



HAL
open science

Low-cost housing and sustainable development using local building materials and techniques

Thierry Joffroy

► **To cite this version:**

Thierry Joffroy. Low-cost housing and sustainable development using local building materials and techniques: potential, problems and strategies. International Conference HABITAT-AFRIQUE 2000, Jun 1999, Zaria, Nigeria. pp.7. hal-03374478

HAL Id: hal-03374478

<https://hal.science/hal-03374478>

Submitted on 12 Oct 2021

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.



Distributed under a Creative Commons Attribution - NonCommercial - NoDerivatives 4.0 International License

LOW-COST HOUSING AND SUSTAINABLE DEVELOPMENT USING LOCAL BUILDING MATERIALS AND TECHNIQUES

Potential, problems and strategies

Thierry Joffroy
Craterre-EAG

1 - Building with local building materials and techniques is a reality today, and a viable alternative for the future

The idea that resolving housing problems in many developing countries required - amongst other things - using local materials emerged nearly three decades ago.

Over these thirty years or so, there have been numerous studies, researches, experiments, and thoroughly physical projects have also been implemented. One of the main conclusions is probably that these various activities have enabled the capacities and constraints of building with local materials to be better understood, even though the situation is variable (some building materials have been more studied, e.g. earth building materials) one has to consider that more research still needs to be developed. The enlargement of the concept to the building techniques has been a major step towards that progress. But, better still, there is now a more thorough understanding of how to approach different contexts and to draw up intervention strategies.

Thanks to the working methods developed, the necessary adaptation to the local context can occur, thus better helping local populations to improve themselves their living conditions, making better uses of their knowledge and capacities, This has enabled enough development projects giving more than tangible results to be implemented for the potential of building with local materials to be no longer in question.

As a result, the use of local building materials and techniques is gradually acquiring a certain degree of institutional recognition. However, apart from pure traditional methods of construction, for the time being this consideration at an institutional level remains marginal compared with conventional practices, born of "international norms". And as already said above, there are still more areas to be explored, more

specifically when looking at the diversity of building materials and moreover of building techniques.

And yet, there is no denying that these conventional practices have to some extent failed. Indeed, despite the stated determination to make the whole world benefit from recent technological progress, a large part of the population is very far from having the means to acquire housing models corresponding to the norms and standards laid down. In 1996, UNCHS estimated that a quarter of the world population had no decent housing and that more than 100 million people were living without shelter.

In the light of this situation, there is clearly a very wide gap between current practice and what results from the pilot projects carried out in this field. On the one hand, the quality of housing of the vast majority continues to deteriorate. On the other, conditions for sustainable development are being introduced and are proving their effectiveness. In reality, the problem is now a question of disseminating the results of these pilot projects, the scope of which is out of proportion with the problems currently facing the modern world. There therefore appears to be an urgent need to devise a large-scale strategy for the dissemination of the skills, knowledge and methods which have proved their worth.

This is the direction in which CRATerre-EAG's team is moving through its various activities, soon to be taken up by other teams throughout the world thanks to the "UNESCO Chair" which it has just been awarded, with the objective of accelerating the dissemination of scientific and technical skills and knowledge on building with earth (one of the many local building material) within the international community.

Accurately targeting the actions necessary to improve the existing situation requires knowing exactly what the brakes and stumbling blocks are going to be. For a very long time, the difficulties facing building with local materials in trying to play its part in sustainable development were seen as being mainly of a technical nature. But although technical skills and knowledge (or better technical skills and knowledge) are indeed necessary, it is becoming clear that the vast majority of the problems are rather cultural or psychological in nature and that particular attention must be paid to these.

2 - Brakes on the use of local building materials

Economic difficulties are often cited as the main cause of housing problems. This is not, however, entirely true. In most developing countries indeed, the problem arises very often from the abruptness, unparalleled in history, with which people have been

confronted with new construction models being imposed by too expensive "international" norms, out of reach of the majority.

Out of reach and therefore symbolic of power and of authority, these new models very quickly became the sign of a certain type of social ascendancy, of "doing well". In this context, traditional models based on using local materials found themselves re-categorised as "out-of-date", "provisional" or even "for the poor", whereas they are often well-suited to their environment and could easily evolve in the light of new needs, as has already occurred in the past.

Frustrations linked to the successive layering of models from different societies, to the colonial past, to ethnic or even social forms of segregation have undoubtedly created the conditions in which these judgements were formed. It is also clear, however, that this mentality is being sustained by classic mechanisms of assistance (*for the most part copied from the models of developed countries*) introduced by governments and by the existing practices of forms of international aid. These are very often very keen to use international norms as points of reference. But in the long term, such norms end up being adopted and without realising it, the end result is the marginalisation of local, traditional skills and knowledge and in this very way the exclusion of entire population bands.

(Nor is this confined to developing countries. In France, for example, a great many of the housing problems which low-income groups face result quite simply from the rent increases which have followed on naturally from the overall increase in minimal housing standards).

This mechanism is introduced at two levels.

The first is pursuing the development aid model which involves building housing or infrastructures respecting international norms. And yet this practice has been recognised to be fairly sterile and in 1988, UNCHS had already recommended to governments that they should stop such practices which mask the facts, lead to inequalities, and sustain hopes which can only be disappointed (*Global Strategy for Shelter*).

The second level is that of technical education. Being restricted exclusively to imported models this fails to give professionals the qualifications they would need to better understand traditional techniques and to be capable of helping local populations to make their own models evolve and adapt to their new needs. With thus little hope of finding a market in this field, and having also become convinced in the course of their studies that what they have been taught is "what is right", technicians very often react by rejecting traditional skills and knowledge

Disseminating such ideas inevitably leads to feelings of embarrassment, or even of shame, and reactions of refusal on the part of populations. This tends to aggravate the situation, both from the point of view of housing conditions and of that of introducing an environment conducive to the sustainable development of housing.

A common reaction people have is not to be wasteful by no longer maintaining existing buildings in order to save up to build a "proper" or a "final" home. While very often problems start to spiral when they try to put this plan into effect, their existing home continues to deteriorate, which only increases their doubts. Trapped in this vicious circle, age-old skills and knowledge tend to disappear, both at the level of the production of materials and of implementation techniques.

Also noteworthy is the fact that skilled workers trained in modern techniques using traditional techniques tend to do so with a certain amount of disdain, in the absence of anything better, and naturally the technical result suffers.

In some cases, it is imitating international models whilst using local materials or even mixing local and international construction techniques which can cause technical problems.

In this context, many decision-makers and locally elected representatives are persuaded to refuse to use traditional models, which they suspect of not being reliable and of lacking in sparkle, and thus in failing to help build up their prestige. Conversely, this option can result from fear of being criticised by the beneficiary populations, who would feel they were not being given buildings of "sufficient high quality".

State technicians also prefer to quote fairly high standards in the hope that they may one day apply to themselves. Finally, it should be noted that common practices for the remuneration of professionals (percentages of construction costs) and the consideration that they each seek often do not mix well with the idea of a drop in budgets and thus with seeking to make savings.

3 - What strategies should be adopted?

In the first place, it is important to fully take into account local specific circumstances. The a priori assumption should be that every context is different and requires a particular strategy which should be devised using an initial assessment of the building sector and of its physical, socio-cultural and economic environment. The discussion should be based on a dynamic assessment, not only focusing on

problems, but also examining their causes and identifying their various potentials for evolution and for change.

For a project to be well integrated into the local socio-cultural fabric and to avoid misunderstandings, it is also important to adopt a respectful attitude to existing practices, be they cultural, socio-economic, etc., and to establish a partnership consisting of recognised personalities and stakeholders with whom one should seek to draw up a mutual understanding of problems, of their causes, of the potentials and the solutions identified, and of the methods and strategies being suggested.

The field of action of a "project" being necessarily limited, the focus should not be restricted solely to completing a building programme. Attention should also be paid to introducing conditions for the sustainable development of a form of contemporary earth building which meets the needs and the specific means of local population groups, in such a way that they can themselves take charge of their own building programmes.

To achieve such an aim, the operational phase should include introducing complementary activities to be gradually handed over at local level. Depending on the specific needs identified, such complementary activities might include:

Research,

to explore possible avenues and to supply suitable responses to each context both from a technical and from a methodological and strategic point of view.

To make best use of the resources available, it is recommended that research should be linked to experimental programmes. Special care should be taken to study the physical, economic and cultural environment and to study existing skills and knowledge and modes of organisation, in order to allow the solutions put forward to be accurately targeted.

Training,

to respond to problems of availability of competent staff, capable of taking charge of building programmes or indeed of helping people to build their own homes.

Training should be provided at several levels so that operational teams can be set up. University education should thus be complemented by vocational training and, to resolve short-term problems, by on-site training.

Experimentation and implementation,

to test technical innovations,

to be better placed to compare one's ideas with reality and thus to be able to provide more relevant and more effective responses,

to provide life size models which are necessary to convince decision-makers, technicians and local people.

Field projects are easier to implement when one is working in partnership with organisations (international, national or non-governmental) or private sector enterprises.

Dissemination,

in order to make the possibilities of building with earth in the field of housing better known, as well as the results of one's work.

Dissemination can be targeted at very specific audiences or be aimed at the public at large, in order to raise awareness amongst decision-makers or to inform a wider audience.

Exhibitions and various forms of publication can be envisaged.

Constructing "prestige" or public buildings can also play a decisive part in disseminating ideas. In this sense, it may also be useful to consider activities relating to the local immovable heritage (in various forms: restoration of the most prestigious ones, and their promotion for tourism development, or more simply, rehabilitation,), which can restore confidence amongst the people.

Writing and disseminating technical documents, including normative documents, is a considerable bonus, and in some cases a vital stage.

Another very important aspect relates to resources, or to be more precise, to how the resources available match possible planned activities. Resources can be defined in terms of:

- staff: skills and qualification at all levels,
- local partnerships,
- logistics: offices, means of transport, etc.
- equipment: special construction equipment, furniture, computer equipment, etc.
- documentation: teaching aids,
- operating costs, funding available.

If the resources allocated to the implementation of the activities identified and planned are insufficient, operational objectives must be reduced, which may be frustrating, but which is vital to the success of the project.

Setting up a wider partnership can partly compensate for a lack of resources. This should be envisaged at the initial assessment stage to allow the partners to become involved as soon as possible which enables shared knowledge to be built up and thus an easier collaboration.

One must bear in mind that carrying out development projects requires a great deal of patience and determination. The approach adopted must be pragmatic, aiming firstly for objectives which are modest but which lay the foundations for a gradual

form of development which in adapting to opportunities in the long term enables more ambitious objectives to be achieved. It is therefore preferable to set out priorities (within each type of activity and between activities), so that programmes capable of being implemented in several phases can be planned.

In fact, carrying out projects in successive stages and targeting both long and short-term objectives is highly appropriate. This is because it allows (indeed demands) regular evaluation of the results of the activities carried out and thus best use of the lessons learnt while they were being implemented, which allows continuous improvements to be made at all levels:

- matching technical proposals to people's actual needs,
- matching techniques and organisation to the capacities of the local people and professionals,
- selecting the types of activity and the methods of intervention,
- adapting the speed of progress to the absorption capacity of the target population.

Drawing up assessment criteria at the initial assessment stage has the advantage of enabling all of the partners to measure precisely how efficient the solutions put forward are, and to evaluate the consistency and suitability of the activities and methods being used.

A project that would follow such an iterative and strategic approach should be actually successful and therefore participate to the life improvement of the most disadvantaged communities of the world that has been desired for so long.