities in a cost effective and affordable manner.*

4.1 Project Implementation

4.1.1 STIPA/Horizont3000 Partnership

The Executing Agency of the project was HORIZONT3000, which is registered as a Ugandan NGO and operates in Uganda, Kenya and Tanzania. The Implementing Agent was STIPA (Support for Tropical Initiatives in Poverty Alleviation) which is a non-governmental organization registered since 1997 in Kenya, committed to building the capacities of development organizations including community-based, faith-based, governmental and non-governmental, so as to reach out to the vulnerable members of the society to alleviate poverty. A Project Implementation Unit comprising of a Project Coordinator and a Field Officer were in charge of the day-to-day activities, and received back-up support from Horizont3000. Horizont3000 monitored the project through regular field visits by the Deputy Regional Director (based in Kampala) and through quarterly meetings with STIPA.

The quarterly meetings also served as the Project Steering Committee. In those meetings STIPA and HORIZONT3000 and the consulting firm for technical backstopping, ESC Consulting, were represented. In addition, the AWF and ADB Kenya were always invited and participated occasionally in the quarterly meetings.

> "considering the cultural barriers to the adoption of dry toilets and the composting of human waste, STIPA [has] performed especially well on this point."
>
> *Assessment report on performance of implementing agent, STIPA*

The operational performance of the Implementing Agent, STIPA, has been described as good by Horizont3000 and other actors who were consulted during the field mission, including the AfDB Kenya Office, The Lake Victoria South Water and Sanitation Board (LVSWB) and the Kisumu West District Education Officer (DEO). STIPA was well-placed to mobilize communities and to induce behaviour change. The Project Completion Report (PCR) carried out in the early part of 2009 concluded that

[13] The preparation of this Knowledge Product has been confronted with the same problem. Given its timing (right after the completion of the assessment) not much in terms of data could be obtained to draw evidence-based conclusions. Nonetheless anecdotal evidence is provided where appropriate based on interviews with beneficiaries and institutional actors consulted during the field mission. This Case Study draws extensively on the assessment report (prepared by Jimmy Twebaze (Team Leader) and Keziah Njeri Ngugi and many of its conclusions in as far as the field visits did not provide new or contrary evidence. Some relevant data promised by the District Education Office that would support some of the conclusions, and situate the project in the wider Greater Kisumu District to get an appreciation of school water and sanitation programmes, could not be sent before the completion of this report. Indeed it would take some time for official data on health and education to become available that would provide the evidence-base to assess the medium to long-term outcomes.

"considering the cultural barriers to the adoption of dry toilets and the composting of human waste, STIPA [has] performed especially well on this point." [PCR, 2009]

4.1.2 Beneficiaries, Stakeholders and activities impacting outcomes

The direct beneficiaries of the intervention were the pupils, teachers and communities in and around the targeted schools. In total there are over 30,000 people benefitting from the project in the 6 communities, even though it should be acknowledged that for many of these communities the benefit was the hygiene education they received as they do not have direct and permanent access to the water and sanitation facilities.

The list of schools and the communities in which they are situated is presented in Table 4.1.

Table 4-1: Beneficiary populations

Name of District	Name of School	School Pop	Community Pop
Kisumu West	Kokulo Primary School	323	1,288
Kisumu West, Nyanza Province	Bar Mathonye Primary School	302	1,141
Kisumu Municipality, Nyanza Province	Obambo primary School	491	2,560
Tinderet, Rift Valley Province	Gotnelel Primary School	448	689
Muhoroni, Nyanza Province	Songhor	314	1,376
Kisumu East, Nyanza Province	Nyamware Primary School	710	3,156

In some of the schools the communities were to benefit from the sale of water. Whilst this has been the case and water has been sold at the very affordable rate of KSh2.00 per 20-litre container or KSh1,000/m^3 (US$1.33), the practice has put an unintended (but not unforeseen) pressure on available water, particularly during the drier months of the year. Two coping mechanisms have arisen: some anti-social community members have resorted to stealing water from the schools and on the part of the schools the sale of water is stopped when tank levels are low. For some schools (e.g. Nyamware) there have been periods in the year when water will not be available.

One notable characteristic of Nyanza Province is the high prevalence of HIV/AIDS - 13.9% compared to a national average of 6.3%. This high prevalence of HIV/AIDS implies a high incidence of AIDS orphans among the school children. As a result eldest girls become 'replacement parents' at an early age and often stop school to find a means of earning income [Ref: SANA/AN]. In addition poverty levels will continue to be high and the ability of households to generate resources to build sanitation facilities is seriously jeopardised.

4.1.3 Engagement of existing structures and co-ordination

Existing institutional structures were used for the project, even though this was at different points in the project's life, a situation which has been criticised by some of the institutions. The key institutions in the relationship were the AfDB Kenya Office (KEFO), the District Water Office, District Education Office, the District Public Health Office and LVSWSB. For example, both the KEFO and the Kisumu District Water Officer (DWO) indicated that they appreciated the progress and competence demonstrated in executing the project; however they would have liked to have been part of it from its planning and inception. The DWO faulted the workmanship on some of the ferro-cement tanks and noted that if his office had been involved earlier they could have provided technical inputs.

STIPA participated in the monthly meetings of the District Water and Sanitation Co-ordination Committee (WESCOORD) which were held regularly to discuss the district's WASH activities to avoid duplication. The meetings are held under the chairmanship of the DWO. The DWO however noted that, unfortunately, partners rarely shared lessons at these meetings.

Box 4-1: How Kisumu Project addresses systemic failures of sanitation projects

The International Water Association's (IWA) Task Force on Sanitation has identified several common reasons for the failure of sanitation systems. The following examines how the Kisumu Project addresses these in its own small way.

System appropriateness: The facility is relatively low-cost, and holistically looks at the management of waste to benefit society at large whilst improving the health outcomes of school children and teachers. The functioning of the facilities is understood by school pupils, and materials required to build and use the facilities can be locally-sourced.

Planning and implementation: Planning and implementation involved as many stakeholders as practicable, including public institutions, community members, school teachers and pupils. This was to ensure buy-in for the project, the technology chosen and promote its replication. Cultural issues were addressed through greater sensitisation and through study tours to places where similar interventions had been undertaken.

Resources and institutional capacities: Resources were provided by AWF as a grant, with a small in-kind contribution from the communities. Subsidies for public schools are in line with GoK policy. Resources for replication and uptake in communities are however a problem. Institutional capacities, schools (teachers, School Management Committees and Health Clubs), local artisans were trained to provide supervisory, operation and maintenance and back-up services.

Operation and maintenance: O&M funding? is low, but community contributions and allocations from school budget and income can take care of this. Children's labour (as part of the learning process) is used even though some commentators have raised issues with this. A facilities management manual was given to each school, and schools have incorporated O&M in school budgets.

4.2 Project Outcomes

- Did the project meet its objectives?
- Have the planned activities fully been executed? To what extent have key outputs been achieved?
- What are the outcomes of the project?

4.2.1 Improved health leading to reduction in poverty

The main expected outcome of the intervention is in the reduction of poverty. Whilst this will be difficult to measure at this point (and given the absence of baseline data save that at provincial level), there are a number of areas in which inferences can be made:

- reduction in health bills due to declining diseases;
- reduced burden on parents constructing pit latrines repeatedly in flood prone and rocky areas;
- trained technicians and masons involved in the project can enhance their incomes from the skills and knowledge received;
- improved schools farm incomes will support other school activities and reduce burden on parents or improve the quality of life of the school children. This was evident in one of the schools where a TV set was purchased from proceeds from school garden
- savings in time spent on fetching water will go into more productive activity;

4.2.2 To what extent were key project outputs achieved?

Each of the beneficiary schools received a similar number of water and sanitation facilities. This included 12 Ecosan toilets; 3 urinals; two 25m^3 tanks; and a composting shed in each school. The workmanship and the quality of infrastructure were generally assessed to be good, even though this differed from school to school. In addition a number of maintenance materials were given to each school, including wheelbarrows, overalls, spades, gumboots, rakes, wrench spanners, hard brushes, face masks, and gloves.

Project's anticipated outcomes

i. Improved knowledge about hygiene and environmental sanitation in the schools and in households

ii. Improved access to water supply in the 6 primary schools in Kisumu District

iii. Improved ecological sanitation in six selected schools in Kisumu District

iv. Increased capacity of SMCs, local government agencies and other stakeholders to manage, maintain and scale up the project model in the district and beyond

A target of reaching 3,200 pupils was achieved but that of staff has not been completely achieved (75). A total of 300 parents were mobilised, sensitised and trained in hygiene practices. In addition 210 pupils and 62 teachers were mobilised and trained to train others.

Software activities as defined in the logframe were also completed. Community institutions formed include 4 WSCs, 4 VHP, 4 CTs, and 6 School Health Clubs are in place and functional albeit, at different levels of satisfaction.

The assessment noted O&M challenges even though the field visit sighted a Maintenance Manual which was given each school. Also reported were some leakages in some of the ferro-cement tanks, which were ascribed to poor workmanship. These defects remained un-attended to even at the time of the visit. The assessment also noted that project implementation was impeded by tendering processes and the effect of the 2008 post-election violence on partnering communities, lowering project activities implementation rate.

Increased capacity of the school management committees, local government agencies and other stakeholders to manage, maintain and scale up the project model in the district and beyond is seeing mixed results. O&M is advanced in Songhor, Gombe Kukulo and Bar Mathonye and to some extent in Nyamware. However Obambo and Gotnelel still lag behind.

ECOSAN toilet in Bar Mathonye Primary School with old facilities by the sides

In relation to improved access to clean water supply, this had increased significantly. Before the project the schools had 2,300 litres tank each which was enough water for only one day (until the next rains) at 4 litres per capita for the average school population of 500 pupils. To date available capacity is 52,300 litres for a slightly higher population of pupils, almost a 25-fold increase. Thus the available per capita has gone up almost 5-fold and there is greater reliability virtually all year-long.

A major flaw in project design was that all schools were treated equally in the allocation of facilities irrespective of the pupil population. This has had consequences for demand for the facilities.

4.3 Project Relevance

- Does the selection of the geographical project location seem appropriate?
- Did the project design in the six (6) school locations meet the actual needs and challenges of the beneficiaries?
- Is the technology used for the construction of toilets suitable for the target group?

4.3.1 Does the selection of the geographical locations seem appropriate?

The relevance of, and justification for the project has been alluded to in the preceding sections, from the perspective of the beneficiaries, the GoK and the African Water Facility. These include the need to address relative poverty, poor state of water and sanitation infrastructure in schools, and the incidence of water and sanitation related-diseases in Nyanza Province. Challenges posed by natural characteristics such as swamps, floods and rocky conditions makes reliance on traditional pit latrines unsatisfactory. On the other hand, reasonable rainfall during the 2 seasons makes the choice of low-cost RWH an option of choice in schools and communities in the project area. School sites were selected across Greater Kisumu to allow for greater visibility across a wider area.

4.3.2 Is the technology used for the construction of toilets suitable for the target group?

The technology was suitable for the target group given the difficulty of constructing pit latrines in the project area. Adaptations for more appropriate technologies for household level toilets need to be explored. The toilets are suitable for school going children of about 10 years and above. They are unsuitable for very young pupils, physically and mentally challenged and the elderly. However, accessibility can be facilitated by erecting an access ramp for the elderly and physically challenged.

4.4 Adoption and Adaptation

4.4.1 Refusal to use ECOSAN toilets

Some teachers have refused to adopt the use of the new ECOSAN toilets and prefer the status quo. . In 3 out of the 6 schools, teachers do not use the ECOSAN toilets, setting a bad example for the pupils. On the other hand in Gotlenel, pupils do not use the ECOSAN toilets at all and prefer to use the old latrines, reportedly because the “culture of the people is prohibitive; Handling faeces is an abomination and attracts cultural cleansing” [Horizont3000]. Interestingly, teachers in this school use the ECOSAN facility. This raises questions about the extent of sensitisation carried out among the different segments of the community and whether the ECOSAN facility was based on expressed demand. On the other hand it could mean that people simply changed their after seeing the facility.

4.4.2 Transfers of teachers affect uptake

Frequent staff school transfers have affected the performance of facilities in some schools and in the uptake of hygiene practices. Some new un-sensitised teachers and Headteachers have been slow in accepting the technology of ECOSAN and are not convinced of the benefits of the project. They are unable to manage the facilities as well as the ones who had undergone the trainings. This raises the issue of mainstreaming the concepts into the school WASH strategy, so that no matter where a teacher found him/herself, they would have a fair knowledge of the approach and its benefits. This had been done in the case of the use of PHASE and other tools that were promoted with the active involvement of the responsible ministries and institutions.

4.4.3 Adaptation and innovation

Some schools (Songhor and Nyamware) have changed from use of woven baskets to plastic containers for the collection of excreta. In Songhor a metal handle was fabricated using local artisans. This is very convenient for transporting the bucket from the toilets to the decomposting shed. Once full the bucket gets heavy hence the need for a handle. It also minimises the possibilities of contamination.

The assessment reports remarkable changes in people's knowledge, attitudes and practices, as evidenced from responses from Focus Group Discussions (FGD). Use of tippy taps is common in schools as well as the community. In most households there is use of dish racks for drying clean utensils.

4.5 Efficiency

- Is the project cost efficient?

Efficiency of the intervention is examined in relation to the cost of undertaking the interventions. There are 3 types of cost associated with the intervention – software, hardware and project design and supervision. As shown in Table 4.2 both software and hardware costs are split almost equally at 37.6% and 39.2% respectively. Project supervision and overheads represented 23.2% of the total cost and included the cost of monitoring and assessment of the outcomes. This is understandable given that the project is a pilot, which is focused on behaviour change in respect of a concept which is difficult to sell.

Table 4-2: Apportionment of Project Costs between Software and Hardware

Project Component(Expenditure Category)	Revised	Actual Expenditure	% of Total Cost
Comp A: **Mobilize project Team and Office**	12,128.00	11,522.00	5.6%
Comp B: **Develop and Produce Training Materials, Trainings**	48,675.00	41,610.00	20.2%
Component C: **Trainings for External Stakeholders**	4,490.00	4,184.00	2.0%
Component D: **Establish Health Clubs and Trainings**	22,565.00	20,055.00	9.7%
Component E: **Physical Construction**	102,960.00	80,664.00	39.2%
Component F: **External Technical Backstopping**	8,000.00	7,967.00	3.9%
CompG: **Maintenance Plan, Management Training, Monitoring, Evaluation**	17,800.00	17,527.00	8.5%
Component I: **Administrative costs HORIZONT3000**	11,988.00	11,988.00	5.8%
Component J: **Community contribution**	7,200.00	10,296.00	5.%
TOTAL	**235,806**	**205,803**	

In relation to unit costs these have been assessed as presented in Table 4.2. These costs will be benchmarked against other costs as they relate to similar interventions. Whilst some caution should be exercised in interpreting the numbers, the purpose of the analysis is to see whether more people could have been served with more (or less) financial outlay.

4.6 Project Effectiveness and Efficacy

- Is there a tangible change and/or improvement of the beneficiaries' quality of life?
- Is the project design ideal for the target group?
- Did the project raise the beneficiaries' knowledge about hygiene and environmental sanitation?
- Did the project generate any change in behaviour concerning hygiene and environmental sanitation?

4.6.1 Is there a tangible change and/or improvement of the beneficiaries' quality of life?

In the absence of detailed socio-economic data attesting to the improvement in quality of life of those impacted by the project, one can infer and also use anecdotal evidence to support conclusions in this area. Improvement in the quality of life may be seen from the perspective of the total community, where the drudgery of fetching water of doubtful quality daily from long distances (mostly by women) is replaced by easily accessible water sources, even if available to only children and teachers in some of the communities. In respect of sanitation the near absent open defaecation (as noted by 2 of the interviewed headteachers and the Kisumu West District Public Health Officer) not only raises the dignity of the beneficiaries but more importantly reduces the incidence of sanitation-related diseases within the communities.

More specific events which impact the quality of life include:

Change in Quality of Life	Source of evidence/Observation
• Masons who were trained on the technology have been big beneficiaries in terms of direct income benefits accruing from the construction jobs they receive;	Inferred from the rise in demand for sanitation facilities by community members
• There is increased opportunity for income generation activities (IGA) for schools that include vegetable gardens, sugarcane plantation, bananas, selling of water and sale of manure, evidence of which was seen;	Some farms (fed with manure from the project) were observed during the field visit and some headteachers attested to the usefulness of income from farms, in supporting other school activity
• Savings in medical bills due to reduced incidences of diseases especially those related to water and sanitation.	Inferred from evidence from dispensary attesting to the decline in medication dispensed to school children for water-related illnesses
• Reduced burden of frequent constructions of pit latrines at school.	Inferred but also confirmed by one headteacher (Nyamware).
• Flower beds and tree seedlings that are watered have improved the aesthetic value of the school compound.	Field observation
• Communities are benefitting from water from schools	Communities are benefitting free or at tariffs far lower than elsewhere KSh2 per 20-litres (compared to KSh5-10 from other sources).

4.6.2 Is the project design ideal for the target group?

The project design saw the schools as a separate institution from the community in the use of the infrastructure. It was conceived that community sensitisation would lead to better hygiene and an adoption of the RWH and ECOSAN

technologies. It was not afore-thought that community members would compete for water with the school children. A way out has been to sell water to community members but in some schools this has meant that water may not be available at certain times of the year. Water pilferage and (and sometimes vandalisation) of facilities have been observed largely because the water and sanitation needs of community members were not factored into design.

Besides, the limited access that children have to improved water and sanitation at home means that the gains made at the school level could be negated by what happens within the home.[14]

Ninety five percent (95%) of children wash hands after using the toilet

The Project has generated increased demand for similar facilities in the community / neighbourhood, and this increased awareness (and hopefully willingness to pay for services) should be exploited in designing interventions in other communities.

4.6.3 Did the project raise the beneficiaries' knowledge about hygiene and environmental sanitation?

The following matrix presents responses to from beneficiaries on issues relating to knowledge attitudes and practices (KAPs).

Knowledge, Attitudes, and Practices	% Mean	Remarks
Pupils general knowledge and improved attitudes and practices	86%	Score for test given to test knowledge on water and sanitation ranged from 77-91% and girls performed better than boys
Pupils Use of Ecosan Toilets	90%	Gotnelel 0%. Girls and boys in the other schools use ecosan toilets in almost equal proportions
Pupils washing of hands after toilet visit	70%	More girls wash their hands than boys. Younger boys wash more often than bigger boys. Increasing the number of water containers with water for washing hands strategically located within the compound increases the hand washing
Pupils cleaning of Ecosan Toilets	70%	30% of the times WSC members clean the toilets
Pupils transportation of solid material to compost pit	60%	40% of the time the WSC members transport the solid material.
Teachers Use of Ecosan Toilets	20%	80% of the school teachers do not use the Ecosan toilets
Parents / community washing of hands after toilet use	20 - 50%	Washing hands after visiting the toilet takes place in limited homes.
Parents use of rain water harvesting and management systems	60%	Limited by inaccessibility to bigger containers
Parents use of manure from the school composting sheds in their households	10%	Manure mainly used in school gardens
School harvest and use of urine as top dressing	15%	Only Songhor Primary School harvests and uses the urine from the Ecosan. Some schools use a soak pit to drain the urine away, others leave it to flow freely causing a bad smell around the toilets.

Knowledge about hygiene and environmental sanitation has been highest among school children.

[14] During rainy season, school children are allowed to carry water home

4.7 Sustainability

- Are the school management committees able to maintain and manage the project structures and ensure proper use of the structures?
- Are the local government agencies and other stakeholders able to scale up the project model in the district and beyond?

4.7.1 Are school management committees able to maintain and manage the project structures and ensure proper use of the structures?

The assessment found that SMCs are managing and maintaining the facilities with varying degrees of keenness and successes. They experience different challenges and respond differently to these challenges depending on the leadership. Many SMCs work hand in hand with the School Health Clubs.

It was also found that the relationship between SMCs and WSCs are strained around the exercise of ownership and control. This possibly could be ascribed to the type of messages that were sent to both the SMCs and the WSCs on responsibilities and authorities at the inception of the project. In most instances, the SHC had the upper hand in management and maintenance of the facilities, as should indeed be the case. Only in one school (Bar Mathonye) was the relationship deemed to be working.

There are no immediate possibilities of up scaling. The Ministry of Education has an allocation per pupil for sanitation purposes, which can be utilised for up scaling, management and maintenance in future budgets and plans.

4.7.2 Are the local government agencies and other stakeholders able to scale up the project model in the district and beyond?

Discussions with District officials indicated a lot of satisfaction with the project, particularly with the ECOSAN toilets. Whilst acknowledging defects in workmanship and lapses in the initial planning and consultation, they are nevertheless keen to provide greater visibility for the project and its approaches mainstreamed into the District activities. For example the District Health Officer in Kisumu West alluded to the availability of large stocks of hand gloves for this project upon requested.[15] Similarly the District Education Officer would like to see more attention given to ECOSAN in areas with similar conditions of soil instability and frequent flooding. It appeared during interactions with some of the officials that they feel inadequate in carrying the message to the national level.

STIPA indicated that one of the international NGOs working in the Kisumu area planned to use the ECOSAN designs in their interventions.

4.8 Impact

- Has the sanitation of targeted schools improved?
- Is there increased access to water supply within the beneficiary schools?
- Has the number of children per toilet ratio reduced?

[15] The DPHO expressed surprise when told that some of the pupils had complained about the lack of gloves. This is because her office has a quantity of gloves in stock which can be supplied to schools on request.

4.8.1 Has water and sanitation of targeted schools improved?

Previously pupils in some schools used the bushes around the schools to ease themselves, a practice that later contaminated the water sources and food. All the schools had less than the recommended number of stances (except Songhor).

The improvement in access to sanitation facilities is quite revealing, as shown in Figure 4.2, which depicts the number of stances available to the pupils before and after the project intervention. In 5 of the schools, the pupil-toilet ratio has more than halved to below 1:40, the limit recommended by GoK. For Nyamware Primary School, whilst the pupil-toilet ratio has been reduced by more than two-thirds, the current ratio is still above the official limit. The situation is compounded by the influx of children from other schools in the community that do not have toilet facilities. Others have attained the UN ratio of 1:20 for girls and 1:25 for boys.

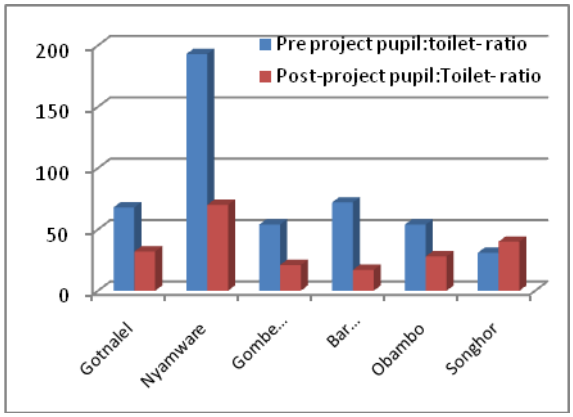


Figure 4-1: Stance availability before and after the project

Whilst the knowledge value created by the project is useful, such an influx can only lead to poorer school performance as other teaching resources have remained the same.

4.8.2 Have school attendance and enrolment increased?

School attendance has improved considerably in all the beneficiary schools as can be seen from the trends in 2 schools, Nyamware and Bar Mathonye Primary Schools.

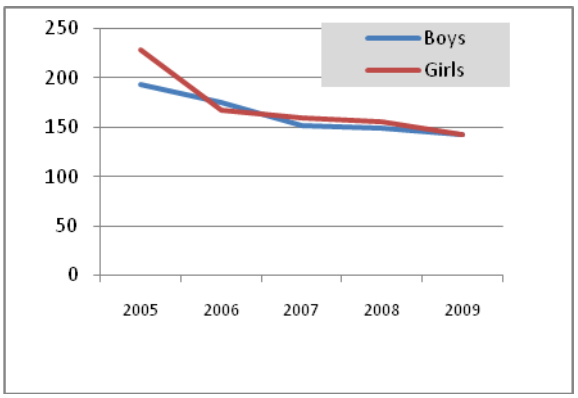


Figure 4-2: Trends in school absenteeism in Bar Mathonye Primary School

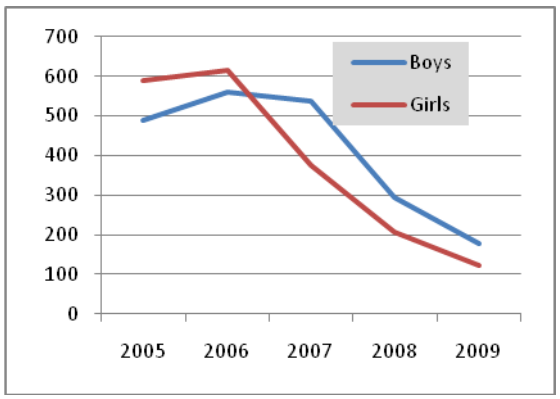


Figure 4-3: Trends in school absenteeism in Nyamware Primary School

Only one school (Nyamware) showed a remarkable improvement in enrolment as a result of the project. The increases were marginal in the other schools and it is difficult to ascribe these

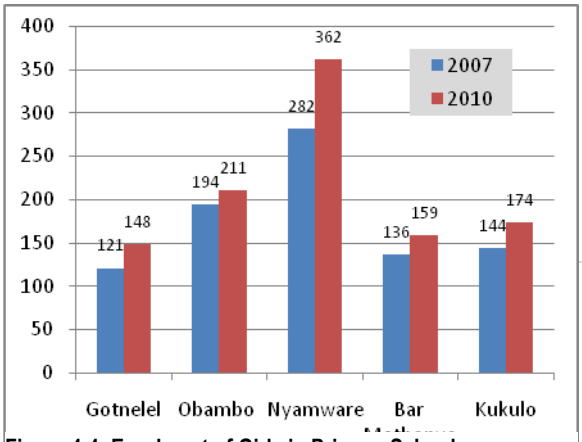


Figure 4-4: Enrolment of Girls in Primary Schools

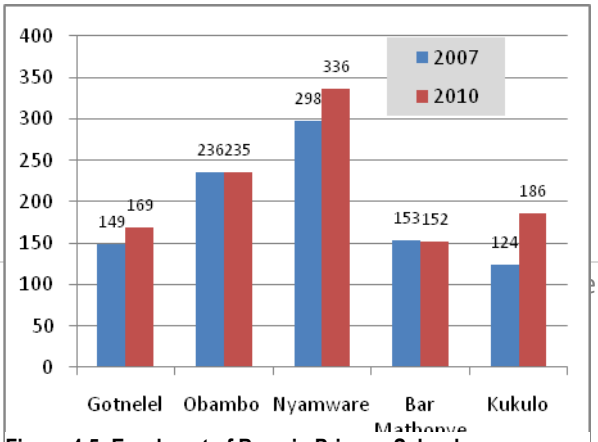


Figure 4-5: Enrolment of Boys in Primary Schools

increases to the intervention. In Nyamware Primary School, the Headteacher intimated that the influx has been due to the availability of the sanitation facilities. Overall there was a 13 per cent increase in enrolment among the 5 schools reporting. More girls (17%) enrolled than boys (11%). It is in interesting to note that in the case of Nyamware Primary School the big increase was attributable to the enrolment of more girls.

4.8.3 Has performance in schools improved?

There is little evidence to show that performance has improved. The KCPE performance in the target schools has been average and has not shown any marked improvements since the project started. According to the Acting DEO Kisumu West District, lack of improvements is attributed to poor internal curriculum supervision arising from a number of factors. These are: low teacher: pupil ratio, high prevalence of HIV/AIDs among teachers, high poverty index, and the advent of Free Primary Education (FPE) which have overstretched the available resources.

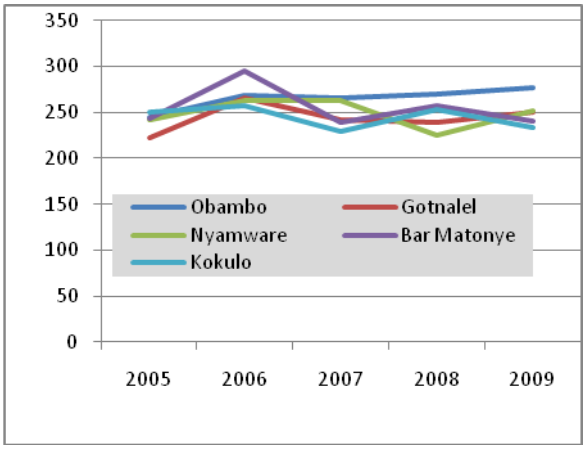


Figure 4-6: School performance in target Primary Schools

4.9 Gender Perspectives

Some of the gender aspects of the Kisumu Project, in addition to the known benefits associated with improved water and sanitation are worth highlighting in the Case Study. These are:

i. There is an increase in the number of girls in upper primary classes;

ii. There is better privacy during the menstrual periods and this has reduced absenteeism;

iii. Use of ECOSAN toilets has not efficiently catered for adolescent girls and female teachers needs during the monthly menstrual flow. Disposal buckets for the used sanitary pads were not available.[16]

iv. School Health Clubs have more female pupils than boys.

v. The project has reduced cases of absenteeism and the girls indicated that they feel more comfortable to attend school during their menstrual flow.

Most of the members of Schools Health Clubs are female pupils

vi. School pupils on average had 60% rate of Handwashing, with girls performing better than boys and the younger boys performed better than the big boys.

vii. Enrolment of girls has increased more than it has for boys;

[16] The contractor is reported to have told the assessment team that there were buckets provided for the purpose.

CHAPTER 5 : LESSONS

This section captures the emerging issues and lessons from the implementation of the Kisumu Project. The issues discussed are based on a review of project documentation and literature on water and sanitation supply in Kenya and in particular the project area, field visits and consultations with various actors associated with the project. The recommendations are meant to support regional learning, to inform the policy debate and, more particularly to inform AWF's Operational Strategy, which is currently under review.

5.1 Lessons learnt

5.1.1 Policy and institutional context

Kenya enjoys tremendous goodwill from donors, international and local NGOs for WASH delivery: Kenya's WASH sector is enjoying a lot of donor support and at current investment levels this is as much as US$16 per capita (excluding NGO interventions). Sector reforms and well-defined policies for both water supply and environmental sanitation have brought greater clarity for all to play their part. This clearly suggests that where there is a clear vision and well-defined agenda, development partners are willing and able to commit to it.

Think big or partner at highest level to be able to inform policy: The presence of several actors in Kenya's WASH sector means that small interventions must be implemented through partnerships with other 'senior' actors and the key ministries if they are to be visible in a way that will inform national policy. The Kisumu Project's lessons had a better chance of informing policy if key national level ministries and agencies had been brought on board at its inception.

5.1.2 Role of existing institutional structures

Get the field office to play a visible role: The AfDB's Field Office (KEFO) served as a vital interface between the implementation agency and AWF which, in turn, facilitated rapid exchanges between the two and culminated in timely implementation of the project. KEFO can bring the lessons from projects closer to government through the regular meetings between partners and GoK led by the Ministry of Finance. Their contribution of local knowledge and influence at the highest level are assets that should be exploited.

Use of existing local level structures has been useful: the importance of using institutional structures on the ground cannot be over-emphasized. The participation of key actors at the district level, such as the District Education Office, Lake Victoria South Water Board and the District Public Health Office, in the overall implementation of the project activities (even if not directly) has resulted in key stakeholder buy-in. This is likely to ensure continuous monitoring of the facilities beyond the delivery of the project.

5.1.3 Project identification, implementation and outcomes

Pilot projects should give way to scale-up and direct investment in increasing service delivery: The Kisumu Project was conceived such that the *"lessons learnt from [this] pilot project shall be well-documented to be shared with project partners, regionally and internationally on the website of Horizont3000 and AWF for use in similar project".* 'Piloting' suggests that an activity has not been done before and is being tested to see its overall usefulness in service delivery. There have been

several interventions in school WASH in Kenya and in the Kisumu area some of which are based on ECOSAN and RWH. A review of WASH literature and the lessons gathered from the Kisumu Project abounds in lessons that need not be 're-discovered'. Adequate dissemination of lessons from other projects is what is needed. Perhaps a better word for the intervention is 'demonstration'. Defining projects as pilots, which tends to give high unit costs for both software and hardware, is giving the sector a 'bad' name, even if this may not be entirely justified. This point was forcefully carried home by the then South African Minister of Water Affairs and Forestry at the Africa Day of the 5th World Water Forum, when she called for a move away from pilot projects to the implementation of large scale projects.

> "……., the way forward is to: (iii) **move away from the implementation of the very popular pilot projects to the implementation of large scale projects;** and, (iv) increasing budgets for water and sanitation"
>
> *Mrs L B Hendricks, Minister of Water Affairs and Forestry, South Africa at Africa Day at the 5th World Water Forum, Istanbul, March 2009*

Project has been able to achieve what it set out to do: The Kisumu Project has impacted positively on the beneficiary schools and communities even if there are minor challenges. Its demonstration value is huge, but it is too early to judge its long term impact. It has been one of several projects in school WASH delivery in Kenya that have made a difference in the lives of school children and their parents. School children understand and appreciate what is good for them, and it is little wonder that they are moving from deprived schools to those with the new facilities.

A key lesson from this piloting (and other ECOSAN interventions) is the importance of cultural values in people's behaviour. The refusal to use the ECOSAN toilets after they had been built (in spite of the expressed willingness at the inception of the project) demonstrates the need for sustained sensitisation. This notwithstanding, the message has gone down well for a majority of the pupils and communities.

After piloting then what? The issue of what happens at the end of the pilot project came up several times during interactions with sector actors and beneficiaries. STIPA and Horizont3000 would like to replicate the project's success to many more schools that also face similar water and sanitation challenges. Who funds the next set of interventions is tied in with how the project engaged GoK (at the highest level) and potential partners to win support for scaling-up after successful implementation of the pilot. Nonetheless this remains an unresolved issue with many projects.

5.1.4 Implementing community level interventions through NGOs

What have we learnt from partnership with NGOs?: The design and implementation of the project highlighted three fundamental lessons that could inform future interventions by AWF and broader Bank water and sanitation activities. The Horizont3000/STIPA partnership was the first intervention supported by AWF and as such there was no previous evidence to judge their effectiveness and reporting in line with the established procedures of the facility. Delivery through the 2 NGOs had the following attributes:

Timely delivery of outputs: This is evidenced by the fact that the project was completed 3 months ahead of schedule;

Good reporting of progress as well as accounting: Records at AWF indicate a timely delivery of reports on progress as well as accounting for the monies provided;

Closer rapport with the communities: Due to the nature of their work, NGOs are closer to communities and this has brought an added value for backstopping and sustainability. STIPA is involved in other activities in the project area and it was clear during the field visits that community members are very comfortable in communicating their thoughts and problems. But such backstopping is informal and not institutionalised.

On the other hand there were some negative aspects which should be highlighted.

- Engagement of District institutions should have been at the planning stage to get greater buy-in and benefit from their expertise;
- Supervision capacity was low in some respects;
- Needs assessment and community sensitisation appears to have been weak in some communities; this would have eliminated the low uptake and the lack of use of ECOSAN facilities in some schools.

> "Kisumu has been one of our best projects. Originally the project was not visible to the Kenya Field Office (KEFO), and at the national level. Thus neither Horizont3000 nor STIPA was invited to participate in the Government/Partners meetings hosted by the Ministry of Finance. In time this was corrected and KEFO followed progress of the project.
>
> "STIPA was based on the ground and had competent staff who knew what they were doing".
>
> *James Opio-Omoding, Country Programme Officer, Kenya Field Office, AfDB*

5.1.5 Making technology choices

Choosing ECOSAN toilets over traditional pit latrines was the main driver for the project: The desire to showcase a cost-effective, efficient and environmentally sustainable means of water and sanitation delivery to poor communities was the principal driver for the project. The downside of this has been that some teachers and one of the schools – Gotne-lel Primary School – have refused to use the ECOSAN toilets for cultural reasons. Perhaps this may be due to insufficient sensitisation or teacher transfers. Some other choices could have been explored, including improvements in design to address the cultural sensitivities, selection of another community (in line with demand-responsiveness) or construction of an alternative latrine system (in the extreme).

ECOSAN is not a specific technology model: ECOSAN is a concept for excreta management that recognises the entire sanitation chain and considers the final waste as a product with value. Therefore facilities can be very basic or sophisticated, with different cost implications. Because the concept is fairly new (in terms of contemporary sanitation delivery approaches), it has been more difficult to sell. Therefore the cost of promoting it – through sensitisation of communities - is relatively higher, even though this could be offset by income that accrues from sale of the final product (waste). The message of ECOSAN should emphasise the value of the final product rather than a call to be socially and environmentally responsible.

You can change many, but not all of them: The refusal of teachers in some schools to use ECOSAN facilities has been explained by the fact some of them would not like children to carry their faeces - or they may simply be faeco-phobic. This raises the question of how much sensitisation needs to be done to change everyone's behaviour. Cultural practices are difficult to break and it is often more appropriate to take these into consideration in implementation than to attempt to change them after facility delivery.

Is there a good reason for school children carrying faeces?: UNICEF and school heads believe that there is nothing wrong with upper primary children carrying their own faeces (once sanitary and

hygienic conditions are observed) as it is part of the learning process.[17] Others, however, believe that such sanitary conditions will not always be ensured and some schools with poor leadership may not be able to provide the necessary safety tools and equipment - such as gloves, gum boots, disinfectants - and children will be exposed to undue risk.[18] They prefer the alternative solution of hiring a worker(s) to undertake both excreta management and farm-linked activities in a more integrated manner. This will help establish the true cost and benefit of ECOSAN as children's labour is not the most appropriate for safety reasons.

Some schools are yet to incorporate use of end product: The use of urine (urea) and manure has not caught on with all the schools suggesting that not all of them appreciate the value that they can derive from it. It would be appropriate for future ECOSAN projects to look at an integrated scheme those factors in the income-generating activity as part of the overall project design. The wages of worker(s) can be borne through contributions made by the community members (as in the cases of Songhor and Nyamware) or through water sales, garden produce, and savings made as a result of having more permanent sanitation infrastructure. The feasibility of this should be built into the project design just as is done for the operation and maintenance of water facilities.

Songhor Cane Farm (with application of urine (l) and without (r)

Children's fascination with ECOSAN facilities needs to be understood: The project has demonstrated that children are more inclined to practise good hygiene and adopt the use of new technologies than their senior counterparts (teachers). This may be due to curiosity, fear of authority (school heads) or simply the desire to enjoy the use of new (and aesthetically attractive) facilities. These should explain the excitement with the ECOSAN facilities rather than a preference for carrying one's own faeces, whether this is harmless or not. It reinforces the point about emphasising the value of the end product in ECOSAN and ensuring that facilities can justify the investments made in them or demonstrate that income from the waste can contribute to improving community's circumstances and alleviate poverty.

We need to recognise limitations of RWH as some schools run out of water during dry seasons: Whilst RWH has many virtues, a major WASH organisation in Kenya such as UNICEF believes that it cannot be the most appropriate way to serve schools because of seasonality and likely consequences of shortages. Emphasis has therefore been

One of a number of water points in the vicinity of Nyamware Primary School.

[17] This came up during discussions with Mr Mohamed El Fatih, WES Chief, UNICEF, Kenya.

[18] Children in one of the School Health Clubs visited, whilst praising the ECOSAN concept, spoke of the lack of gloves, gum boots and other safety tools to make their work more hygienic. They requested that these be supplied on a regular basis.

on relatively more expensive boreholes. These views were shared by the DWO and the LVSWB in discussions. [19]

The real risk of droughts demands that RWH supplements (or is supplemented by) alternative sources in a manner that still makes economic sense. Some of the schools e.g. Nyamware, are in areas where groundwater was easily reachable, as evidenced in a number of private boreholes in the proximity of the school. An additional borehole costing KSh 375,000 – 750,000 (US$5-10,000) could complement water supply in times when harvested rain is not enough to address the needs of the schools (and to some extent the communities that rely on them for their supply). This recognises that the major capital cost – storage tank – is already in place.

5.1.6 Managing facilities to ensure sustainability and uptake

Leadership and commitment are key: Sustainability of the project depends on a number of factors, including (i) the type of leadership; (ii) buy-in and commitment of the community; and (iii) the relationship between the community and the school administration. In the schools with enthusiastic leadership and champions (head teachers), supportive communities and a functional relationship between the schools and the communities, long term sustainability is likely to be ensured. This is evident in the significant differences in management and use of the facilities. Various mechanisms have been instituted to operate and maintain the facilities, such as community levies and allocations from the school's operations and maintenance (O&M) budget. These schools have used various innovations and adaptations to solve minor problems as and when they arise. On the other hand, sustainability is threatened in schools with relatively weak leadership and lackadaisical community.

Leadership is a key factor to success of ECOSAN

Conflicts between WSCs and SMCs - Who is in charge?: Control of water and sanitation facilities confers power on those who have been put in charge to manage them. Unless there are very clear bye-laws or guidelines that define the responsibilities and boundaries of water committees and other community structures, there is bound to be conflicts. This is a phenomenon that transcends all communities, particularly in rural and peri-urban communities. It is thus not surprising that this is a common occurrence in the project area.

The situation in Kisumu is perhaps aggravated by the fact that WSCs have been set up to manage a community facility 'that does not exist', as SMCs consider the WASH infrastructure as part of the school's facilities over which they exercise control. They do not have access to the facilities all the time and yet are required to support their maintenance and operation. The lesson therefore is that schools should not be seen as separate from communities in the provision of facilities such as water supply. Including the community's needs will have resolved many of the conflicts that have arisen. This could be done by leveraging funds through other sources to ensure that the full benefits of the interventions accrue to the entire community, not just school pupils.

[19] Technology Information Packages (TIP) (which provides technical selection guidelines for UNICEF Programme staff and partner organisations to enable them help communities to make choices on WASH technologies) does not include RWH. RWH is not 'included because of wide variation and the local nature of technologies involved'.

5.1.7 Post delivery support

Several minor and major post delivery defects in project infrastructure have been identified. Many of these are outside the defects liability period and it is expected that communities, schools or district level structures should take responsibility for this. Unfortunately no support is in the horizon and schools made enquiries on whether AWF would be willing to assist. This raises issues with post delivery support with NGO-driven projects as against projects that are housed and institutionalised within an existing structure – e.g. the Water Board or District authority.

5.1.8 Networking to achieve greater mileage in dissemination

Existence of advocacy and learning centres provides good platform for dissemination of knowledge: The WASH sector in Kenya has several active NGOs – both local and international. Many of these have been involved in WASH delivery in rural communities and in schools. Networking with existing organisations will be a way to disseminate the knowledge that is generated by any project.

Two organisations that respond to such partnerships are NETWAS and the Kenya Association of NGOs in Water and Sanitation (KEWASNET). NETWAS is a capacity building and information network for Africa focusing on water, sanitation and hygiene. It has done considerable work in Kenya's school WASH programme. It is comprised of resource centres in Eastern Africa implementing capacity building activities on training of professionals, applied research, networking and information sharing, advocacy, advisory and consultancy services. KEWASNET's has several members and is a useful outlet for disseminating lessons from the project. It also engages GoK and development partners in its advocacy role. A learning alliance fostered through NETWAS and KEWASNET, among others, will enhance uptake.

5.1.9 Other lessons

Communities are willing and ready to contribute to improve their circumstances: In spite of the relative poverty in the project areas, community members were ready to contribute to support the interventions if they are adequately sensitised. This is borne out in willingness to contribute labour in kind and make monthly payments (KSh50/month) towards O&M of facilities. Therefore funding - for hardware and complementary software - lies at the bottom of the issue.

Level of knowledge about ECOSAN is low: It is clear from statements from local officials, and beneficiaries that the level of knowledge about ECOSAN – as a concept and its usefulness – is generally very low. This is not unique to the project area but may be the case in several countries In that respect any communication or advocacy work should take into account the interests of the particular stakeholder.

ECOSAN is good for multi-users and its promotion should be emphasised for public facilities: Public and heavy-use facilities can offer the volumes of waste that can demonstrate the true benefits of ECOSAN (as manure or to generate biogas).

Can we design and approach ECOSAN in a culturally more sensitive way?: ECOSAN demonstrates the merits of looking at the entire value chain for sanitation. In designing facilities, faeces may be seen by users on a daily basis or several weeks after, depending on how low-cost the design is. In a conventional latrine the faeces are not seen and the user literally cares less about where it ends. This is the dividing line. The challenge that should be thrown to public health engineers and community development actors, is how do we improve the design of ECOSAN

facilities in schools and communities (public use) such that they respond to the cultural and other concerns of users?

Poor maintenance gives ECOSAN a bad name: Visits to some of the schools clearly showed that where facilities are tidily maintained (as in Songhor), ECOSAN enjoys patronage and respectability that are necessary for uptake. Where maintenance has been poorly handled, they not only pose a danger to the children who were intended to be protected in the first place, but they also drive away potential converts from a concept whose promotion is already a challenge.

Simplicity is good; mediocrity is unacceptable: One school demonstrated the value of innovation and adaptation through the fabrication of a metal handle that was used to carry waste containers to prevent contamination of hands with faeces. On the other hand, while some schools had nice plastic containers for handwashing, others used tippy-taps, which looked like stone-age inventions. Whilst admittedly they may serve the same purpose of improving hygiene among school children through Handwashing (or almost so), one facility demonstrates that we are in the 21st Century and children are expected to learn how to advance or to build upon current state of technologies. And yet to get any of those plastic containers is just a telephone call away to an NGO or spending a few Kenyan shillings.

Figure 5-1: Tippy taps and plastic containers serve same purpose; but what does it take to get the container?

CHAPTER 6: CONCLUSIONS AND RECOMMENDATIONS

The chapter first summarises the main issues addressed in the Case Study. A few recommendations are then discussed

6.1 Looking back

This Case Study has looked at the implementation of the Kisumu Primary Schools Water and Sanitation Delivery Project from the perspective of Kenya's entire WASH delivery, and how the project aligns with GoK policy. It has also discussed the specifics of the project, the technologies that it sought to demonstrate and how the expected outcomes have been achieved or have been largely achieved. The project was purposely defined as a pilot whereby lessons learnt shall be well-documented to be shared with project partners, regionally and internationally on the website of Horizont3000 and AWF for use in similar project". This report supports that process.

A number of observations have been made and conclusions can be drawn:

1. As part of its commitment to achieve the Millennium Development Goals (MDGs) of universal primary education, the GoK has implemented a policy of free primary education, which has resulted in high school attendances. School WASH facilities, which were already overstretched and inadequate in most schools, have not caught up with the increased enrolment requiring interventions on all fronts.
2. The Kisumu Project was defined in line GoK policy and was particularly tailored to an area where poverty, water and sanitation service levels are among the lowest in the country, and where targeted primary schools face risks of diseases as a result of inadequate and inappropriate WASH facilities. Natural conditions drove the choice of technology.
3. The project fits in well with the African Water Facility's focus areas; defined as a pilot, its lessons would deepen knowledge on service to poor communities and schools and inform national and local level WASH activity, as well as the facility's own operational strategy;
4. Kenya's institutional landscape for water and sanitation presents several actors in policy, regulation, service delivery and advocacy. Donors and NGOs are very active and have demonstrated a good appetite for providing finance for the sector, driven in large part by the sector reforms. This poses challenges for sector co-ordination and there is a move to SWAp to implement the sector programme. This means sufficient visibility should be created for projects and activities that are expected to inform policy and get mainstreamed into the national programme
5. Implementation of the Kisumu Project, small as it is in relation to size of funding and output, set out to demonstrate cost effective, viable and environmentally sustainable approaches of water and sanitation delivery to schools and associated communities through the construction of ECOSAN toilets and water supply through rainwater harvesting. The two concepts, while receiving mention in national policy and strategy documents, are yet to be fully mainstreamed into major projects, in spite of their obvious advantages.
6. ECOSAN is a concept whose justification (or otherwise) will differ from one stakeholder to the other; therefore the communication and advocacy messages should bear this in mind.

7. The expected project outcomes have been met, and a number of lessons have emerged. Many of these lessons have been learnt from similar projects and are already in the public domain, but the value the project brings is the visibility of the facilities in the communities. This will engender replication among schools and communities in the area and elsewhere.
8. The impact of the project is already showing in improved water supply, higher school attendance and enrolment, improved hygiene practices, among others.[20]
9. There are several lessons that have been gathered. Key among them, from the perspective of AWF, is that NGOs can be effective partners in implementing the facility's agenda, particularly in interventions in rural communities. However they have limitations in size and ability to influence policy at the highest level.
10. The true test of success of the project lies in the extent to which its findings can feed into district and national level planning, inform policy and engender increased adoption of the ECOSAN and RWH technologies. This is where AfDB's Field Offices - as well as national and international NGOs like NETWAS, KEWASNET, WaterAid, CARE - can play a significant role in bringing the results of interventions to the attention of the highest levels of government. This can be done in two ways: (i) by bringing the lessons learned to the attention of GoK and its partners to inform national policy, strategy and planning; and (ii) incorporating lessons into projects funded by the Bank itself.
11. Effective engagement of advocacy, capacity-building and learning organisations will be a useful path to pursue during project implementation.

6.2 Recommendations

The following lists a few recommendations. Others can reasonably be deduced from the preceding discussions.

1. AWF should scale up its engagement with NGOs. Such NGOs should be encouraged to partner with others so that more reasonably-sized projects – with enhanced visibility – can be supported
2. Supported NGOs should demonstrate a link with a Learning Alliance or a national network that will help bring its interventions to public knowledge and increase the opportunities of informing the national WASH agenda
3. AWF-funded projects should have advocacy components that finance engagement with decision-makers at the national, provincial and local levels. Additionally AfDB's Field Offices could more actively take on this role as part of the project design.
4. Pilot/demonstration projects should not only allude to their conformity with national policies and strategies, but should demonstrate that there is fair chance of the findings being adopted and are actually adding value to what already exists. This implies that the appraisal of any new project should include a detailed mapping of existing technologies, players, previous and ongoing pilots and how the new project is different from the others and how it will add to existing knowledge.

[20] Admittedly, any improvement in water supply and sanitation (by whatever technology) will provide the benefits indicated. What is relevant is the extra benefits that ECOSAN or RWH brings

5. Greater emphasis should be put on direct investments to impact poor people as the 2015 MDGs timeline approaches. There are enough technologies and delivery approaches to bring meaning into the lives of rural and poor communities.
6. Interventions should be defined to impact entire communities rather than isolating schools from such communities. This will mean leveraging more funds with governments and other donors so as to cover associated communities and get greater visibility for such interventions, whilst (more importantly) reducing the unit cost of delivery through scale economies.
7. ECOSAN and RWH are concepts which have greater environmental value to society than to individuals or households who are to benefit from it; therefore GoK and partners should spend more resources in promoting the concepts.
8. AWF should institute an Award Scheme (in consultation with AMCOW and the AfDB) that provides incentives and recognition to sector actors whose performances have contributed to the visibility, relevance and impact of the interventions that the facility had funded.

ANNEXES

References/Bibliography

List of contacts

Selected Statements from Local Officials and Sector Actors

References/Bibliography

1. African Water Facility, Kisumu District Primary Schools Water and Sanitation Project Appraisal Report, December 2006
2. Constanze Windberg,Strategy Development for Successful Implementation of Ecological Sanitation Approaches in Sri Lanka using Stakeholder Analysis, prepared for UNICEF,
3. *en.wikipedia.org/wiki/Water_supply_and_sanitation_in_Kenya*
4. Horizont3000, Kisumu District Primary Schools Water and Sanitation Project Outcomes,, Assessment Report 2010 prepared by Jimmy Twebaze – Team Leader and Keziah Ngugi
5. IRC, Study on the impact and sustainability of WASH in schools research: Kenya and Kerala, 2006-2007 *www.irc.nl/page/48277*
6. Kenya Bureau of Statistics, Kenya Demographic and Housing Survey, KDHS, 2008
7. Kenya Bureau of Statistics, Kenya Integrated Household Budget Survey, KIHBS, 2005/2006
8. Ministry of Health, Kenya, National Environmental Sanitation and Hygiene Policy, Nairobi, 2006 Improving school sanitation and hygiene in Kenya: Seven partners in successful joint learning partnership, Updated - Monday 16 July 2007, http://www.irc.nl/page/25966
9. Rahul Ingle, Christian Rieckand Elisabeth: Experiences with Ecosan Systems to Provide Sustainable Sanitation for Schools in Kenya And India,
10. Ref: SANA/AN
11. Scaling School Water, Sanitation, and Hygiene in Rural Kenya: An Assessment of the Kenya Education Sector Support Program
12. The Center for Global Safe Water at Emory University, SWASH+ BASELINE REPORT
13. Vincent Njuguna[1], Beth Karanja[1], Mishek Thuranira [1], Kathleen Shordt[2], Marielle Snel[2], Sandy Cairncross [3], Adam Biran[3], Wolf-Peter Schmidt[3], The sustainability and impact of school sanitation, water and hygiene education in Kenya,
14. Water Services Regulatory Board, IMPACT A performance Report of Kenya's Water Services Sub-Sector, 2009, Issue No 2

Annex 2: List of Contacts

Name	Organisation/Designation
Mr. Joash Ogana	
Ms Christine Onim	STIPA, Kisumu
Lucas Wadenya	
Mr Dedan Oukom	Kokulo Primary School, Headteacher
Mad Anne Ayoo	Kokulo Primary School, Chair of Health Club
Mr. Kasuku Wambuaya	Songhor Primary School, Headteacher
Mr. Robert Bonga	Chairman, Songhor Border Community
Mr. Charles Obaje	Nyamware Primary School, Headteacher
Mr. Thomas Onyango	District Water Officer
Mr. Daniel Obumba	Lake Victoria South Water Board
Mr. Joseph Shyanbuya	Lake Victoria South Water Board
Ms Winnie Makhokha	Lake Victoria South Water Board
Hilda Ayieko	Ministry of Public Health and Sanitation, District Public Health Officer, Kisumu West
Ms Rose Sagara	Ministry of Education, District Education Officer, Kisumu West
Mr William Makori	Ministry of Education, Deputy District Education Officer, Kisumu West
Patrick Mwangi	Water and Sanitation Program-Africa
Ms Domina Bozingo	AfDB, Country Rep, KEFO
Mr. James Opio Omoding	Country Programs Officer, KEFO
Katharina Fulterer	Deputy Director, Horizont3000, Kampala
Samalie Lutaaya	Assistant Program Officer, Horizont3000, Kampala
Elisabeth Shreiber	Programmes and Projects Officer, Horizont3000, Vienna
Mohammed A Fatih	WASH Chief, UNICEF, Kenya
Prof Edward Kairu	MAJI Na Ufanisi
Nancy	MAJI Na Ufanisi
Judi Ndiba	MAJI Na Ufanisi

Annex 3: Selected Statements from Local Officials and Sector Actors

District Water Officer

"The project has been of great help to schools and pupils, and to some communities. Its implementation has changed the lives of the people, judging from messages which came from those who attended the various workshops that I attended".

"From my perspective it would have been better to do boreholes to have a more sustainable facility. Rain water could be supplementary".

Assistant District Education Officer

"Our district was not created at the inception of the project, but we have been part of since separation"

"The ministry recommends 5litres per pupil per day and the project has helped to achieve this in the selected schools

The ministry gives the option to Districts to choose the option to adopt. We have made recommendations for adoption of ECOSAN for adoption in national guidelines"

DPHO

I got to know of project during a WESCOORD meeting, and since then we have worked with STIPA as a team. We have also supervised in line with Government procedures

LVSWB

"We recommend protected springs, hand-dug wells, boreholes (hand-pumps, solar-powered or electricity) and surface water treatment. RWH is normally recommended for institutions, and must meet water quality standards".

"Where rainfall is adequate, RWH may be good, and so far the Board has funded 2 projects".

[There was an unexpressed caution with RWH].