



Report Workshop 5
Sustainable Buildings and Construction in Africa
Climate Chance Africa Summit - Abidjan 29 June 2018
Roadmap for Sustainable Buildings and Construction in Africa
Global Alliance on Building and Construction (GABC)

I – WHERE ARE WE?

I.A - Mapping of the action on the African continent. Cartography of action on the African continent

a) Diagnostic elements

What are the main observations on climate action in this sector at the continental level? What actions are currently contributing to the objectives defined by the Paris Agreement?

Public policies and multi-level governance

In the African context, adaptation, security, and resilience need to be included.

- Need to integrate the issue of adaptation into discussions on housing and sustainable housing in Africa. Mitigation and adaptation are intrinsically linked. For example, buildings are heavily affected by floods and land degradation.
- Cooperation work to be carried out with politicians, architects and all actors in the value chain in the field of sustainable construction.
- Sustainable development issues are not taken into account in building permits. Another problem is land tenure and land availability, which discourages people from building sustainably on their land for fear of having their property, often derived from customary law, withdrawn, which is now in question. Many precarious constructions.

Training and capacity building

- Need to identify the types of architecture that are adapted and adequate (through an assessment of the situation in country and on the region level of what exists) and to disseminate this information.
- Think in the design phase of the building's project so as to ensure that it is made of bio-sourced materials, with good passive energy efficiency rather than focusing on cooling systems (air conditioning type).
- Need to raise awareness and provide training at all levels: national decision-makers, local authorities, citizens to change attitudes around buildings with local materials (show examples of buildings with local materials that are modern), but also at all levels of the construction sector (architects and companies but also informal craftsmen, in rural as well as urban areas) so that they appropriate construction techniques (such as Voûte Nubienne).
- Need to popularize the methods so that everyone at their own level can appropriate them.

Materials and technologies

- Need to formalize the solutions explored and find a way to overcome the legal blockage.
- So far, there has been no major change. Imported materials, expensive and polluting, continue to be widely used: sand, gravel, cement, sheet metal. African countries tend to want to copy Europe. "Sustainable materials" do not yet include banco (raw earth) in building permits.
- The State must encourage these materials: decree linking the use of these materials to tax exemptions + total revision of the building code and urban planning.
- Focus on the exemplarity of buildings, top-down, urban and rural.
- Encourage private enterprise to invest in these materials, their market is expanding, the demand is growing.
- The populations still have strong prejudice regarding materials, that is why it is so difficult to convince them, though Nubian Vault constructions already exist in cities like Ouagadougou thus, there are chances for the change in mentality.



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- Innovations are private initiatives, often led by NGOs, whose impacts are still too low, given the strong need for renewal and construction of the built stock (need in terms of millions of housing).
- Need to develop tools to design sustainable buildings, create green guides for the construction industry.
- Nevertheless, programmes are already existing or being developed aiming to produce new materials (typha) and to recycle old materials (banco/adobe such as the Nubian Arch).

Financing

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How are the actors organized?

Public policies and multi-level governance

- Local actors: Territorial disparity in housing policies. Difficulty in implementing a uniform policy: disparity between the priorities of municipalities and the challenges they face.
- Language adaptation: It is sometimes more effective not to talk about greenhouse gas emissions but about thermal comfort. Similarly, it is sometimes easier to refer to security issues.
- Difficulty of communication between different departments within the same Ministry - difficulty in convincing departments for which the objective is the destruction of informal housing.
- Inclusion of researchers and architects is essential. The Moroccan alliance is an example. The challenge is to include the different local actors according to their requirements.

Training and capacity building

- The Covenant of Mayors and Africa Local Government Academy: UCLGA offers capacity building workshops for cities to help them develop their action plans in which the building sector is integrated (increase their planning capacity and provide them with a platform where they can share their knowledge and best practices). Best example is a September workshop in Dakar: 13 pilot cities, and 112 cities that have joined and 23 that are in the process of joining.

- La Voûte Nubienne as a network facilitator to train the various stakeholders in order to allow the dissemination and appropriation of the Nubian Volt concept, allowing the construction of bioclimatic buildings adapted to the environment by:

=> Training of the construction sector: mainly rural builders, informal or young unemployed (because they are the ones who constitute the majority of the construction offer in West Africa where 90% of construction is done in informal environments) but also companies, architects, etc. to cover all construction necessities (rural, urban, private and community buildings).

=> Strengthening local authorities to integrate adapted housing issues into their development plans (and related aspects related to construction environment, employment, etc.), and supporting the construction of private and community buildings in the Nubian Arch on their territories, including the training of project owners, building technicians, craftsmen and companies, etc.

=> Training of civil society actors so that they can be channels for the dissemination of La Voûte Nubienne Concept to their members and beneficiaries.

See how we can benefit from each other's experience and get these networks to collaborate.

- *Dakar Platform Acting for Climate*: raising awareness in the Dakar region to raise awareness with non-state actors

- MOOC for wetland habitat on 3 topics:

=> What is sustainable construction?

=> What are construction methods?

=> Experience feedback

MOOC also considers creation of collection/resources on more specialized subjects, or in other climates.

For this approach to expand, it is necessary to develop partnerships with local networks so that products are adapted to needs and requirements, as well as establish proper channels, so that everyone can talk about their experience, and so that there is academic recognition.

Materials and technologies

The dialogue has been started, however network coordination is challenging. It is important to create forums for meeting actors and exhibitions to enable promotion to the general public.



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Business lobby - FACT Sahel allows builders, architects, engineers and companies to meet and organize projects + shows that it is possible to make beautiful buildings with soil. Interest of public institutions (ministries, town halls) in this initiative is increasing.

- Companies are trying to organize themselves in order to be able to set up measures but need to strengthen the link between expertise, companies and communities in order to develop the capability of translating scientific knowledge into real practice: through training companies and communities.
- Need for public tenders integrating environmental criteria to encourage construction companies and architects to take an interest in sustainable building materials and techniques.

Financing

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What progress is yet to be made? What are the main gaps?

Public policies and multi-level governance

- Difficulty in implementing regulations: for example, thermal regulations are not always respected: control review is mandatory, however municipalities do not always have the capacity or means to conduct it, as well as on the level of stakeholders who are often in need of laboratories facilities and therefore have to establish partnerships in order to have one.
- Climate finance: very important to leverage. Intricacy and amount of conditions to meet have been the object of criticism, as States don't have the resources necessary to implement the projects in a proper way.

Training and capacity building

- Cultural issue: bad perception of local materials. It is necessary to be able to show the projects which used local materials throughout the world, demonstrating that they can be both durable and modern.
- Certification, labelling, recognition of training should be part of the process of choosing the right architect, building craftsman, referencing workers, architects, engineers, acknowledged experts.
- Need for training and recognized training.
- Availability of materials: no mass production.
- Information on the cost of construction.

Material and technologies

Need for scientific data and measurements to prove the effectiveness of local materials. Standards can be obstructive for collective management and insurance. There is strong need in:

- Scientific measurement, tools and measuring devices;
- Incentives (financial or legal/normative) for the use of materials and technologies;
- Material management equipment;
- Training;
- Overcoming cultural obstacles and reluctance (+ insurance, security) + communication.

Financement

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NB: This chapter will be used in the Climate Chance Observatory

b) *Identification of most inspiring multi-actor actions or practices*

What best practices are potentially replicable on the African scale? By what type of actors are they carried? Etc.

Public policies and multi-level governance

=> **Morocco:**

- Pilot project in Morocco to test the thermal regulation before implementing it, supported by the European Union.
- **Creation of the Moroccan Housing Alliance:** transposes the objectives of the Global Alliance for Sustainable Housing and Construction to the national level. Centralization and sharing of best practices of Moroccan actors throughout the value chain. Coalition led by the Ministry of Housing, Housing and Urban Policy.
- **NAMA Habitat:** study on GHG mitigation measures in habitat conducted in partnership with UNDP. Analysis of the household energy sector. Capacity building and financing were raised. The question of funding emerged from this study.



=> Dakar:

TCP: Territorial Climate Plan. Accompaniment of the EU. Setting up eco-neighbourhoods (work to raise awareness of climate issues in Dakar districts by volunteers).

Training and capacity building

Material and technologies

- 2 bioclimatic design tools adapted to all climate zones in Senegal (in addition to UN-Habitat guides) + simulation and design assistance software (Bati-Pays spreadsheet + software to help prepare the building permit application for compliance with standards, including environmental standards).
- Typha: research phase completed, there has been R&D, training on how to produce the material and how to implement it in the building, and development of production tools, etc. Today's challenge is to put these materials into the building, through pilot projects.
- La Voûte Nubienne : see the materials used for la Voûte Nubienne.

Financing

Participants' Remarks - Concrete project proposals or reflection to promote the issue of sustainable housing

The problem of Africa goes beyond the countryside, high urbanization, we are facing a change that we cannot stop. How to advance our local materials to be able to compete with imported materials. How to promote local materials. The modernisation of local materials must be central. There have been made considerations to industrialize local materials

Projet FNGN:

A lot of reforestation activities, but if we cut down the trees for construction, the balance is not very satisfactory, which proves the advantage of the Nubian Vault project. But finding financing which meets the challenge is essential. By sharing information on this subject, it would be possible to overcome this aspect quickly. Construction of the control buildings which would serve as examples, would enable demonstration and testing for a stronger appeal.

411 food security granaries must be built in the Nubian Vault as this allows a better conservation of food products, however the challenge remains to access the funding necessary to carry out these projects.

2 classrooms have been built with the Nubian Vault, however the aim is to duplicate this model in 90 Unions. The same applies to health centres. Currently schools are built with sheet metal roofs and with the intensification of high winds, roofs are regularly ripped off.

It was replicated by 2 unions of the FNGN in order to train construction experts. These experts now accompany 15 Unions with the objective that the trained experts then accompany the other Unions. Aim is - job creation and replication of the model on a larger scale.

Project in the North of Côte d'Ivoire:

Agro-ecology: partnership they would like to develop with La Voûte Nubienne in order to establish an ecological habitat in concerned area. People have already adhered to agro-ecology. "We could start with establishing habitats in schools, while national institutions could support populations providing with ownership rights, what has been the case for agro-ecology."

Ernest Dione: Energy Efficiency of the Buildings

- We must not go into complicated things. It is necessary to see what the problem is and what solutions can be provided with few resources. Accessible and feasible for the largest number of people. Through the use of local materials, the use of simple techniques (typha, VN). In Africa, terraced construction are of great cultural importance, but it can pose a problem when it comes to heat. It is therefore necessary to adjust the orientation of the building. It is necessary to identify companies that are already engaged and can be connected with the ones who have initiatives such as FNGN to make a difference.

President of the Regional Council of Boucle du Mouhoun

- Would like the association to conduct an assessment of the 3000 buildings that have been constructed, to know where we stand and to better define where we want to go. The construction of buildings is very durable and does not require much of maintenance.
- By taking collective actions, it is possible to get this initiative accepted by the population.



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- There exists the possibility of starting from the bottom, the local authorities, the communes. If each municipality builds a building in each city (there are 300 municipalities), it will become an awareness-raising tool.
- It is also necessary to insist on the DAO level, in which the NV is not taken into account at the government level. Clause to be included in the contracts to access this deal. Most of the buildings are not insured but this is not a problem in Burkina Faso. People are a bit resistant to change but in 50 years' time the VN and sustainable buildings will be the most widespread.

It is necessary to work at the regional level as well, by creating exemplary sustainable buildings to enable a change in mentalities.

Support tools for the design of tender documents should incorporate climate change adaptation and mitigation considerations as well as provide companies with proper training to respond to these calls for tenders.

Mali:

New technology the H brick with an economy of cement and banco use which generates a financial advantage. . In Mali, a culture of using baked bricks.

What about existing buildings: if there is political will + capacity building of professional construction actors to take into consideration energy efficiency issues, there is an opportunity to renovate the existing buildings as well.

Architecture student:

There is great number of colleagues who have the ability to disseminate important knowledge. Therefore, there are possibilities to create partnerships with schools of architecture as they are very interested in this type of projects.

It should be considered to involve urban planners because there is a lack of attention to urban planning concerns in African cities.

Recovery is a key issue. Many possible projects are being carried out in the field of restoration, particularly related to cement use.

Association of Young Entrepreneurs of Côte

Wish to launch a school built entirely of sustainable materials, want to know more about how to implement this project and how to conduct training of the involved actors.

France Volontaire

To share all these ideas, a sharing tool would be interesting to set up and France Volontaire can support this process.

RHF

The issue of sustainable housing must be considered from the design stage. The DAO must be able to integrate all sustainable construction techniques. Concerning restoration, introduction of energy efficiency criterium into restoration processes as a key issue.

Region of Nawa Côte d'Ivoire

Region that is built with ecological stabilized compressed earth bricks. They are working on a lowland management plan with BTCS, as well as on the design of the building as orientation of the building reduces the energy consumption of the buildings. Therefore, mobilization of architects is necessary.

Marocco :

Architecture catalogue published by the city of Rabat, which has identified 10 sustainable buildings (for professionals and architects). Next edition for September 2018 and this can be made available to the Global Alliance on Building and Construction.

What achievements and difficulties have been encountered during the implementation?

What impact in terms of avoided GHG?

Public policies and multi-level governance

Training and capacity building



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- People need to be informed about greenhouse gas emissions and how to move towards reducing greenhouse effects.
- Regarding air conditioning, it is necessary to make the climatic zones widely known: which material would be the most suitable for the climate zone one lives in at the very early design stage of the building.
- We can train people, but if there are no constraints currently. There must be requirements embedded into building permits and certifications process encouraging people to build more environmentally friendly buildings.

Materials and technologies

Financing

*What was the impact on Sustainable Development Goals (SDG)? (NB: The most relevant with respect to the sector)
NB: This chapter will be used in the Climate Chance Portal*

I.B - Financing action: what exists

Identification of opportunities and constraints for financing action/initiatives.

*Synthesis of available funds based on the experience of various actors of the coalition.
What access modalities for which actors?
What are the gaps?*

II – WHERE DO WE WANT TO GO?

II.A – What is the synergy potential for the coalition?

a) Potential for action

- Overview of exemplary achievements: Try to understand what initiatives have been undertaken in the subregion to promote sustainable housing. UN-Habitat could support this effort. There have been developed tools which allow to strengthen synergies. It is crucial to share what already exists in the framework of resource centre or collective platform.
- Conceptual design of the building is an essential stage, with great potential. Creation of replicable concrete models. Development of technical sheets in order to facilitate the design of sustainable buildings. Work upstream + specifications. It is up to the contracting authority to establish a set of criteria or rules in order to encourage and mobilize a set of actors.
- Development of a GABC regional roadmap.
- Training on public tender procedures: train companies in order to strengthen their ability to respond in appropriate way to public tenders.
- Financing policies: innovative solutions for financing innovative buildings. There is great potential for stakeholder inclusion.
- Maintenance issue of buildings made of local materials: if we want to favour buildings made of local materials such as clay buildings, we have to deal with the issue of maintenance to avoid disasters. Existing solutions, such as external cement plasters that allow both to have a modern building (to fight against the prejudices of clay buildings) as to avoid maintenance needs.
- Reliability of results measurement.
- Creation of a technical reference system.
- Conduct analyses on the issue of the environment and land management in terms of use of local materials intelligently:

The excavated areas are chosen to allow water retention basins (very useful for retaining water during the dry season);

It is also possible to develop the boreholes drilled in order to recover the area for integrated fish farming and bio-digester projects.

b) Actors to mobilise

- Stakeholders at all levels:



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- government representatives for national policy;
- local authorities for local implementation purposes;
- civil society actors, construction actors with adapted techniques;
- the entire supply chain (architects, companies, informal masons, engineers, craftsmen's cooperatives, etc.);
- housing cooperatives;
- banks, insurance companies;
- educational institutions (vocational training scheme);
- real estate developers;
- traditional and religious leaders, who are close to the people and have the capacity to mobilize.

- Bring together people who do not talk to each other and do not understand the constraints of the others in the design process. To exchange conflicting readings on the building, in order to reach the lowest common denominator.

- Pivotal role of the project owner: responsibility to mobilize all construction stakeholders and identify the role of each as well as the potential of upgrading the construction process to make it more sustainable.

- User: understand the user's challenges to ensure that the impact is sustainable. Civil society acts as an intermediary.

II.B – What issues and what levers to activate?

a) Information challenges

Lack of information and data on the construction sector.

Materials and technologies

- Local / bio-sourced materials.

- Replicability of technologies to other settings and to the population as a whole, including low income population + low cost technologies.

b) Training challenges

Capacity building

- Improve the understanding of sustainable housing at every level of intervention: administration, builders, owners, etc. Touch the whole pyramid, from the top to the user;

- Training of actors to respond to calls for tenders;

- Capacity building in project management;

- International reporting system (related to financing).

Public policies and multi-level governance

- State: the 1st player in construction, in terms of volumes, so must be the first to promote sustainable buildings and innovations (calls for tenders). A new concept, the administration must take an interest in the matter and become a referrer.

- Territorialisation of public policies: particular decentralization models that hinder development at the local level. States and governments must keep in mind the need to transfer part of their policies to local authorities so that they can implement them at the local level.

- Regarding skills that are to be transferred to communities, networks of mayors committed to sustainable housing can be an appropriate tool. The transfer of skills is crucial, as it is the commune level where certain planification and budget formulation processes take place. However, they must be supported in this process.

- Policy coherence: meeting the real need in thousands of housing units. Linking research with calls for tenders. Challenge to make housing truly affordable.

- National partnerships between all actors, national alliances, in alignment with adapted country strategies.

- The issue of over-investment.



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c) Financing issues (analysis and proposals on difficulties of access to financing for the sector)

Financing

- Involve investors in this multi-stakeholder framework, otherwise financial products will not be adapted to these sustainable building needs;
- Flexibility of funding and procedures;
- Involve the ministries of finance and discuss taxation + involve financial stakeholders in the multi-stakeholder dialogue;
- Land tenure security, especially in rural areas, simplify procedures for obtaining land rights.

II.C – What are the expected impacts on African NDCs?

To be completed later if necessary.

III – HOW TO GET THERE?

It is necessary to be realistic about the capacity of the actors to be mobilized in collective efforts, without a leader dedicating 100% of his/her time. The Climate Chance Association cannot provide a full-time human resource and relies on the actors involved in the coalition.

As such, it is proposed to initially target only two or three initiatives, which are to be included in the 2018/2019 roadmap in order to be realistic and to be able to measure progress.

III.A – Organisation of information dissemination within the coalition

a) Setting up a coalition's mailing list

For continuous communication on strategical information: what scope of actors?

What means of action for the coalition?

- Carrying out a joint advocacy campaign
- Catalogue of concrete projects carried out or potential ones in order to create replicable model of sustainable buildings.

=> mailing list by email batiment-constructions.Af@climate-chance.org to exchange on successful projects, identify leaders who carry innovative and replicable projects. Mailing lists also facilitates exchange of the ideas and helps to avoid isolation of certain actors:

- Catalogue of concrete examples of carried out projects as well as replicable models of potential ones, regarding sustainable buildings
- Sharing experience to facilitate advocacy at the local level
- Identify the challenges faced by these model projects: those that have been overcome, those that have remained unresolved

Send a summary sheet format to answer the following questions:

- - Which projects? By whom?
- - What difficulties have been encountered? What failures?
- - What support? By whom?
- - How to work together on these projects?
- - How to mobilize financing?
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Advocacy

- Regional Charter on Construction Issues



- Focus on a multi-stakeholder approach
- Adopt standards, requirements, commitments to enable non-state actors to implement projects

Everyone here is ready and motivated to get involved in sustainable building projects.
This commitment must be reflected in the Abidjan Declaration.

b) Agenda des rencontres de la coalition adossé aux événements clés *Agenda of coalition meetings based on key events.*

The coalition's agenda.

c) *Dissemination of best practices*

In order to contribute to the formation of a enabling environment.

Coalition facilitation work

Exchange format:

Mailing list for dissemination of information batiment-constructions.Af@climate-chance.org

Exchange work between participants to be continued

Organization of information dissemination within the coalition

Mapping of the action on the Climate Chance site, which will make it possible to present and promote the projects

Library available on its website where one can find and download catalogues and others.

Web page on the Global Alliance on Building and Construction (GABC) website that could be created for this coalition.

d) *Dissemination of training opportunities*

In order to contribute to the creation of enabling environment.

e) *Dissemination of funding opportunities*

Diffusion des infos sur les financements disponibles et veille sur les nouvelles opportunités de financements. *Diffusion of information on available fundings and tracking new finance opportunities.*

III.B –Multi-year schedule for the implementation of the roadmap's objectives

September 2018: GABC Regional Round Table in Rabat Morocco

November 2018: Africités in Marrakech : time specifically dedicated to the real estate sector issues

December 2018: COP24

2019: Climate Chance

Step: What do you want to see achieved and when?

- Catalogue of exemplary projects

III.C - Integration into the UNFCCC Action Agenda: the MP-GCA

NB: this chapter will not necessarily be relevant for all coalitions and it is optional depending on the degree of inclusion of coalition actors in MP-GCA international dynamic.

a) *Participation in MP-GCA work*

Follow up on MP-GCA activities. Participation, to the greatest extent possible, in MP-GCA meetings. Etc.



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b) *Participation in the NAZCA platform and the Yearbook*

Contribution to the NAZCA platform and contribution to the annual reviews of the Yearbook.

SYNTHESIS (INDICATORS TO BE ASSESSED FROM ONE YEAR TO THE NEXT)

- a) *Evolution of the cartography and actors involved***
- b) *New initiatives initiated by the networking of actors***
- c) *Evolution of dedicated funding, with reference to the Finance chapter of the Climate Chance Observatory***
- d) *Evolution GHG et SDG impacts***

The coalition supporting this roadmap is managed by the Global Alliance on Building and Construction – GABC.