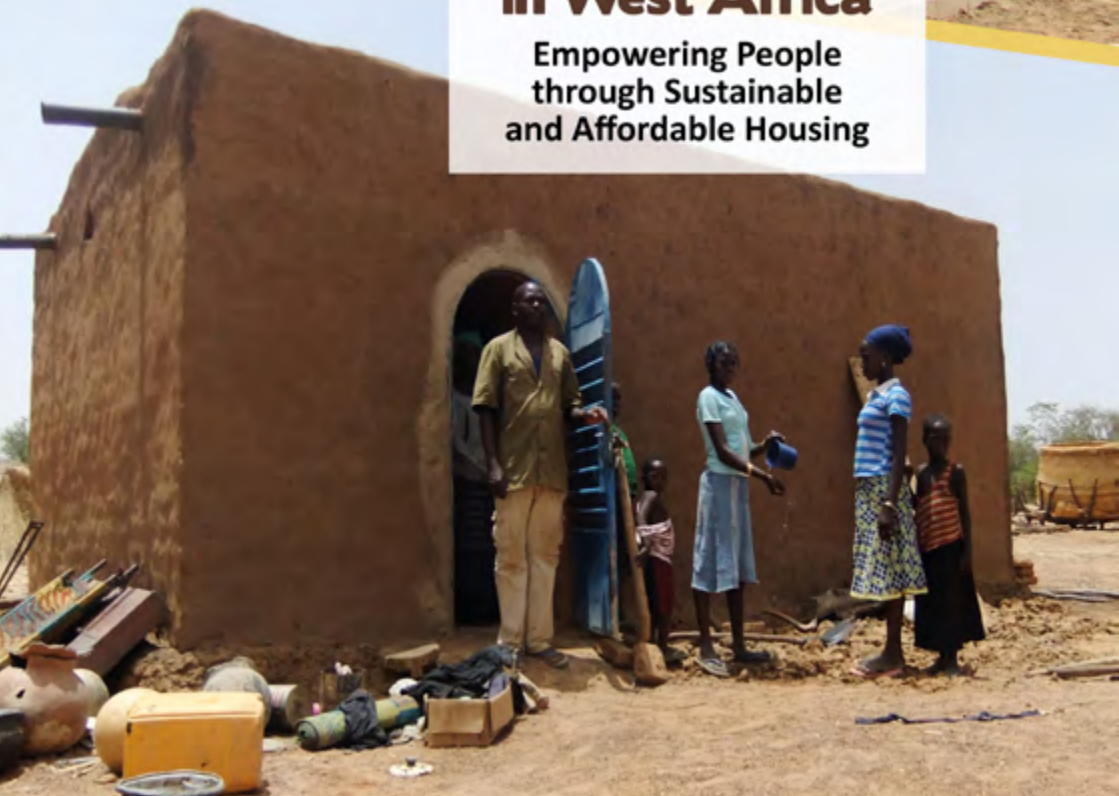
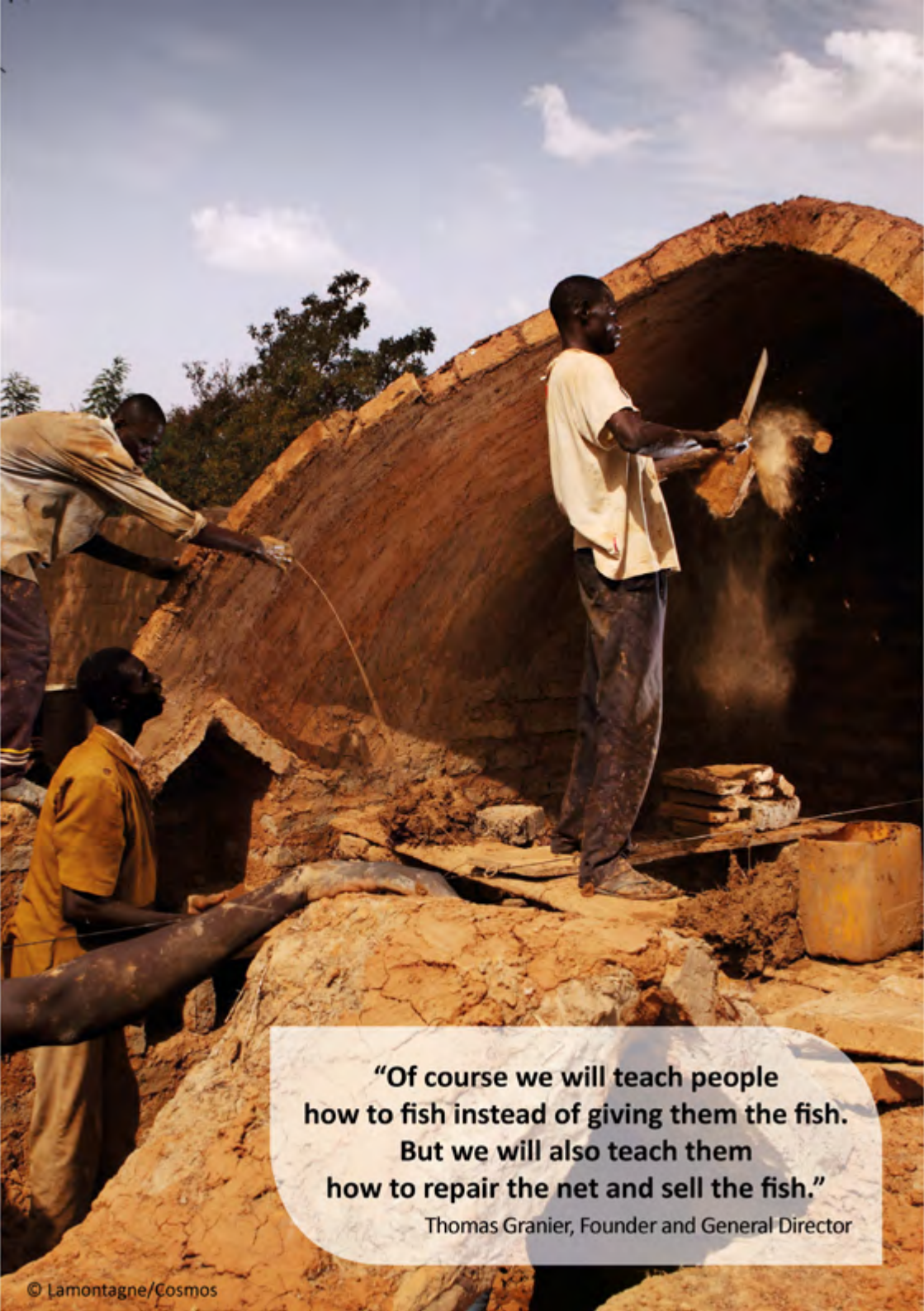




## **Better Building in West Africa**

**Empowering People  
through Sustainable  
and Affordable Housing**





**"Of course we will teach people  
how to fish instead of giving them the fish.  
But we will also teach them  
how to repair the net and sell the fish."**

Thomas Granier, Founder and General Director



# Mission and Vision

The Nubian Vault Association's (AVN) mission is to improve economic and housing conditions through appropriate architecture and vocational training for as many people as possible.

Housing is vital, yet over half of the Sahel's population (100 million people) lacks access to decent housing. Poverty, demography, the deforestation-led disappearance of natural timber resources used in traditional architecture and urban growth prevent access for millions of families to decent housing.

The Nubian Vault (NV) is an ancestral construction technique, originating in Upper Egypt, **using only raw earth bricks and earth mortars**. It represents a sustainable and affordable alternative to the roofing sheets that are today widespread in West Africa.

## Steps of market transformation:

- ▶ Endogenous adoption of the NV concept
- ▶ Availability of the NV on the housing market
- ▶ Continuous growth of the NV market
- ▶ Resolution of the housing problem over time



*Rural House in Burkina Faso*

# The Nubian Vault technique

## A Nubian Vault is:

► **More durable:** a Nubian Vault has thick walls, is resistant to rain, and is passed on from generation to generation;

► **More comfortable:** it provides thermal, acoustic, aesthetic and usage comfort, and offer an option of traditional terraced roofs and two-storey houses;

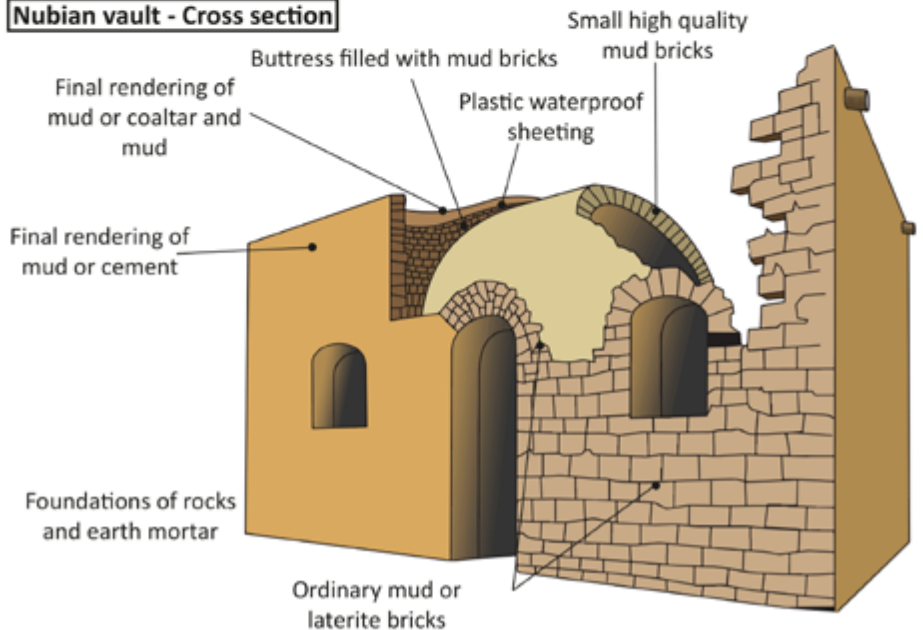
► **More ecological:** no wood or straw, no production or transport of imported materials (corrugated metal sheets, cement, steel rafters) and thermal stability limiting the need for air-conditioning;

► **More economical:** up to 50% less expensive than other building techniques for the basic structure;

► **More adapted to the local economy:** only local labour and materials are used, clients are directly involved in the building, costs are re-injected into local circuits;

► **Easy to reproduce:** simplified and standardized, the technique can be learned by anyone, with no particular educational requirements and only basic tools. Its simplicity and standardization also guarantee stability and durability.

**Nubian vault - Cross section**



# AVN's market-based approach

AVN is a social and green non-profit  
with an integrated programme answering multiple issues:



Sensitization to the NV architectural concept, and support to kick-starting local NV markets, both public and private, rural and urban



Boosted technical and entrepreneurial training of a local workforce and technical expertise for the emergence of a dynamic sustainable construction sector



Fostering a supportive institutional context for the Nubian Vault solution through advocacy and adapted financial tools

AVN is involved as a market facilitator: AVN does not build or donate houses, but it contributes to the emergence and growth of a self-sustained housing market for the NV, enabling its local appropriation.



Awareness Raising Campaign



NV Construction in Progress



*« A Nubian Vault is like a family name. It stays in the family and is attached to it. Nubian Vaults mean security and employment for our children. We will do everything to encourage the other villagers to build Nubian Vaults and push their children to get trained as NV masons. »*

*Mrs. Ekobié, leader of a women's group in Burkina Faso*



# Results and Impacts

AVN's 14 regional teams in West Africa are composed of 60 people active in deploying the programme over five countries: Burkina Faso, Mali, Senegal, Benin and Ghana.



**To date, AVN's programme has enabled:**

**2,000** buildings (**79,000** m<sup>2</sup>)

**440** NV masons trained

**400** apprentices in training

**65,000** tonnes of CO<sub>2</sub> equivalent potentially spared

**800** towns and villages with at least 1 NV built

**2.7 million** USD generated into local circuits

**30 %** annual market growth (in average)

**24,000** end-user beneficiaries living or working in Nubian Vault with significantly improved conditions

AVN's programme offers not only a solution to the critical housing problem, but also a means for economic empowerment, climate change adaptation, vocational training and the creation of a sustainable building sector.

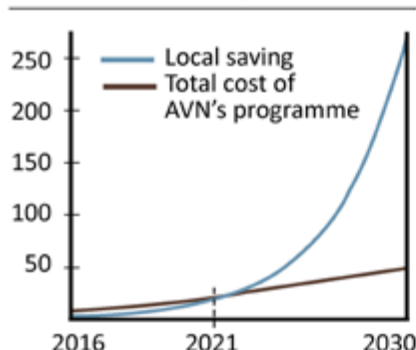


NV Classroom

# Support the Nubian Vault Programme

Support AVN's programme and its general strategy in its countries of intervention and on various aspects of the low-carbon building sector. Financial support for the overall programme is essential to allow a flexible and responsive global strategy.

## Economic Impacts vs Investment (in millions of USD)



In thousands  
of USD

	2017	2018	2019	2020	2021	TOTAL
<b>A Roof</b>	675	744	848	851	757	<b>3,875</b>
<b>A Skill</b>	471	610	777	877	1,010	<b>3,745</b>
<b>A Market</b>	157	229	330	413	561	<b>1,689</b>
<b>Communication &amp; Capitalization</b>	157	191	236	258	280	<b>1,122</b>
<b>Operational costs</b>	110	133	165	181	196	<b>785</b>
<b>Total Budget</b>	<b>1,570</b>	<b>1,907</b>	<b>2,356</b>	<b>2,580</b>	<b>2,804</b>	<b>11,217</b>

**Total cost of the programme: \$ 11M - Funding goals: \$ 6M**

## Cost distribution by component

a Roof

a Skill

a Market

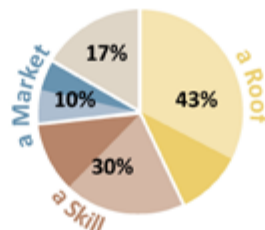
a Skill

a Market

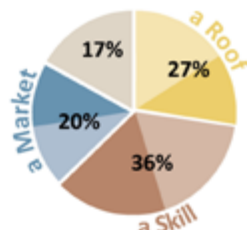
a Skill

a Market

- Kick-starting private markets
- Kick-starting institutional markets
- Boosted technical training
- Boosted entrepreneurial training
- Microfinance and incentives
- Advocacy and policy support

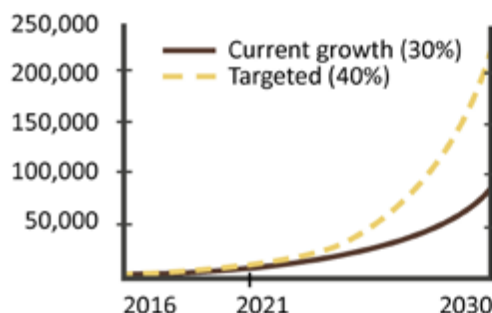


2017



2021

## Growth projection (nb of buildings achieved)



## Impact projections in 5 years (2021)

- + 40 % annual market growth
- 10,000 buildings (500,000 m<sup>2</sup>)
- 1,600 NV masons trained
- 6,500 apprentices in training
- 400,000 tonnes of CO<sub>2</sub> equivalent potentially spared
- 15 million USD generated into local circuits
- 130,000 end-user beneficiaries living or working in NV with significantly improved conditions



**René Ndong and Brigitte Phiaw**  
*Nubian Vault customers*

"A Nubian Vault, the wind can't carry it away, the wind can't break it, the rain can't come in, and if there were a fire here, earth doesn't burn... So it is really good. If you compare, the Nubian Vault method is cheaper than cement. If we could, the whole village would be Nubian Vaults."

"On all the constructions sites I work, I train others. With the Nubian Vault, we are always teaching, we never work on a site without training masons... Being a mason has changed a lot in our family, because we work, we earn some money, it is no longer like it was before when we did nothing... It has changed our life, indeed."



**Idrissa Sawadogo**  
*Nubian Vault Entrepreneur*



**Adjaratou Yoin**  
*Coordination Assistant  
AVN Burkina Faso*

"I have lived in a rural area, and I have seen how people suffer from the housing problem, I have seen and I see that I can help them with my voice. I hope that in five years in my region, there will be only Nubian Vault construction. No other construction but the Nubian Vault, with masons trained everywhere who will not need us anymore to raise awareness. The market will be self-sustained, without AVN. And I believe we will manage this."

"Housing issues are extremely important issues for us, for the environment and it is proven that living and housing conditions are what contributes the most to the health and well-being of populations. The Nubian Vault matches perfectly our resource management policy and our fight against poverty, because it improves the living conditions of inhabitants in rural areas."



**Abdoulaye Baldé**  
*Minister of Environment and  
Sustainable Development -  
Senegal*



Created in 2000, the Nubian Vault Association addresses the triple issue of housing, economic development and climate change adaptation in West Africa, and creates the conditions for the sustainable growth of green building markets.



**AVN encourages the involvement of all stakeholders and dedicated partners, essential in reducing the housing and jobs deficits.**

*AVN is a non-profit organization registered in France, with status equivalent to a 501(c)(3) U.S. charity (eligible to receive grants through the Silicon Valley Community Foundation).*

## Financial Partners



## Prizes & Distinctions



## Multiple benefits & impacts

### Economic

- ▶ A growing market
- ▶ Local materials
- ▶ A local workforce
- ▶ Green jobs creation

### Social and Cultural

- ▶ An "ArchiCulture" and local know-how
- ▶ Improving living conditions

### Environmental

- ▶ Wood preservation
- ▶ Low-carbon construction
- ▶ Energy efficiency in use

## Contact Us

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