

## Education, climate change and environment: delivering in the field

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### Presentation transcript

Our presentation is about the interface between the education, environment and climate change sectors and focuses on our experience working in Nigeria, Bangladesh and India. We have structured the presentation around a three-tiered model of capacity development: from individual and local interventions (directly with schools or school-based management committees); to institutional interventions (organisational, for collective action); and at the level of the enabling policy and resource environment.

### 1. Individual and local

Individual and local interventions centre on boreholes and solar water pumps, classrooms, the school environment and weaving environment and climate change into the curriculum.

- In the largest schools in northern Nigeria, a **solar pump bore hole** provides clean water to a school at 8 UK pence per child per year over 25 years, from a clean water supply.
- **Solar incidence** (the angle and intrusion of sunlight) can make conditions unbearable for children studying for long hours. Trees that are selected carefully according to the location and the correct orientation of buildings (where the verandas face the right way and the windows face the right way) are simple, cost effective measures to make the school environment more fit for learning. Indeed you can find up to 5 to 6 degrees Celsius temperature difference between exposed ground outside and ground under the shade of trees, making the learning conditions more suitable.
- **Building materials:** Examples of non-formal education facilities in Nigeria range from a standard cement block/ brick building with an iron roof; a nomadic school built from iron sheets; to a temporary structure built from grasses (such as bamboo) or matting which gives pleasant dappled shade, revealing that traditional materials may provide a better learning and living environment. Rush matting is also safer when blown off in storms than iron sheeting.
- **Elevated schools:** The Haor wetlands in Bangladesh—one of the largest wetlands in the world where the plane is flooded every year by precipitation and melt water washed off the Himalayas—are a great example of climate change adaptation. School buildings are located carefully (often close to home) because it is difficult (and costly) to take a child from their home to the school, children are picked up by boat from their homes, and school buildings are lifted above the water level on stilts or platforms. Please note that the image on slide 9 of our presentation shows that the toilet is at ground level (not at our suggestion!) and is underwater when the annual flooding comes. This is a key design issue that could have been easily avoided by lifting the building, giving the children access to sanitary facilities and reducing contamination hazards.
- **Learning materials and curriculum:** In Nigeria we have taken the specified content from conventional textbooks and put it into integrated teaching materials and activities, with varied and practical learning embedded. For example we have woven environment education into English literacy lessons where children are learning environmental vocabulary – they can learn the words while engaged in environment topic activities. We have brought the curriculum alive with a seed-planting activity with primary 2 children.

Instead of just writing about seeds they are participating in practical, real-life class activities on seed planting and growing. This also shows how the content around environment and climate within the broader education system can be used effectively without engaging in a whole curriculum reform project.

## 2. Institutional

The institutional level of the capacity development model unpacks the work we do with communities, civil society organisations, state governments and federal governments around the management of infrastructure, the financing of infrastructure projects, technology for teachers and usable space.

- **School-based management committees** help schools to identify their key issues and address them. In the Nigerian case study featured on slide 18 of our presentation the community was concerned about security and safety at the school. To address this issue they invited water sellers from the community to use the borehole facilities at the weekend for a small fee, giving the school a modest income. The school used the money to buy and care for guard dogs to scare away people who may be intending to cause harm on the school premises. This arrangement also had the added benefit of giving the community access to clean water through this market mechanism.
- We use **monitoring tools** with state authorities, local governments and the school communities to assess the work carried out by the head teachers and school management committees, the school's infrastructure needs (such as a boundary wall) and the condition and maintenance of the facilities such as the technical plant boreholes and the trees.
- **Technology for teachers:** A 'Trainer in the pocket' solution introduced by the English in Action programme to teachers in Bangladesh includes information to improve their classroom management and pedagogical skills without the environmental burden of paper resources or reliance on grid electricity. In Nigeria we are in negotiation for using solar powered e-readers for children and teachers to access the content that they are unable to receive through paper-based materials.
- **Usable learning space:** In Bangladesh a review of the Primary Education Development Programme (PEDP3), undertaken by DFID Evidence on Demand (2014) have suggested maximising usable learning space in a school design as a first step to cost-effective schools. Careful planning and design can bring huge efficiencies in school construction, through less wasted space. The purpose of capital investment in schools is to provide student spaces, although this focus often gets lost and does not necessarily translate into a good return on the money spent. With better design, the money saved can be assigned to learning and teaching quality.

## 3. Enabling environment

Interventions in the enabling resource and policy environment include:

- **Budgetary planning:** In Nigeria sandstorm damage in a single year can be far in excess of an entire state infrastructure works and maintenance budget. It is important that states allocate and release sufficient budget to address the impacts of climate change. We are keen to introduce mapping that assesses the impact of natural hazards, particularly climatic hazards, and bring it into the budgetary planning process. Global solidarity funds such as the GCF (Green Climate Funds) and ICF (International Climate Fund) could invest in filling the gap in funding that is required to address climate change.

- **Importance of designing and building schools suited to the climate:**

- In Nigeria, water erosion from the rain and temporary water run-off can undermine school buildings by damaging the foundations. A standard investment in a suitable apron can protect the building's foundations and increase its lifespan and safety.
- Water erosion can block access to schools by creating gullies, and cause danger of drowning when pupils or teachers cross flooded gullies rather than taking a lengthier diversion. In our site discussions we found that about 20% of delays in attendance happen because of this simple site planning issue.
- Parents and NGOs are spending money on locally-constructed bridges to access schools. It would be better to plan the site and other local facilities (roads, run-off, safe crossings) to avoid the problem.

Our approach to integrating environment and climate into the education sector is driven by the desire to establish the best conditions for all children to learn. There are opportunities for cost-effective and low- or no-cost interventions to integrate climate resilient design into education. Digital technologies are such an opportunity – to replace or complement traditional textbooks. Bringing in solar energy is another – the format requires certain design issues to be addressed on site and doing so at the outset can liberate a lot of money for more effective and inclusive education, for example developing learning materials and teacher programmes. We must be careful that any use of technology should be driven by children's learning needs, and the pedagogic benefits of effectiveness, not from an excitement about technology for its own sake.