

eMag on Climate Action in Africa

**#7 Towards a revitalisation of
traditional methods and
materials?**

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Social, economic and ecological approach of the levers for sustainable housing



Zineb Ben Abderrazik, Architect

Zineb Ben Abderrazik, architect, describes the sustainable habitat levers on the African continent, on a social, economical and ecological approach.

What is habitat?

"Habitat" and "inhabited" are sociological concepts that define place and practice. In fact, the habitat is the first form of architecture and is very close to human use. Construction accounts for 30% of global greenhouse gas emissions. By 2050, 250 million new inhabitants are expected on the African continent. In addition, rising sea levels are expected to cause the migration of 700 million people by 2030.

What contexts characterize the construction sector in Morocco and Benin?

Today, in countries like France, Morocco, or Benin, construction is carried out using the same standardized materials and methods, often without considering the local environment

“ Building skills that are in line with local resources, climatic conditions and uses foster a sustainable, environmentally-friendly construction. This is the opposite of current practices.

Concrete is the principal material used in standardized construction. While it has provided a way to meet the challenges of urban and demographic growth, concrete is highly polluting and reliant on non-renewable resources like sand. Moreover, its energy efficiency is limited compared to alternatives like soil or wood, and it cannot be easily reused. However, due to its widespread availability and standardized usage in construction, it remains prevalent. As developing countries adopt Western standards of modernity, traditional building methods are being forsaken in favor of concrete-based constructions.

Some local materials, such as soil and straw, are strongly rejected and considered poor, even though they offer more advantageous and appropriate thermal properties.

What are the limitations of traditional building methods?

There are three limitations:

- 1.Economic: Building using local materials is more expensive than building using concrete.
- 2.Implementation: The loss of traditional construction knowledge makes it difficult to use these methods.
- 3.Regulatory: Traditional building masters operate within the informal sector, which makes it challenging to engage their services in the role of architects.

What levers do architects have to promote more sustainable housing?

There are three approaches:

- 1.Ecological: We wouldn't build in Cotonou in the same way as in Marrakech or Nairobi, as these three cities have different climatic conditions and resources. In Benin, for example, the climate is tropical and requires protection from the sun and cool spaces using the prevailing winds, whereas in Marrakech, thermal insulation is required due to large thermal differences. Additionally, in Marrakesh openings are needed—large during winter and small during summer. Architects are familiar with these mechanisms, but building standards make it difficult to implement them.
- 2.Social: Habitat has to be comfortable and adapted to use. As architects, we also define uses, and help to initiate change.
- 3.Economic: Combining economy and ecology means building sustainably. We can apply an economically advantageous model to construction, which would reinforce its attractiveness and democratization, but also the local economy and self-build.



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Special segment by Afrik 21



Deciphering news about the construction sector in Africa

Benoit-Ivan Wansi, Afrik 21

Benoit-Ivan Wansi, journalist with [Afrik 21](#), takes a look at recent sustainable habitat initiatives and upcoming events in Africa.

What have caught your attention recently, regarding sustainable habitat?

First of all, a year ago exactly, Diébédo Francis Kéré, from Burkina Faso, won the 43rd Pritzker Prize, considered the Nobel Prize of architecture. It is the highest distinction in the profession ever awarded to an African architect. He is a pioneer in ecological construction, especially by cleverly utilizing local materials to tackle climate challenges. His work is designed in order to have an impact on communities.

Several eco-building initiatives have been launched in the past few weeks and months.

The most recent news takes us to Gabon, where the the Gabonese Strategic Investment Fund has entered into a partnership with the Africa Grids group to build 9,000 m2 eco-responsible housing units in "la Baie des Rois" ([Read the article](#)).

Libreville is on its way to becoming a green capital. CFA 15 billion financed by the Gabonese government's partners will allow to create natural spaces and housing units built from local materials and powered by solar energy. These buildings will enable inhabitants to reduce their electricity and water bills. The project will be verified by the International Finance Corporation (IFC) label "Edge".

On another hand, the Kenyan company Africa Logistics Properties has joined forces with the IFC to promote "Edge" certification among green building developers in Nairobi. They aim to limit the environmental impact of the building sector by encouraging photovoltaic panels, wastewater management systems and automatic shut-off taps to prevent waste ([Read the article](#)). According to a World Bank study, 22 green infrastructures save Kenya at least \$100 million per year and reduced the energy consumption of 20% compared to other buildings.

Afrik 21 also turned its attention to South Africa, where the Green Council South Africa is organizing the Green Building Convention from November 15th to 17th to encourage property developers to take climatic conditions and recycled materials into account.

In spite of this, numerous buildings on the continent continue to be constructed using concrete. 37% of energy-related emissions come from this sector. That's why some manufacturers are turning to low-carbon concrete, such as Lafarge ([see article](#)).

Digital solutions also have an important role. The Institute for Solar and New Energy Research, located in Rabat, in partnership with GIZ, announced its plan to provide training for start-ups in green technologies

Last but not least, Afrik 21 looks forward to seeing you at [Climate Chance Summit Africa 2023](#) in Yaounde. The main theme will be Sustainable and Inclusive Habitat ([Read Romain Couzet and Mireille Etame's interview](#))

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Accessibility of sustainable housing and mud architecture in the Sahel



Anne-Cécile Ragot, La Voûte Nubienne

Anne-Cécile Ragot, Head of Development and Partnerships at [La Voûte Nubienne](#), highlights the advantages of mud architecture and the importance of widespread sustainable building techniques.



What does the Nubian Vault project consist of?

80% of the Sahelian population lives under tin roofs. For the past 25 years, our mission has been to disseminate on a large scale an ancestral eco-construction technique, the Nubian Vault, in order to provide access to decent housing, adapted to the climatic conditions and socio-economic realities of the Sahel. We build 100% in soil, with vaulted roofs made of mud bricks and no imported building materials. This concept applies equally to private homes in rural areas, community buildings and urban areas. The main benefit of Nubian Vault construction is thermal comfort. It's an adaptation and mitigation solution that avoids 20 tonnes of CO2 emissions per house. We work with the poorest households in Mali, Burkina Faso, Senegal and Ghana.

How do you promote the widespread use of Nubian vaults?

We began by working on simplification and standardization, in order to transmit the technique to the local population ([Read the Nubian mason's manual](#)).

“It's because this ancestral technique is frugal and accessible that it's possible to disseminate it on a large scale. It doesn't require any special tools, and uses local materials.”

To achieve this, we have chosen a market-led approach, i.e. building a fully-fledged economic sector that will enable the number of Nubian Vault constructions to increase. We start by supporting the supply side and the emergence of an industry through the training of masons, technicians, architects, and so on. These courses take place both on site and in the classroom. They do not require a diploma, are adapted to people who cannot read or write, are paid and take place in situ to be as inclusive as possible.

We also answer demand by providing employment opportunities for masons. When a family wants to build a Nubian Vault house, they contribute 75% in kind (brick making, water transport, unqualified labor). Financial incentives are distributed so that families can raise the missing money. This is virtuous, as it contributes to the development of the sector. We're in the early stages of scaling up, with 1,000 houses to be built by 2022, compared with 10 in 2000. This is helping to strengthen local economies.

[Consult the Nubian Vault best practice on our Cartography for action!](#)



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Promoting the eco-construction sector to spread the benefits of local materials



Doudou Deme, Elementerre

Doudou Deme, co-founder of the Senegalese company Elementerre, shares the evolution of his project to democratize local materials in the construction sector, notably through training.



Can you tell us a little about the Elementerre concept and how the training projects came about?

Elementerre was created in 2010 to produce and construct buildings using biosourced and geosourced materials (fibers, soil, clay). We realized that production wasn't enough, so we started building larger and larger structures.

We're now at a turning point, as we want to increase our production capacity and go to scale to overcome our various obstacles.

What are the obstacles you face?

We have a limited impact in quantitative terms. Our buildings are more expensive because the time required to design them, particularly to take into account their energy efficiency, is longer. This is not affordable for the Senegalese population.

There's a paradox in representations, as soil is seen as poor in rural areas and elitist in towns, making it difficult to spread this material.

Moreover, we have four cement factories in Senegal, making concrete a very accessible material. Finally, skilled labor is quite rare, so it's more expensive and prevents massive construction.

How do you democratize your techniques?

To scale up, we've launched the BANBAN project, which aims to build a neighborhood. The idea is to increase the number of buildings to show their economic feasibility and make them more affordable, but also to change the way people look at mud materials and develop training in this sector. We're also trying to work on other aspects that contribute to sustainable, comfortable living, such as sanitation and mobility.

To implement this neighborhood project, we realized that we had to insist on the training aspect. The JANGBAN project currently under study will start training programs. This is supported partly by the Luxembourg cooperation agency. The aim is to train around 120 people. The beneficiaries are diverse: trainers, learners in the sector and professionals (architects, engineers), so as to disseminate as much as possible and begin the creation of a base from which to carry out the BANBAN project.



Our aim is to bring together training and the private sector. In this way, we want to democratize the clay brick construction sector and expand the market, while guaranteeing jobs for those trained.

[Read Elementerre's best practice on our Cartography for action!](#)



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Next rendez-vous: Climate Chance Summit Africa 2023



François Ossama, Ministry of Housing and Urban Development of Cameroon

François Ossama, Cameroon's Ministry of Housing and Urban Development, reacts to the speeches and shares the invitation to the [Climate Chance Summit Africa 2023](#), Yaoundé, October 23-25.

What did you think of this eMag and what can you tell us about the Summit in October?

This eMag gives a good overview of what we expect from the #SCCA2023 Summit in Yaoundé. We don't just want to discuss policy and strategy, but also concrete issues, with experiences from the field. This is the direction we want to go in, and it justifies the interest of the Minister of Housing and Urban Development (MINHDU) in being a partner in this event.

Today, we want to adopt a sectoral approach to the climate challenge and better align our urban policies and strategies with these issues at both national and local levels.

This requires the involvement of all players, including civil society, which is strongly invited to this summit of non-state actors.

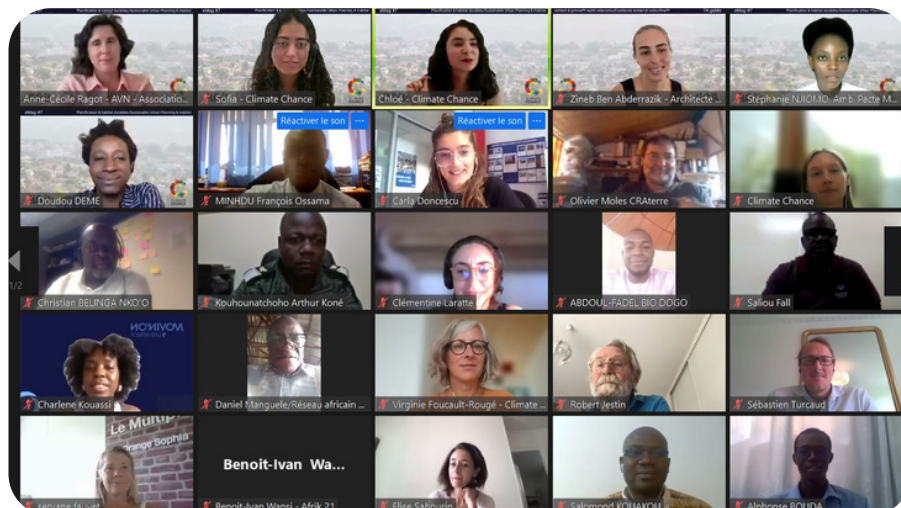
Construction is a major challenge. The sustainable construction based on traditional knowledge and local materials topics come up again and again. In my opinion, this is an issue that has not yet been sufficiently explored. We hope that this summit will help us in this objective.

Of course, there are other issues, such as urban planning and the circular economy, which are also very important to us and we will be addressing them. To this end, we are in discussions with other players.

All that remains is to invite non-state actors on a massive scale, to whom we are offering a forum for exchange in the run-up to COP28.

[Discover the #SCCA2023 Programme here!](#)

Watch the recording of eMag #7

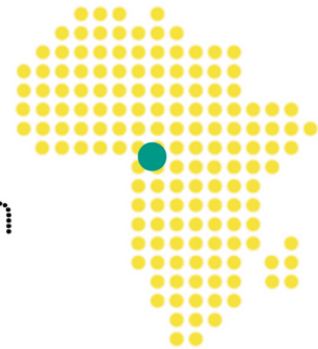


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Upcoming Events

CLIMATE CHANGE SUMMIT AFRICA



Yaounde - Cameroon
23 – 25 October 2023
#SCCA2023

[Registration and information here](#)



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eMag written by Chloé Quinonero

association@climate-chance.org

www.climate-chance.org