

## INTERNATIONAL DEVELOPMENT CASE STUDY 4

### High School Project in Lionde, Mozambique

There is a growing realisation that nature is too powerful to be kept forever under control. When flood defences fail the results can be catastrophic. Most flood defences are effective if proper time, expertise and financial backing is provided. However, these provisions are not always easily found. Even in developed countries, sometimes people living on areas of land at risk of inundation are only given the choice "stay and look after yourselves or move elsewhere".

As with many geomorphological forms, some of the largest examples can be found in developing countries, and fluvial forms such as floodplains are no exception. Huge floodplains exist in Mozambique which can be kilometres wide, so there is often little 'elsewhere' to go for settlement, and why should a community leave their home? Especially as floodplains often offer good soils, and relatively close proximity to river freshwater and the groundwater table.



#### The 'high school' principle

In response to the tragedies of flooding brought to press during Mozambique, Parry Associates began researching ideas with a practical attitude to providing both safe shelter during flood events and a useful community building once flooding has subsided. The 'high school' was the outcome of this research - a two storey building large enough to accommodate all members of the local community and a few of their most precious possessions on the top floor during times of floods, that could double as a school or a village hall at all other times.

#### The Lionde High School Project - local people, local resources

A pilot project was based in Lionde, a village located on the Limpopo floodplain. The project was undertaken by the Wesleyan Methodist Church in Mozambique supported by the Methodist Relief and Development Fund (MRDF) to test the theory that a flood-proof building could be constructed requiring only a small team of people, low material use and with all components created onsite. By employing local resources and using the skill and determination of local people new livelihoods are created, alleviating some of the poverty of the area.

#### Parry Associates technical input

New technical innovations were required to provide the perfect design for the high school, as the design had to be tailored to have securely founded pillars to support the upper storey (which would have to take the weight of everyone in the village during times of flood), but the design aimed to use less concrete than solid slabs and eliminate the need for expensive plywood shuttering and formwork. A new hollow coffer element was the main innovation forming one of four key components for construction, the remaining components being hollow column blocks, slab tops and shuttering slabs. All components were made on site using special moulds designed for the purpose, and hand powered large format vibrating machines.

#### Positive outcomes from the project

Besides the shelter from floods the project has provided employment and business opportunities, independence, and a building which can now be used as a school, town hall or for any other public or private function. The project has also provided alternative housing possibilities which include concrete roofing tiles - a far more superior but cheaper alternative to the corrugated iron sheeting brought in to replace traditional thatch.