



ANNUAL REPORT

2015-2016





Editorial

The President and Founding Directors, representing the view of many stakeholders, wish to take advantage of this Annual Report to set out the underlying logic behind the evolution of the programme. During this changing period in which issues of climate and resource management are significant, our objective is to continue to encourage the emergence of appropriate housing and high-quality archi-culture, produced by and for the people of Africa.

With hindsight, the changes the programme has undergone are clear and have, throughout its various phases, demonstrated its durable and appropriate approach.

Retrospectively, these phases can be described as follows: re-appropriation; adaptation and standardization of the NV concept; creation of a methodology for widespread dissemination through the market; involvement of our first financial partners; establishment of national and then regional teams; involvement of civil society partners capable of duplicating the process; and, more recently, awareness-raising with and mobilization of national and international political actors and those involved in development — the legitimate custodians of this issue.

AVN has in particular focused on advocacy in recent years; this culminated in our participation in COPs 20, 21 and 22 of the UNFCCC (Lima, Paris, Marrakech), in COP 12 of the UNCCD (Ankara), in Habitat III (Quito), in the successful outcome of a GEF funding negotiation with the Senegalese Ministry for the Environment, and the signing of a partnership protocol with the Ministry of Local Government and Rural Development of Ghana.

The programme continues to evolve, requiring the use of new approaches:

- **The strengthening of technical and entrepreneurial skills of artisan masons**, of their teams and more generally of the construction sector. Indeed, the first generations of "Nubian" artisans are the focal point of the development and growth of the NV market: they both spearhead production for clients and are the custodians and teachers of the NV concept.
- **The application of financial tools**, similar to France's "Sustainable Construction Plan", strengthen the decision-making and investment capabilities of future NV clients, thus also reinforcing the market for the sector's actors. These tools make up an efficient triangle: general information, professional training and incentives to clients.
- **The continuation of capacity-building by regional teams** and their local partners; together, they represent the first and most effective level of intervention of the programme

These strategic approaches should allow for a rapid increase in both the growth of programme results and its efficiency. Given the current state of housing stock in the Sudan-Sahel region and the considerable future needs (based on demographics, the climate, etc.), it is essential that a lasting duplication rate of at least 50% of the annual number of construction sites be achieved in the short-term.

This new objective should forestall the senseless spectre of an Africa covered in sheet-metal roofs, by demonstrating that a credible alternative for adapted housing does indeed exist for future generations.

This challenge is one that falls first and foremost to Africans who, as both political leaders and engaged members of civil society, as artisans, builders, clients and users, must participate in renewing the archi-culture and building sectors. These form the bedrock of all civilizations, of all societies and of all economies.

Thomas Granier, AVN Co-Founder and General Director
Séri Youlou, AVN Co-Founder and Africa Director
Benoît Lambert, AVN President

Contents

AVN's Programme
AVN in Numbers

1 An Evolving Strategy 6

Issues of Growth: Market Densification and Consolidation
Programme History
Geographic Expansion, New Themes and Partnerships

2 Highlights 10

3 Our Countries 12

Burkina Faso
Mali
Senegal
Ghana
Benin

4 Our Actions 24

Kickstarting the NV market
Densifying the NV market

- Strengthening NV Skills
- Financial Tools
- Institutional Stakeholders Engagement

5 Our Means of Action 47

The Association
Rethinking Human Resources Management
Expanding the Communication Strategy
Continually Improving Monitoring and Evaluation

6 Financial Report 54

7 Partners and Awards 58

Partners
Prizes et Honours

8 Prospects 62

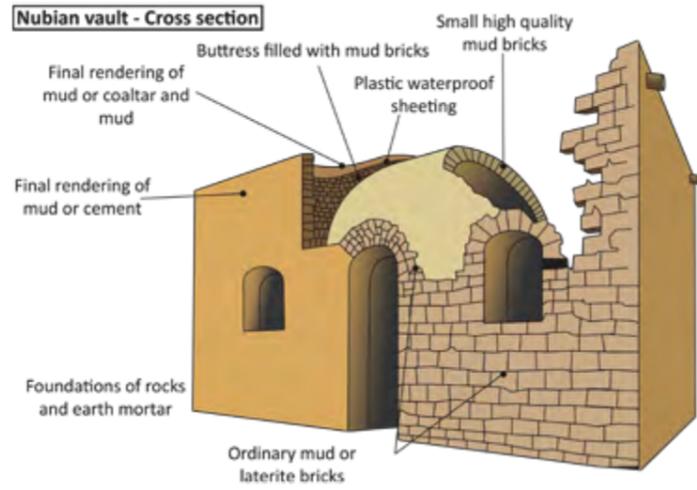
Acronyms



Active since 2000, 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, in Sahelian Africa.

Housing is vital, yet over half of the Sahel's population 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 is:



- Durable:** thick walls, terraced roofs resistant to rain
- Comfortable:** good thermal and acoustic and aesthetic properties
- Ecologically sustainable:** no wood or straw, no imported materials and limiting the need for air-conditioning
- Economic:** up to 50% less expensive than other building techniques for the basic structure
- Adapted to the local economy:** only local labour and materials, costs 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

AVN's Programme

AVN is involved as a market facilitator: AVN neither builds nor donates houses, but it contributes, with the help of field partners, to the emergence and growth of a self-sustaining housing market for the NV, enabling its local appropriation.

"Affordable housing for as many people as possible, as soon as possible."



Kickstarting the NV market

- ▶ Raising awareness amongst clients and potential apprentices about the NV architectural concept
- ▶ Supporting the kickstarting of local NV markets - public, private, rural and urban



Strengthening the know-how of NV artisan masons

- ▶ Boosted technical and entrepreneurial training of a NV local workforce
- ▶ Technical expertise for the stakeholders in the construction sector



Institutional support of the NV market

- ▶ Integration of the NV concept into local and national housing policies
- ▶ Promotion of financial products for access to housing

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.



AVN in Numbers



16 years of existence
67 employees
5 countries of deployment



25,000 end-user beneficiaries living or working in a NV
830 localities with at least 1 NV building



2,000 completed construction sites
79,000 m² of NV buildings



635 active apprentices, masons, artisan masons and entrepreneurs during the season including 300 new apprentices



32% average annual growth of the market
2,5 million euros generated into local circuits



65,000 tonnes CO₂ eq. (potentially spared)



"I have lived in a rural area, and I have seen how people suffer from the housing problem, I have seen 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 no longer need us to raise awareness. The market will be self-sustaining, without AVN. And I believe we will manage this."

Adjaratou Yoin, Deputy National Coordinator, AVN Burkina Faso

Growth Issues: Market Densification and Consolidation

Since 2012, AVN has focused on significant scaling up of human and financial resources, geographical reach, and development themes. From a village kickstarting method based on direct awareness raising awareness raising and training through apprenticeships, avn's intervention strategy has expanded to the creation and strengthening of an "adapted housing sector" and to the involvement of multiple stakeholders (political decision makers, civil society actors, international cooperation agencies, technical operators and donors, etc.).

Kickstarting and developing the NV market: two complementary approaches

The initial method of **kickstarting the market**, which has proven its worth for more than ten years with a 32% average annual growth rate in the number of new NV projects, is now being supplemented by a **market development** phase. The objective is to increase the average growth rate by 15 to 20 points by 2020, thus allowing for exponential replication of the results as well as a significant transformation of the issue in a way that benefits future generations.

This development phase implies large-scale mobilization of direct and indirect actors in the housing sector, as well as the implementation of new activities in order to expand the market.

In particular this is carried out by strengthening the training of NV apprentices, masons, artisan masons and entrepreneurs, aimed at:

- **increasing the pool** of qualified NV actors capable of meeting the growing demand
- **diversifying their technical skills** as regards the various types of NV buildings that can be built, and the specific designs and finishes for community and urban markets

- **developing their business skills** so they can make full use of their technical qualifications, either personally or as part of a group, in both the informal and formal construction markets

AVN has established a Technical Unit and an Entrepreneuriat Unit responsible for these activities. They collaborate with and support other actors from the sector (architects, consultancy firms, technical services in local Government, vocational training centres, etc.).

Another goal is to develop financial tools to provide access to NV housing, in order to disseminate the Nubian Vault concept more widely to AVN's core target groups. AVN works alongside microfinance institutions to draw up, manage and promote microloans and also proposes financial incentives that target demand.

Finally, AVN carries out advocacy activities focused on adapted housing and the many issues related to it (climate, demographics, the economy, living conditions, etc.) and on the recognition of Nubian Vaults as an integrated solution to cross-cutting problems (housing, employment, mitigation and adaptation to climate change, economic development and sustainable development). This in-depth work favours the gradual involvement of political actors with direct responsibility for these issues, as well as of development actors at regional, national and international levels: construction of NV community buildings, vocational training, regulatory and normative

change, formalization of part of the market, etc. Their ownership of the programme, which is essential to establishing a large-scale market, and the cross-cutting impact of the programme may also lead to new financing possibilities.

Endowed with new methodologies and continuing the necessary action research make them efficient, **AVN is also refining its intervention strategy at local level** by establishing pilot projects that are well-adapted to local conditions (production capacity of the NV offer, type of clients, active or potential partners, etc.).

Consolidation of growth

The combined effects of kickstarting activities and of densification mean that AVN foresees exponential growth in the dissemination of the NV concept which, combined with the proliferation of stakeholders, will entrench the development of an adapted housing sector that benefits as many as possible and will establish AVN as the operator of choice.

AVN must nonetheless carefully consider its objectives for growth and consolidate its management capabilities so that it is able to respond to the new challenges it faces in as efficient a way as possible.

This consolidation¹ takes place at different levels:

- **the methodological level:** formalize AVN's methods of action to facilitate their implementation and the duplication thereof by teams as well as by partners and stakeholders
- **the geographical level:** further develop activities in the regions that are already open (5 countries, 14 regions) and optimise expansion into new territories by relying on favourable situations and actors
- **the organizational level:** adapt the governance, strategic arbitration and management to the programme's growth and partially regionalize the steering of activities
- **the human level:** regulate turnover, favour specialization for certain positions, strengthen the training of and support for collaborators and prioritize hiring workers from the beneficiary countries
- **the financial level:** consolidate the scope of financing that can be mobilised, emphasize the cross-cutting co-benefits (climate, environment, vocational training, local economy, etc.), involve partners in fund-raising

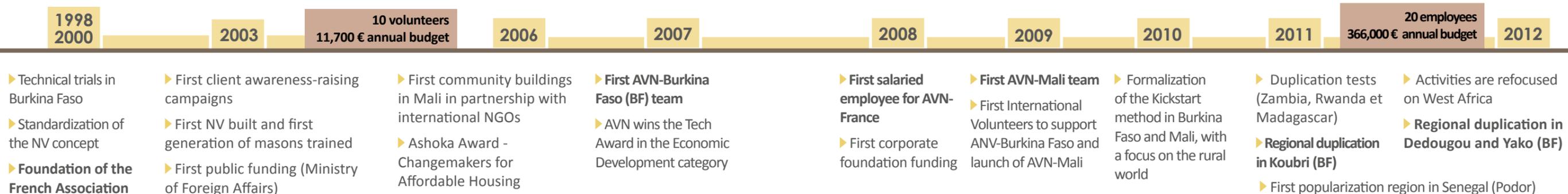


¹ - This need for consolidation and some of the methods identified appear in the conclusions of the external evaluation carried out by Transitions at the end of the 2015-2016 season.

Programme History

IMPLEMENTATION OF THE NV POPULARIZATION PROGRAMME IN THE FIRST PILOT REGION IN BURKINA FASO

STRUCTURING OF THE NV MARKET INITIATION APPROACH FIRST SALARIED TEAM - FIRST DUPLICATION TESTS



Geographic Expansion, New Themes and Partnerships

Geographic Expansion

14 regions in 5 countries, including 1 new region in Mali from the epicentre of Banamba

Partners involved in private and institutional kickstarting

7 partners including 1 new one

- ▶ **Burkina Faso:** 2 partners (AKNGS and TNB)
- ▶ **Mali:** 2 partnerships in preparation (UACT and Teriya Amitié Mali)
- ▶ **Senegal:** 1 partner since 2011 (NGO Le Partenariat) and 1 new one (Malem Auder)
- ▶ **Ghana:** 1 partnership in preparation (YHF)



Institutionalization:

2 projects headed by national bodies

- ▶ **Senegal:** by the Ministry of Environment and Sustainable Development, financed by the GEF, under UNEP supervision (in preparation)
- ▶ **Mali:** by the Environment and Sustainable Development Agency (Ministry for the Environment) and financed by the World Bank



Technical Boosted Training Implementation in the 5 countries

- ▶ 72 construction sites
- ▶ 20 certified trainer masons and 220 trainees



Entrepreneurial Boosted Training

Start and structuring of the activity

- ▶ Recruitment of a project manager
- ▶ Selection of 25 NV artisan masons and entrepreneurs from Burkina Faso and Mali
- ▶ Development of training plans and individual support



Technical Expertise

Creation and structuring of the unit

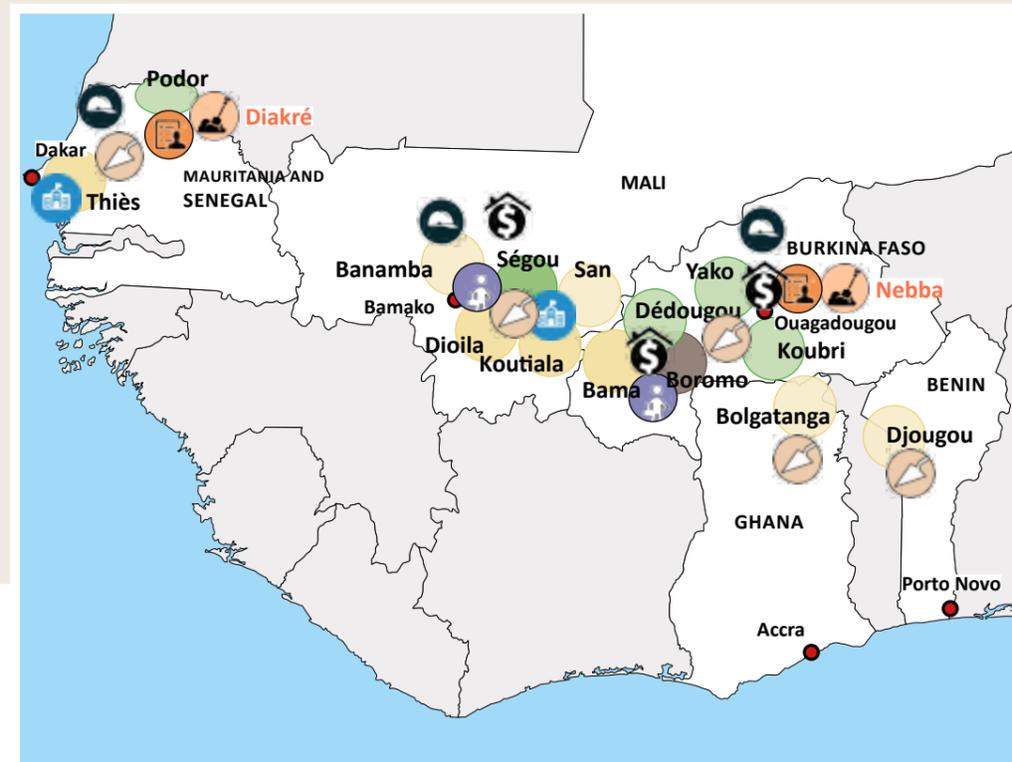
- ▶ Recruitment of a project manager and dedicated human resources
- ▶ Technical assistance for strategic operations in Senegal and Burkina Faso
- ▶ Technical capitalization on site and in the "NV Technical Corpus"



Formalization of the sector

Support of institutional and community marketplaces

- ▶ **5 construction companies involved** in Burkina Faso, Senegal and Mali on community or institutional building sites
- ▶ **Preparation of technical frameworks** for various types of institutional and community buildings open to public tender



Regional duplication

- 2014-2016
- 2013
- 2011-2012
- 2009
- 2000



Micro-financing

Stimulation and structuring of the activity

- ▶ Recruitment of a project manager
- ▶ 2 pilot projects in Burkina Faso:
 - APFI-B (formerly CVECA) in Dedougou Region, project running since 2013
 - UBTEC, in Yako Region, project running since 2014
- ▶ 1 new partner in Mali: agreement signed with the Malian Mortgage Guarantee Fund (FGHM)



Donation and resettlement

2 projects in progress

- ▶ **Burkina Faso:** in Nebba area, implementation by our partner TNB, financed by SELAVIP, final year of implementation (2012-2016)
- ▶ **Mauritania:** in Diakré, implementation by the NGO Le Partenariat and AVN-Senegal, financed by the Dubai Charity Association, running since 2014

Programme History

EVOLUTION OF THE IMPLEMENTATION STRATEGY IN ORDER TO ACCELERATE

THE GROWTH OF THE NV MARKET

2013

- ▶ **Regional duplication in Bama (BF), Koutiala and Dioila (Mali)**
- ▶ First housing micro-credit project in Dedougou (BF)
- ▶ Award for the 100 innovations for Sustainable Development in Africa (French Ministry of Foreign Affairs)

- ▶ Financial support from the French Facility for the Global Environment for a multi-country pluriannual programme
- ▶ Dubai Award in the Transmission category
- ▶ First AVN-Senegal team, based in Thiès

- ▶ First collaborative partnerships with farmers' organizations
- ▶ First construction and training incentive measures

- ▶ Financial support from the French Agency for Development for a multi-country pluri-annual programme
- ▶ Thomas Granier receives the French National Order for Merit

2014

51 employees
850,000 € annual budget

2015

- ▶ **Regional duplication in San (Mali) and First AVN-Ghana and AVN- Benin team**
- ▶ Creation of the Technical Boosted Training programme
- ▶ First funding from the MENA zone (DCA, Alwaleed Philanthropies)
- ▶ UNFCCC Momentum for change Prize and invitation to the COP20 in Lima

67 employees
1,300,000 € annual budget

2016

- ▶ **Regional duplication in Banamba (Mali)**
- ▶ Creation of the Entrepreneurial Boosted Training programme
- ▶ Creation of a technical unit
- ▶ Participation in the COP21 (Climate) and COP12 (Desertification)

- ▶ Official validation by the GEF of the national project with the Ministry for the Environment of Senegal
- ▶ Implementation of the PGRNCC project driven by the AEDD in Mali and financed by the World Bank
- ▶ Finalist in the Buckminster Fuller Challenge

SEPTEMBER

Autumn seminar in Ganges

Work sessions on the coming season in Ganges (France), attended by the AVN-France team, VSIs and Francis Tiene, the National Production Manager for AVN-Mali

Seed Africa symposium in Kenya

Attendance at the international forum for the development of social and eco-entrepreneurial solutions

Participation in a conference on employment and green housing alongside UN-Habitat and the ILO.



OCTOBER



COP12 in Turkey

Participation in the 12th session of the Conference of the Parties to the United Nations Convention to Combat Desertification (UNCCD) in Ankara to promote VN impacts.

Green Economy Forum in Togo

Invitation at the international Forum on "The Green Economy and Sustainable Development" organized by the AIDR (International Alliance for Development and Research) in Lomé.

AVN intervention on "Waste and Housing Treatment" themes.

NOVEMBER



First AVN-Ghana office

Opening of the first AVN-Ghana office in Bolgatanga with Seri Youlou, co-founder and Africa Director, and several representatives of local authorities and institutional agencies.



DÉCEMBER



COP21 in Paris

Attendance in the 21st Conference of the Parties to the Climate Convention, at which the Paris Agreement was signed.

Integration of AVN to the Global Alliance for Building and Constructions (GABC), launched during this event.

National Farmers' day in Ghana

Welcome of more than 400 people at its awareness-raising stand about the Nubian Vault technique at the National Farmers' Day organised by the Ghanaian Ministry of Agriculture.

APRIL



Launch of the GABC in Paris

Official launch of the Global Alliance for Building and Constructions (GABC), which brings together actors from around the world and works to reduce greenhouse gas emissions released by the building sector

MARCH



Dubai International Humanitarian Aid and Development

Attendance at the DIHAD Conference & Exhibition, which brings together the main actors in the humanitarian field (the UN, NGOs and governmental organizations, the media, foundations and innovative companies from the sector).



World CSR Congress in India

Presentation of the Social Innovation Leadership Award at the World CSR Congress in Mumbai which recognizes leaders in the field of corporate social responsibility and social innovation.

FEBRUARY

Opening of the Koutiala office in Mali

New regional office opened in Koutiala on 19 February, with the attendance of local authorities and Harouna Ouattara, the sponsor of the construction project funded by the Air Liquide corporate foundation.



Meeting with the Ambassador of the United States to Burkina

Visit of the US Ambassador to Burkina Faso and his delegation to congratulate the AVN team in Boromo for its work disseminating and developing the Nubian Vault market.

MAY

World Economic Forum in Rwanda

Attendance of Thomas Granier in Kigali for the World Economic Forum, the meeting of actors from around the world who work on strategies for economic development and investment in Africa.

Salon des solidarités in Paris

Stand and participation at a thematic workshop on the importance of involving actors from the construction sector in order to promote adapted housing in Africa.



International Exhibition of Renewable Energies in Burkina Faso

Stand and participation at the 5th edition of the International Exhibition of Renewable Energies in Ouagadougou, the theme of which was financing sustainable energy systems for developing Africa.

JUNE

Impact Journalism Day

Publication of the article "Le Pari de la Voûte Nubienne prend forme" written by journalist Abdoulaye Tao and published by several international newspapers (including *Le Figaro*) as part of the Impact Journalism Day large-scale editorial project.



End-of-season steering committee

Meeting of AVN teams and assessors from Transitions consulting office together in Boromo in order to take stock of the year and define new strategies for the following season.

JULY

Terra 2016 in Lyon

Presentation of the article: "Au cœur de la filière habitat adapté matériaux locaux en Afrique Sahélienne..." at the 12th World Congress on Earthen Architectures.



Territorial Rollout

5 countries in the Sudano-Sahelian zone with different socio-economic and political contexts, including 2 countries (Ghana and Benin) that AVN has been present in for 2 seasons

+1 region for a total of 14 regions

+13 employees: 57 local employees and VSIs in total

+169 sites (+31%), bringing the number of sites with at least one NV building up to 836



Health Care centre in Baba Garage (Senegal)

Buildings Constructed

	2015-2016	Total
Construction sites	432	1,978
Growth rate	39%	32%
End-user beneficiaries	3,871	25,037
Tons of CO ₂ potentially saved	9,823	65,180
Estimate of main construction worth (€)	367,242	2,412,796

► **Summary of NV buildings constructed, 2015–2016:**

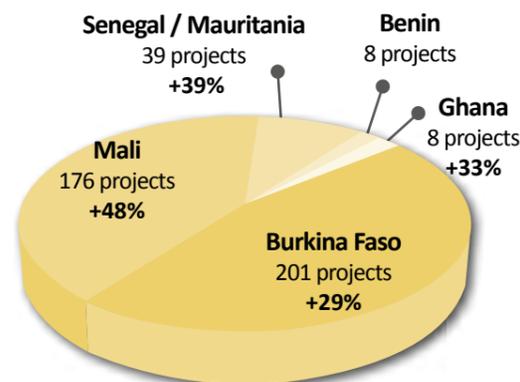
- 76% carried out in pilot villages
- 87% of buildings built in rural areas
- 89% used for housing
- 82% built for the core target clientele (farmers, shopkeepers and civil servants)
- 13% carried out with partner involvement (mainly the resettlement project)
- 17% of worksites include boosted training activities
- 45% of worksites include kickstarting offers and/or incentives aimed at demand and supply



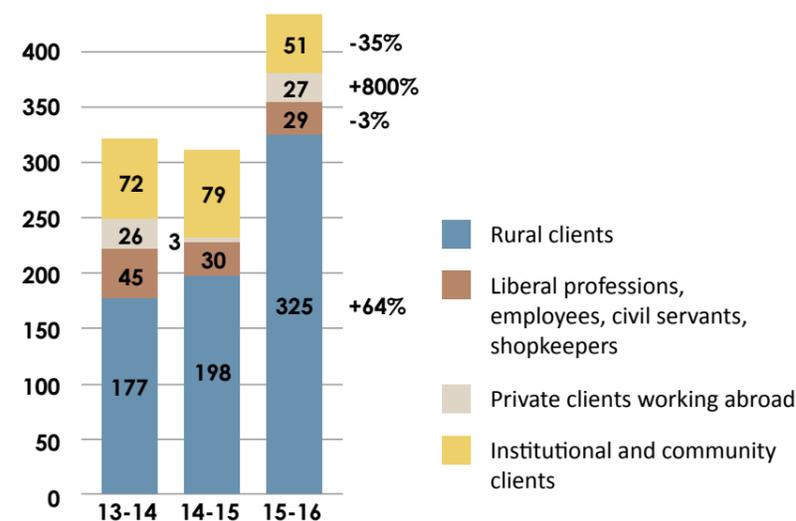
NV Classroom in Koditt (Senegal)

With 432 projects built (+39%), the market grows in all of the countries in which the programme is present. The dynamics at play differ and reveal the various types of dissemination methods that AVN uses:

- In Burkina Faso, the effects on the market of the 2014–2015 political instability are less than they were and the level of production is back to what it was before the crisis
- In Mali, the growth rate has practically doubled, demonstrating that the NV concept and AVN's dissemination method are best for a rural context and for the needs of private smallholder clients
- In Senegal, the market mainly consists of institutional clients; this implies a need for technical R&D and institutional integration of the NV
- In Ghana and Benin, local interest for the NV concept is gradually taking root thanks to the completion of the first pilot buildings and to the mobilization of the first local and institutional partners



Breakdown of projects by country 2015-2016 season



Projects by type of client

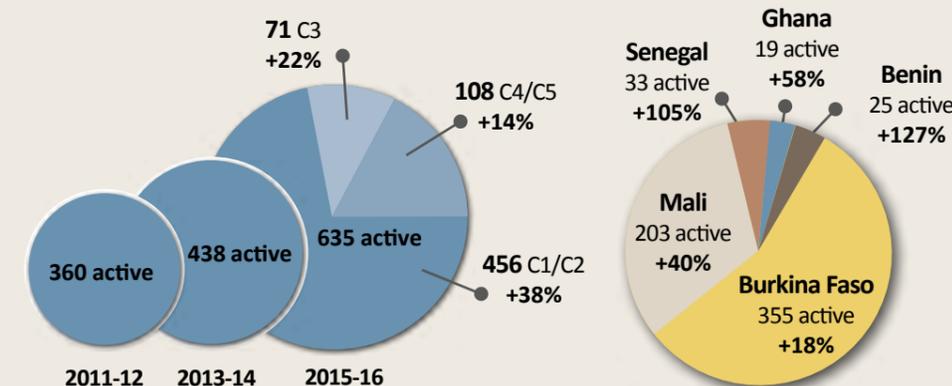
Kickstarting promotions offered by AVN over the last two seasons have, for a significant number of projects (45%), stimulated decision-making and helped to better spread those projects out over the construction period.

The involvement of institutional actors and those working in local development in the sector's growth now de facto concerns community kickstarting. It is worth noting that implementation of the NV housing microloan with MFI partners should facilitate access to housing for as many people as possible next season.

Training of a Workforce

Strengthening training has been a priority for AVN for 2 seasons.

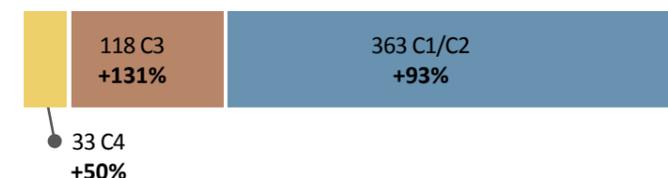
The hiring of, incentives for and monitoring of cement masons being trained to the NV technique, as well as enhanced on-site training (Boosted Training), have produced their first results this season, both in terms of mobilization of new apprentices and in terms of acceleration of the qualification process and the mastery of more complex techniques.



Evolution of active NV masons, breakdown by grade and by country: Apprentices (C1/C2), Masons (C3), Artisan Masons (C4) and Entrepreneurs (C5)

The number of active masons is growing by 31%, with 300 apprentices having begun their training (+49%); there has been a notable growth of 40% in Mali and the workforce in Senegal and Benin has more than doubled.

513 level qualifications (+97%), including:



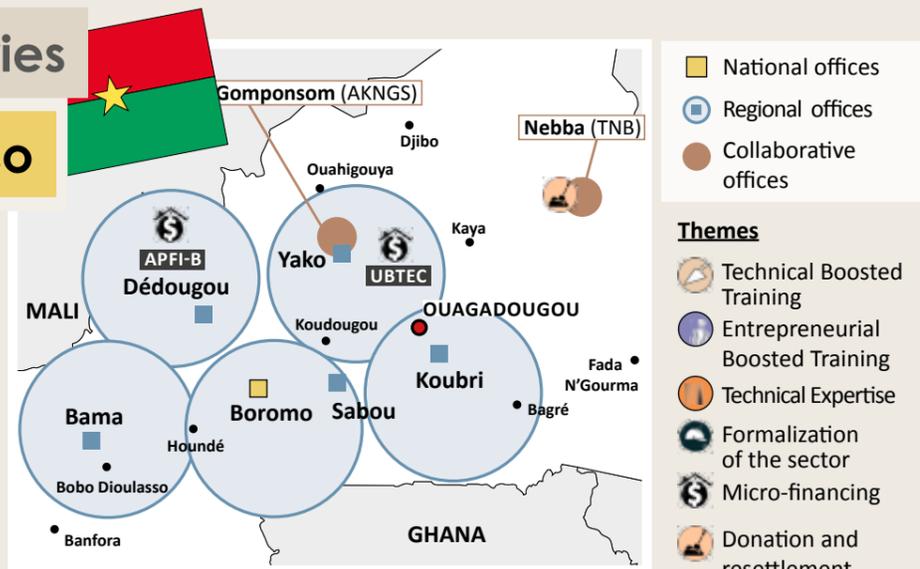
The number of qualifications reached by active masons at the end of the season has doubled over the period.

The pool of newly qualified masons and apprentices offers good potential for training new site foremen who will be able to take on responsibility for projects.

A new phase for AVN: favouring direct marketing by these artisan masons, either individually or in groups. Specific provisions will be offered next season.

Although training needs to be further boosted, it calls to expect an acceleration in production and development of the NV market in the near future, thus leading to the spread of adapted housing for as many people as possible.

Burkina Faso



- ▶ Country of action since 1998
- ▶ 28 local employees and 2 VSI
- ▶ 1 national office and 5 regional offices
- ▶ Partners: AKNGS, TNB, APFI-B, UBTEC

Territorial Rollout

- +6% with 81 active pilot villages in 5 regions
- +75 sites bringing the number of sites with at least one NV building up to 460
- Regional branch moved from Boromo to Sabou
- Preparatory activities carried out for expansion to 2 new regions by 2018 (Bagré and Fada N'gourma)



Buildings Constructed

	2015-2016	Total
Construction sites	201	1,208
Growth rate	29%	23%
End-user beneficiaries	1,714	12,740
Tons of CO ₂ potentially saved	4,472	39,416
Estimate of main construction worth (€)	143,087	1,319,751

During the 2014–2015 season, the complex political situation in Burkina Faso significantly disturbed the economy and therefore had an impact on demand for NVs. Despite the country's fragility at the beginning of this season and despite the electoral campaigns, the NV market grew once again, by 29%, in terms of the number of projects, with smaller growth in the surface area constructed (13%); these buildings were small in size given the predominance of rural clientele and the still weak economy.

Annual production nearly returned to what it was before the socio-political crisis, and **this season allowed AVN to consolidate an environment that will be favourable to accelerated demand in the coming seasons:**

- the momentum in the Bama and Dédougou regions
- partnerships that are being established or firmly rooted in the regions of Koubri and Yako

Summary of NV buildings constructed, 2015–2016:

- 78% carried out in pilot villages
- 92% of buildings built in rural areas
- 89% used for housing
- 85% built for the core target clientele (farmers, shopkeepers and civil servants)
- 10% carried out with partner involvement (mainly the resettlement project)
- 17% of worksites include boosted training activities
- 53% of worksites include kickstarting exercises and/or incentives aimed at demand and supply

- the stimulation of the NV housing microloan pilot projects facilitating access to housing for as many people as possible in the Yako and Dédougou regions
- preparations for large-scale community projects (farm storage and health care buildings, in particular)
- international advocacy in preparation of the work to be carried out with national institutions undergoing reorganization

Local context

- Sudano-Sahelian climate
- A mainly rural population (farmers)
- Culturally diverse (languages, ethnicities, religions)
- Community support
- A strong need for economic development, especially in rural areas - GDP per capita: \$589 (39th in Africa)*
- Earth-based architecture widespread
- First country AVN operated in: R&D and standardization of the NV concept, first national and regional branches, first collaboration with civil society (FGs, CBOs), creation and testing of the kickstart and densification methods
- Largest number of NV buildings (61% of those constructed)
- Largest number of artisans and trainer masons, enabling other programmes to open

* Source: World Bank / Actualitix (figures from 2015)

Key data

- 1998-2000: technical work and construction of the first standard NVs
- 2000-2006: first NV buildings built for private clients, training of the first generations of NV masons
- 2007: first local AVN team
- 2011-2013: regional expansion to Koubri, Dédougou, Yako and Bama
- 2013-2016: pilot projects on NV housing loans with 2 MFIs and on resettlement disaster-stricken populations with TNB
- 2014-2016: first cooperative partnerships established with farmers' groups
- 2015-2016: establishment and test of methodologies to strengthen training (Boosted Training)

Training of a Workforce

ACTIVE	2015-2016	Annual Growth
Apprentices and Masons (C1 to C3)	286	24%
Artisans and Entrepreneurs (C4 to C5)	69	-3%

LEVEL QUALIFICATION	2015-2016	Annual Growth
Apprentices and Masons (C1 to C3)	225	61%
Artisans and Entrepreneurs (C4 to C5)	11	120%

Producers Beneficiaries	2015-2016	Annual Growth
	1,252	16%



Measures to strengthen the NV training offer, which has increased since 2014–2015 and which was first drawn up and tried out in Burkina Faso, have born their first fruit this season, as regards:

- the mobilization of masons: +18% of those working (in particular apprentices and masons) and 150 new apprentices
- their qualifications: +60% of apprentices and masons have passed their level qualifications and the number qualifying as artisans has doubled

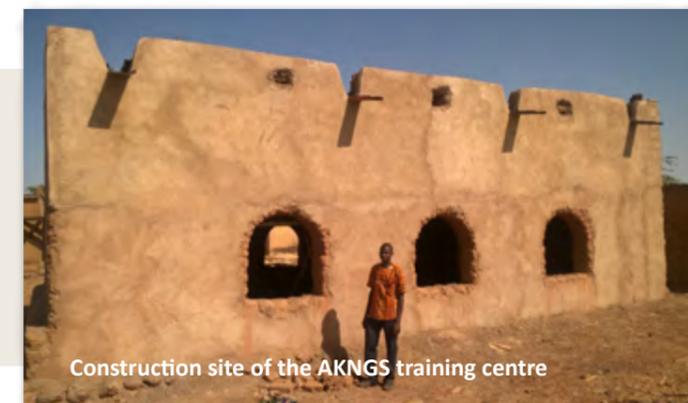
This pool of masons and apprentices who are newly active or qualified should, thanks to the monitoring of their training, strengthen the capacity of Burkinabe supply within a few seasons.

This is even more essential given that a significant proportion of Burkinabe trainer masons and artisans is actually mobilized outside of Burkina Faso, to meet the construction needs in countries that do not yet have enough masons (Benin, Ghana and Senegal). This season, 21 artisans and 10 masons—i.e 26% of those working—left for abroad.

Spotlight on an NV building

Training centre for AVN's partner, AKNGS

- 3 NV – 60 m² – Reinforced concrete pillars and beams (NV/RC) to increase the width of the building.
- Involvement of a traditional construction company and training for NV apprentices in the NV/RC technique

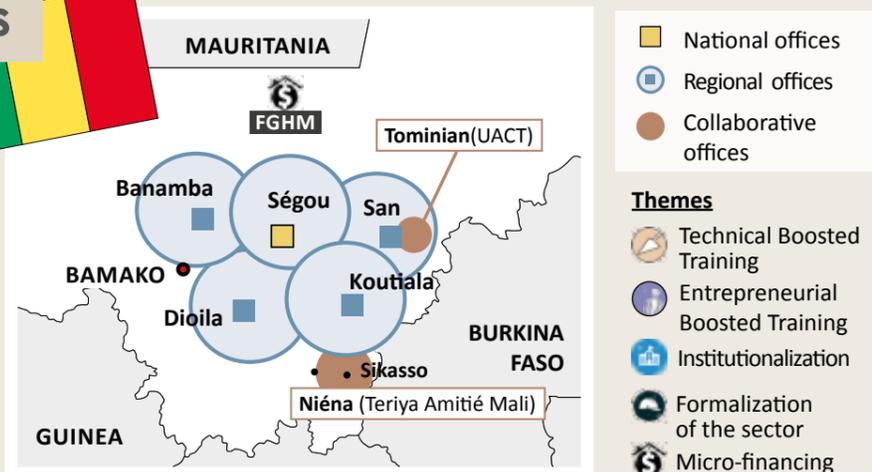


Construction site of the AKNGS training centre

Mali



- ▶ Country of action since 2007
- ▶ 17 local employees
- ▶ 1 national office and 5 regional offices
- ▶ Partners: AOPP/UACT, Teriya Amitié Mali



Territorial Rollout

- +26% with 63 active pilot villages in 5 regions
- +73 sites bringing the number of sites with at least one NV building up to 295
- Expansion to a new region of deployment (Banamba) as part of the PGRNCC
- Activities to prepare for expansion to a new region by 2018

Buildings Constructed

	2015-2016	Total
Construction sites	176	612
Growth rate	48%	46%
End-user beneficiaries	1,109	8,263
Tons of CO ₂ potentially saved	3,357	17,942
Estimate of main construction worth (€)	100,644	569,743

The success of the NV concept in Mali since the start of the programme was confirmed yet again this season, with the growth rate nearing 50%: the market kickstart method is well-adapted to Malian rural regions, community support makes the NV competitive and the exponential growth in demand means that the offer of training is an attractive one.

This dynamic was also corroborated in Banamba, the new region expanded to as part of the launch of the first project to be managed by a national institutional actor, thus integrating the dissemination of the NV concept: the Natural Resources and Climate Change Management Project (PGRNCC), managed by the Agency for Environment and Sustainable Management (AEDD) and financed by the World Bank.

Kickstart promotions implemented at half of the worksites contributed to this remarkable production, which mostly focuses on housing for the core target group.



Summary of NV buildings constructed, 2015–2016:

- 94% carried out in pilot villages
- 92% of buildings built in rural areas
- 93% used for housing
- 97% built for the core target clientele (farmers, shopkeepers and civil servants)
- 2% carried out with partner involvement (mainly the resettlement project)
- 11% of worksites include boosted training activities
- 48% of worksites include kickstarting exercises and/or incentives aimed at demand and supply

In the regions of Koutiala and Dioila, where networking and the results of kickstarting are optimal, the first incentives for the general public will be tested next season, benefitting to the marketing of local masons. For AVN, this is an opportunity to test this lever for development in a favourable context, both in terms of receptiveness from the demand and in terms of production capacity of supply.

In the Cercle of Koutiala, a multi-stakeholder consultation has been launched (political and institutional actors from the building, development and professional training sectors) in order to galvanize the dissemination of the NV concept.

Local context

- Sudano-Sahelian climate
- Rural population (80% smallholders)
- Community support
- Cultural homogeneity (language, religion, culture)
- A strong need for economic development, especially in rural areas - GDP per capita: \$724 (38th in Africa)*
- Earth-based architecture widespread

* Source: World Bank / Actualitix (figures from 2015)

Key data

- 2006-2008: construction of the first community buildings in partnership with local and international NGOs
- 2009: 1st local AVN team and expansion to the Ségou region
- 2013 and 2014: expansion to the regions of Koutiala and Dioila
- 2015: expansion to the San-Tominian region
- 2016: expansion to the Banamba region

Training of a Workforce

ACTIVE	2015-2016	Annual Growth
Apprentices and Masons (C1 to C3)	166	38%
Artisans and Entrepreneurs (C4 to C5)	37	54%
LEVEL QUALIFICATION		
Apprentices and Masons (C1 to C3)	180	154%
Artisans and Entrepreneurs (C4 to C5)	22	38%
Producers Beneficiaries		
	700	39%

- 1 partnership in preparation with the Niore Professional Training Centre
- 1 traditional building company involved in part 2 of the Konséguela Electrified Activity Zone construction (GERES)



Spotlight on an NV building

Agricultural production unit for Misola flour, Niéna, for the Franco-Malian NGO Teriya Amitié Mali

- 9 NV – 140 m²
- Boosted Training workshops – 28 days for 11 NV apprentices



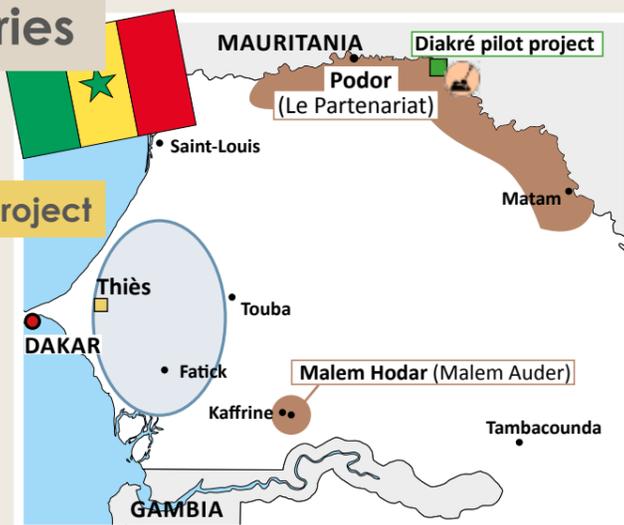
The growing commitment of traditional Malian masons (who build with earth/zinc roofs or cement/zinc roofs) has led to exceptional growth in training. About one hundred of them joined the Malian supply workforce this season, increasing the pool of active masons by 40%.

The preacquired knowledge of masonry for this category of masons, as well as strengthened training at various worksites, helped in the qualification of 22 new foremen as well as a wave of new masons and apprentices.

The production capacity of the Malian supply means that it now makes sense to enter the market densification phase.



Senegal



including the Mauritania project

- ▶ Country of action since 2010
- ▶ 2 employees and 1 VSI + 1 AVN-BF seconded employee
- ▶ 1 national office and 1 regional partner office
- ▶ Partners: NGO Le Partenariat, Malem Auder

- National offices
- Regional offices
- Collaborative offices

Themes

- Technical Boosted Training
- Institutionalization
- Technical Expertise
- Formalization of the sector
- Donation and resettlement

Territorial Rollout

+9 sites bringing the number of sites with at least one NV building up to 60

Preparatory activities for regional expansion to the Kaffrine-Tambacounda axis by 2018

Buildings Constructed

	2015-2016	Total
Construction sites	39	127
Growth rate	39%	39%
End-user beneficiaries	919	3,522
Tons of CO ₂ potentially saved	1,369	6,637
Estimate of main construction worth (€)	99,632	449,511

At the beginning of the season, it was decided to bring an end to kickstarting activities for private clientele in the rural areas of the Thiès region following three seasons of experimentation, which was the time needed to gradually analyze the region, carry out certain adjustments and decide on the relevance of the approach.

Like in the Podor region, where the same decision was taken in 2014, **activities focused instead on public and community kickstarting, benefitting from NGO Le Partenariat's experience** with works management assistance and institutional procedures.

This market development strategy, which is specific to Senegal, takes advantage of the programme as a whole and includes:

- technical research
- the integration and training of various stakeholders from the sector (including the technical services of municipalities)
- the structuring of a formal sector (works management assistance, project management, traditional companies, technical-financial reference documents)

▶ Summary of NV buildings constructed, 2015–2016:

- 11 buildings built in Senegal and 28 buildings in Mauritania
- 51% of buildings built in rural areas in Senegal and 100% in Mauritania
- 64% built for institutional clients (NGOs and local municipalities) and for community use in Senegal; 93% used for housing in Mauritania
- 45% built with partner involvement in Senegal and 100% in Mauritania
- 73% of worksites include boosted training activities in Senegal

In addition, the model buildings constructed should gradually stimulate the emergence of private demand for NVs. In the Kaffrine region, which has more smallholders, the village dynamic fostered by the Malem Auder Association, will, as part of two community worksites, benefit this season from an incentive mechanism for private clients and next season for local apprentices.

At national and regional level, AVN has strengthened its advocacy activities and is preparing programmes that include NVs with the Ministry for the Environment and the Ministry of Professional Training. The work already done at regional level with local municipalities and their technical services will allow this type of project to be implemented.

Local context

- Sahelian climate
- GDP per capita: \$899 (32nd in Africa)*
- Coastal zone with deltas and little earth-based architecture
- Rural population more involved in livestock farming than smallholding
- Greater degree of urbanization (less community support)
- Political maturity, which led to strong interest from institutional actors from the very first NVs, as well as prospects for the emergence of a local institutional market and the use of NVs in national programmes

* Source: World Bank / Actualitix (figures from 2015)

Key data

2007-2010: first NV buildings built, including the *Maison des Énergies* in the Matam region

2011: the programme begins operating in northern regions alongside NGO Le Partenariat

2013: 1st local AVN team and expansion to the Thiès region

2014: preparation of a multi-annual project led by the Ministry for the Environment and Sustainable Development; focus on institutional and community kickstarting in the northern regions

2015: 1st partnerships established with civil society organizations; refugee resettlement project in Mauritania, on the Senegalese border

2016: strategy refocused on kickstarting the emerging institutional and community markets in the Thiès region

Resettlement project in Mauritania:

- 26 houses and 2 community buildings completed
- The first village in West Africa built entirely of NVs (in 2017, 54 buildings will be finished), this multi-partner project financed by the Dubai Charity Association is allowing many masons in northern Senegal to be trained and should be promoted to the Mauritanian authorities

Training of a Workforce

ACTIVE	2015-2016	Annual Growth
Apprentices and Masons (C1 to C3)	31	107%
Artisans and Entrepreneurs (C4 to C5)	2	-
LEVEL QUALIFICATION		
Apprentices and Masons (C1 to C3)	35	400%
Artisans and Entrepreneurs (C4 to C5)	1	-
Producers Beneficiaries		
	106	126%

The majority of worksites (not including Mauritania) have benefitted from boosted training activities: progress in qualifications has been affected positively, with five new masons qualified who could quickly become site foremen.

Since the local supply remains largely below the demand, 50 foreign masons worked in Senegal this season.

Strengthening the training of masons should allow for an increase in production capacity that meets the existing opportunities and should permanently establish the NV market in Senegal.

- 1st active team of 100% Senegalese workers, with 1 NV Senegalese artisan qualified since 2015
- the 1st formal Senegalese company, established by a Burkinabe, completed its first public contract
- 1 formal company has confirmed its desire to add NVs to its commercial offer



▶ Spotlight on an NV building

The *Maison des Yvelines*

- 3 buildings – 20 NVs – 370 m² – 2 stories – high-quality finishings – Boosted Training workshops
- The nerve centre of local cooperation activities for CD78 and YCID
- AVN/Le Partenariat team welcomed as part of the NV institutional market development project in the Fouta region (2017–2020)

Ghana

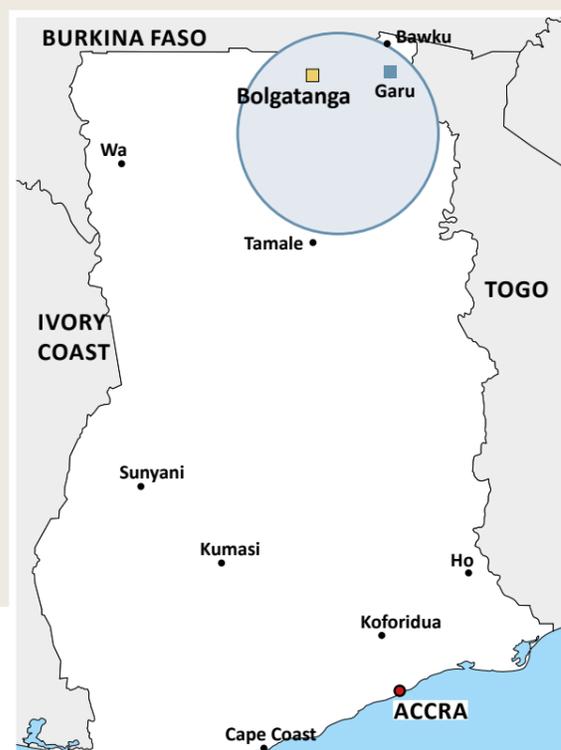


- ▶ Country of action since 2014, 2nd year of deployment
- ▶ 1 employee and 2 VSIs
- ▶ 1 national and regional office
- ▶ Partners: Department for Rural Housing for Upper-East and Youth Harvest Foundation (under discussion)

- National offices
- Regional offices

Themes

- Technical Boosted Training



Territorial Rollout

- +2 pilot villages active in 1 region
- +7 sites bringing the number of sites with at least one NV building up to 11
- Preparatory activities to expand to a new rural region during the 2016–2017 season

Buildings Constructed

	2015-2016	Total
Construction sites	8	14
Growth rate	33%	33%
End-user beneficiaries	61	143
Tons of CO ₂ potentially saved	361	486
Estimate of main construction worth (€)	13,532	18,398

For the past two seasons kickstarting the NV market has focused on the city of Bolgatanga, using two strategies: awareness raising to supply and demand responding to clients and partnership opportunities. The increasing demand AVN has seen has come from a clientele of shopkeepers/civil servants and from NGOs/CBOs, as reflected in the size and finishings of the buildings. The peri-urban context of Ghana, in which community support is not as present and the cost of labour is higher, means that access to NVs is difficult (labour-intensive) for the core target of smallholder clients. Thus, a process to re-focus the programme on rural areas has begun, starting at the end of this season, with the first awareness-raising activities taking place and the hiring of an employee in order to expand into the more rural Garu region.



Masons congress in Ghana

▶ Summary of NV buildings constructed, 2015–2016:

- 38% carried out in pilot villages
- 44% of buildings built in rural areas
- 75% used for housing
- 63% built for the core target clientele (farmers, shopkeepers and civil servants)
- 50% of worksites include boosted training activities

Institutional and political advocacy at communal, regional and national level has been well-received, meaning that political ownership and management of the programmes on professional training, social housing, community buildings for education and health care, etc., could be considered. Discussions between partners and civil society bodies have advanced but need to be even more extensive in order to find adequate methods of operation.

Local context

In the northern half of the country:

- Sudano-Sahelian climate
- Strong need for economic development (in particular for youth employment) - GDP per capita: \$1,369 (23rd in Africa)*
- Tradition of earth-based architecture
- Close to Burkina Faso and linguistic closeness with the Burkinabe border dialects
- The programme's first English-speaking country: opportunities for new English-speaking partners and to expand to other English-speaking zones (eastern and southern Africa)

* Source: World Bank / Actualitix (figures from 2015)

Key data

2012 and 2013: exploratory missions and recruitment of a national coordinator (VSI)

2014: establishment of a team and launch of the programme from Bolgatanga in the Upper-East region, which borders Burkina Faso

2015 and 2016: building begins at first private and institutional sites, masons and apprentices are trained, institutional partnerships

Training of a Workforce

ACTIVE	2015-2016	Annual Growth
Apprentices and Masons (C1 to C3)	19	58%
Artisans and Entrepreneurs (C4 to C5)	-	-
LEVEL QUALIFICATION		
Apprentices and Masons (C1 to C3)	15	25%
Artisans and Entrepreneurs (C4 to C5)	-	-
Producers Beneficiaries	59	64%



Apprentices training on the foundations of a building

In order to rapidly create Ghanaian supply and to meet the demand for NVs, five Burkinabe worksite foremen and seven masons and apprentices have been mobilised.

The AVN team supported these foreign masons in their commercial relationship with the clients and in training the Ghanaian apprentices, helping them to overcome differences of language, currency and units of measurement.

Most of the Ghanaian apprentices, including 15 new ones this season, are cement masons with general knowledge of masonry, allowing them to make rapid progress. Although the objective of having the first Ghanaian artisan trained this season was not achieved, several good candidates have emerged and could qualify next season.

▶ Spotlight on an NV building



Teacher's house for the school in Anafobiisi, for the CBO Banacomda

- 2 NV – 59 m² – co-financed by the Eiffage Foundation – Boosted Training activities
- Foreseen replication for other schools



Awareness campaign



- ▶ Country of action since 2014, 2nd year of deployment
- ▶ 2 employees and 1 VSI
- ▶ 1 national and regional office

■ National offices
■ Regional offices
Themes
○ Technical Boosted Training



Territorial Rollout

- +4 pilot villages totalling 6 active sites in 1 region and a stronger on-the-ground presence
- +6 sites bringing the number of sites with at least one NV building up to 8

Buildings Constructed

	2015-2016	Total
Construction sites	8	13
Growth rate	-	41%
End-user beneficiaries	68	334
Tons of CO ₂ potentially saved	264	600
Estimate of main construction worth (€)	10,347	24,597

During this phase in which the NV market in Benin is emerging, AVN has closely supported the eight projects carried out: estimates, logistics of foreign masons from Burkina Faso, contracts between the mason and the client, profiling and monitoring of apprentices, etc. This season, severe and very early rainfall hindered work on certain projects and the decision-making of the most recent clients.

There were no clients from the core target of rural clientele this season (except for four cement masons who benefited from the promotion intended for them), despite the interest expressed by communities.

▶ **Summary of NV buildings constructed, 2015–2016:**

- 63% carried out in pilot villages
- 92% of buildings built in rural areas
- 75% used for housing
- 63% built for the core target clientele (farmers, shopkeepers and civil servants)
- 75% of worksites include boosted training activities
- 63% of worksites include kickstarting exercises and/or incentives aimed at demand and supply

As a group that is economically fragile, these clients need to be reassured about the comfort and especially the sturdiness of the NV technique. The exemplary nature of the first model buildings built over the last two seasons and the involvement of local authorities in awareness raising should help AVN better convince this category of clients.

Significant institutional advances were made at the beginning of the season. Elections and the resulting change in government mean that different advocacy activities are required.

Local context

In the northern half of the country:

- Sudano-Sahelian climate
- Strong need for economic development (in particular for youth employment) - GDP per capita: \$762 (35th in Africa)*
- Tradition of earth-based architecture
- Close to Burkina Faso

* Source: World Bank / Actualitix (figures from 2015)

Key data

- 2011: first NV constructions requested by its first clients and partners
- 2012 and 2013: exploratory missions and recruitment of a national coordinator (VSI)
- 2014: team set up and programme opened, based in Djougou, a crossroads city in the northern region of Atacora-Donga, one of the poorest and most rural zones in the country
- 2015 and 2016: first private and institutional projects, masons and apprentices trained, institutional partnerships

Training of a Workforce

ACTIVE	2015-2016	Annual Growth
Apprentices and Masons (C1 to C3)	25	127%
Artisans and Entrepreneurs (C4 to C5)	-	-
LEVEL QUALIFICATION		
Apprentices and Masons (C1 to C3)	25	178%
Artisans and Entrepreneurs (C4 to C5)	-	-
Producers Beneficiaries	75	127%

In order to rapidly establish Beninese supply and to limit the dependence on Burkinabe masons (seven masons called there this season), **significant work to identify cement masons and find apprentices was carried out with village authorities**, leading to:

- the mobilisation of 20 new apprentices (+122%)
- the training of 14 cement masons and a commitment from 79 others to be trained in the coming seasons
- a 100% qualification rate with 25 level qualifications and the first 7 apprentices (including 5 cement masons) achieving the status of "qualified NV mason"

▶ **Spotlight on an NV building**



Canteen-kitchen-shop for the orphanage of the Italian NGO Amici dell Africa

- 4 NV - 59 m² - high-quality finishings – Boosted Training workshops
- Promotion vis-à-vis local authorities and duplication for other orphanages



The on-site Boosted Training and the incentives for the training of cement masons largely contributed to these results. The main objective for the coming seasons will be the qualification of the first Beninese artisan able to take charge of a worksite.





KICKSTARTING THE NV MARKET	24
DENSIFYING THE NV MARKET	30
▶ Strengthening NV Skills	30
▶ Financial Tools	35
▶ Institutional Stakeholders Engagement	39



Kickstarting the NV Market

Kickstarting activities are at the heart of AVN's programme and are carried out by local AVN teams and their partners they work with. Together they carry out awareness-raising activities aimed at three target groups: rural populations (the programme's core target), urban populations and institutional actors and those involved in development. From this awareness-raising work and advocacy a demand for construction projects has emerged that AVN supports, by

connecting clients with artisan masons and by monitoring and inspecting worksites. Qualified and independent masons pass on the NV construction technique on-site to their apprentices as part of a mentoring-based approach. The first Nubian Vaults that were built had a significant demonstration effect in terms of promoting AVN's approach as well as the masons themselves.



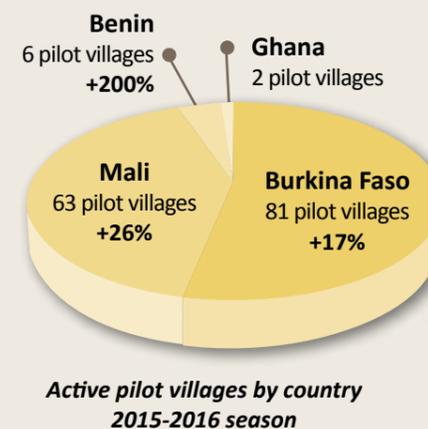
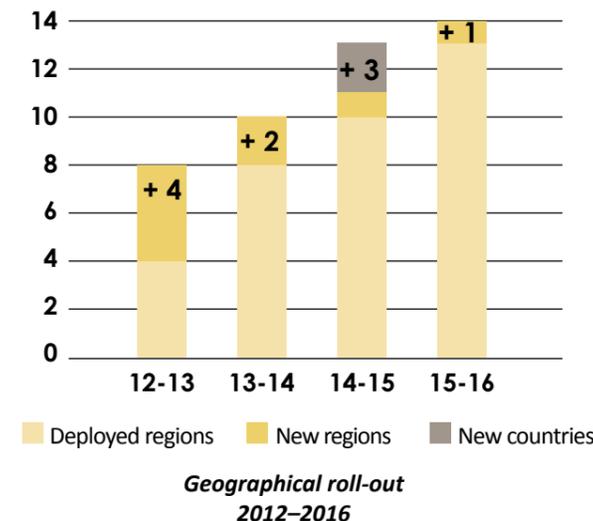
"Raise awareness, incentivize and work with local actors to kickstart the NV market"

▶ Spreading to rural zones and market growth: Validation of AVN's core business

Since 2000, AVN has redoubled its propagation centres (regions and pilot villages), aiming at continual and widespread kickstarting of NV markets.

14 regional branches are spread over five countries with expansion into a new region in Mali this season (Banamba), while preparatory activities to expand into other regions in the coming years have taken place.

There are 152 active pilot villages representing a growing territorial roll-out of 24%. Awareness-raising activities are carried out with key people, AVN's local intermediaries, who are convinced by the NV technique and who are persuasive at local level, working with village authorities.



In Burkina Faso and Mali, teams have focused on efficiency by prioritising the most promising regions.

In Senegal, the traditional kickstarting method, aimed at private clients in rural areas, has been suspended, with the focus now on the development of emerging markets for institutional, community, urban and well-off clients.

In Benin and Ghana, the first stages of the kickstart method helped AVN to identify and gain the interest of many apprentices even before smallholder demand emerged.

76% of projects are due to awareness raising in the pilot villages; the kickstarting method remains the base of the NV market. This is particularly true in Mali, where it leads to 94% of all projects.

A 55% growth rate in the number of projects begun in the pilot villages this season, with 330 completed; this has mainly been in Burkina Faso and Mali, where the kickstarting method is fully adapted to the context and has been implemented for around ten years.

PROSPECTS 2016-2017

- ▶ Expansion only into one new region (in Ghana), in order to focus resources on developing markets in areas in which kickstarting has already begun
- ▶ Greater involvement of masons in marketing activities

► Activities to promote kickstarting

With an average annual growth of more than 30% in the number of projects begun over the past ten years, the NV concept and the kickstart method it relies upon have more than proven their worth. AVN wants to accelerate that growth and strengthen the kickstart method by combining several aspects of it: the market densification activities (see following sections) and the incentives for training and construction intended to stimulate client decisions to build and those of potential apprentices (among the core target beneficiaries) to decide to get trained.

Wa Nani Promotion

to better spread the start of projects across the building season:

- Bonus for clients and masons able to carry out their projects before 31 January (currently, most projects are carried out between February and June)
- Burkina Faso and Mali
- 43 projects, representing 12% of Malian and Burkinabe projects

Quali Sap Sap Promotion

to boost the recruitment of apprentices from the smallholder market:

- Bonus for NV artisan masons able to involve more apprentices in their construction projects to speed up project completion without any loss of quality
- 3 pilot regions in Burkina Faso
- 73 apprentices working on 34 projects

Zinc Roof Masons Promotion

to rapidly train new worksite foremen by allowing them access to NV housing:

- Trainer masons made available to groups of classical masons to help them build their own NV houses
- Burkina Faso, Mali and Benin
- 130 projects training 274 classical masons

Implemented for the past one or two seasons, these various promotions have demonstrated that they are efficient, especially that for zinc roof masons, the effect of which is as follows:

- **it helps convince villagers**, the mason's house is inevitably a good house and becomes a trendsetter for its market
- **it leads to rapid training**, due to successive buildings being constructed one after another and thanks to these masons' prior technical experience
- **it favours collaboration** within groups of masons who build and train together and provides them with an incentive to pool resources and efforts to establish their own markets

PROSPECTS 2016-2017

Implementation of new promotions:

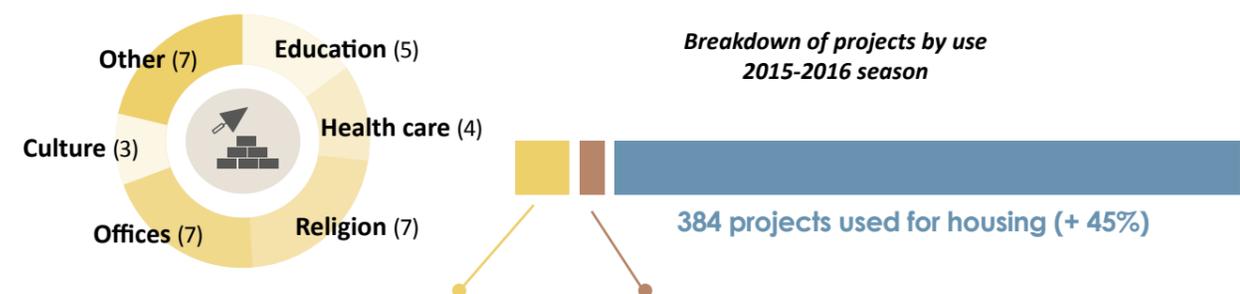
- **Super Promotion for Zinc Roof Masons: to accelerate the emergence of the very first generation of NV masons and teams**
- **First Client Promotion: a financial incentive for first-time clients**
- **Mason Marketing Promotion: to encourage marketing that is directly implemented by NV masons**

Kickstarting the public and community market in order to institutionalize the NV sector

AVN is working toward a public and/or community NV market by raising awareness with local and regional clients (regional councils, mayors' offices, NGOs, etc.) and by supporting their NV construction projects. The objective is for them to adopt, according to their needs, new construction practices that are well-adapted to the socio-economic and environmental context and that respond to issues of comfort and durability, and hence directly benefit the target populations.

This objective is part of a broader strategy aimed at pro-actively involving African institutional actors in managing the Nubian Vault programme and, more broadly, their responsibility for adapted housing for as many people as possible.

This season, technical baselines for several types of buildings were produced, as were the basic essential document templates (specifications and calls for tender) needed by local communities and introductory booklets, all for use in kickstarting activities.



33 projects for community purposes (+6%) to be used by the public, representing +2,200 m² of surface constructed, including:

- **5 educational buildings** including 3 classrooms meeting national standards
- **4 health care centres** including 1 maternity clinic
- **7 buildings used for religious purposes**
- **7 buildings used as offices** including 3 regional AVN offices and the *Maison des Yvelines* in Senegal, a remarkable complex consisting of 20 NVs over 370 m²

► **Involvement of 5 formal companies**

► **Training of NV masons in complex techniques and high-quality finishings**

► **Assistance from the Technical Unit**

These specific new examples can be replicated and involve, as in Senegal, public project management and works management assistance, meaning that the NV sector can be formalized and institutionalized, in particular by supporting and training the technical services that work for these clients.

PROSPECTS 2016-2017

Senegal: Implementation of kickstarting programmes for public and community markets, financed by the CD78 and by the GEF

Burkina Faso: NV enlargement of a health centre in the city of Kaya (client: Morija)

15 projects to be used for production purposes (+6%): mainly small family-owned henhouses, as well as an onion barn in Mali (client: GERES) and the production unit for Misola flour (140 m²; client: Teriya Amitié Mali).

Efforts to raise awareness with actors in the agricultural sector were strengthened this season and new pilot projects are planned for next season.



PROSPECTS 2016-2017

Burkina Faso: Showcase project financed by the FAO to build **four pilot buildings for onion storage in the north**, involving the Technical Expertise Centre for monitoring/controls, awareness raising and capitalisation

Senegal: Research/action project on building Nubian Vaults for use as barns and henhouses in the Niayes zone, financed by the NGO ENDA Pronat.





Apprentices in training on AKNGS construction site in Gomponsom (Burkina Faso)

► Partner involvement is essential to a more widespread deployment

It became clear that the Nubian Vault programme could not take place without the involvement of civil society organizations and actors of local development, both in terms of legitimacy (those groups being the direct representatives of beneficiaries) and in terms of the leverage effects that these actors create. Their local deployment and network, their capacity to raise awareness and mobilise their members, their possible need for community buildings and their good example of training all mean that these partners complement AVN's methodology for promoting the NV concept. The goal is therefore to build a good partnership with them and to allow for the necessary time to select, train and support these partners depending on the positions, specific characteristics and capacities of each of them.

As part of that approach, this season AVN continued to build ongoing partnerships and also sought out new ones.

Burkina Faso

Cooperation with the AKNGS farmers' group in the Yako region is becoming established for the long-term and is an example of a model cooperative partnership. A very active group now developing some fund-raising ability, AKNGS acts independently on: clients, awareness raising, market support, promotion of the NV housing loan with UBTEC (an MFI), and monitoring of masons working in its region. It will help AVN replicate this model for other NAAM groups starting next season.

The partnership with the other farmers' group in the Yako region, UGN-B, has been suspended: an internal conflict at UGN-B means that AVN has no more contact person there. The dozen or so volunteers involved are nevertheless continuing awareness-raising activities with AVN.

TNB will have been the on-site operator for the project focusing on resettlement disaster-stricken populations in Nebba for four years; during this time, 131 houses (including 14 this season) as well as community buildings were built, and the first generation of local masons was trained. This context favours the emergence of a local market, leading AVN to consider expanding to a new region.

It should also be noted that a partnership is currently being established with the Wend-panga group of masons in Doulogou in order to strengthen training in the Koubri region.

Senegal

Since 2010, the NGO Le Partenariat (LP) has been responsible for institutional kickstarting of the NV market in northern Senegal, and this season has supported AVN in replicating this methodology in other regions, in particular *vis-à-vis* Regional Agencies for Development (ARDs).

In addition, LP is responsible for the monitoring and coordination of:

- two large institutional projects that involve formal construction companies and
- the resettlement project for refugees in Mauritania for the second season, mobilizing three partners and masons from three countries in order to build the first village made entirely of NVs in West Africa.

Next season, LP will be the technical operator for the project to develop the institutional market in four departments in northern Senegal, financed by the Departmental Council of Yvelines (CD78). A good technical partner, LP's knowledge of the region and of local actors and its ability to support project management gives it a strong role to play in institutionalizing the programme in Senegal.

The partnership with the Senegalese-Belgian association Malem Auder in the Centre-West region (Department of Kaffrine) focused on two NV community building projects this season. Its capacity to mobilize rural and smallholder communities and to monitor masons' training places it in a coordinating position for the "Green Village" pilot project (promoting housing and training), which will be carried out in the region next season.

Ghana

Prospective partnerships are emerging, in particular with the Youth Harvest Foundation (YHF), an NGO based in Bolgatanga, which supported AVN in kickstarting the community market by seeking out and raising awareness with farmers' groups.

Mali

The partnership with the UACT, an agricultural cooperative, was ultimately not enacted this season, due to internal restructuring. That being said, UACT employees continued awareness-raising activities with the AVN regional team in the Tominian region, and the prospect still exists for cooperation next season.

A new partnership was launched with the Franco-Malian NGO Teriya Amitié Mali in the Niéna zone (Sikasso region). Very involved in recruiting and supervising masons for a project to construct an NV agricultural processing building that was completed this season, it will continue its actions in favour of local training next season.

The Mali branch of GERES implemented the second phase of the Electrified Activity Zone, a showcase project with strong potential for replication and one to be promoted to institutional actors and those involved in development. For the second time, GERES supported the on-site training of a building entrepreneur in the NV concept.

PROSPECTS 2016-2017

- Strengthen the capacity of regional teams to identify new on-the-ground partners (CBOs, FGs, EIGs)
- Strengthen support for these actors
- Adapt customized partnership models that match the positions, specific features and capacities of these actors
- Get actors working in international cooperation more involved in the transformation of building practices and vocational training



Beneficiaries of the refugees resettlement project in Diakré (Mauritania)



"Stimulate an adapted construction sector: train and strengthen all actors and stakeholders"

Densifying the NV Market
Strengthening NV Skills

For years, AVN activities focused on the emergence of NV clients in order to initiate a market which would de facto help structure supply. The growth of the market and the diversification of NV clients largely demonstrated the relevance of the technical concept and how well-adapted it is to current conditions and future challenges.

Today, in order to accelerate the speed at which the housing challenge is dealt with, AVN must promote and coordinate the strengthening and diversification of the adapted construction sector.

For the past two seasons, this strategic focus has been AVN's priority. It has invested in human resources, created new hubs of activity (technical and entrepreneurial), developed methodologies to strengthen training aimed at all sectoral actors, and worked to create a corps of advisor masons, custodians of NV knowledge. AVN also supports these professionals by working on expertise and technical development and by carrying out research.

The builders (formal and informal market)
Apprentices, masons, artisan masons, entrepreneurs and businesses

Objectives:

- Increase the number of construction site foremen, of masons and apprentices
- Strengthen technical capacities to match the needs of different types of clients
- Facilitate the acquisition of entrepreneurial skills

The sector's technical actors
Works management assistants, project managers, building technicians, architects, consultancy firms, etc.

Objectives:

- Help involve these actors in NV know-how
- Encourage project owners to manage the NV building operations and the project managers to carry out their tasks
- Creation of a technical reference *corpus*

► **Strengthening of technical training**



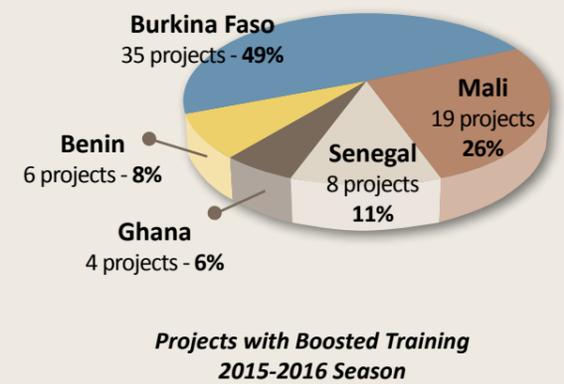
Complement the "on-the-job" training to meet a growing and diversified demand

In addition to the traditional on-site training ("on-the-job" training), since 2014 AVN has been further bolstering the technical training received by masons and apprentices, which allows for:

- **faster training**, so that more trainees qualify (quantitative effect)
- **the acquisition of technical skills** that meet the needs of the different rural, urban and community markets (qualitative effect)

This season, a **new quantitative and qualitative training methodology was implemented in the five countries** in which AVN is present: the Boosted Training Technique (F-Dyn T).

This is taught by trainer masons selected for their technical, pedagogical and interpersonal skills. Modules on various positions and techniques are added throughout the work at certain sites, at set times to not detract from the profitability requirements of the construction schedule.



- **72 sites involved**, which is 17% of the total
- **401 days of workshops**, the equivalent of 23% of the duration of the projects
- **40 trainer masons**, 19 of whom are already certified and 21 other potential trainers
- **228 learners**, mainly classical masons (working in the earth/metal sheeting and cement block/metal sheeting markets)
- **18 AVN employees** involved in Boosted Training, including specific hires

The implementation of the methodology at numerous construction sites, and in particular for two large-scale projects, has allowed AVN and the trainer masons to:

- **test ways** of guaranteeing good learning conditions
- **identify the assets and limitations** of the methodology as well as future developments
- **enrich the pedagogical knowledge** of the trainer masons

- **train trainees** to working on basic structures as well as on specific finishing techniques
- At the end of this first season, the positive effects on the duration and quality of the learning process are already noticeable and serve as motivation for the beneficiaries.

PROSPECTS 2016-2017

- **Strengthen the capacities of the Technical Unit and those of regional employees**
- **Supplement the theoretical modules by strengthening the on-site training system**
- **Improve the on-site skills reinforcement method:**
 - Strengthen the personalized monitoring of apprentices
 - Adapt the modules to the specific needs of each learner
 - Better integrate training sessions into the project timetable
 - Continue to capitalize on the pedagogical suggestions of the trainer masons and their ability to evaluate skills





► Strengthening entrepreneurial capacities

A new necessity: allowing NV artisans masons to develop their own marketing strengths

The vast majority of those who work on Nubian Vault sites come from the programme's core target group of farmers who work as masons during the off season and/or as "traditional" masons.

Alongside support for technical training, AVN develops ways to strengthen entrepreneurial skills in order to boost their activities and their economic integration into the informal and formal construction markets.

The context surrounding this is complex: AVN's vision of the entrepreneurial project is still a difficult one for these rural cultures, there are significant training needs (numeracy, organization and planning, management, marketing, accounting and cash flows, investments and amortization, etc.) and there are many professional profiles and projects. On top of all that, both the reality and the value of collaborative efforts (teams of masons) must be carefully considered as part of the

entrepreneurial dynamics put forward by AVN. AVN must therefore meet the real needs of NV masons and artisans in as pertinent and as empirical a way as possible.

Defining this new activity is an important step in the diversification of AVN's efforts to develop the market. Equipped with management and marketing skills, those who work in construction will be able to develop their markets independently, thereby actively participating in the promotion of the NV concept and in the dissemination of that concept to as many people as possible.

Construction is not the only asset that these entrepreneurs have, and some of them will also be able to trade on their skills as teachers to new generations of trainees.



In April 2016 AVN launched its Boosted Entrepreneurial Training the first stages of which are as follows:

- hiring of a project manager responsible for development of appropriate training methodologies
- selection of an initial panel of 22 NV artisan masons who have demonstrated their serious commitment
- conduct of individual interviews to draw up professional projects and identify needs
- design of training plans and personalized monitoring

PROSPECTS 2016-2017

The scope of the activity will be broadened and another system intended for a larger number of artisan masons will be proposed: **Large-Scale Entrepreneurial Training.**

- Large-Scale Entrepreneurial Training: All NV artisan masons—Group of 10-12 people—2 years of support—Initiation to business management and marketing
- Boosted Entrepreneurial Training: 22 artisan masons—3 years of individual follow-up—Personalized entrepreneurial guidance modules

► Research, capitalization and expertise

Advise and support those who work in the sector

For AVN, supporting the development of a professional adapted housing sector means providing the needed technical and methodological resources and necessary expertise to all stakeholders and markets that AVN aims to reinforce.

Thus, from the very beginning of the 2015–2016 season, AVN decided to formalize a Technical Unit which would bring together its technical experts and documentary resources; this centre would further develop several AVN activities, including research and technical development and the supply of support/advisory services to those working in the sector.



Progress this season was made in:

- framing and defining activities
- recruiting new workers
- conducting support/advisory missions for urban and community markets
- producing new reference and development documents

RESEARCH

The NV concept, both modular and well-adapted to numerous uses, is no longer dedicated only to rural housing, but is also used for other types of buildings (community, institutional, urban). **With the diversification of the NV market, architectural and technical elements are becoming more complicated and formalized, requiring continual research to be carried out by AVN; the Technical Unit is now responsible for this.**

During the 2015–2016 season, experiments focused on:

- developing tests on the quality of the land at construction sites, which is particularly important where there are different types of ground, some of which cannot be built on using the NV technique
- developing techniques to strengthen parapets (the upper part of the walls surrounding flat roof terraces), which are particularly vulnerable to erosion

It should be noted that AVN's research and proposals have led to a set of protective techniques for exterior areas (terraced roofs, walls), providing a minimum guarantee of 15 years without maintenance as well as the possibility of buildings large enough to be used for community purposes. The combination of some modern materials (cement, steel, tar, etc.) and earth provides a good response to the construction needs of wealthy, urban and institutional clients. The training of artisans and construction firms in the correct implementation of these techniques remains an important issue.



CAPITALIZATION

Development of a comprehensive technical body of knowledge on the NV concept (professional NV rules, technical studies and records, document templates, etc.) is of strategic and cross-cutting interest for several issues:

- facilitating learning of more complex techniques by NV artisan masons and companies in the formal sector
- informing and involving the technical project managers and others involved in the sector (consultancy firms, architects, etc.)
- making the necessary technical and administrative components available to project owners
- promoting the technical validity of the concept *vis-à-vis* institutional stakeholders in construction (ministries, technical services, etc.)

This season, the following was produced:

- a new version of the "NV Pathologies, Defects and Damages" study, which presents various types of damage and ways of preventing and correcting defects and errors
- 7 reference templates for buildings in the education, health and farming sectors (implementation files)
- 1 NV template of specific technical specifications per trade body (NV project batches—basic structure and secondary structural works)
- several information sheets for new techniques tested

TECHNICAL EXPERTISE, WORKS MANAGEMENT ASSISTANCE AND PROJECT MANAGEMENT

The formalization and institutionalization of the NV market helps boost the overall and cross-sectoral dissemination of the NV concept, as well as its adoption by decision-makers and different operators, thus magnifying its effect on as many people as possible.

AVN therefore needs to respond to this dynamic by providing expert services, works management assistance and project management services. By developing these skills internally, AVN's goal is to eventually help independent experts and operators to emerge (consultancy firms, architects, technicians, etc.) who will diversify and professionalize the adapted building sector.

These technical advisors must be able to provide advice and work with:

- **project owners** as they steer NV operations (programming, commissioning studies, putting together calls for tender, monitoring operations, acceptance of completed works, etc.)
- **project managers** as they integrate the "NV professional rules" both in terms of architectural design and in the monitoring of projects



This season, the Technical Unit's new team created its methodology for on-site and remote assistance based on:

- **technical studies and the production/validation of plans** established upstream of the projects (regional AVN offices, show housing at the Nioro centre for professional training in Mali, potential projects in Ghana and other private projects)
- **the transfer of target technical documents**
- **monitoring/providing advice about rare cases of faults and damage**
- **technical assistance** for the whole of a project in which a publicly owned medical building was built in Senegal (Baba-Garage, Diourbel region) involving an institutional assembly and implementation process.

For this, AVN benefits from the advice and involvement of Le Partenariat, an NGO with much experience in supporting the NV institutional market, which it has kick-started in northern Senegal since 2011.

Le Partenariat is responsible for the technical assistance for a remarkable project, that of the *Maison des Yvelines* in the Matam department of northern Senegal: 8 months of work, 20 Nubian vaults, 370 m².

PROSPECTS 2016-2017:

- ▶ **Strengthen human resources of the Technical Unit (recruitment and training)—in time all five countries will benefit from technical advisors**
- ▶ **Continue to produce technical baselines and to raise awareness with institutional actors**
- ▶ **Technical assistance on different strategic operations**, including barns for onion storage for the FAO in northern Burkina Faso, medical buildings and livestock farming facilities in Senegal, expansion of a medical centre in Burkina Faso, etc.

"Developing financial mechanisms facilitating access to adapted housing and the development of the NV market for as many people as possible"

Densifying the NV Market Financial Tools

Over the last ten years, AVN has successfully maintained a 32% growth rate in terms of the number of projects started per year. This commendable growth rate, which helps boost the dissemination of the NV concept, will not be enough to meet current and future needs and to overcome the housing problem in a sufficiently short period of time.

AVN's objective is to speed up demand for buildings which, along with the strengthening of the NV offer, should allow the NV market to quickly reach a growth rate of nearly 50%. Rapidly gaining 15 to 20 points will allow AVN to multiply tenfold the number of NV buildings built by 2030, the equivalent of around one million NVs built in West Africa.

Like the Sustainable Building Plan which has been implemented in France, AVN is putting in place the financial tools necessary to eliminate obstacles to access to housing for as many as possible. AVN has opted for subsidised microfinance products and direct financial encouragement of clients.

▶ Microfinance

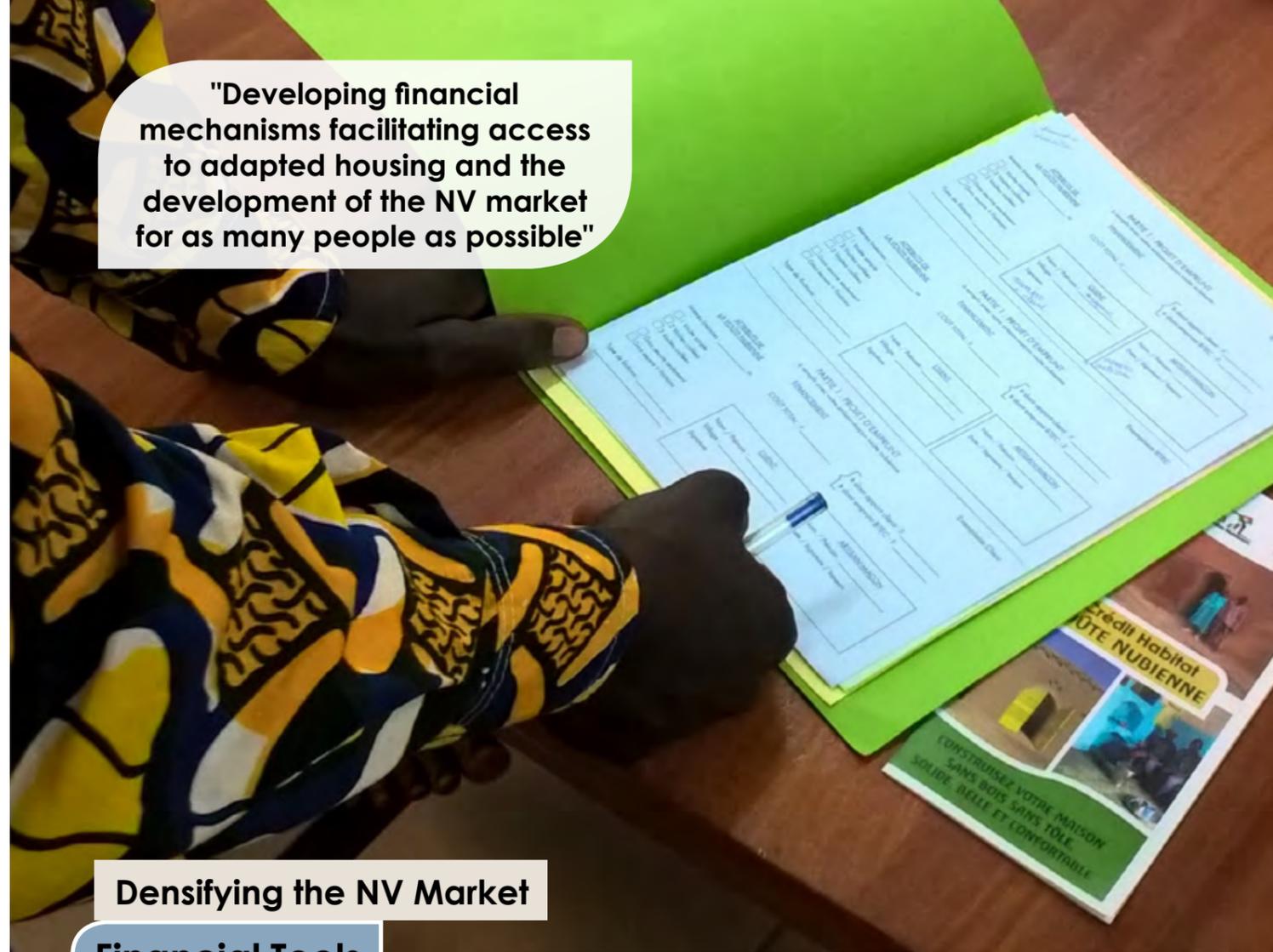
An essential tool for development, but one that does little to address housing issues

The rural populations of the Sahelian regions, as in many developing countries, are not covered by the services of traditional banks. The conditions necessary for the involvement of such banks are not present (few cash transactions, low incomes, lack of guarantees) and the bureaucracy they entail is poorly adapted to rural situations.

However, many microfinance institutions (MFIs), mostly born at the initiative of smallholder groups, are trying to create new products to best meet the needs of their clients. More often than not MFIs favour activities that boost income in order to guarantee that debts are paid off, which is not directly the case for housing. An estimated 20% of all microloans therefore end up being diverted from their intended purpose to meet housing needs. And when they do exist, microcredit loans for housing are generally intended for improvement rather than for initial construction.



Samuel Rodrigues, Technical Expertise officer, managing a Technical boosted training workshop (Senegal)



UBTEC team, AKNGS et AVN in Ouahigouya (Burkina Faso) for the launch of the NV housing micro-credit



The NV housing microcredit, a product to the benefit of all stakeholders

AVN, seeking solutions that would eliminate the traditional stumbling blocks to access to housing, is proposing a new microcredit product for adapted housing to its MFI partners and their networks of rural clients; this is possible thanks to the specific economic model of NV construction.

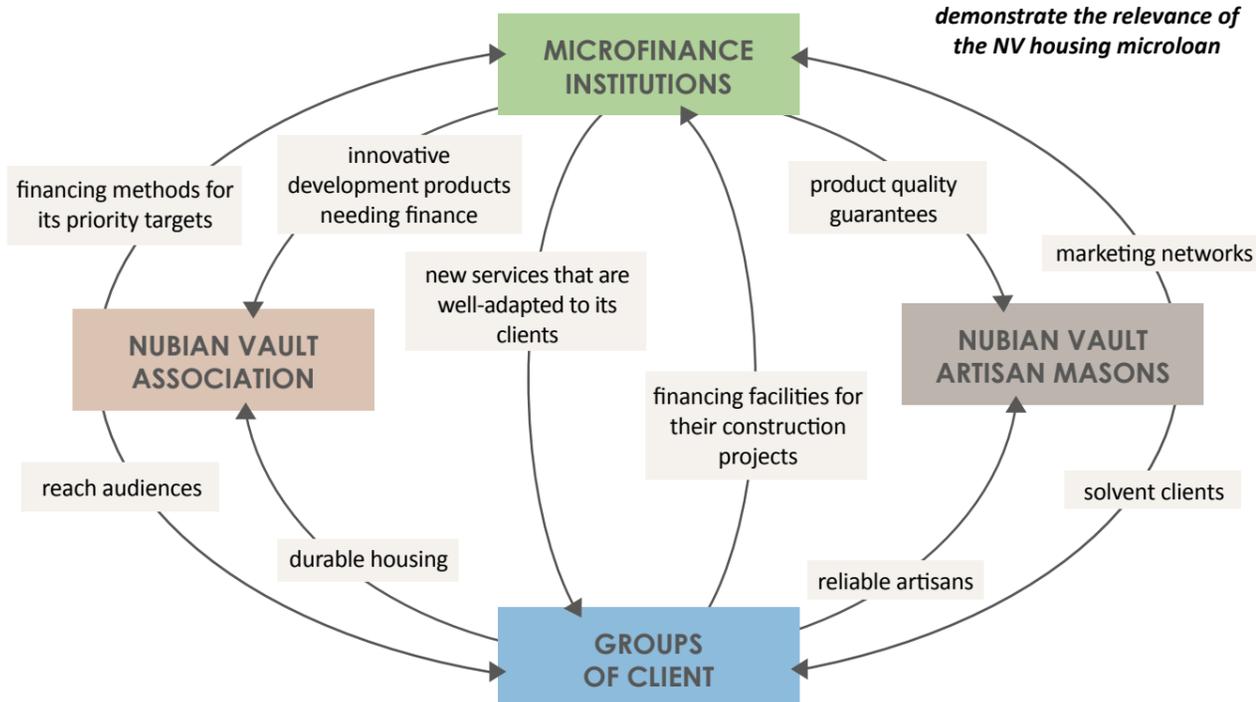
Indeed, the contribution of NV clients, in the form of unqualified labour and local materials, allows AVN to cover up to 70% of the value of the NV (which is akin to saving money). Thus, the necessary cash contribution covering the costs of qualified labour and the secondary structural works is much lower than for a traditional building and is covered by the range of credit provided by MFIs.

In addition, thanks to the durability and comfort of NV houses, real improvement to the users' living conditions allows them to save money, which can then be used for other purposes.

Finally, by facilitating the financing of construction projects, the NV housing loan allows artisan masons who are partners of the MFIs to further develop their activities.

This financial tool, which has a strong potential for development, therefore serves the interests of all stakeholders involved (MFIs, clients, artisans and ultimately, the AVN programme itself).

Reciprocal interests demonstrate the relevance of the NV housing microloan



Pilot projects to evaluate and improve what is offered

In Burkina Faso, two pilot projects are underway:

- in Dédougou, with the **Association for the Promotion of Inclusive Finance (APFI)**—since 2013, 12 NVs built
- in Yako, with the **Credit and Savings Baoré Tradition Union (UBTEC)** and the AKNGS farmers' group—2 buildings built since 2014

The findings and analyses of the initial stages of these projects, despite rather modest results, have in no way minimized the importance of what is offered, but rather have clearly revealed the need for more involvement by AVN in the product development phase and for more specific support for our partners.



From March 2016, AVN has invested the necessary human and financial resources in developing a more effective framework for intervention in collaboration with the relevant MFI partners, through:

- ▶ **Hiring of a specialist manager**
- ▶ **Guidance and stimulation** of the partnership with the two MFIs
- ▶ **Collaborative production** of methods and of hiring and marketing material
- ▶ **Profiling and mobilization** of a panel of dedicated NV artisan masons
- ▶ **Training of 14 credit union employees** and several managers in promotion of the NV concept
- ▶ **Implementation of a financial subsidy of NV housing microloan contracts** equivalent to a 0% credit rate



Poster and leaflet for the the NV housing microcredit promotion

Clarification of the role each actor plays, design of monitoring/evaluation tools and planning of awareness-raising activities is to be carried out with groups of clients (village banks): all this provides a favourable framework in which to develop products for the coming seasons. The experience acquired through these two pilot projects should be used to expand to other regions and countries.

PERSPECTIVES 2016-2017

In Mali, AVN has signed a partnership convention with the Mali Mortgage Guarantee Fund (FGHM) to provide funds to Malian MFIs. AVN must now continue its delicate work to identify reliable MFIs that might be interested by the product and that are located in one of the zones where the NV concept is being implemented.

In Europe, this ground-breaking programme to provide microloans for housing has caught the attention of several MFI refinancing operators. Following validation of the initial pilot projects, these potential partners could be involved in duplicating them elsewhere, thus spreading their impact.

► Incentives

AVN has long favoured the emergence of a private market that does not rely on direct support in order to confirm the suitability of the NV concept and the market's capacity for growth. **AVN is now using financial incentives to develop the NV market regionally and to accelerate the growth rate of NV construction.**

Support of around 10% of the cost of an NV project, without disturbing the market situation, encourages more clients to take a quick decision. This is therefore an incentive which also favours the development of the activities of artisan-masons and strengthens their guarantee of payment.

The Sudanese-Sahelian populations are going to have to adapt to climate change; this reality could to a large extent legitimize the use of "climate funding" to finance such incentives that allow as many people as possible to gain access to resilient housing.

Brainstorming about such new mechanisms began during the 2015–2016 season.

The first incentives for the general public will be implemented with priority given to zones and regions in which the kickstart method has already led to tangible results. The NV artisan masons of the regions concerned will be directly involved in the dissemination of this incentive, as it represents a marketing tool for them.

PROSPECTS 2016-2017

- **Two pilot regions in Mali: the *Cercle* of Koutiala and the commune of Keme Kafo (in the *Cercle* of Dioïla)**
- **Listing and mapping of all buildings constructed thanks to these incentives**
- **Verification of worksite compliance and of the proper use of the financial incentives awarded**

Opening of the NV office in Koutiala (Mali) in attendance of local authorities



"Favouring the incorporation of adapted housing issues in public policy"

Densifying the NV Market

Institutional Stakeholders Engagement

For 16 years now, AVN has initiated and supported the dissemination of an adapted housing solution for the majority of people: rural populations. With more than 2,000 buildings at 800 sites and an average annual growth of 32%, AVN's solution has proven its worth. Today, the programme's maturity and its goal of galvanizing the market and developing a durable NV sector has led AVN to raise awareness and involve direct and indirect actors from the housing and construction sectors, whether public, private, regional, national or international: ministries, public agencies, local authorities, international donors, etc.

These actors are responsible for housing issues in all their related forms: economic, legislative, vocational training and job-related, environmental impacts and adaptation to climate change. Governments therefore have an immediate interest in ensuring that, on the one hand, people have access to adapted housing and to a job and that, on the other hand, actors from the construction sector are involved in helping the sector evolve in a positive way.

As for AVN, it has a real interest in ensuring that its programme will ultimately be managed by legitimate institutional actors, which will allow AVN to play a role of operator for the implementation of local development plans. In parallel to the informal sector, which dominates private housing in rural areas, the emergence of a formal market supported by community construction needs will lead to NVs becoming permanently rooted in construction uses and practices.

AVN therefore encourages political actors to support the NV market and to integrate it into national and regional development plans and into national construction programmes. AVN is also carrying out international advocacy activities on issues of housing for as many as possible and leads a collective of actors from both the North and the South committed to the transformation of building practices in Africa.



► National advocacy

For the last two seasons, AVN has strengthened its advocacy efforts vis-à-vis national bodies, encouraging their interest in the NV solution both as an integrated solution that supports housing policies and as a solution for rural development, vocational training and employment, economic development, environmental protection and adaptation to climate change.

During the 2015–2016 season, AVN presented a roadmap for the institutionalization of Nubian Vaults to the governments of Ghana, Benin, Mali and Burkina Faso; this set out the possibilities for integration of NVs into the work done by various ministries (Housing, Employment, Vocational Training, Environment, Economy, Tourism, Youth and Integration, etc.).

Rural development, economic development and sustainable development

The Nubian Vault solution is particularly well-adapted to the rural context of Sahelian Africa, both in terms of the construction itself (availability of materials, integration into local economies) and of development needs (agricultural storage, use in livestock farming, commercial buildings) and in terms of job creation. In addition to use in rural areas, the NV market is also recognized as a method for boosting the economic and sustainable development of the countries in which AVN is present. The cross-cutting benefits of the AVN programme affect employment, the environment, the improvement of living conditions, health care, education, etc.

In Burkina Faso

- AVN's long-standing presence in rural areas, the extensive number of buildings constructed, the pool of trained masons and the partnerships entered into with farmers' groups are strong arguments in its favour
- AVN is in contact with the major actors of rural development, such as the Support Programme for the Agriculture-Forestry-Livestock Value Chains, the *Cabinet d'Ingénierie et Conseils en Développement d'Entreprises* (a business development consultancy), the Farmers' Confederation of Faso and the National Chamber of Agriculture

In Mali

- Adoption of the 2016–2018 Strategic Framework for Economic Recovery and Sustainable Development (CREDD), in which NVs are cited as an adapted construction solution to meet those challenges
- Partnership currently being established with the Koutiala inter-community body for the promotion of the NV technique and for vocational training and the integration of NV community buildings in PDSECs (Communal Social and Economic Development Plans) of the communes in the *Cercle*
- Holding of a multi-actor dialogue workshop in the *Cercle* of Koutiala: 98 people spoke about the environment, adapted housing, climate change and vocational training

In Benin, this roadmap received support from the Prime Minister, who is convinced that NVs are of social and economic value to the country. The elections at the beginning of 2016 and the resulting change in government is forcing AVN to repeat the advocacy already carried out.

In Ghana, Mali and Burkina Faso, the presentation of this roadmap will have to be followed by efforts to support each of the ministries mentioned, as well as their respective technical and administrative services.

In Senegal

- Awareness raising and dialogue with the Regional Agencies and Departments for Development—the technical branches of local authorities—in particular for the implementation of the National Plan for Local Development (PNDL) in Thiès, Diourbel, Kaffrine and Tambacounda and through the NGO Le Partenariat in Saint-Louis and Matam
- Meetings with the Ministries for Education, Local Governance, Development and Land Planning and Defence, in order to make them aware of the advantages of NVs

In Ghana

- Interest expressed by the Ministry of Local Government and Rural Development (MLGRD) in jointly organizing a side event during the Habitat III conference
- Proposed partnership with the Upper East Regional Coordinating Council, with the Savannah Accelerated Development Authority, a public agency responsible for rural development projects in the three northern regions, and with the Ghana Education Service (GES)



Inside an urban NV house (Senegal)

Housing

Incorporating Nubian Vaults into housing policy is a logical step in the programme's growth. AVN, which kickstarts local, public and private markets, mainly in rural areas, now must support those legitimate actors who can act on a national level—in particular the relevant ministries.

It should be noted that the adaptability, low cost and social benefits of NVs are levers to improve social housing programmes, by having beneficiaries participate and by boosting access for those beneficiaries without access to banking services.

In Burkina Faso

- Exchanges with the Ministry for Housing in order to prepare a partnership convention

In Mali

- Consultation with the Malian Office for Housing (OMH) about incorporating a social housing project into the OMH's work programme for 2017, as well as taking into consideration AVN's proposals
- Signature of a partnership convention with the Mali Mortgage Guarantee Fund, the purpose being one of public service and of working with a Malian actor from the banking sector to seek to develop products that facilitate access to adapted housing for as many people as possible

In Senegal

- Meetings with the Ministries for Urban Renewal, for Housing and for the Living Environment, in particular as part of the Plan for an Emerging Senegal, in order to establish favourable conditions for the creation of NV housing by property developers
- Meeting with the *Caisse des Dépôts et Consignations* about a social housing project

In Benin

- Meetings with the Ministry for Living Environment and Sustainable Development (MCVDD), responsible for issues of housing, and with the *Agence Foncière de l'Habitat* and their technical partners, in order to propose the integration of adapted housing issues into Benin's strategy for low-carbon development. A partnership convention with the MCVDD is being considered
- Presentation of AVN's programme during the *Mensuel de l'Habitat* housing forum organized by the Ministry for Housing in Cotonou

In Ghana

- Partnership currently underway with the Department for Rural Housing in the Upper-East region, to focus on strengthening the technical and entrepreneurial abilities of NV masons



Environment and climate

The international scope of the Conference of the Parties on climate change (COP21) held in Paris in December 2015 significantly contributed to moving AVN's advocacy on environmental and climate issues to the international scene. Because the Nubian Vault technique is used to build low-carbon buildings, is respectful of local natural resources and allows for improved living conditions in the face of climate change, it is a solution that is becoming more widely recognized in terms of mitigation and adaptation to climate change.

AVN is now accredited to participate in the major international conferences on climate (UNFCCC) and desertification (UNCCD). This allows it to amplify its

advocacy efforts vis-à-vis African political actors and international organizations working on these issues.

From the start of the 2014–2015 season, AVN has supported negotiators in West African countries in preparing their respective commitments for the Paris Agreements, set out in the Intended Nationally Determined Contributions (INDCs). Thanks to those efforts, Nubian Vaults were mentioned as a solution for energy efficiency in Senegal's INDC and as a solution for adaptation of the construction sector to climate change in Burkina Faso's INDC. This work also led to Mali highlighting the benefits of NVs in its Strategic Framework for Economic Recovery and Sustainable Development (CREDD).

INDC Burkina Faso:

"Promotion of local materials and of wood- and metal-free architecture (Nubian Vaults) to adapt to climate change in Burkina Faso's rural and semi-urban zones"

INDC Senegal:

"Adoption of the Nubian Vault technique in rural housing and community infrastructure..."

CREDD Mali:

"Initiatives aimed at the promotion, operation and use of local construction materials and at procedures well-adapted to the context and that comply with environmental standards will be emphasised. It would also behoove us to favour earth-based construction techniques (Nubian Vault-style) without wood or imported materials..."

The operational implementation of these first commitments in terms of adapting to climate change must still be defined (programmes, priorities, timetables, etc.). During the coming seasons, work with the Ministries for the Environment in the concerned countries and with their technical services and regional agencies will continue on a broad scale, in order to achieve the widespread implementation of NV construction.

This season, AVN strengthened its links to national authorities and to agencies accredited by the major international funds (Green Climate Fund, Adaptation Fund, GEF), with a view to submitting projects that contain an NV component.

Mali has already launched its first project led by a state-run body, under its mitigation/adaptation plan: the 2015–2018 Natural Resources and Climate Change Management Project (PGRNCC), led by the Agency for Environment and Sustainable

Development (AEDD) and financed by the World Bank, is contributing to the dissemination of the NV concept in three *Cercles* in the Kayes and Koulikoro regions.

In Ghana, the Ministry of Environment, Sciences and Technological Innovation (MESTI) and the Environment Protection Agency (EPA) are expressing a growing interest: following meetings held during COP21, AVN presented its programme at the National Forum on Drought and Desertification held in Bolgatanga in June 2016.

Employment, vocational training and youth integration

In the rural zones where young people face a clear lack of sustainable jobs and of local opportunities for development, the NV concept and its widespread dissemination guarantee the emergence of a lasting profession, in particular in informal settings but also in formal settings. The interest expressed by actors involved in training and professional integration was reaffirmed this season, thanks to steps taken by national AVN teams.

In Burkina Faso

► Consultation with the Support Fund for Training and Learning (FAFPA) regarding accreditation for AVN as a vocational training operator

In Mali

► Meetings with the FAFPA, with the Ministry for Employment, Youth and Vocational Training and with the Vocational Training Centres from Missabougou, Niore and Tominian

► Projects with the Ministry for Vocational Training, financed by the World Bank, being set up (Skills Development and Youth Employment Project, PROCEJ; Sikasso region); projects to come with Swisscontact (Vocational Training Support Programme, PAFP; Ségou region)

The stakes are high for AVN: determined to involve other vocational training actors in order to enrich its programme to strengthen professional skills in the sector, AVN is nonetheless concerned with maintaining the distinctive features of its own methodology, which is empirically adapted to the real needs of (future) learners. **Learning on actual construction sites and without any prior obligatory educational or technical baggage is necessary to ensure that everyone has access to training, an issue at the heart of AVN's mission.**

In Senegal

► Consultations with the Ministry for Vocational Training, Learning and Crafts and with the CFBTP—a centre offering specialized training in construction—in Damniadio about the integration of NVs in vocational training syllabuses and about the establishment of pilot projects with the CFPs

In Ghana

► Interest in the NV concept expressed by the Ghana Social Opportunity Project (GSOP) as a labour intensive technique; a pilot project will be funded next season

► Project proposed to the Council for Technical and Vocational Education and Training



Apprentice working on NV construction site

Participation in events

This season, AVN teams participated in multiple national events in order to more widely promote AVN's programme in their countries.

In Burkina Faso

- ▶ **National Fair in Kienfangué**, organised by the Association for the Development of the Rural World (Kienfangué – February 2016)
- ▶ **National Farmers' Day**, "Farming and the Fight against Unemployment" (Tenkodogo – April 2016)
- ▶ **International Exhibition of Renewable Energies**, (1) "Financing Sustainable Energy Systems for Developing Africa" (Ouagadougou – May 2016)

In Mali

- ▶ **Opening of the NV office in Koutiala**, (2) 1st NV building using "no maintenance" finishing, financed by the Air Liquide Foundation (Koutiala – February 2016)
- ▶ **Information and awareness-raising workshop** on vocational training for actors in the *Cercle* of Koutiala, financed by the IDB (Koutiala – May 2016)
- ▶ **Inauguration of the Agri-Culture Laboratory** in Bamako, which includes an NV building (Bamako – June 2016)

In Senegal

- ▶ **Eco-Construction Days** organised by the Senegalese Ministry for Environment and Sustainable Development as part of the National Programme for Energy-Efficient Buildings (Dakar – November 2015 and June 2016)
- ▶ **Opening of the Teuc-Teuc natural reserve** (3) (January 2016)

In Benin

- ▶ **Mensuel de l'Habitat** (housing forum) organized by the Ministry for Housing and Urban Development (Cotonou – November 2015)

In Ghana

- ▶ **Opening of AVN offices** (Bolgatanga – November 2015)
- ▶ **National Farmer's Day** (4) (December 2015)
- ▶ **National Forum on Drought and Desertification** organised by the Environment Protection Agency (Bolgatanga – June 2016)



▶ International advocacy

AVN advocates at the international level on the issue of adapted construction, with the goal of having this being better taken into account in development programmes and the funding they receive.

This season, there were many large scale events that provided AVN with an opportunity to enhance its visibility on the international scene and to present its cross-cutting programme, which incorporates interdependent issues such as access to housing, economic development, vocational training, micro-enterprises, mitigation and adaptation to climate change and improvements to living conditions, work and access to basic services.

These international forums not only allow AVN to familiarize a broader public and actors in the fields of development, construction and solidarity with the NV concept; they also allow AVN to hold work sessions with its partners and with representatives of the countries in which it is present, capitalizing on their presence and their respective commitments.

April/May



Launch of the GABC - Paris



Semaine de la construction en terre crue - Tournai (Belgium)

- ▶ Participation of AVN in a conference



World Economic Forum - Kigali (Rwanda)
Meeting of African and world leaders to discuss economic development and investment in Africa



Pro-durable Trade Fair - Paris
Trade fair for actors and solutions in favour of sustainable development and CSR



Salon des solidarités - Paris
▶ Workshop led by AVN to promote adapted housing

June-July



Ideas Days - Grenoble
Inter-company meetings to talk about innovation and change
▶ Presentation by AVN on the topic "Towns and Housing"



Terra 2016 - XIIth World Congress on Earthen Architecture – Lyon
▶ Presentation of a paper co-written by Thomas Granier, Mathieu Hardy, Antoine Horellou and Bruno Jarno

Sept. to Dec.



Seed Africa Symposium - Nairobi (Kenya)
International Forum on the development of social and eco-business solutions in Africa
▶ Participation in a workshop on employment and green housing



COP 12 - Ankara (Turkey)
United Nations Convention to Combat Desertification



COP 21 - Paris
Creation of the Global Alliance for Building and Construction (GABC)
▶ Conferences organized by AVN

Feb./March



World CSR Congress - Mumbai (India)
▶ AVN awarded the *Social Innovation Leadership Award* and programme presented



Dubai International Humanitarian Aid & Development Conference & Exhibition
Gathering of the main actors working in the humanitarian field





"Promoting building techniques appropriate for economic, environmental and social realities of developing countries should concern all actors that build, have built or finance buildings in these countries."

5

Our means for action



THE ASSOCIATION	47
HUMAN RESOURCES	48
COMMUNICATION	50
MONITORING/EVALUATION	52

The Association

► A dedicated Board of Directors

AVN currently has thirty active members including a Board of Administrators made up of five members who are responsible for the moral and legal duties related to their positions:

- **Benoît Lambert**, President – Designer (retired)
- **Anthony Kaye**, Vice president – University professor (retired)
- **Jean-Marie Crombez**, Treasurer – Retailer
- **Jean-François Naud**, Secretary – Film director
- **Nathalie Guillot**, Administrator – Architect



It is with great sadness that AVN lost one of its colleagues, Gérard Douchet, last May. A committed administrator with a never-ending flow of questions, always ready to enjoy moments at AVN, his musings on the Nubian adventure will be missed.

Given the programme's growth, the Board of Directors wants to strengthen its expertise by inviting development actors and corporate and administrative representatives to join its ranks.

► "Better Building in Africa" Collective

During the 2014–2015 season, AVN drafted and distributed a Manifesto, the goal of which was to have the issue of housing for as many as possible in Sudano-Sahelian Africa and its expansion due to climate change be better taken into account, so as to raise awareness about this issue with the general public and the development sector.

effect: NGOs, international cooperation bodies, bilateral and decentralized bodies, international donors, territorial authorities. The financial involvement of these project owners also provides the formal sector with an incentive to incorporate NVs into their commercial offer.

This year, as part of its advocacy efforts, AVN initiated the establishment of a collective of actors involved in promoting Nubian Vaults as a solution for community use in Sahelian Africa. The goal of this collective is to involve development actors from both the North and the South, as their building choices can have a real leverage

Through this collective and thanks to the exemplary nature of the NV community buildings that have already been completed (barns, classrooms, health care centres), AVN and other members seek to raise awareness *vis-à-vis* other actors involved in cooperation, so that they stop using poorly adapted imported building materials and so that they participate in transforming construction practices.

The Maison des Yvelines in Ourosogui (Senegal): A construction financed by YCID, member of the Collective



PROSPECTS 2016-2017

- Emphasis placed on projects of partners who are already involved
- Creation of specific material for communication purposes (brochures, websites, etc.)
- Organization of side events at international conferences
- Awareness raising *vis-à-vis* and integration of new partners



Benoît Lambert, AVN President with a part of the Burkina Faso team



Part of AVN's team during the end of season steering committee in June, in Boromo (Burkina Faso)

Rethinking Human Resources Management

► Growth and consolidation

At the end of the 2015–2016 season, AVN had 66 employees, including all positions and countries. A 32% increase in the number of workers was necessary this season in order to implement new activities (microfinancing, technical and entrepreneurial boosted training, technical expertise) and to strengthen other essential factors (development, communication, management). Added to that was the contribution of operational partners on the ground and of five consultants/experts who work in the fields of advocacy, monitoring/evaluation, technical assistance, fund-raising and on relations with MENA financial partners.

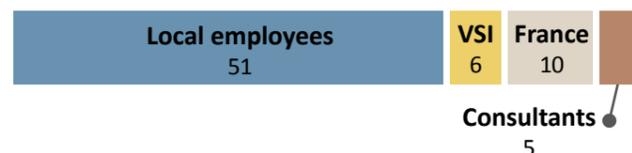
On the ground, AVN has faced significant turnover for several seasons. This situation is regrettable given the experience acquired by those who leave, and it weakens AVN's management capabilities, which are nonetheless essential to addressing the scaling up of the programme.

The rise in salaries programmed for next season will have to take into account the delicate balance between the budget, the cost of payroll and additional costs due to the programme's new development activities. It is important to note that AVN insists that its wage policy must be a fair reflection of the situation on the local job market, as too often is not the case with NGOs.

In France, the increase in recruitment was carried out in such a way as to limit the associated costs. These positions are necessary to the management and development of a programme that has multiple themes working in multiple countries, and represent a large portion of salary costs.

AVN must now strengthen a policy that focuses on resources that benefit efficiency and the programme's operational needs by:

- **recruiting and retaining managers from beneficiary countries** that meet the requirements of competence, commitment, adaptability and a desire to act on behalf of the programme's beneficiaries
- **only making use of VSI volunteers** for those tasks where there are not enough local professionals
- **the specialization of certain positions** related to market development (job enhancement, microfinance, etc.)
- **structuring steering activities, governance and therefore management** (see hereafter)
- finally, **empowering regional and national teams** (continual training, support, recruitment) so as to effectively produce, adjust and steer the programme at territorial level.

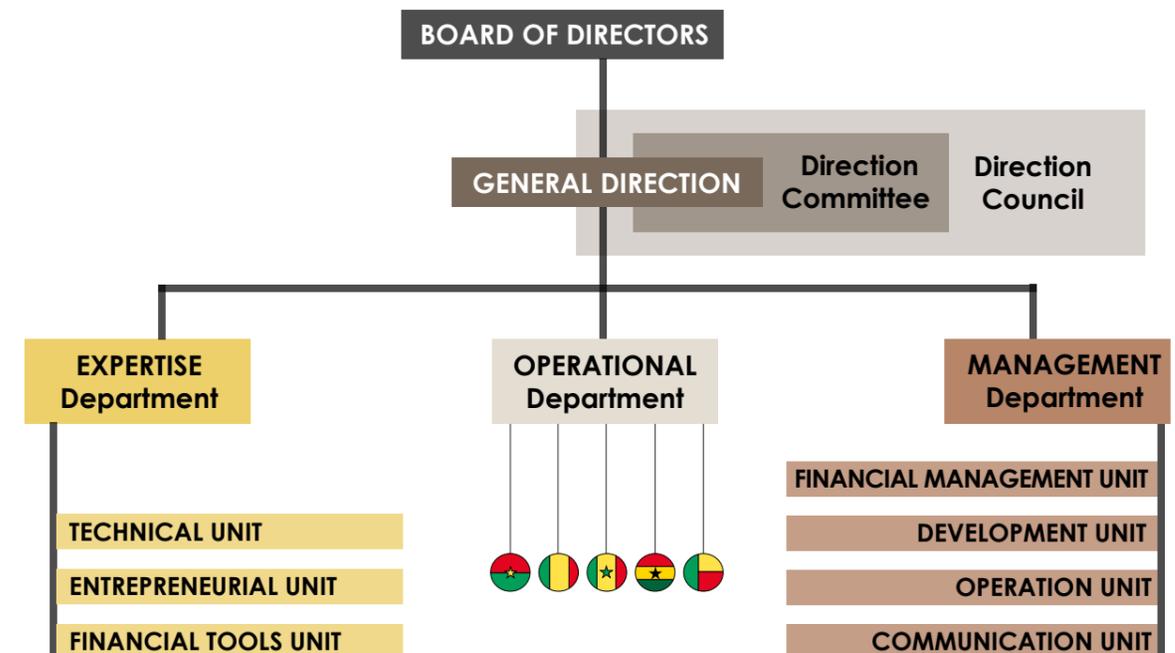


Breakdown of human resources 2015-2016 season

► Organizational chart

In order to improve the implementation and steering of activities, during the season AVN established an organizational system broken down into Departments and Units:

- **the Operational Department** works on the effective and geographical implementation of AVN activities in the areas in which the programme is present
- **the Expertise Department** includes the Technical, Business and Financial Tools Units
- **the Management Department** is responsible for programme support activities (financial management, development, operations, communications)



This organizational chart will call for a functional matrix between the geographical and managerial side (the Operational Department) and the actual functional side, through the activity units. This allows AVN to use technical and thematic baselines to support and strengthen the teams on the ground and to carry out kickstarting and market development activities. In order for this organizational system to be fully effective, a mid-term recruitment plan needs to be drawn up.

This way of working also represents a modification to AVN's governance, which is gradually evolving from a traditionally pyramid-shaped system to a more collective one, drawing upon the expertise and positions taken by each of the centre and country managers, to the benefit of strategic arbitration and management.

In the coming seasons, AVN plans to increase the responsibilities held by regional teams in terms of the direct governance and steering of their regions, which is the programme's first level of intervention.





Expanding the Communication Strategy

Communicating about AVN activities is essential to improve the programme's visibility and to emphasize its impact, both in the countries in which it acts and on the international stage. To this end, AVN has strengthened its resources and activities by hiring a full-time Communications Director, becoming more active on social networks and at major events in both France and abroad, and by diversifying its communication materials.

Finally, the programme's reputation also led to it being promoted by external media (the press, radio, film).

In the media

This season, AVN has benefited from a lot of local, national and international media coverage, **including 14 articles about it in the printed press, 24 articles online and a radio report** about it on RFI. AVN has also been the subject of several video reports:

- "Nubian Vaults Arrive in West Africa", on CCTV Afrique Infos (China)
- "The Ancient Technique Transforming Construction" on CNBC (USA)

It was also mentioned in a GERES video presenting the Electrified Activity Zone, a complex consisting entirely of Nubian Vaults.

All of these documents are summarized in the interactive "Resources" section of AVN's website.



Impact Journalism Day

As part of the Impact Journalism Day initiated by Sparknews, in June, 57 media leaders from around the world published a supplement presenting several "positive and inspirational innovations that have a strong social and environmental impact".

The article "**Le pari de la voûte nubienne prend forme**" by Abdoulaye Tao from the newspaper L'Économiste du Faso was chosen as part of this international editorial operation.

The article was therefore published in five daily newspapers participating in the event as well as on numerous online news platforms.

Production of new communication materials



NVs, a low-carbon housing solution

In the lead-up to COP 21, AVN produced a booklet presenting a summary of studies on thermal comfort and the quantification of greenhouse gas emissions in the lifecycle of a building (production, transport, use), thus demonstrating that NVs represent a bioclimatic, low-carbon housing solution that is well-adapted to the effects of climate change. (1).

NV's for community buildings

In order to promote the versatility of NVs and their suitability for use as community buildings, AVN created communication materials specific to the agricultural, educational and health care sectors. An improved version of these documents will be produced and disseminated in 2017 (2).

Digital AVN

AVN has brought together all of these communication materials — booklets, presentation films, a selection of photos — on a USB key (3). This new paperless approach allows for complete and eco-friendly communication in an ideal format that can fit in any pocket!

New videos

This season AVN produced two short videos (five and seven minutes): one on the NV offer for community buildings and the technical support provided by AVN for such buildings, and the second on the various NV possibilities for private residences, whether rural or urban (4).



Thomas Granier at a conference during the COP21 in Paris

Greater presence on the international scene

Alongside these on-the-ground activities, AVN participates in events in France and abroad throughout the year, **presenting its programme and strengthening its advocacy for the development of an adapted housing sector in Africa**

15 such events and conferences (see page 47 for details). For stands and side events, new material such as banners and enlarged photos were produced.

AVN on social networks

AVN has become much more active on social networks by increasing the rate at which it posts and by diversifying those posts. Thus, subscribers are informed daily about news pertaining to the AVN adventure and can interact live.

Follow us as of now:

thenubianvault @earthroofs



Training of teams in the new monitoring and evaluation system

Continually Improving Monitoring and Evaluation

► Adaptation of the monitoring–evaluation system

AVN supports its programme by having it guided by a well-rounded monitoring–evaluation–steering system. Data collection from regional to international levels allows AVN to observe the markets and its evolutions, to visualise the socio-economic impacts generated by various programme levers and to anticipate activities that need to be strengthened.

This season, that system was improved upon in order to adapt to the new logical framework and to integrate the measurement and analysis of new activities. It was presented to the regional and national teams at the end of the season so that it can be effectively implemented next season.

In addition to improvements made to the usability of digital monitoring/evaluation tools, these tools also integrated the use of specific indicators to the two new strands of development, skills enhancement and that of the sector: key indicators have been redefined and about fifty indicators are now in use.

A new steering support tool was also created to provide a general overview of the programme's different components at various geographical levels and across several seasons. Serving both to define seasonal strategies and objectives as well as to help with the semi-annual analysis of results, this methodological tool offers assistance in inputting data in such a way that critical thinking is favoured, as is the introduction of strategic adjustments.

This approach is necessary for any development project and its use must still be kindled with the regional teams so that they become even more independent in the running of activities in their territory.



► From one phase to the next: the results of the external evaluation

The 2015–2016 season was marked by AVN entering a new phase in its programme, in which it looks at the emergence, support for and consolidation of the market in a more structured and systematic way.

This stage also corresponds to the terms of the FFEM and AFD conventions as regards the construction phase of this new intervention strategy; that is, it represents "the beginning of a focus on scaling up the programme". In this framework and in order to meet contractual obligations, a programme evaluation was requested from **the Transitions consultancy firm**, which was carried out between June and September 2016.

The three evaluators from Transitions carried out missions to Burkina Faso and Mali, meeting more than 90 people from AVN teams (regional, national and international) as well as with stakeholders from the Nubian Vault market: clients, masons, apprentices, entrepreneurs, public authorities, representatives of microfinance institutions, etc.

Among their main conclusions, the assessors underlined the strong suitability of the Nubian Vault solution: *"All those who are aware of their existence acclaim Nubian vaults as a constructive solution (...) that is good for the subregion; they meet climate change adaptation and greenhouse gas mitigation needs and are accessible to as many people as possible thanks to their very competitive construction costs."*

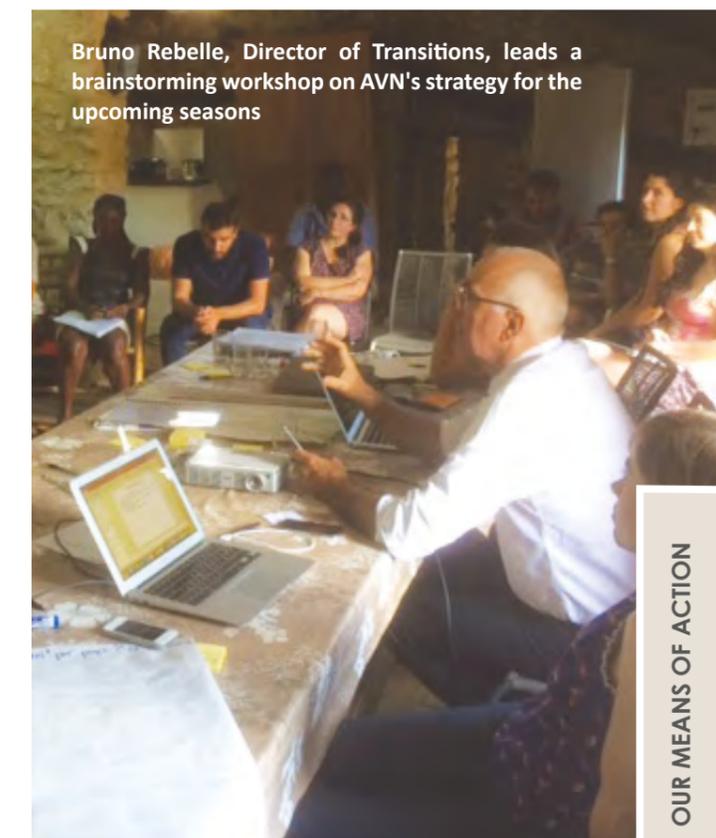
They also approved of the methodological approach taken by the new logical framework: *"This adaptation of the strategy indicates that AVN has effectively initiated a scaling up process in the sense that it has identified the steps to take for the more widespread deployment of Nubian vault constructions in the subregion and has begun to take some of these steps."*

The evaluation welcomes "the pragmatism with which the programme is implemented, empirically adapting—in the true sense of the word; that is to say, based on on-the-ground experience—actions taken in order to promote greater effectiveness", as well as the robustness of the implemented methodology. *"Performance must be underlined: indeed, the political instability in the region, in particular in Burkina Faso and Mali, countries in which AVN is heavily involved, could have had much more significant consequences. We interpret this resilience as a sign that the bases upon which AVN works are methodologically and technically sound, while also enjoying the wisdom of a certain amount of flexibility in the implementation and adaptation of its strategy."*

Finally, the evaluators recommend working to improve the programme's efficiency, in particular via better territorial organization of the NV market, stronger mobilization of local partners who are able to replicate the programme or part of it, and a boosting of AVN's management capacity, given the excellent growth over the past few years and that which will come about as a result of the anticipated scaling up.

The delivery of this evaluation was followed by brainstorming and strategic thinking workshops in September 2016 to help AVN analyse methods to permanently embed the Nubian Vault concept as a solution for durable housing that is well-adapted to the climatic and socio-economic challenges of Sudano-Sahelian Africa.

Transitions might further assist AVN in implementing the recommendations in the evaluation and the upscaling strategy.



Bruno Rebelle, Director of Transitions, leads a brainstorming workshop on AVN's strategy for the upcoming seasons

Managing sustained growth

The Nubian Vault Association's budget is constantly increasing due to the growing interest of donors in sustainable housing development in Sahelian Africa. **In two years, this budget has more than doubled, growing from €600,000 to €1,300,000, including growth of more than 50% this season.**

The Association constantly seeks to ensure transparent and reliable financial management. Since 2013, the annual accounts have been audited by a statutory auditor following review by a chartered accountant. The control procedures for financial transactions have been strengthened every year to ensure that expenditure is compliant with the expectations of various donors. Financial scorecards and indicators are regularly established, allowing AVN's activities to be continually monitored throughout the year and compared to the budgets for each country and region. The local financial directors in West Africa are regularly monitored and trained by the team at headquarters with monthly internal checks on expenditure.

Providing suitable IT resources

With assistance from FRIO, the Association now has effective IT tools that allow it to follow expenditure per country, per project and per donor, thanks to the SAGA software. The local teams have mastered this tool, which allows them to carry out standardized monitoring of their expenses against their budget. Accounts in euros are combined on a quarterly basis using the Coala programme, with the assistance of a chartered accounting office. Payment of salaries at headquarters is outsourced.



Burkina Faso's financial team

Recruiting and motivating needed human resources

Burkina Faso and Mali have hired Administrative and Financial Managers (AFMs) and administrative assistants at the head office. A deputy AFM joined the Burkina Faso team in September 2015. Importing data into SAGA and accounting checks take place in Boromo (Burkina Faso) for the six regions in Burkina Faso, Benin and Ghana, and in Ségou (Mali) for the five regions in Mali and Senegal.

At headquarters, the treasurer deals with AVN France's accounting, with help from an administrative and accounting assistant hired in June 2016. The administrative and financial director controls, coordinates and produces the summary financial statements and reports for donors and administrators.

Country coordinators are responsible for budgets and funding appeals and also check local expenditure. The coordinators for Burkina Faso and Mali previously held AFM positions and the VSI coordinators in the other countries have received financial training at headquarters.

Working in partnership

The association has established a strong relationship with partners, allowing it to subcontract some activities, in particular for projects consisting of individual and community buildings. This is particularly true of Via Nebba in eastern Burkina Faso, for a resettlement programme for disaster-stricken people, and of the NGO Le Partenariat, for activities in northern Senegal. This collaboration entails regular and reliable financial reports, as well as mutual understanding of the reporting procedures; it also requires monitoring by local teams and by headquarters.

Managing increasing funds

The growth of the managed budgets has required improved performance in terms of cash management, investment of liquidities and reliance on advances under the Daily law. Funds received in advance of expenditure are placed in interest-bearing accounts paying around 2%. The number of foreign donors subsidizing activities in dollars has also led to resources being monitored to ensure that the currency exchange is properly applied in accordance with those activities.

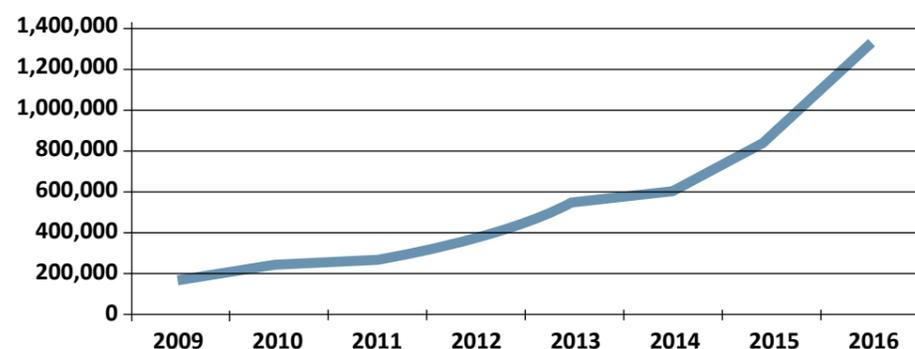
Providing local employees with the resources for effective management

Local employees benefit from ongoing training in order to boost their skills, to take responsibility for more operations and, ultimately, to gain autonomy. The financial management tools are controlled locally and certain donors pay their subsidies directly into the accounts of local branches, which requires supervised local management of transfer of funds, from allocation of expenditure to the establishment of specific financial reports (e.g.: in Mali, the Agency for Environment and Sustainable Management – World Bank)

AVN Founders' and areas

	2015-2016	BURKINA FASO	MALI	BENIN	GHANA	SENEGAL	SOUTH MAURITANIA
FOUNDERS	(€)						
FRENCH STATE	653,950						
French Development Agency (AFD)		■	■	■	■	■	
French Global Environment Facility (FFEM)		■	■			■	
Département Council 78 - YCID				■		■	
Département Council 73						■	
INTERNATIONAL FOUNDATIONS	456,700						
Alwaleed Philanthropies		■	■	■	■	■	
OPEC - OFID		■	■			■	
Dubai Charity Association							■
Autodesk - Silicon Valley		■	■	■	■	■	
World Bank			■				
Islamic Development Bank			■				
Selavip		■					
FRENCH FOUNDATIONS	142,500						
Ensemble Foundation		■		■			
Delagrang Foundation		■	■	■	■	■	
Eiffage Foundation					■	■	
Eiffage Senegal						■	
Brageac Foundation		■					
Solidarity Accor						■	
Grand Orient de France						■	
INDIVIDUALS SOCIAL INVESTORS	69,307	■	■	■	■	■	■
LOCAL PARTNERS	12,006	■	■	■	■		
VARIOUS	2,560	■	■	■	■	■	■
TOTAL RESOURCES	1,337,023						

Budget Growth



Statement of Resources & Expenses

RESOURCES (in euros)	2015-2016	2014-2015
French State Funds	653,950	440,000
Foundations Social Investors	599,200	346,973
Individuals Social Investors	83,923	66,771
TOTAL RESOURCES	1,337,073	853,744
In kind voluntary contributions	65,145	78,448
TOTAL GENERAL	1,402,218	932,192

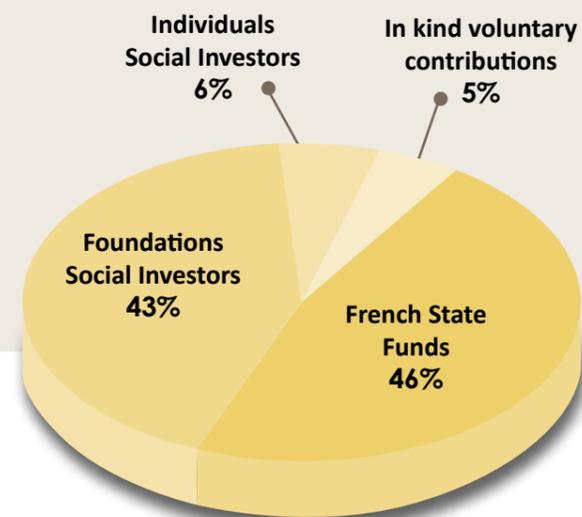
EXPENSES (in euros)	2015-2016	2014-2015
Salaries & Fees	694,276	455,963
Field missions	270,653	217,876
Fundraising & Administrative expenses	92,767	67,710
Investments & Constructions	244,044	108,093
TOTAL EXPENSES	1,301,740	849,642
RESULT	35,334	4,102
In kind voluntary contributions	65,145	78,448
TOTAL GENERAL	1,402,218	932,192

Salaries and fees are divided between salaries (€377K), social security contributions (€115K) and fees (€202K).

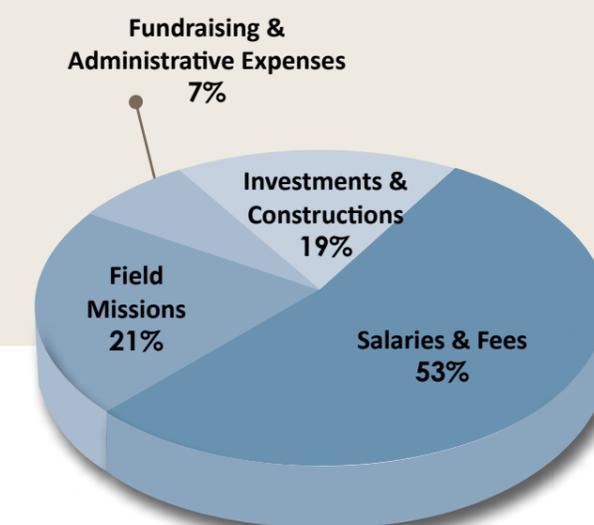
The buildings consist of offices built for AVN's activities that are also used as model buildings (€17K) and buildings financed by specific donors, community buildings (€40K) and a pilot village for the resettlement project in Mauritania (€120K). The building incentives have been strengthened, in particular for zinc roof masons (€15K).

Subcontracted promotional activities have again taken place with the NGO Le Partenariat in northern Senegal (€15K) as well as with the Kombi Naam Association of Gomponsom for the Sahel in Burkina Faso (€1K).

The Programme Founders



How Funds are Used



Balance sheet

In 2016, AVN invested in the purchase of two second hand 4x4 vehicles in Burkina Faso and Mali to facilitate the teams' work (€15K). In addition, it was also decided to purchase ten shares in SIDI, International Solidarity for Development and Investment, in order to help create active solidarity (€1.5K).

The accrued revenue recorded mainly concerns the final funding instalment from the FFEM (€143K) received in October 2016.

Outstanding payables are mainly the programme evaluation carried out over the summer (€30K) and the commitments with our partner Le Partenariat that have not yet been paid as of 31 August (€16K).

Conversely, some donors have advanced funds to AVN for periods after 31 August, including AFD-DPO and Alwaleed Philanthropies through 31 December (€324K). These funds have been recorded as deferred revenue.

This season AVN had a surplus of €35K which, combined with prior reserves, constitutes a fund of €62K.

ASSETS (in €)	2015-2016	2014-2015
Equipment	25,092	2,993
Other receivables	16,135	10,241
Accrued Resources	239,395	57,400
Cash and cash equivalent	247,984	321,295
Total Assets	528,606	391,929

LIABILITIES (in €)	2015-2016	2014-2015
Retained Earnings	26,511	22,409
Result of the year	35,334	4,102
Trade payables	67,241	47,984
Other payables	47,629	43,258
Deferred Resources	351,891	274,176
Total Liabilities	528,606	391,929

Financial Partners who Co-financed the 2015-2016 Season



New financial partners in 2015-2016



The Autodesk Foundation

supports the general programme, provides skills sponsorships and digital solutions.



The OPEC Fund for International Development

supports the programme development in Burkina Faso, Mali and Senegal.



The Islamic Bank of Development

supports the programme in Mali, in particular for the strengthening of vocational training.



L'Agence de l'Environnement et du Développement Durable

drives the programme in Mali as part of the PGRNCC financed by the World Bank.

Field Partners

Burkina Faso



Kombi Naam Association of Gomponsom for the Sahel (AKNGS)

- ▶ Farmers' group of more than 5,000 members – Department of Gomponsom (Nord region)
- ▶ Purpose of the organization: Agricultural professionalisation and socio-community development of villages
- ▶ **Partner since 2014**: popularization of the NV concept and promotion of the NV housing loan, open, construction of NV agricultural and community buildings, training of local young people and capacity building of members



Credit and Savings Baoré Tradition Union/NAAM (UBTEC)

- ▶ Association incorporated under Burkinabe law (Nord region)
- ▶ Purpose of the organization: Offers local financial services, prioritizing rural zones
- ▶ **Since 2014, a technical partner** in establishing and disseminating loan products linked to Nubian Vault housing in the Yako zone.

Mali



Farmer's Union of the Tominian Cercle (UACT)

- ▶ Cooperative society incorporated under Malian law – Cercle of Tominian (Ségou region)
- ▶ Purpose of the organization: Ensure the food autonomy of its members and increase their income levels
- ▶ **Partner since 2014**: awareness raising about NVs in the Cercle of Tominian

Senegal



NGO Le Partenariat

- ▶ Non-profit under French law (northern region)
- ▶ Purpose of the organization: Improve people's living conditions by carrying out local, sustainable, solidarity-based development
- ▶ **Partner since 2011**: development of the NV programme and market, institutional kickstarting of the NV market, technical partner working on resettlement of disaster-stricken populations in Mauritania (2014)



Tinyenga Niyemba Burkina (TNB)

- ▶ Association incorporated under Burkinabe law (in connection with the French association Via Nebba) – Department of Coalla (Est region)
- ▶ Purpose of the organization: Development assistance for the Nebba region
- ▶ **A franchised partner** from 2011 to 2014 and then on-site project operator working to rehouse disaster-stricken populations in Nebba (2012–2016), monitoring of NV mason training and construction of community buildings



Association for the Promotion of Inclusive Finance in Burkina (APFI-B)

- ▶ Association incorporated under Burkinabe law (Boucle du Mouhoun region)
- ▶ Purpose of the organization: Offers local financial services, prioritizing rural zones
- ▶ **Since 2015, a technical partner** in establishing and disseminating loan products linked to Nubian Vault housing in the Dédougou zone.



Teriya Amitié Mali

- ▶ Non-profit under French law – Commune of Niéna (Sikasso region)
- ▶ Purpose of the organization: Accompany the economic development of the commune of Niénaommune de Niéna
- ▶ **Partner since 2015**: management of a Nubian Vault UPA construction project with boosted training workshops, promotion of the NV concept



Malem Auder

- ▶ Association incorporated under Belgian law – non-profit – Department of Malem Hodar (Kaffrine region)
- ▶ Purpose of the organization: improve living conditions and education in Senegal's rural zones
- ▶ **Partner since 2015**: two NV construction projects (their office and a health care centre), awareness raising in rural parts of the department of Kaffrine, support for community construction projects



Network Partners



Coordination Humanitaire et Développement

Founding member of *Coordination Sud*, the CHD brings together 37 French organizations. It has two areas of focus, humanitarian issues and development, each of which has its own area of outreach, an agenda; it also organises external events. AVN joined the CHD in 2014.



Coordination Sud

In 2014, AVN, through its membership in the CHD, joined *Coordination Sud*, the largest French development network, of which the CHD is a member. Within that network, AVN became actively involved in the Climate and Development Committee, which works to strengthen activities combatting climate change in support of vulnerable populations.



Groupe de Travail Désertification - CARI

Since it is involved in issues related to desertification in the African Sahel, in 2015 AVN joined GTD, a desertification working group led by CARI (Centre for International Actions and Achievements).

New Networks



Global Alliance for Building and Construction (GABC)

An initiative of France and the United Nations Environment Programme (UNEP) launched in Paris at the COP21, the GABC calls for awareness raising about the impact of the building sector on greenhouse gas emissions and brings together state, private and non-governmental actors in order to promote innovative and well-adapted solutions. AVN has been part of the Alliance since the beginning and works actively with it on the international scene.



International NGO Forum in Mali:

The International NGO Forum in Mali (FONGIM) approved AVN-Mali's membership to its "Energy and Climate" thematic group. Joining this network will allow AVN to capitalise on its experiences and to collaborate with other members who work in the field of development: networking, pooling of resources, awareness raising vis-à-vis political leaders and partners about adopting low-carbon, adapted housing solutions for as many people as possible.



Occitanie Coopération

AVN is involved in the *Occitanie* region by virtue of having joined the regional multi-actor network *Occitanie Coopération*, which brings together the regional bodies working in the field of cooperation and international solidarity. Its mission is to disseminate information, organise meetings and support project leaders. AVN particularly wants to raise awareness with development actors present in West Africa about the importance of adapted community buildings and how they provide enhanced benefits.

The GERES Electrified Activity Zone in Konséguéla (Mali), a NV construction celebrated as one of the Comité 21's "21 Solutions for Tomorrow"



Prizes and Honours

Prizes and Honours won in 2015-2016



Social Innovation Leadership Award

AVN won this award at the World CSR Congress, in February in Mumbai, which recognizes leaders in the field of corporate social responsibility and social innovation.



10 Projects Fighting Climate Change

As Laureate of the "10 projects fighting climate change" competition organized by EDF, AVN has benefitted from an online crowdfunding campaign and financial support.



Buckminster Fuller Challenge

After being a semi-finalist in 2012 and 2014, AVN was selected as a finalist of the 2015 competition by the prestigious Buckminster Fuller Institute of New York.



The GERES ZAE: 21 Solutions for Tomorrow

The GERES Electrified Activity Zone, a NV construction project(photo) in Mali, has been chosen by the Comité 21 among 94 initiatives as one of the "21 Solutions for Tomorrow", last June.

Received in the past seasons



The transformation of construction practices into a well-adapted archi-culture with multiple co-benefits is a major challenge for Africa.

Overcoming the housing problem will only have a real impact if it occurs in a sufficiently short period to take on the demographic, economic and environmental challenges that prove an obstacle to the sustainable development of these areas.

The Nubian Vault market is a vector to disseminate adapted housing *par excellence*, and by gradually mass-marketing it to reach an annual growth rate of nearly 50% by 2020, one million buildings could be built by 2035. Reaching these volumes would represent a real tipping point in this major issue.

Meeting this challenge will be possible by mobilizing all stakeholders—both institutions and development actors—and by having them engage in managing the programme and in implementing efficient operating methods.

For AVN, the coming seasons will focus on consolidation, the continuation of research/action and the transfer of activities to these local partners, in order to more rapidly spread the NV concept and the knowledge base it brings with it.

Upcoming priority activities are aimed at:

- the efficiency of AVN's programme and method of organization, by improving the steering, management and capacity building of regional teams for the implementation of local strategies
- the mobilization and technical qualification of the NV offer, by proposing activities to strengthen training and by garnering interest from traditional masons (who build with earth/zinc roofs or cement/zinc roofs) and formal companies
- a surge in marketing by artisan masons and their teams, by promoting an entrepreneurial momentum and by putting in place the financial mechanisms and kickstarting levers that benefit them directly
- the use of financial tools on the market (incentives, microfinancing, etc.) that overcome the obstacles that many people face in gaining access to adapted housing
- the replication of programme dynamics by actors involved in local development, both from civil society—which represents the beneficiaries of the action taken—as well as technical operators, for their knowledge and because of how housing issues fit in with their own activities
- having national authorities manage the programme, so that AVN and its partners then gradually take up their rightful role of operator and so that a legal and institutional environment favourable to the market consolidation of Nubian Vaults and more broadly speaking of adapted housing is created.



ACRONYMS

AEDD: Agency for Environment and Sustainable Development
AFD: French Development Agency
AFM: Administrative and Financial Managers
AIDR: International Alliance for Development and Research
AKNGS: Kombi Naam Association of Gomponsom for the Sahel
AOPP: Farmers' Professional Organization Association
APFI-B: Association for the Promotion of Inclusive Finance in Burkina
ARD: Regional Agency for Development
AVN: the Nubian Vault Association
BF: Burkina Faso
C1: Debutant apprentice
C2: Confirmed apprentice
C3: NV Mason
C4: NV Artisan Mason
C5: NV Entrepreneur
CARI: Centre for International Actions and Achievements
CCTV: China Central Television
CFBTP: Building Trade Training Centre
CFP: Professional Training Centre
CD: *Départemental* Council
CHD: Humanitarian and Development Coordination
CNBC: Consumer News and Business Channel
CO₂ eq: Carbon equivalent
COP: Conference of Parties
CREDD: Strategic Framework for Economic Recovery and Sustainable Development
CVECA: Self-managed Savings and Credit Village Banks
DCA: Dubai Charity Association
EPA: Environment Protection Agency
FAFPA: Support Fund for Training and Learning
FAO: Food and Agriculture Organization
F-Dyn E: Boosted Entrepreneurial Training
F-Dyn T: Boosted Technical Training
FFEM: French Facility for the Global Environment
FGHM: Malian Mortgage Guarantee Fund
FONGIM: International NGO Forum in Mali
FRIO: Institutional and Organization Reinforcement Fund
GEF: Global Environment Facility
GERES: Renewable Energies, Environment and Solidarities Group
GES: Ghana Education Service
GSOP: Ghana Social Opportunity Program
GTD: Desertification working group
INDC: Intended Nationally Determined Contributions
LP: Le Partenariat
MCVDD: Ministry for Living Environment and Sustainable Development
MENA: Middle East and North Africa
MESTI: Ministry of Environment, Sciences and Technological Innovation

MFI: Microfinance Institution
MLGRD: Ministry of Local Government and Rural Development
NGO: Non Governmental Organization
NV: Nubian Vault
NV/RC: Nubian Vault / Reinforced Concrete
OPEC OFID: Organization of the Petroleum Exporting Countries Fund for International Development
PDSEC: Communal Social and Economic Development Plans
PGRNCC: Natural Resources and Climate Change Management Project
PNDL: National Plan for Local Development
PROCEJ: Skills Development and Youth Employment Project
R&D: Research & Development
TNB: Tinyenga Niyemba Burkina Association
UACT: Farmer's Union of the Tominian *Cercle*
UBTEC: Credit and Savings Baoré Tradition Union
UGN-B: Naam Groups of Bousé Union
UGPCER-N: Nayala Cereal Producers Groups' Union
UNCCD: United Nations Convention to Combat Desertification
UNFCCC: United Nation Framework Convention on Climate Change
VSI: International Solidarity Volunteer
YCID: Yvelines International Cooperation and Development
YHF: Youth Harvest Foundation





www.lavoutenubienne.org/en

 **thenubianvault**

 **@earthroofs**

AVN France
contact@lavoutenubienne.org

 **AVN Burkina Faso**
avn-bf@lavoutenubienne.org

 **AVN Mali**
avn-mali@lavoutenubienne.org

 **AVN Senegal**
avn-senegal@lavoutenubienne.org

 **AVN Benin**
avn-benin@lavoutenubienne.org

 **AVN Ghana**
avn-ghana@lavoutenubienne.org

