



Developing local capacity to meet settlement and shelter needs in a deteriorating environment

Northern Burkina Faso

Development Workshop



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Context: Development justification

In northern Burkina Faso, as in other regions of the Sahel, sedentarisation, population growth, a shift to permanent dwellings and changes in aspirations in recent years have meant that the demands for housing, services and infrastructure have changed and increased. Linked with continued use of trees and organic material for building, these needs and practices are putting unsustainable pressure on the land and its resources. Previously viable techniques have often become obsolete or simply unviable under today's circumstances, whilst new techniques and materials are inaccessible for the majority.

Meanwhile appropriate and accessible responses have not developed sufficiently. Despite the difficult reality of resource availability, there is a popular and often formal desire to use non-local and expensive materials to resolve local shelter and service needs even though these resources can rarely be afforded. There is a gap between desire and the reality that needs to be addressed.

- In reality, for most people the traditional answer for house and general construction in northern Burkina Faso is still to use timber, organic material and mud for construction. For many people, techniques have not evolved.
- One can attribute related issues, such as many health problems, directly to the quality of the built environment – for example, meningitis can be greatly reduced through better ventilation of rooms.
- Years of environmental degradation and over-consumption of timber in particular mean that sources of timber for building are severely depleted (where in the past wood was often gathered at no cost). Entire forests have been destroyed and some species have almost disappeared. People have turned to remoter and illegal sources of wood, and there is an added cost factor, either direct (purchase cost) or indirect (vehicle and fuel). Climate change may be exacerbating this situation and in all events the population finds obtaining these resources increasingly difficult. This in turn contributes to the exodus of the young since they find little opportunity or encouragement to work in rural areas. Reducing pressure on the environment is one priority.
- There is an urgent need to develop local skills that can be applied to meet local building needs using sustainable local resources that do not include wood. Doing this develops income generation and employment opportunities. Developing skills contributes to keeping the young in the community and avoids migration to the towns and or down to the coast for work. Achieving this local capacity is fundamental to ensuring the well being of families and the community.

Responding with a sustainable approach

By a sustainable approach we mean working with local resources, assuring environmental protection, and developing local skills and income generation opportunities that go on after the externally funded project phase finishes. DW has, for example, very successfully demonstrated this in Niger with local partners ([See Partners](#)) where many hundreds of builders earn their living with skills they have acquired.

Over the past 15 years, Development Workshop has worked and trained people in the Sahel to develop responses to a changing environment, one where past practices and

skills are increasingly ill-matched to contemporary demand, expectations and genuinely locally available resources and skills.

Development Workshop's work in Burkina Faso, Mauritania, Niger, Mali and Senegal focuses on the issues of habitat and the environment and income generation:

- developing habitat and environmental strategies through participative assessment of local conditions.
- developing practical programmes for environmental resource management.
- training men and women to develop local capacity to build with available resources.

The promotion of woodless construction has been a major part of this work. Woodless Construction (Construction sans Bois) is the name that is now used in the Sahel countries to describe the construction of vault and dome roofed buildings using ordinary hand moulded sun dried earth bricks. No presses, no cement... and no trees. The roofs are built without any supporting shuttering, and thus the entire structure is made of local earth, seasonably available water, and with locally developed skills.

Woodless construction saves trees. It also provides durable, comfortable and affordable buildings with local resources. It develops local skills and it generates local income opportunities.

Development Workshop¹ introduced these traditional Middle Eastern building techniques first to the Sahel in Niger in 1980. Since then the techniques have been adapted to suit the Sahel and the learning needs of trainees. Hundreds of builders have been trained in Burkina Faso, Mali, Mauritania, Niger and Senegal. DW develops and constantly updates the training programmes and teaching materials, makes sure that local trainers have the skills needed to transfer their knowledge to local youth, and after training monitors that the quality of work that is done is of high standard.

Once local builders have been trained, the skills they have acquired for woodless construction enables them to construct a very wide variety of buildings, ranging from sanitation facilities, houses, cereal banks, literacy centres, mosques and churches, through to schools and dispensaries. The woodless construction buildings have proven their durability over 23 years in the Sahel. Where there are sufficient numbers of trained builders, unaided

What is woodless construction?

This refers to building techniques originating in present-day Iran and Egypt and introduced to the Sahel by DW from 1980 onwards. Woodless construction uses local resources: no presses, no imported products, no reliance on outside sources. Just earth, seasonal water and skills.

How much does it cost?

In the informal sector in rural areas, the cost is equivalent to the cost of building using good quality wood. The following gives an indication of the cost, for structural work only (without finishings), of 24m² :

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| * roof using poor quality wood: | 174,750 Fcfa |
| * "woodless construction" roof: | 236,292 Fcfa |
| * roof using good quality wood: | 237,750 Fcfa |
| * corrugated metal sheet roofing: | 367,550 Fcfa |

In the formal sector, the cost may be higher.

The standard, and therefore cost, of finishing can vary enormously.

What about maintenance?

Mud renders have to be revised and repaired every two years, and this is not expensive; by contrast, the cost of replacing a roof using poor quality wood rapidly pushes up the real cost of poor quality wood roofs over time.

¹ Development Workshop is a group of not for profit associations, first established in London, UK in 1973 and registered in Angola, Burkina Faso, Canada, France, Mali, Niger and Viet Nam

spontaneous use of the techniques is spreading. *Spontaneous construction means that builders work for local clients with no external inputs at all.*

DW's work in Burkina Faso

The north of Burkina Faso is numbered amongst the poorest regions of the world, with remote towns and a relatively dense population in small scattered villages living from pastoral and subsistence agriculture. A high proportion of men have habitually migrated seasonally to the coastal countries to the south to find work, and the risks and social consequences are far reaching, with women often carrying an excessive burden of work previously shared with men. Finding ways to keep families and family structure intact is an important issue and one that has a direct link to the way people build and maintain their homes.

DW began work in Burkina Faso in 1995 with training activities in the centre and north of the country. In the northern provinces of Soum and Oudalan DW had trained 50 woodless construction builders up to 2002 with support from the Danish and Burkina Faso Red Cross in the context of an environmental education programme. The pilot programme in Soum and Oudalan proved that there was popular demand for woodless construction techniques. But the number of builders remained insufficient to develop a market for woodless construction or respond to local demand. As such, the core capacity that had developed was at risk of being dissipated. A *substantially* greater number of builders needed to be trained and made available to the population in the towns and villages of these two provinces so that the market can develop.

Current DWF activities in Burkina Faso



The present project develops a partnership with the community in Djibo and Gorom Gorom and their surrounding villages and with their representatives. Key partners in the project are local builders drawn from existing youth groups and local associations who become the carriers of skills into the community as a result of the training they receive. *Workshops with members of the community leaders ensure that the skills that developed are adapted to the needs of the community. The skills of the trainees are developed through on site work in real projects, paid for by local clients with a contribution from the project to these demonstration activities that covers the cost of the trainee builders and which contributes to*

developing the market for the trainees skills.

As well, in 2002 DW encouraged the setting up of local associations, to gradually take over the tasks of support and quality control, and to promote the techniques locally. These nascent organisations will in the future provide the institutional structure that helps individuals make use of their skills, and the present project will support this process.

Goal:

The goal is

- to improve living conditions for inhabitants of northern Burkina Faso in a sustainable manner with locally available resources,
- to reduce pressure on the natural environment,

and

- to increase local and sustainable income generation opportunities.

Purpose:

The project

(a) develops skills in the community (in villages and small town neighbourhoods) that help the community assess and manage how shelter and infrastructure needs can be met with available resources, thus achieving a better balance between habitat and environment,

and

(b) develops skills that enable people to build using local materials and techniques that effectively respond to identified needs. Training in woodless construction is a key component of the programme.

Project location:

The project works in several concentrated groups of villages and in the neighbourhoods of local towns in the Provinces of Soum and Oudalan, Northern Burkina Faso.

Activities

- i. Self-evaluation of local needs and of the usable resources available:

Working in several The project is founded on dialogue with the population to review the issues of human habitat and the environment and how to address them. In each locality



Pottery kiln run by women, built with woodless construction, Burkina Faso

the project organises community meetings with a broad spectrum of local inhabitants and community organisations. These people orient and affirm the practical actions proposed by the project. They help to assess the impact of demographic, economic and resource change on shelter, services and building needs in rural areas and they are helped in the workshops to identify viable and sustainable solutions to meet these needs. People are well a

The workshops and the open days together serve to provide awareness raising amongst local leaders and animators about the need for sustainable development approaches. The project will also make sure that its actions are publicised to increase national awareness of what can be done and where to access skills.

- ii. Skills training to meet local needs:

DWF runs training courses for individuals in each of two regions – Djibo and Gorom Gorom). The training courses are open to all interested individuals in each target village or neighbourhood, provided that most participants agree to build their own house (one or two rooms) as part of the training course. Depending on the immediate locality and the needs of the community, participants progressively receive complete training, including learning woodless construction building techniques, finishing trades (woodwork, sanitation plumbing, etc.), maintenance and how to select renders, and, for example, techniques for making pottery kilns. Issues relating to the quality of the environment and domestic health – safety, ventilation, etc. – are addressed during the training courses. Together the subjects covered enable decent and sustainable local housing and infrastructure using local resources. Refresher courses provide additional skills (site

supervision, marketing, contract costing, learning to be a trainer) to the participants with the right potential. (See Annexe 1 on Training Workshops for Woodless Construction.).

iii. Demonstrating practical solutions:

DWF works in collaboration with local partners (families, local authorities, and community organisations) to support the building of examples of local housing and infrastructure (for example, latrine, pottery kilns, cereal banks). The owner of the building pays and provides for all materials and unskilled labour, and all finishing costs.

Annexe 1: Training workshops for woodless construction

A series of dedicated builders' training programmes

Recognising the shortcomings of depending solely on 'on-the-job' learning where participants risk getting an uneven experience, DW uses a combination of dedicated training sessions where people work on specially designed training structures, followed up by supervised group work on the construction of a full scale building as part of preliminary training process.

Training follows a defined and tested programme, set out in the 'Guide des formateurs' (Trainers Guide) prepared by DW.

Trainees work on specialised training structures and cover all stages of construction. Each training structure enable the trainee to practice a specific skill, such as arch building, starting vaults, or setting out and building the corner of domes. The structures are usually taken down after training and the earth used for the bricks and mortar recycled. There is no onus on the trainees about making mistakes, and they can take down and restart their work as often as they need to. Each subject is presented by the head trainer, who explains the principles as well as the techniques that should be used. After a period of work on the small training structures (which are prepared for each new workshop) trainees then work on full scale buildings in small groups for real clients, so that everyone gets to work on each part of the structure.

On average, training for people with little or no skill in building lasts eight weeks, composed of —

- two weeks theory and practice on training structures ;
- five weeks learning on the construction of small buildings from laying out through to completing the structure ;
- one week theory and practice on aspects of finishing the roof, placing gutters, and selecting plasters.



On average 32 builders are trained on each course (if the number is too great not everyone can hear explanations). Trainees work in groups, under the responsibility of an assistant trainer. There are between 4 and 6 trainees for each assistant trainer, depending on how the workshop is organised (rural workshops differ slightly from urban workshops, because no distinction is made between labourers and trainees). In the second part of the course when each team is responsible for its own building, constructed for a real client in the community who contributes labour and materials, so that the project only covers the cost of the trainees in this phase. The trainees are actively encouraged to be 'the client' and build their own house. After training, the project contributes to the mason's costs when working on his/her first building, as part of a promotional offer.

Each training course is run by a head trainer who has been trained as a trainer by DW, and is responsible for theoretical teaching inputs, organising demonstration work and

supervising the quality of the buildings. He follows the work plan laid out in the 'Trainer's Guide'.

Refresher courses

Several months after the first training opportunity, two week refresher courses are organised for builders who have already participated in a previous DW training programmes. These follow some of the same course structure as the three weeks starter programme of practice and theory but there is a focus is on developing **trainers and site supervisors**. As such these workshops are organised for the more motivated builders. Depending on individual skills, they are trained either to the level of head trainers or to that of assistant trainers and site supervisors. Once again, there is some work on training structures but the emphasis is on teaching methods and making sure that people check that students have understood the lesson. DW also provides training on learning to draw and understand plans, a skill that comes remarkably well to village builders in the Sahel.

Working with the associations of woodless construction builders

DW organises training session that focus on the issues of marketing and management skills that help local associations of builders to develop and exploit their skills. These workshops precede the organisation of local "open days" when the participants get the opportunity to work with the community (their potential client base) to present and "sell" their work. DW supports the development of local associations as the focal points of helping masons market their skills.

Technician training

When possible, opportunities are provided for technicians to participate in builder training programmes, since "hands on" practical experience is an essential part of understanding the woodless construction techniques.

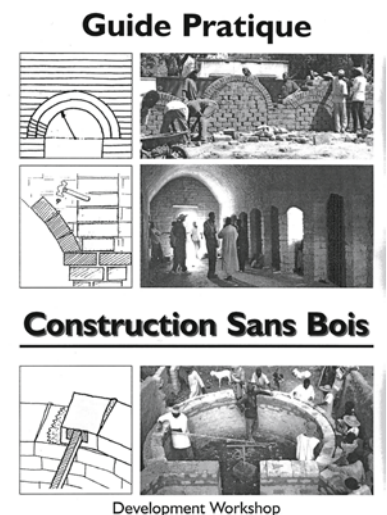
Technical documentation

Although manuals have never been used to replace hands on training Development Workshop has found that various guides and handbooks are useful in providing the structure of training programmes and again after training when they are used as a reference to remind trained builders what they have been taught. Some of these are in local languages as well, although illiteracy limits the effectiveness of local language documents.

To support the training process, a Trainers' Guide is used to provide the structure of training programmes and outlines in detail each subject. It includes how the teaching should be done, what demonstration or practice structures need to be prepared or built in advance of the training session, and which key points need to be particularly stressed. It also includes revision sheets to be used for the final stages of the course.

Trainee builders in turn receive a shorter illustrated "aide-mémoire" document, which summarises each item they have been taught. These documents exist in various local languages and French.

In addition, for people who participate in marketing training courses an "aide-mémoire" is also available in French, Moré and Fulfuldé that helps masons understand how to estimate quantities,



and this is joined by a set of presentation pages for different sorts of buildings that they might want to propose to potential clients.

An illustrated hand out deals with maintenance reminders for house owners.