Infrastructure: Improving practice — a report on Phase 1 operations

Practice Paper

Contents

esspin
Education Sector Support Programme in Nigeria

UKaid
from the Department for International Development

Introduction

Nigeria's education system is in crisis. This has been a common theme throughout ESSPIN's Phase 1 operations. The crisis has been described in relation to, for example: lack of access to education in terms of numbers of children out of school, poor learning outcomes, unqualified teachers, and poor teacher training. For most parents and communities in Nigeria, the crisis is seen primarily as an infrastructure problem. Recurring themes in discussions with parents are the shortage of classrooms, the dilapidated state of most of these classrooms, and the lack of furniture, water and sanitation facilities.

That parents should express such views is not surprising. In a 2007 DFID report , it is stated that the challenge in addressing the provision of primary education facilities in sub-Saharan Africa is huge. In Nigeria, according to data both from an ESSPIN survey conducted in 2010 in three States and from other sources, it is estimated that 70% of schools are in a poor state of repair, that 75 – 80% of schools have no access to toilet facilities for teachers or pupils, and that fewer than 50% of schools have access to potable water. Lack of water and sanitation facilities has a major impact on school attendance and consequently on learning outcomes. Figures for children absent from school are 20% higher in schools with no water and sanitation facilities. For girls, this figure is much higher.

How do you begin to address the problem, particularly through a donor programme with only limited resources available? Provision of facilities is one option, but given the scale of what needs to be done, this option is unlikely to have much impact on the overall need unless it is allied with efforts to make the systems responsible for delivering infrastructure services to schools more effective and efficient. This paper describes the challenges that have faced ESSPIN's infrastructure work in its first Phase, and how, working in close partnership with States, ESSPIN has contributed to significant, measureable, and sustained progress in improving infrastructure delivery and provision.

Top and left
Blocks of classrooms in a dilapidated state, without water or sanitation facilities.

Challenges

Using a water and sanitation programme as a vehicle for change, the primary focus of ESSPIN's infrastructure programme has been on encouraging and restoring good practice to SUBEBs' Physical Planning Units. In so doing, the aim has been to address three of the four output objectives of the programme:

to strengthen the governance and management of education at State level;

to improve education service delivery in primary and junior secondary schools;

to increase the capacity for communities to articulate demand for better quality educational services.

The structural, systems and institutional challenges that faced ESSPIN in realizing its objectives for its infrastructure work in Phase 1 of the programme are as follows:

Weak technical capacity

In all ESSPIN States, the capacity of SUBEB with regards to their operating mechanisms and practices for implementation and accountability of their infrastructure programme was weak and inefficient, although the systems themselves were fundamentally sound. Apart from a small number of senior staff, few had the qualifications, training or experience to carry out the work needed. This limited capacity impacted on all areas: planning, drawing up bills of quantity, developing prototype designs and architectural drawings, developing tender documents, and supervision. Departments lacked basic operating materials, for example transport, computers, furniture, and filing systems, to carry out their work.

Top and right
Working with state governments ESSPIN has built prototype water and sanitation facilities in schools to encourage and restore good practices.

Minimal needs analysis

There was little proper planning of infrastructure works. Site selection for new work or maintenance was largely based on requests from local government chairmen and education secretaries, was often politically influenced. Little or no reference was made to what EMIS data was available.

Weak and inflexible designs

Classroom design was adequate but the approach was one size fits all, and, particularly in urban areas, no allowance was made for classes larger than 40 pupils. In all cases, latrines and toilets were poorly designed. Many were no longer in use, and open defecation was a problem in many schools. None of the designs catered for children with mobility problems.

Poor quality construction

The quality of the construction seen at nearly all schools was generally very poor, and in some cases unacceptable and unsafe. The poor quality of the construction was a result of a number of factors, the chief ones being: incompetent contractors selected through a restricted, and possibly influenced, bidding system; under-pricing of bids by contractors; the use of poor quality materials; use of unskilled labour; poor supervision.

Weak supervision

Supervision of the building work was poor and sporadic. As a result, buildings were not being constructed in accordance with the drawings and specifications, which subsequently impacted on quality.

Inflated construction costs

The costs of construction were comparatively high as a result of overinflated estimates of construction costs caused by: leaking of budgets to contractors prior to bidding; the non-transparent procedures for the selection of contractors; inadequacies in the bidding and evaluation processes, all of which tend to inflate costs.

Top and right
Poor quality construction with inadequate supervision over the years has resulted to producing unsafe learning environment for pupils.

Excessive focus on rehabilitation leading to wastage

A considerable proportion of the infrastructure budget was being spent on rehabilitation. In Kaduna in 2010, this figure was approximately half of the total infrastructure budget. Much of this funding was being used to repair sub-standard building with no initial assessment being made as to how effective the repair work would be. In most cases, all that was being achieved was cosmetic work on defective shells. Because of poor initial build quality, many classrooms, toilets and water points that had been completed fewer than five years before needed rehabilitation.

Slow budget release and low completion rate of projects

Budget release for infrastructure work was often delayed: in 2010, when ESSPIN started the first phase of its building programme, a number of States had still to access their 2008 UBEC IF allocation. This slow release and utilization of budget not only impacted, and continues to impact, on new build, but also on completion rates. According to the QSDS, in Kaduna fewer than half of LGA classrooms designated to be built in 2007 were completed, while in Enugu the completion rate was 70%.

Low and ineffective community participation

At the beginning of the programme, there was little indication of SUBEBs engaging with communities with regards to the planning, implementation and maintenance of their local schools. Also, the capacity of communities to engage with infrastructure programmes was limited, as evidenced by the low quality of construction implemented under the MDG self-help programme. Here, expectations of the community to deliver were unrealistic given the budget available and the limited technical assistance, professional supervision and monitoring given. Where communities had been involved, the quality of the building work was lower than that conducted by SUBEB engaged contractors. In many cases, buildings were left unfinished.

Left
Pupils have been subjected to learning under very inconducive condition; Thus ESSPIN is working with state governments to adequately plan and budget for schools.

Mistrust of external interventions

The above paragraphs have highlighted the major systemic problems ESSPIN has faced during the first phase of the programme. What they do not highlight is the time and initial work needed to engage and build relationships with the Public Works Departments in SUBEB in order to enable ESSPIN to achieve its goals. In DFID's TORs for ESSPIN , there is a statement about the infrastructure "pump-priming" ESSPIN's programme activities, with perhaps infrastructure work being seen as an early win.

However, what the statement did not take into account was that, initially in a number of States, there was considerable resistance to working with ESSPIN: they were wary of their work and lack of transparency in practice coming under scrutiny. Breaking down these fears took a considerable amount of time, and it was not until 2010/11 that the first phase of actual building work started.

Delayed start of implementation

An additional challenge facing ESSPIN in the early stages of the project was getting systems in place to deliver its expected outcomes. Initially, it was hoped to sub-contract out the water and sanitation work However, the arrangement did not work out and a total rethink of how the programme was to be delivered slowed down the start of building works. While the delay was problematic, it was in retrospect beneficial, as it gave the programme time to start building relationships with SUBEB/ RUWASA and developing a sense of partnership and trust.

Left
A wide range of stakeholders are now involved in schools planning and management.

Responding to the challenges

This section sets out how ESSPIN has responded to the challenges outlined above by putting in place a delivery strategy that has built on existing systems, has been participatory, and has involved all major stakeholders.

Memoranda of Understanding

The key factor in facilitating the implementation of the programme and enabling ESSPIN to support good practice in SUBEBs' delivery of its infrastructure work has been the signing of memoranda of understanding with each State SUBEB. The memoranda designate that all payments are channelled through SUBEB with ESSPIN oversight, and so bind the two parties together in the delivery of the programme and all the processes involved: planning, design, tendering, procurement, supervision, and payment to contractors.

The memoranda have, despite difficulties and differences, ensured partnership, and over time have enabled good working relationships to develop. There has been a major shift in attitude in SUBEB towards ESSPIN such that, whereas before there was suspicion and reservation, SUBEB are now pro-active and enthusiastic in their support of ESSPIN's activities.

Top and right
Community members are now engaging with head teacher to monitor project implementation in their community schools.

Better site planning

When the programme first started, planning was largely done on an ad hoc basis due to the lack of good school data, and, as a result, site selection was often determined not by need but by patronage. With the improving availability of good EMIS data through ESSPIN's work with the States, the planning process has radically improved, with demographics, school enrolment figures, and existing school stock determining interventions. Once site selection has been agreed, the next stage of the process is an actual site visit to verify the selection and needs before work starts.

Detailed site plans are now prepared for all beneficiary schools, and plans are shared with both the school and the community, minimising any dispute over their location. The plans ensure that buildings, particularly toilets, are well located and satisfy criteria for safe distances from water points and classrooms, and that the new facilities take account of future development and expansion.

Design delivering better value for money

Before commencing any work, and in conjunction with all ESSPIN State SUBEBs, designs and specifications for water points, toilets and classrooms have been reviewed and assessed in situ. As a result, the designs for the ESSPIN funded facilities have been adapted to ensure they met UBEC's minimum standards criteria , are of good quality, are good value for money, and are appropriate for the schools in the project States. All designs cater for children with mobility problems with ramps being installed to provide easy access to both classrooms and toilets.

Left
Consultants and community members inspecting a classroom construction work to ensure that the contractor meets the required standard.

In addition, toilets have been made more accessible with the provision of toilets that provide more space and are equipped with handrails to help when using the toilet. Throughout the programme, the building work has been monitored for functionality, and the designs adapted when problems have been noticed in their use. Over time, the majority of States have incorporated the ESSPIN design modifications into their State-wide programmes. In Kano and Kwara, ESSPIN's sanitation designs are now standard.

Jigawa and Kaduna are in the process of following suit. In Lagos, SUBEB insisted on ESSPIN installing cistern type WCs, which proved to be neither robust nor durable in practice. Now they have seen how the "pour flush" latrine design used in ESSPIN supported schools is more sustainable and practicable for school use, the demand has changed. In Kano and Jigawa, the design has made provision for use of "butas" (small plastic kettles) at hand wash points, in line with cultural norms, and these have promoted better use of the facilities and an improvement in general cleanliness.

More robust tendering and procurement

Tendering and procurement practices have been improved and are more open and transparent. All States now see the necessity of prequalifying contractors, with some States conducting actual physical checks on contractors to see if they have the necessary capacity to carry out the work. As a result, contractors without a good track record are now finding it increasingly difficult to tender for SUBEB work. Bills of Quantities for SUBEB managed construction are checked against those for ESSPIN funded work to give realistic pricing for work. In most States, ESSPIN's format for the presentation of tenders, with Bills of Quantities, specifications and drawings, has been adopted.

Left
Inspectors accessing a classroom for proper renovation.

SUBEB have also abandoned the practice of providing large mobilisation payments at the start of contracts. Prior to ESSPIN, these payments were up to 50% of the total contract cost. In line with contracts for ESSPIN work, mobilisation payments are now limited to 10-15%, and this has led to a much reduced abandonment of contracts. In Kano, SUBEB has adopted improved payment processes instigated by ESSPIN. This has resulted in a quicker and higher turnover in payments to contractors, and as a consequence led to prompt completion of work and an increase in provision.

In Lagos, ESSPIN's national consultant was appointed by the SUBEB Chairman and Board to review construction undertaken by Lagos SUBEB and to clear a backlog of un-accessed UBEC funds, which was having a major effect on provision. In 2012, when the consultant started his work, funds from 2008 to 2012 had not been utilised. Adoption of ESSPIN's monthly performance assessment of work completed and improved payment processes, have resulted in the backlog of funds being recovered and utilised. All current work is now being delivered on schedule. Because of the success of this initiative, ESSPIN's national consultant has also been asked to help to address delays in the utilisation of ETF funded infrastructure projects.

Stronger supervision and quality control

As stated in ESSPIN's construction costs and quality report, the absence of adequate supervision of construction contracts was one of the main reasons for the poor quality of the building work seen in schools. In order to remedy this problem, architectural consultants were appointed to provide quality control and technical support to contractors engaged in ESSPIN funded work. These in turn were monitored by ESSPIN State consultants and ESSPIN's national and international consultants.

Left
Consultants inspecting woodwork for classroom furniture.

The supervision has had a marked effect on both the quality of work and completion rates, and this has been recognised by the States. In Kaduna, Kano and Lagos, external consultants have been engaged to supervise SUBEBs' own construction.

In other States, for example Kwara and Jigawa, SUBEB have assigned staff to work with the ESSPIN appointed consultants so that they can get a better understanding of quality control in terms of workmanship and materials. A simple reporting template (see Table 1) has been developed. The template records progress of work towards meeting key stages in the construction process, and enables faults and delays to be identified and dealt with in good time.

As can be seen from Table 1, seven of the sites are progressing well while two (Yalwa and Agufa) are a cause for concern and would prompt the consultants to take action with regards to the contractors working on these sites.

Table 1: ESSPIN sanitation status report, Jigawa

LGA	**Lot 4 Sukudai Dutse and Miga**								
ITEM/LOCATION	Galadanchi	Kudai Yamm	Chamo	Malamawa	Yalwa Ruru	Kirmande	Shunawa	Dabaka	Agufa
1. Toilets/No of Cubicles	**24**	**16**	**8**	**10**	**12**	**8**	**10**	**8**	**10**
Substructure - Concrete (%)	100	100	100	95	75	100	90	100	7
Blockwork	100	100	100	100		100		100	
Doors	50	50	50	50	50	50	50	50	50
Floor & Walls Finishing	80	80	80	80		80		80	
Painting & Decoration									
2. Urinals/No	**10**	**6**	**2**	**4**	**5**	**2**	**4**	**2**	**4**
Blockwork	15	15		15					
Floor + Wall Finishing	87								
3. Handwashing/No	**6**	**4**	**3**	**3**	**3**	**3**	**3**	**3**	**3**
Basin	85	85		85					
Plumbing + Finishing	43								
4. Soakaway/No	**6**	**4**	**3**	**3**	**3**	**3**	**3**	**3**	**3**
Excavation + Filling									

Table 2

Maintenance and sustainability quarterly report												
Kwara											Date	May-14
Water Supply							Sanitation					
LGEA	School	Date of visit	Functional	Corrective action	Mantenance + sustainability rating	Remarks	Condition		Com. Management		Mantenance + sustainability rating	Remarks
			Yes/No	Bearing/Seal/ Foot-value Riser/Cylinder/ Handle/Other			Structure	H/Washing	In use	Clean		Remarks below
					Rate 1-10				Rate 1 - 10	Rate 1 - 10	Rate 1 - 10	
Kaiyama	Bani	05/05/2014	Yes		10		OK	OK	10	10	10	2 Taps replaced
	Cent Kaiyama	05/01/2014	Yes	6 Galvernised pipes	10		OK	OK	9	9	9	
	Bani Sulla	30/04/2014	Yes		10		OK	OK	8	9	9	
	Tungan Garua	30/04/2014	Yes		10		OK	OK	10	10	10	
	Nuku	05/02/2014	Yes		10		OK	OK	9	9	9	
	N/Gatte A	05/03/2014	Yes		10		OK	OK	8	8	8	1 Tap replaced
	Vobera	05/03/2014	Yes		10		OK	OK	8	8	8	1 Tap replaced
	Ban Moshe	05/04/2014	Yes		9		OK	OK	8	8	8	1 Tap replaced
	Tenebo	05/01/2014	Yes	2 Riser pipes, foot valve	9		OK	Not OK	6	9	9	Pipe

Maintenance and sustainability quarterly report												
Kaduna												Date: May 2014
Water Supply								Sanitation				
LGEA	School	Date of visit		Functional	Corrective action	Mantenance + sustainability rating	Remarks	Condition		Com. Management		Mantenance + sustainability rating
		Inspection		Yes/No	Bearing/Seal/ Foot-value Riser/ Cylinder/Handle/ Other			Structure	H/Washing	In use	Clean	
						Rate 1-10				Rate 1 - 10	Rate 1 - 10	Rate 1 - 10
Kachia	LGEA Rehab	19-Feb-14	19-Feb-14	Yes		9		OK	OK	6	6	7
	Model Kachia	19-Feb-14	19-Feb-14	Yes		8		OK	OK	6	5	6
	LGEA Fadan Anchi	17-Feb-14	17-Feb-14	Yes	Seals	8		OK	OK	8	8	7
	LGEA Kwaturu	28-Mar-14		Yes		9		OK	OK	7	7	5
	Sabon Gari Ankuwa	28-Mar-14		Yes		9		OK	Tap	6	5	6
	LGEA Kachia II	19-Feb-14		Yes		9		OK	OK	6	5	5
	LGEA Sakwai	19-Feb-14		Yes		9		OK	Taps + Tanks	6	5	5
	LGEA Sabon Maro	20-Feb-14	20-Feb-14	Yes	Seal, Collapse grouted area	6		OK	OK	9	9	7
	LGEA Sarahu	28-Mar-14		Yes		9		OK	Not OK	6	5	5

Quality control templates

A similar quality control template has been developed for the maintenance programme (Table 2). Schools are visited on a regular basis, usually once a quarter, to assess the functionality and use of the facilities. The schools are then given a rating. Any additional support needed is noted, and an action plan to address the issues is instigated. The reports also enable comparisons to be made of the States in terms of progress, and indicate to ESSPIN and SUBEB where to target resources. In the example below, the reports for Kwara and Kaduna for the same quarter are compared. In Kwara, all the schools look in good shape, whereas, in Kaduna, the water facilities look fine but school and community management of the sanitation facilities in a number of schools is a cause for concern.

Wider stakeholder involvement

A feature of ESSPIN's work, perhaps unprecedented in other government or donor led construction projects, has been the effort made to bring stakeholders together in all stages of the construction process. Before the start of ESSPIN's construction work, workshops were held in each State which brought together SUBEB, RUASSWA, LGEA officers, contractors, consultants, SBMC members and headteachers. The workshops were very practical, with participants being shown how to recognise good materials, for example the quality of concrete blocks, and how to assess build quality.

The workshops also provided a forum where participants could discuss particular issues, for example costs, payments, roles and responsibilities, attitudes towards ownership of the facilities, and so on. With the completion of facilities, these workshops have become increasingly important as part of the process of engaging with stakeholders with regards to maintenance and sustainability. The workshops enable participants to learn from each other and discuss issues arising, and, as a result, schools and communities are in a better position to address their own specific problems. For example in Lagos, SUBEB has responded to community concerns about protecting facilities by constructing boundary walls, providing flood protection in susceptible areas, and addressing renovation problems highlighted by the schools.

Left
A community forum to sensitise members on project monitoring.

School community ownership

As the programme has developed, it has become increasingly clear that provision of facilities by itself is no answer, particularly in terms of maintenance and sustainability. As a result, ESSPIN has aimed to involve the school and its community in all stages of the building process, establishing, with the school and its community, systems and procedures for the use and care of facilities which will ensure many years of use. Procedures have been set in place that give the school and community control over what work is carried out at their schools.

The community, through the SBMC, have control of the quality of the building work, as they, in conjunction with SUBEB and consultants, are required to sign off the valuation certificates for work completed. This process determines whether the contractors get paid or not. A considerable amount of time has been spent on helping communities to become more self-reliant so that they can manage and maintain the facilities by themselves.

Community education

In many of the locations where water and sanitation facilities have been provided, no previous communal water supplies or toilets existed. Schools and communities have had to be educated in their use, and basic hygiene instruction has been provided to ensure that toilets are used correctly, and are kept clean and properly cared for. The very nature of the hand pumps provided means that they need periodic maintenance, for example the replacement of worn seals and the repair of foot valves, and these tasks need to be performed by skilled technicians. If the pumps are not maintained, they break down very quickly, and, if repairs are carried out by an unskilled technician, the pumps and boreholes can become badly damaged.

Left
Community members engaging in building work in their community school.

It is not uncommon in many schools and communities to see abandoned pumps as a result of a lack of, or poor, maintenance. In these situations, people revert to previous practice, and schools are no longer hygienic, absenteeism increases, and communities have to spend more time looking for alternative water sources, which has an economic cost on households.

Better maintenance

To remedy the above, ESSPIN, in conjunction with SUBEB and RUWASSA, has appointed maintenance and sustainability consultants to work with schools and communities on the management, operation and maintenance of their water and sanitation buildings. Good local community technicians are being identified and trained, and are being encouraged to develop their business through providing services to schools and communities. The impact of this initiative is already being seen, as illustrated in Table 2 above.

Better security and safety

In some areas, particularly in urban environments, there have been major problems with vandalism and theft. In Lagos, “Area Boys” (local gangs) were taking over schools once they had closed for the day and were misusing and vandalising the facilities. To combat the situation, initiatives were launched to engage with the gangs and not treat them with the customary hostility. The results have been very positive. Representatives of the gangs are now participating in community meetings and are working with the SBMCs and schools to see that the facilities are clean and in good working order.

Top and right
ESSPIN is working to ensure that schools have adequate infrastructure that will promote quality teaching and learning.

Delivering results

In Kaduna, in schools where there were no boundary walls, the facilities were open to abuse. In many cases, it was becoming impossible for the schools to keep toilets clean and pumps in good working order, and, in some schools, the facilities had been abandoned. To address the problem, the maintenance and sustainability consultants have helped to bring school and communities together to address the problems, and things are slowly starting to improve. In many instances, people who were a major cause of the trouble are leading the recovery.

In the preceding section, the processes and approaches in delivering the programme have been summarised. This section presents figures, in terms of facilities installed, numbers reached, and costs involved, and provides a cost comparison with other projects conducting similar work in Nigeria. The section also highlights whether the programme has had any impact on school enrolment, with particular reference to girls.

ESSPIN's actual construction work with regards to its water and sanitation programme was complete by the end of 2013, except for some additional work carried out at the beginning of 2014 to install additional toilet facilities in Kano and Jigawa schools, where pupil numbers are very high. The focus of the programme since then has been on further capacity building with SUBEB and the establishment of a maintenance and sustainability programme that will carry over into the next phase. Table 3 above summarises what ESSPIN has achieved with its own funds over the life of the programme and the cost of those achievements.

Top and right
ESSPIN infrastructure programme has impacted on increase in enrolment of girls in school especially in the north.

Table 3

01/12/2013											
Summary of ESSPIN infrastructure costings											
Water Supply									**Sanitation**		
State	Students in ESSPIN beneficiary schools			Total cost	Units provided	Unit cost	Cost per student	Total cost	Cubicles provided	Unit cost	Cost per student
	Female	Male	Total			Naira	Naira			Naira	Naira
Lagos	11,422	11,494	22,916	83,661,019	30	2,788,701	3,651	309,444,827	372	831,841	13,503
Kwara	8,952	8,519	17,471	103,201,744	87	1,186,277	5,907	350,990,394	696	504,297	20,090
Jigawa	19,957	24,294	44,251	96,414,556	87	1,108,213	2,179	323,795,904	942	343,732	7,317
Kaduna	19,381	21,358	40,739	96,414,556	87	1,127,042	2,379	364,559,208	898	405,968	8,949
Kano	48,207	53,449	101,656	118,368,640	88	1,345,098	1,164	378,265,838	1,165	324,692	3,721
Enugu	1,512	1,621	3,133	62,033,029	10	6,203,303	19,800	71,702,217	136	527,222	22,886
Total	**109,431**	**120,735**	**230,166**	**560,604,575**				**1,798,758,388**			

Through its own provision, ESSPIN has exceeded the overall milestone given for State-wide improvements in the provision of toilet facilities, and has exceeded the targets in terms of the provision for girls with regards to access to both toilets and water (see Table 4).

For access to potable water, the figures from ESSPIN provision are approximately 5% below State-wide targets.

However, if attribution is taken into account (where ESSPIN has made a signification contribution to SUBEB design, quality and delivery), the number of children reached well exceeds the target figures.

As can been seen in Table 3, the costs of providing water and sanitation per child vary. The variation is due to a number of factors: the location of the school, the geological environment, type of facilities installed, and pupil numbers.

Table 4

Milestone targets 2013								
		Total	**Enugu**	**Jigawa**	**Kaduna**	**Kano**	**Kwara**	**Lagos**
Milestone 2013	a. Pupils with access to toilets	214,662 100,157G	10,560 5,280G	48,000 19,200G	27,809 12,973G	60,630 29,318G	14,214 6,681G	53,409 26,705G
	b. Children accessing clean water	242,784 108,783G	7,000 3,500G	77,000 30,800G	31,617 14,775G	86,644 39,872G	14,214 6,681G	26,309 13,155G
	c. Classrooms	97,753 46,564 46,564G	1,200 600G	9,720 3,888G	1,680 773G	25,250 11,620G	8,464 3,978G	51,409 27,705G

In Kano for example, costs are low because of the high student numbers reached and the fact that construction has been largely targeted at large urban schools.

By contrast, in Kwara, the focus has been on providing facilities for remote rural schools, where there are fewer pupils, and where the costs of contractors in accessing and getting materials to site are, as a result, much higher.

Sometimes, the cost of delivering equity in reaching the most marginalised groups is higher than average. In Enugu, the high costs are due to the geology of the sites, which has meant the need for 200-metre deep well boreholes with pumps, generators and elevated water tanks.

Top
Community members are taking ownership of schools and supporting schools with basic needs.

At point of delivery, the cost of provision per child in Kano is Naira 4,886, and in Enugu Naira 42,686, nearly ten times that of Kano.

However, if looked at over the expected lifespan of the facility (25 years) the costs come down to Naira 195 per child in Kano (less than one UK pound) and Naira 1,707 in Enugu (approximately six UK pounds). ESSPIN's costs, with a better build quality, are similar to those of other programmes, as illustrated in Table 6 below.

Top
Girls feel more confident to attend schools now, due to provision of potable water and sanitation facilities in schools.

Table 5

Comparative costs (Naira)				
	Agency			
Description	ESSPIN	UNICEF	World Bank/EU	SUBEB/RUWASSA
Borehole (hand pump)	0.9 - 1.0 million	0.76m	0.76m	0.82m
Borehole (solar)	5-6m	7.85m	7.85m	6.56 - 8.2m
Borehole (electric)	3.56m	no equivalent	no equivalent	no equivalent
Toilet (2 cubicle block)	0.6m	0.77m		0.6m
Classroom (2 classroom block)	6.4m	no equivalent	7.1m (11.5m JICA)	6.5m

All States report increases in enrolment and better attendance in schools where ESSPIN has been working. How much of the rise in numbers can be attributed to better water and sanitation facilities is difficult to tell, as schools where the facilities have been installed were schools in ESSPIN's initial pilot programme.

As a result, they were part of a whole school approach in which schools were engaged in a range of improvement activities. However, as can been seen in Table 6 below, which shows enrolment figures for the three pilot LGEAs in Kano and compares the difference in enrolment figures between 2010/11 and 2012/13, the percentage increases in enrolment figures are significantly higher in schools in two of the LGEAs receiving ESSPIN inputs than in similar schools in the rest of the LGEAs.

Girls' enrolment is also significantly higher in these schools. From the data, the enrolment in Fagge seems at odds with the other two LGEAs, and could be down to data error, as anecdotal evidence contradicts the figures in the table.

Table 6

Kano Pilot LGEAs Primary								
Total Enrolment	**Pry 10/11**			**Pry 12/13**			**% Change in enrolment**	
LGEA	Boys	Girls	Total	Boys	Girls	Total	Total	Girls
Albasu	14,607	11,912	26,519	15,809	14,817	30,626	13	20
Fagge	14,435	23,805	50,240	27,486	37,580	65,066	23	37
Kumbotsu	48,477	48,160	96,637	49,476	60,896	110,372	13	13
Supported Water/ Toilets	**Pry 10/11**			**Pry 12/13**			**% Change in enrolment**	
LGA	Boys	Girls	Total	Boys	Girls	Total	Total	Girls
Albasu	4,405	2,856	7,261	5,239	4,255	9,494	24	33
Fagge	6,605	5,942	12,547	7,650	7,113	14,696	15	16
Kumbotsu	13,788	12,199	25,987	17,488	16,661	34,149	24	26

Similar increases in enrolment in ESSPIN phase 1 pilot schools in the other northern States are also evident, as illustrated in Table 8 below.

Table 7

Total Enrolment	**Pry 10/11**			**Pry 12/13**			**% Change in enrolment**	
State	Boys	Girls	Total	Boys	Girls	Total	Total	Girls
Jigawa	17,457	12,133	29,590	24,294	19,957	44,251	33	39
Kaduna	16,655	15,824	32,474	21,358	19,381	40,799	20	18

Conclusion and next steps

In DFID's guidance note on infrastructure, it is stated that the task of providing education facilities in sub-Saharan Africa is great and that the challenges to the implementation of infrastructure programmes remain considerable. Has ESSPIN risen to the task and met the challenges? From the evidence presented in this paper, the answer is, if not a resounding yes, then getting there. There has been a strengthening of governance, and a reversal of previous bad practice in terms of procurement, selection of contractors, and delivering of poor quality facilities. With regards to improving service delivery, draw down of funds is timely, and backlogs have almost all been reduced, resulting in more infrastructure being delivered and being delivered on time.

With its own resources, ESSPIN has provided just under a quarter of a million children with improved water and sanitation facilities. Taking into account State SUBEBs' own programme, the figure is much higher. Capacity has been built at all levels, SUBEB, communities, contractors, and consultants, all of which is leading to better buildings and better delivery systems. Is the progress made sustainable? As already mentioned, ESSPIN's own building work is completed. In Phase 2 of the programme, the emphasis will be on providing technical assistance support to ensure sustainability.

With SUBEBs assistance will be provided to further improve their systems with regards to planning, delivery and timely utilisation of budgets.

Support will be provided to communities in order to ensure that the facilities installed remain in good working order. Here, the focus will be on helping communities to take ownership of the facilities and to become more self-sufficient so that in time they will be able to manage and maintain the infrastructure themselves. Schools will also be supported to improve their health education programmes. It is hoped that, by building on the strong partnerships ESSPIN has developed with the States in Phase 1, ESSPIN in Phase 2 can continue to make a valuable contribution to infrastructure provision, and help make schools a safer, more hygienic, and pleasant place for children to be.

Top and right
ESSPIN has strengthened school governance and encourage practices that have been emulated to improve quality teaching and learning outcomes.

Annex A: Response to DFID's Guidance Note on the delivery of cost effective and sustainable school infrastructure

In its Guidance Note, DFID lists 15 key issues (best practice) to be addressed in the delivery of school infrastructure programmes (Box 1). ESSPIN's response to each issue is highlighted below.

Box 1

Key Issues to be addressed in a delivery strategy
1. Rationale, scope and objectives of the programme
2. Data and information
3. Resource targeting
4. Procurement
5. Involvement of schools and communities
6. Risk management, monitoring and evaluation
7. Quality control
8. Targets, budgets and timelines
9. Financial planning and management
10. Roles, responsibilities and capacity building
11. School planning and design (including water and sanitation)
12. Asset management (maintenance)
13. Disability
14. Environmental assessment
15. Social assessment (including gender)

1. Rationale, scope and objectives of the programme: There was a clear rationale for implementation in terms of programme objectives and State needs. The scope of work was realistic and phased, with a delivery strategy and mechanisms for implementation in place before the start of the programme.

2. Data and information: There was little reliable data available in SUBEBs at the start of the programme. Start-up was reliant on the sparse data available and ESSPIN's own assessment of sites. SUBEB systems are much improved, with planning becoming more reliant on utilising more r obust EMIS systems. Pre-site visits are in place to verify EMIS data before the tender process is initiated.

3. Resource targeting: According to need – see points 1 and 2 above.

4. Procurement: Existing systems have been reviewed and revised. Procurement and tendering processes are now transparent. Contractors have to meet pre-qualification standards.

5. Involvement of schools and communities: Schools and communities are involved at all stages, from site selection to signing off contractor payments, and in managing and maintaining facilities.

6. Risk management, monitoring and evaluation: Quality control mechanisms aimed at minimising both fiduciary and quality risks are in place at all levels. Simple reporting systems are in place and proving to be effective.

7. Quality control:
Competent consultants are appointed to supervise and monitor construction. Awareness has been built up at all levels so that the quality in both materials and structures can be recognised.

8. Targets, budgets and timelines: These have been implemented as a phased programme, with work referenced to annual plans.

9. Financial planning and management: Payment procedures have been streamlined, which has reduced payment periods to contractors, and helped to improve completion rates and utilisation of unaccessed funds.

10. Roles, responsibilities and capacity building:
Stakeholders have been involved at every stage of the construction and sustainability processes. SUBEB are now adopting the practices demonstrated by the programme.

11. School planning and design:
Prototype standard designs were prepared for toilets and classrooms, which have been adapted by SUBEB in several States.

12. Asset management (maintenance):
Maintenance and Sustainability Consultants have been appointed in each State. Sites are assessed quarterly enabling any problems arising to be addressed in a timely manner. In addition, schools and communities are being strengthened to enable them to deal with any immediate problems that arise. They are also being linked to good local mechanics who can address more serious technical issues.

13. Disability: Problems of mobility have been recognised. Ramps have been provided to all classrooms and toilet blocks, and accessible disabled toilets installed with an outside opening door, leaving more internal space and handrails for support.

14. Environmental assessment:
Clear guidelines have been given and implemented with regards to site selection. There has been an alignment of facility to site, particularly with reference to the type of water structure installed. Maintenance procedures are in place, and training is given in the proper use of the facilities. School environments are much more hygienic due to an almost 100% reduction in open defecation.

15. Social assessment (including gender): Site selection has been according to need, and focused on schools with no facilities or on schools with extremely large intakes, where the limited number of facilities were putting children's health at risk. Separate toilets in secure locations are provided for girls.

Email
info@esspin.org

Website
www.esspin.org

Twitter
@ESSPINUKAID

Facebook
esspinukaid

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Education Sector
Support Programme
in Nigeria

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from the Department for
International Development