



a programme supported by



The Nubian Vault Association

ANNUAL REPORT

SEASON 2017-2018





Writing and graphic design: AVN - English translation: Adrienne Brayman, Anthony Kaye - Print by Impact Imprimerie - Photo credits: AVN, GERES (p.37, 38, 80), Malem Auder (p.42), *Département des Yvelines* (p.51, 85) - Published in July 2019



Contents

| | |
|---------------------------------|-----------|
| Edito | 4 |
| <hr/> | |
| 1 - The programme | 6 |
| Key Figures | |
| Highlights | |
| Programme History | |
| Intervention Strategy | |
| Training | |
| Technical Expertise | |
| <hr/> | |
| 2 - Our Countries | 20 |
| Burkina Faso | |
| Mali | |
| Senegal | |
| Ghana | |
| Benin | |
| France & International | |
| <hr/> | |
| 3 - Our Means for Action | 72 |
| Community Life | |
| Human Resources | |
| Communications | |
| <hr/> | |
| 4 - Financial Report | 76 |
| <hr/> | |
| 5 - Partners and Awards | 80 |
| Field Partners | |
| Financial Partners | |
| Networks | |
| Awards and Recognitions | |
| <hr/> | |
| Prospects | 86 |



Editorial

Demographics, migration, climate change, insecurity, growth ... recent decades have placed Sahelian countries at the heart of global geopolitical issues.

Because of the challenges and opportunities entwined together in the region, it serves as an example due to its need for resilience and adaptation. These are the same qualities that we as a people must develop faster than ever before.

Thus, those who work to support the African people on the road to a sustainable future face two objectives: to subtly participate in the rapid and fundamental transformation of social and community organizations, and to draw inspiration from this evolution in order to weigh in on those changes essential to both society as a whole and to the world's economies.

Both for its very *raison d'être* - housing conditions for as many as possible and the cross-cutting nature of that issue - and for its methodology based on using the market as a main factor of change and the broad-ranging deployment of on-the-ground operations and international advocacy, AVN's programme fits into a dual dynamic: proposing and supporting fundamental change while also undergoing self-transformation!

Broad international recognition, recently illustrated yet again by UN Habitat's World Habitat Award, and growing interest shown by African partners (including the African Development Bank,

the World Bank and various French, German, Belgian, Canadian and Polish development actors) demonstrate an increasing perception of the housing problem and that AVN's proposals are more and more convincing.

The 2017/2018 season was an important turning point in AVN's approach. This turning point was more radical than previous changes, offering a true strategic vision of what upscaling the programme and its results could and should look like.

In a single and concise methodology, AVN has brought together the actions that allow for the emergence and accelerated growth of an adapted housing market at specific territorial levels. This proposal has been validated by nearly two decades of on-the-ground deployment and reflection on the concept.

The programme's regional approach is regulated both in terms of time and in terms of costs and results. It is managed by local operators who, trained and supported by AVN, take ownership of the methodology and, when they find the resources, then deploy it in their own region.

AVN thus mobilizes, trains and unites a network of on-the-ground operators, passing on their advocacy and expectations, helping tools evolve and capitalizing on good practices.

This network is built alongside public institutions that incorporate the issue of housing for as many as possible in their development plans.

This methodological evolution is supplemented by three focal points.

Architecture at the heart of agricultural economies:

- A large majority of actors in the NV construction sector come from the agricultural sector and can strengthen their agricultural income through these professions. This is the case in particular during long off-season periods (such as the dry season).
- The rural Sahelian world and its millions of vulnerable families waiting for decent and lasting housing remain the core target of AVN's programme.
- The financial model of the rural NV private market and agricultural and/or community use is largely based on the capacity of beneficiaries to produce the materials and labour necessary for the building work themselves .
- The NV concept allows for agricultural buildings to be built (for storage, livestock farming, processing, etc.) that have strong thermal and hygrometric advantages.

The Training Team is now stronger, focusing on three distinct elements:

- A "Training for actors in the construction sector" chapter mainly incorporates on-site training activities as well as adapted technical and entrepreneurial academic training sessions, for both masons and trainees as well as technicians and construction companies.
- A "Training the trainers in NV construction" chapter is intended for NV chief masons focused on passing on their knowledge and that of institutional actors involved with vocational training.
- A "Training development operators" chapter allows for their operational methodologies and tools to be passed on to partners working on the ground.

Financial accelerator tools for market growth:

Similar to what takes place in the North in terms of the dissemination of technologies with a strong energy and carbon impact (for example, in the construction sector and on the automobile market), we must strengthen the emergence of an NV market in rural zones through the use of financial incentives ($\pm 15\%$ of the cost of construction), thus allowing for accelerated decision-making and support for future clients.

These investments can legitimately be earmarked for "adaptation" and "carbon savings" funds or for "vocational training/sector emergence" funds. These incentives also aid NV chief masons both as regards marketing and because they return to them as income.

The use of microfinance products allowing for "access to adapted housing" loans is largely to be developed.

The pilot projects implemented by AVN and two partner MFIs in Burkina Faso demonstrate the potential of these tools which, taking the same incentive-based approach described above, should be subsidized through 0% rates.

To conclude, the 2017/2018 season allowed for fundamental changes in the methodology used to deploy the NV market and to reorient the programme, the desire being to move toward a network of on-the-ground partners; from "doing" to "getting others to do it themselves".

Lastly, this strategic vision, borne and passed on by donors, development actors and African political leaders and strengthened by incentives intended for trainees and rural clients, signals a clear vision for the upscaling necessary for a profound and sustainable transformation of the problem of providing housing for as many as possible in the Sahel.

Thomas Granier,
Founder and Director General of AVN



Nubian Vault house and beneficiaries in Benena (Mali).

| | |
|-----------------------|---------|
| Key Figures | ▶ p. 7 |
| Highlights | ▶ p. 8 |
| Programme History | ▶ p. 9 |
| Intervention Strategy | ▶ p. 10 |
| Training | ▶ p. 14 |
| Technical Expertise | ▶ p. 18 |

1 - The programme

■ Summary

Since 2000, the goal of the Nubian Vault Association (AVN) has been to develop a market for adapted housing in West Africa, providing vulnerable populations access to affordable housing that is comfortable and well-adapted to climate change. AVN has also aimed to create green jobs, strengthen economies at all levels and develop an “adapted housing” sector.

At the centre of this programme lies an architectural concept that is both ancestral and innovative, based on local materials, economies and knowledge: **the Nubian Vault technique**.

AVN's programme is based on three complementary poles of action:

- **A Roof** - Help boost demand for adapted buildings at local level;
- **A Skill** - Train independent artisan-masons for the Nubian Vault sector;
- **A Market** - Generate political and economic support to help the NV market grow.

These actions are part of an innovative model for development that is based on the principle of “teaching others to fish rather than giving them a fish”, extending this to the entire structure of the housing market and construction sector

■ Key Figures

31,600 beneficiaries
living or working in a NV building

495 private and
community buildings
built in 2017-2018

2,900 construction sites
completed since the start of the
programme

104,000 m² built

840 apprentices, masons,
artisans and entrepreneurs
actives in the market, including:

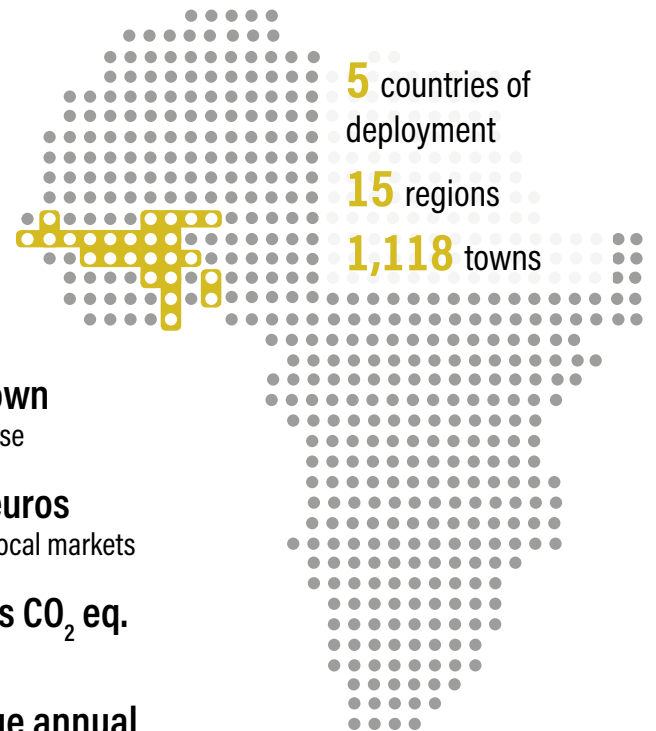
394 apprentices
who began their training this season

0 tree cut down
for building purpose

3 million euros
generated in the local markets

85,300 tons CO₂ eq.
potentially saved

21% average annual
market growth
(compared to the last 10 years)



■ Highlights

October



A Nubian Vault project for public markets in Senegal

The construction project of the *Hôtel de Département* (Town Hall) of Matam (Senegal) becomes the first NV project to involve the procedures for publicly funded works in Senegal.

November



The *Maison des Yvelines* winner of the Green Solutions Award

November 15th last, during the COP23 meeting in Bonn, AVN received the low-carbon building prize from the Green Solutions Awards / Construction21, for the *Maison des Yvelines* project in Ourosogui, northern Senegal.

February



AVN Burkina awarded the special SIERO Eco-Habitat prize

After participating in Ouagadougou's *Salon International l'Environnement et des Energies Renouvelables* (SIERO) last season, AVN Burkina Faso was awarded the special SIERO Eco-Habitat prize for sustainable development.

March



A partnership with the Mairie of Ouagadougou

At the end of March, the Mayor of Ouagadougou and AVN signed a partnership agreement to accelerate the dissemination of adapted construction techniques in Burkina Faso, particularly in the Ouagadougou urban area.

March



Inauguration of AVN-Benin's national office

AVN-Benin's national office was inaugurated on March 30th at Djougou. In addition to being the base for AVN's Donga branch, this new building will serve as a show house for the local region.

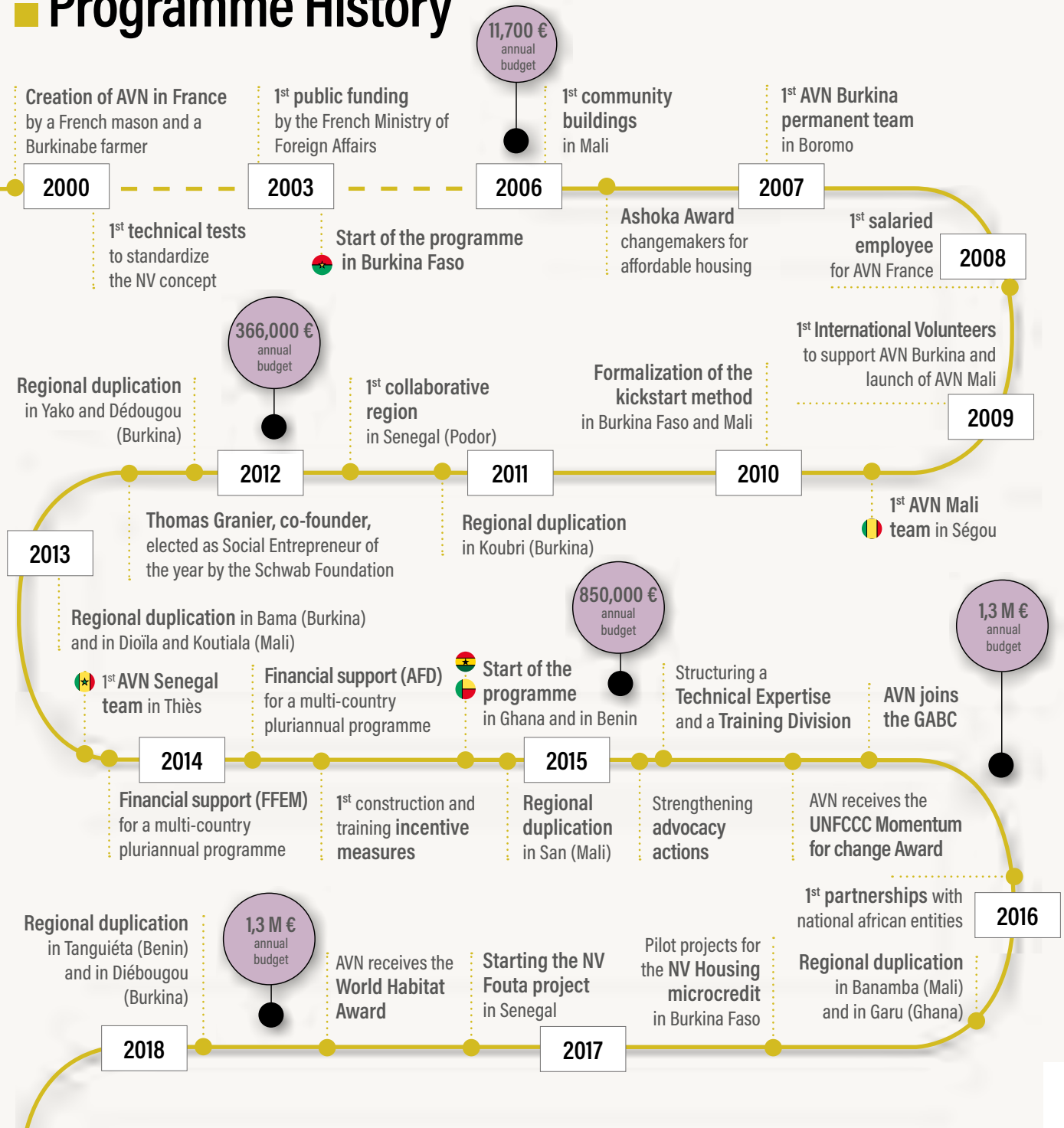
May



A UN-Habitat/AVN Partnership for adapted housing

One year after winning the World Habitat Award, AVN recently signed a Memorandum of Understanding with UN-Habitat for the implementation of joint actions promoting affordable and sustainable housing access for all in Africa.

■ Programme History



■ Intervention Strategy

The 2017/2018 season was characterized by important work carried out on AVN's three lines of action – a Roof, a Skill, a Market – with its sights fixed on renewing the intervention strategy for 2018/2019.



A Roof

Help boost demand for adapted buildings at local level

Territorial rollout

This new season saw the opening of two regions (Diébougou in Burkina Faso and Tanguiéta in Benin), expanding the geographical reach of the programme in those countries in which AVN is already present.

Drawing up of municipal action plans and regional strategies

Annual action plans specific to the issues and opportunities present in each region were drawn up for the municipalities in which AVN operates, in order to involve local institutions in the implementation of the strategy to launch and ramp up the

NV market. This specific work led to the construction of several public NV buildings, in particular in Burkina Faso.

Growing commitment from partners

Civil society partners joining AVN to help manage the programme were quite decisive this season, with a significant number of new commitments (and with several others announced for next season). This represents a clearly positive note as regards AVN's new strategic objective in terms of local appropriation of the NV concept and, more broadly, of the dissemination programme and its development methodologies.



A Skill

Train an autonomous sector of NV chief masons

Technical reinforcement for masons, artisans and local entrepreneurs

Workshops to co-develop tools under AVN's training programme were held throughout the season to help trainers master the different tools (planning, budgeting, supervision of actions) and use the Trainee Evolution Booklet. The Training Team brought these tools together in a set of pedagogical reference documents. The academic modules co-developed with and for the Trainer Masons were successfully tested in Burkina Faso, Mali, Benin and Ghana.

Development of business skills

The business training was based on two types of activities benefiting 163 trainees (mainly artisans, as well as masons with sufficient qualifications to progress rapidly): initiation to entrepreneurship and drafting cost estimates on the one hand, and marketing development on the other hand.

Technical expertise to support actors in the construction sector

The Technical Expertise Team (three people) had four main objectives this season:

- to structure the Team and its activities
- to provide project management support for actors in the construction sector
- to provide technical assistance for strategic projects (local champion partners and model buildings)
- to work on technical development (tools, case studies, documentation frameworks and formats, etc.)

Just like the Training Team, the Technical Expertise Team is playing a growing role within AVN, in particular as regards its abilities to provide advice and support to our partners.



A Market

Generate political and economic support for market growth

Microfinance: supplementary solutions

The disappointing results of Year 2 of the pilot project in Burkina Faso (3 loans granted compared to 15 the previous season) led AVN and its partner microfinance institutions (MFIs) to discuss additional solutions for the Loan for NV Housing (LNVH) to support the product's success. The idea of a specific microloan for agricultural storage was discussed at the end of the season; this is something that farmers are interested in, as they are more inclined to invest in buildings to protect their crops than they are in private housing. In addition, the reimbursement of 86% of the loans granted in Year 1 means that we can consider duplicating the LNVH with other MFIs able to mobilize the necessary human resources to disseminate the product for coming seasons.

Harmonization and development of incentive systems

Following a promising pilot year, all of the incentive measures were proposed this season for the territories in which AVN is active, within the limit of available financial resources. The incentives for construction are on the rise but require

enough financial support to generate the leverage effect needed for growth. The promotions for the training of masons (supplemented by NV home ownership), which concerned more than 40% of buildings constructed this season, also require sufficient financing to allow trainees from the same group to work on all of the buildings throughout the season, thus guaranteeing that they qualify at a higher level more quickly.

Support for institutional integration of NVs and for the concept of adapted housing

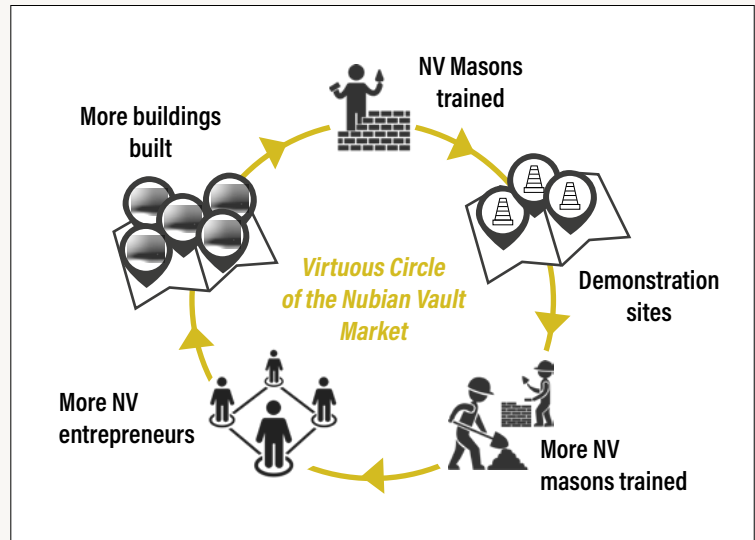
Institutional recognition of adapted housing remains a key challenge, largely supported by the many local, national and international advocacy activities carried out by AVN teams.

Toward a model of the Nubian Vault market

The logic behind using the nubian vault construction technique is mainly based on consolidating a virtuous cycle (offer > demand > market growth).

AVN has therefore modelled the consolidation method of this virtuous cycle for a given territory as much as possible, so as to optimise its deployment for a given territory and also to transfer the method to other actors who will use their own assets to implement it: geographical context, networks, financing capacity, etc.

Taking this approach, AVN will, in the coming years, be involved in three ways, the combination of which should allow for a scaling up of nubian vault construction in the sub-region:



The continued deployment of nubian vaults with AVN as an operator in certain regions, in order to consolidate the rollout method so as to support continual improvements and research in order to explore new technical and methodological approaches.



The recruitment of, training of and support for partner operators taking on board the method developed by AVN, thus contributing to the expansion of the nubian vault construction market beyond what AVN could do on its own.



The organization of functions essential to strengthening upscaling activities (creating networks/facilitating partner networks, training, technical support, monitoring/evaluation, advocacy, etc.).

The implementation of this new strategic plan implies a three-season transition phase (2018–2021) between the current management of AVN's programme, in continuity with what AVN has achieved since its founding in 2000, and the future organization method aimed at supporting true upscaling of the rollout of nubian vault constructions.

■ Training: a reinforced team for expanded action

Training of actors in the construction sector is now one of the programme's strategic priorities, involving 30% of all of AVN's human resources. During the 2016/2017 season, the structuring of a dedicated Training Team allowed AVN to supplement and improve its technical and entrepreneurial training tools and methodologies at international, national and local levels.

In keeping with this, Training Team activities this season focused first on **consolidating the team's structure**, aimed at achieving greater efficiency in its work and interventions to benefit all actors involved, both trainers and trainees; second, it focused on **co-developing new tools and methodologies that are well-adapted to on-the-ground needs** and to implementing them in "test" regions.



Training managers working on the creation of follow-up tools.

Training Team structure

The members of the Training Team – coordinators, national training managers (NTMs) and regional training managers (RTMs) – appointed at the end of last season from local AVN teams, were called upon to participate in several working sessions intended to consolidate the internal functioning of the Team. Three new recruits also came on board to strengthen the on-site teams in Mali and Senegal.

The Teams' feedback concerning last season also led to **the creation of new follow-up tools**, such as the Project-Budget Form, a planning and data-collection tool that allows for more efficient steering and capitalization, in particular in order to predict future needs and where funding for them will come from.

This collaborative work between the teams in the five countries in which AVN is active led to the efficient initiation of the Team's activities this season and to the standardization of tools and of international training processes that favoured their implementation.

Supplementary academic offers

Although on-site training is at the core of AVN's pedagogical vision, the need for a curriculum of academic offers was quickly identified as a priority for the optimum development of the sector. To that end, at the beginning of the season, the Training Team worked with its partners and with actors from the sector to develop three priority chapters:

- **The training of actors from the sector:** includes both those involved with construction and with project management, as they represent the heart of the sector.
- **The training of the sector's trainers:** chief masons with recognized technical and pedagogical skills, trainer masons guarantee that NV skills are passed on during the training process.
- **The training of development actors:** whether they are part of AVN's Training Team or one of the programme's partner operators, their support role allows for facilitated implementation of training activities.

Dedicated modules were set up for each of these chapters, some of which were able to be delivered/tested this season (see p. 17).



"Drafting of cost estimates" module.



Masons practice drafting cost estimates.



Technical Module on Specific Stage (TMSS).



Training Team and trainer masons working together on creating an adapted notation system for the training tools and methodologies.

■ Training (continued)

Co-development of training tools and methodologies

To support these new measures, particularly important work was carried out to co-develop training tools and methodologies, with the Training Team and trainer masons involved with the programme participating in joint workshops. A lot of time at the beginning of the season was spent in particular on **creating an adapted notation system** (pictograms, reference signs) in order to help the beneficiaries, most of whom are illiterate, pick up and use the different tools and materials.

The Trainee Evolution Booklet and cost estimate model forms (see inset) produced with these pictograms were tested this season and received support from users.

| C3 Base | | FIC | | | | |
|---|-------|------|---|---|-----------------|---------------------------|
| NOM / PRÉNOM : <i>p.a. kadi... pda...</i> | | | | | | |
| Compétence | Picto | Note | | | Date (jj/mm/aa) | Evaluateur (C4 ou MF) |
| | | 0 | 1 | 2 | | |
| Sélectionner la bonne terre | | | X | | <i>01/10/18</i> | <i>Toussaint François</i> |
| Contrôler la qualité du banco | | | X | | | |
| Contrôler la qualité des briques | | | X | | | |

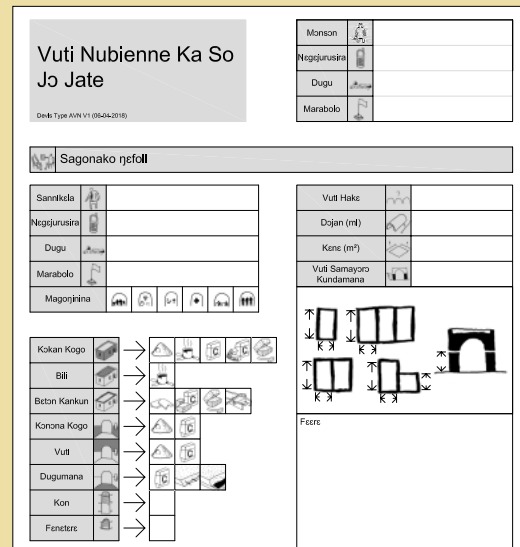
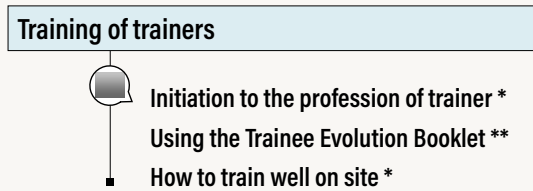
Part of a Trainee Evolution Booklet.

All of these tools are intended to nourish a body of documents to be made available to NV artisans and trainer masons. This will be updated and filled out over the coming seasons in view of the needs identified both by the Training Team and by the masons themselves, and will be made available to partner operators in the framework of disseminating the NV concept throughout the zone they are active in.

Training modules

****effective modules - *experimental modules**

 On site training -  Academic training



A "Drafting of cost estimates", translated into Bambara.

Spotlight on: The "Drafting of cost estimates" module

Amongst the needs identified by the Training Team at the start of the season, there was a lot of demand from the masons for training modules on worksite management and in particular on drafting cost estimates.

Indeed, drawing up a cost estimate does not only give the cost to the client, it also helps to precisely define the project, quantifying the necessary equipment, materials and manpower. The estimate is therefore a tool for the work itself and for the planning thereof.

A basic model cost estimate was therefore drawn up with the masons, using the co-developed pictograms, so that even those who are illiterate can use it. A version in Bambara, a widely spoken language in Mali, was also created (see photo).

A dedicated training module was offered to 13 masons throughout the season. Organized over two days, this consisted in a detailed explanation of all of the documents, then role-playing exercises during which the trainees were split into groups of three, taking turns to play the role of both masons and clients.

■ Technical Expertise

Just like with the Training Team, providing a structure for the Technical Expertise Team during the 2015/2016 season illustrated AVN's desire to strengthen its support for actors in the adapted housing sector by providing advice, assistance and reference documentation.

This season new members of staff – three international technicians and one technician working on the NV Fouta project in Senegal – were hired, which helped improve the Team's efficiency in implementing activities in the countries in which AVN is active, in particular as regards technical assistance and development.



Start of construction of the Hôtel de Département de Matam (Senegal), a project benefiting from the support of the Technical Expertise Team of AVN as part of the VN Fouta project.

Technical assistance

Although AVN offers an advanced technical corpus, the lack of technical actors trained in NV expertise means that so far, it has not been able to meet growing market demand with optimum efficiency, in particular for buildings with a specific purpose (community, public and urban buildings).

Faced with this challenge, the Expertise Team continues to offer support to the sector's essential actors by **providing assistance in project management and ownership, including the drafting of construction projects, plans and cost estimates**. This service can be:

- **one-off, especially for complex sites:** this concerned Burkina Faso and Senegal in particular this season, given the emerging community and public markets in those countries, as well as Mali, in terms of preparing large-scale construction operations;
- **continual, for particular strategic operations:** nine projects (including five carried out as part of procurement contracts) in Burkina Faso, Mali and Senegal benefitted from this continuing support;
- **aimed at pathologies, deterioration and damage,** in order to pinpoint their origin and find solutions thereto.

This support also implies the transfer of skills from technicians responsible for the projects, aiming at the Technical Expertise Team gradually detaching itself from these activities as the market becomes autonomous.

Development

The technical corpus developed by AVN expands each year with the production of tools emerging from a technical development process. This season, the following items were produced:

- **calculation tools facilitating worksite preparation** (cost estimates by NV workers, provision of materials adapted to the NV mason's metric system);
- **four technical sheets** dealing with specific issues: arches in a load-bearing wall, roofing bitumen coatings, interior stairs and small-scale NV/RC use;
- **two case studies were prepared on agricultural buildings** (chicken coops and onion storage barns);

- **blank "model" documents:** simple and formal cost estimates, specific technical specifications, computer-aided design (CAD) databases.

In addition, significant development work to update **the Mason's Manual** for 2019 was carried out with NV artisans (*see photo*).

In coming seasons, the Technical Expertise Team would like to further strengthen its team in each country, with a view to the implementation of the future IU-IT strategy.



Collaborative work updating the Mason's Manual.

2 - Our Countries

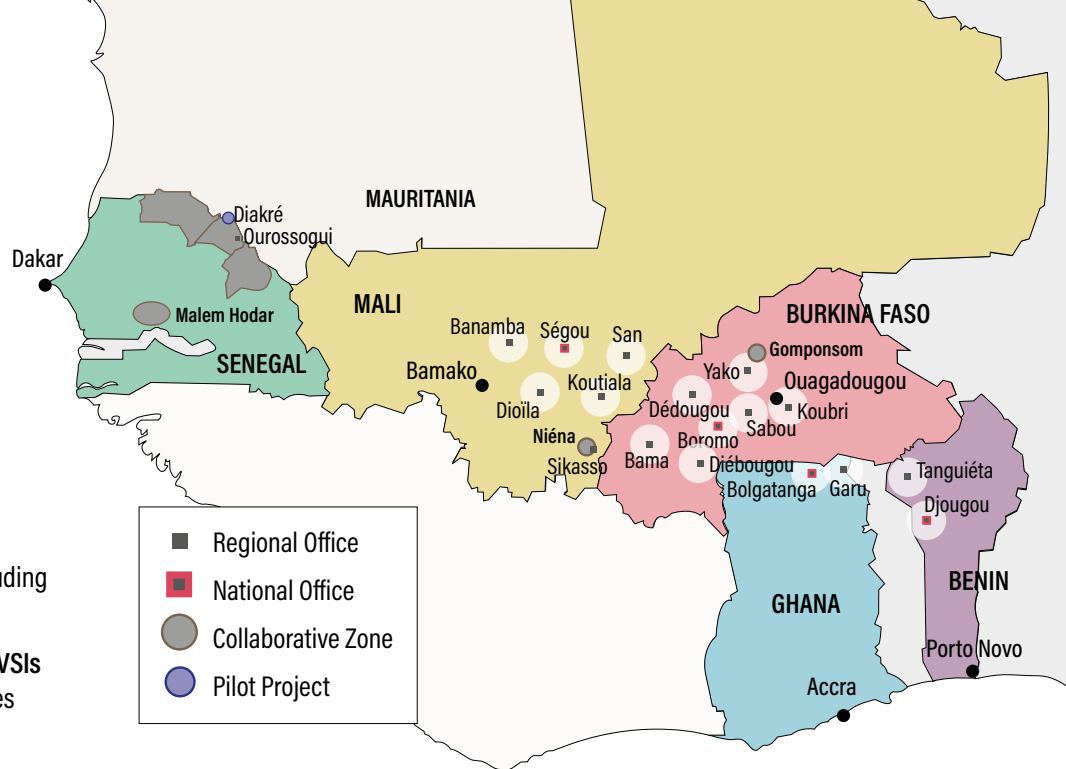


| | |
|----------------------|---------|
| Summary | ▶ p. 21 |
| Burkina Faso | ▶ p. 26 |
| Mali | ▶ p. 34 |
| Senegal | ▶ p. 42 |
| Ghana | ▶ p. 52 |
| Benin | ▶ p. 60 |
| International | ▶ p. 68 |

Summary

Season 2017-2018

- ▶ 15 regions deployed
- + 1 collaborative zone in Senegal
- ▶ Opening of the Diébougou region in Burkina Faso and of the Atacora/Tanguiéta zonal office in Benin
- ▶ 4 collaborative zones (including 2 in Senegal)
- ▶ 16 regional teams deployed, including a mixed AVN/Le Partenariat team
- ▶ 65 local employees (including 4 VSIs and expats) and about 30 employees from partner organizations



Buildings constructed

Key figures (2017-2018 season):

- 495 buildings constructed (+7%)
- 3,510 user-beneficiaries (+5%)
- 91% used for housing
- 84% of buildings constructed in rural areas
- 92% built for the core target clientele (farmers, shopkeepers and civil servants)
- 12% of buildings involved a partner organization
- 144 new sites, bringing the total number of sites with at least one NV building up to 1,118





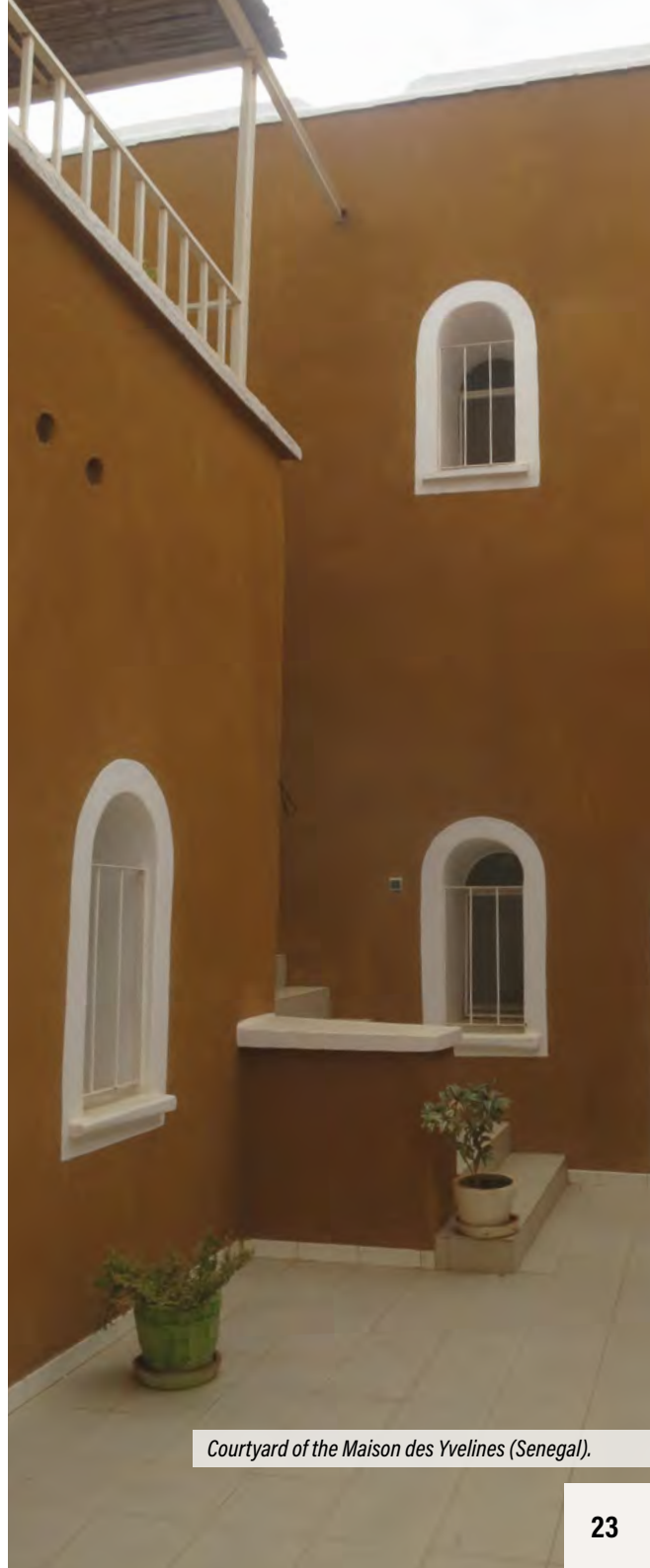
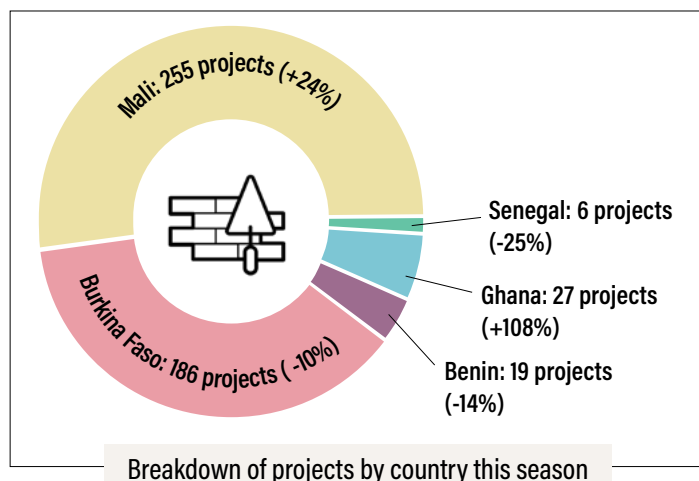
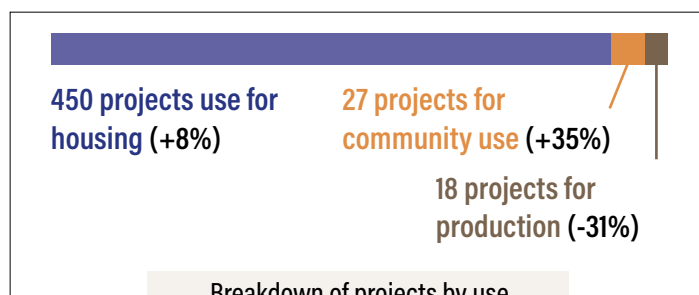
Beneficiaries of the Sheikh Zayed project in Mali financed by DCA.

■ Summary (continued)

The buildings constructed in 2017/2018 are mainly for housing purposes (91%), a share that has increased in particular due to housing projects supported by the Ministry of Quebec/Unisféra in Burkina Faso and by the Dubai Charity Association in Mali.

Community projects have increased considerably with a 35% rise in the number of buildings completed compared to last season, including six for health facilities and four for educational facilities: this is an asset for the rollout of NVs, with the good performance of the buildings encouraging clients to replicate them elsewhere.

Although the share of worksites for productive purposes is down this season, AVN strengthened its awareness raising vis-à-vis farmers' groups. Coming seasons should see the emergence of new projects that benefit the farming and livestock sector.



Courtyard of the Maison des Yvelines (Senegal).



Senegalese masons working on a construction site.

■ Summary (continued)

Establishment of supply

The active NV workforce rose by 14% this season with a total of 841 apprentices, masons and artisans, an increase that is most noticeable in Ghana, where the local workforce doubled.

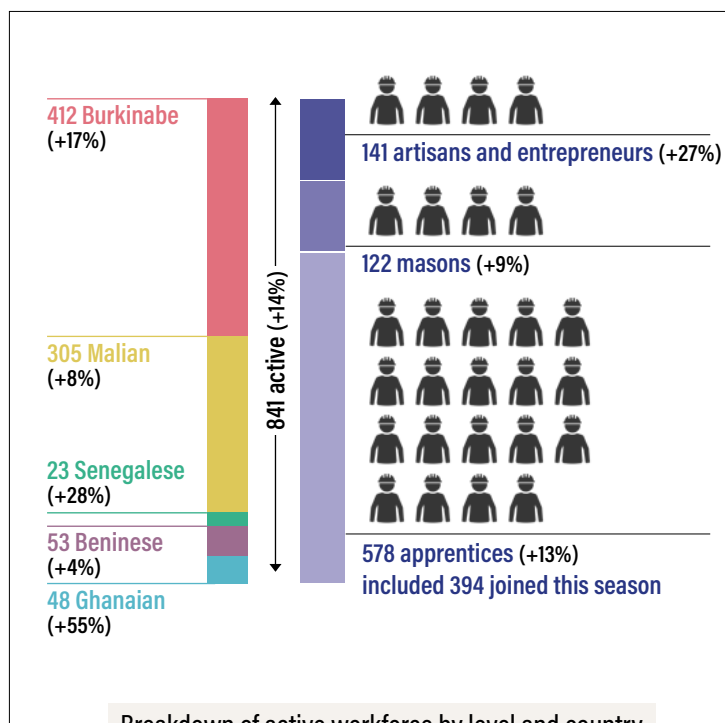
310 training modules were carried out in the five countries of action, most of which were through mason training promotions and academies.

82 trainer masons and potential trainer masons were mobilized on worksites this season. Their participation in the co-development of support training tools was key to the evolution of training activities this season.

The continuation of support and business activities for NV artisans, aimed at the development and empowerment of local markets, is beginning to bear fruit. In Burkina Faso, 40 projects (21%) were found directly by the masons.

Qualifications awarded at the end of the season are on the rise, illustrating trainees' motivation to develop their NV masonry skills and guaranteeing good prospects for market growth.

- The skill level of masons has grown, thanks to the training efforts undertaken specifically for masons.
- The number of apprentices continues to grow, with the NV mason profession attracting more and more young people in rural areas.



Breakdown of active workforce by level and country



Level qualification



Burkina Faso

POPULATION

19,2 million inhabitants
(68% rural)

GDP PER CAPITA

\$ 649 - 29th African Rank
(World Bank 2016)

CLIMATE

Sudano-Sahelian

OPENING OF AVN PROGRAMME

in 2000

HUMAN RESOURCES

28 local employees

DEPLOYMENT

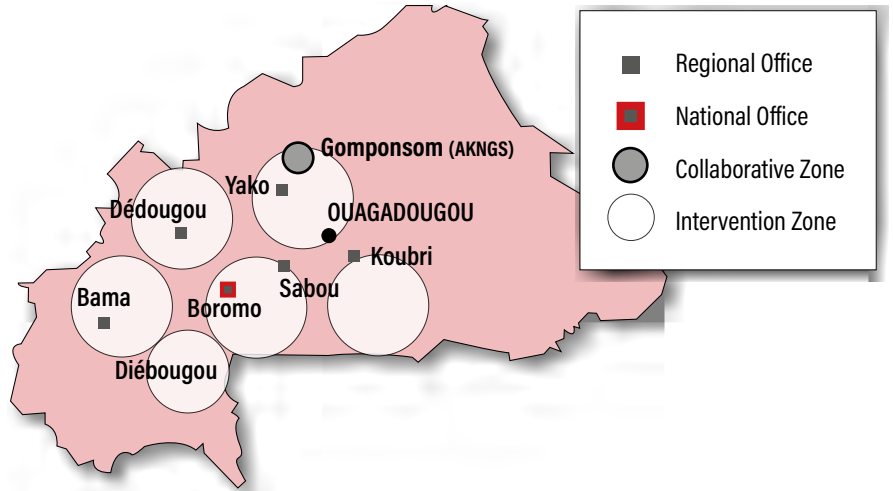
1 national office and
5 regional offices

BUILDINGS CONSTRUCTED

1,596 projects since 2000

LOCAL PARTNERS

AKNGS, FNGN, Unions Naam,
UBTEC, APFI-B, AGAPAN-B,
Vim Baoré, FDC



Key Data

1st technical tests
to standardize
the NV concept

2000

Start of the programme
awareness, training of
masons, constructions

1st AVN
local team
in Boromo

2007

Regional duplication
in Koubri, Dédougou,
Yako and Bama

2011

Pilot projects of NV
housing microcredit
with 2 MFIs

2013

1st collaborative
partnerships with
farmers' organization

2018

Summary

With **186 worksites built representing 4,926 m²**, there was a decline in the market (-10%), largely because of a slow start to the season due to unfavourable weather conditions and to teams focusing on drafting strategies.

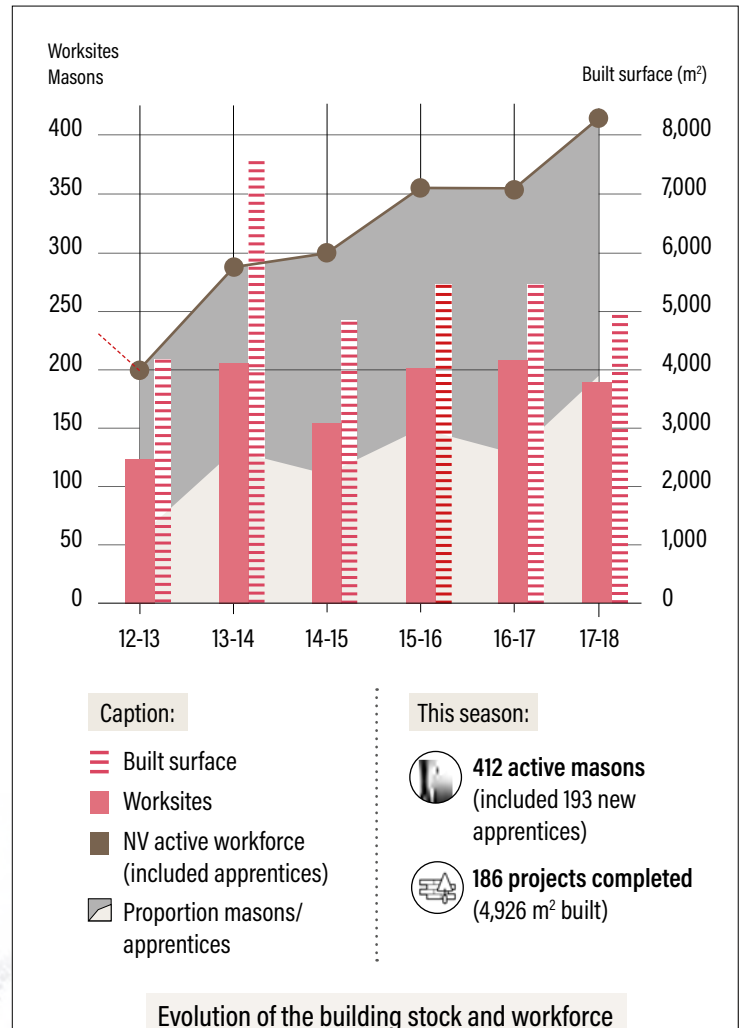
62% of projects benefitted from financial incentives, and 163 trainees benefitted from NV training on 94 promotional sites.

88% of clients are farmers who opt for rural housing. **12 community buildings were built (+33%)**, thanks to the strengthening of targeted awareness-raising activities.

21% of projects were found directly by the masons, without help from the AVN teams. This rise testifies to the stronger marketing capacity of the NV offer and therefore to the market's growing autonomy.

412 apprentices, masons and artisans were active, with a rise in the number of artisans and entrepreneurs (+28%) and a huge jump in the number of new apprentices (+50%), boosted by the PISCCA project.

41 potential trainer masons chosen for their pedagogical skills were trained on how to use the trainee supervision tools.



Evolution of the building stock and workforce per season in Burkina Faso since 2012-2013





Burkina Faso

A Roof

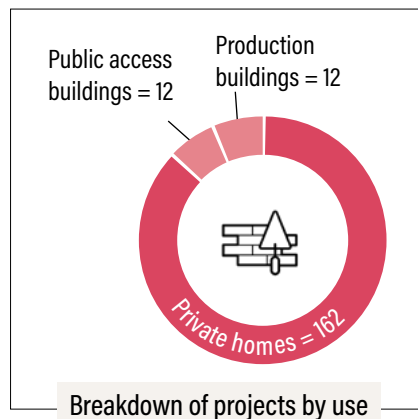
The low rainfall in Burkina Faso this season had a strong impact on production, in particular in rural zones, affecting 67% of the pilot communes.

186 worksites were completed (-10%) in 72 communes. There was a significant increase in the Yako region (+70%), thanks to the success of the PISCCA training project financed by the French Embassy that has been in effect since January 2017.

The number of community buildings is growing (+15%): this is due to more targeted awareness raising. Two cultural buildings were built by institutional actors (the Mayor's offices of Kourouma and Biéha).

118 awareness-raising missions were carried out for more than 13,000 people, with support from the NAAM Unions under the AVN/FNGN partnership.

62% of the market received incentives (45 worksites), which is 2% less than the previous season (the incentive amount being too low, clients having trouble gathering the materials, clients concentrating on harvests).



This season the NV Housing Loan experienced enormous difficulties in the two pilot regions, mainly due to lack of awareness raising: **only 3 worksites were carried out with such a loan** compared to 15 last year.

Strong growth in the semi-autonomous (+85%) and autonomous (+39%) markets demonstrate the strengthened marketing carried out by NV artisans and entrepreneurs and their desire to manage their own affairs.

■ The Nubian Vault for the improvement of poultry farming

In Burkina Faso, poultry farming is common practice, especially in rural areas. It contributes to the reinforcement of local economies, increased food security (production of meat and eggs, a revenue generating activity).

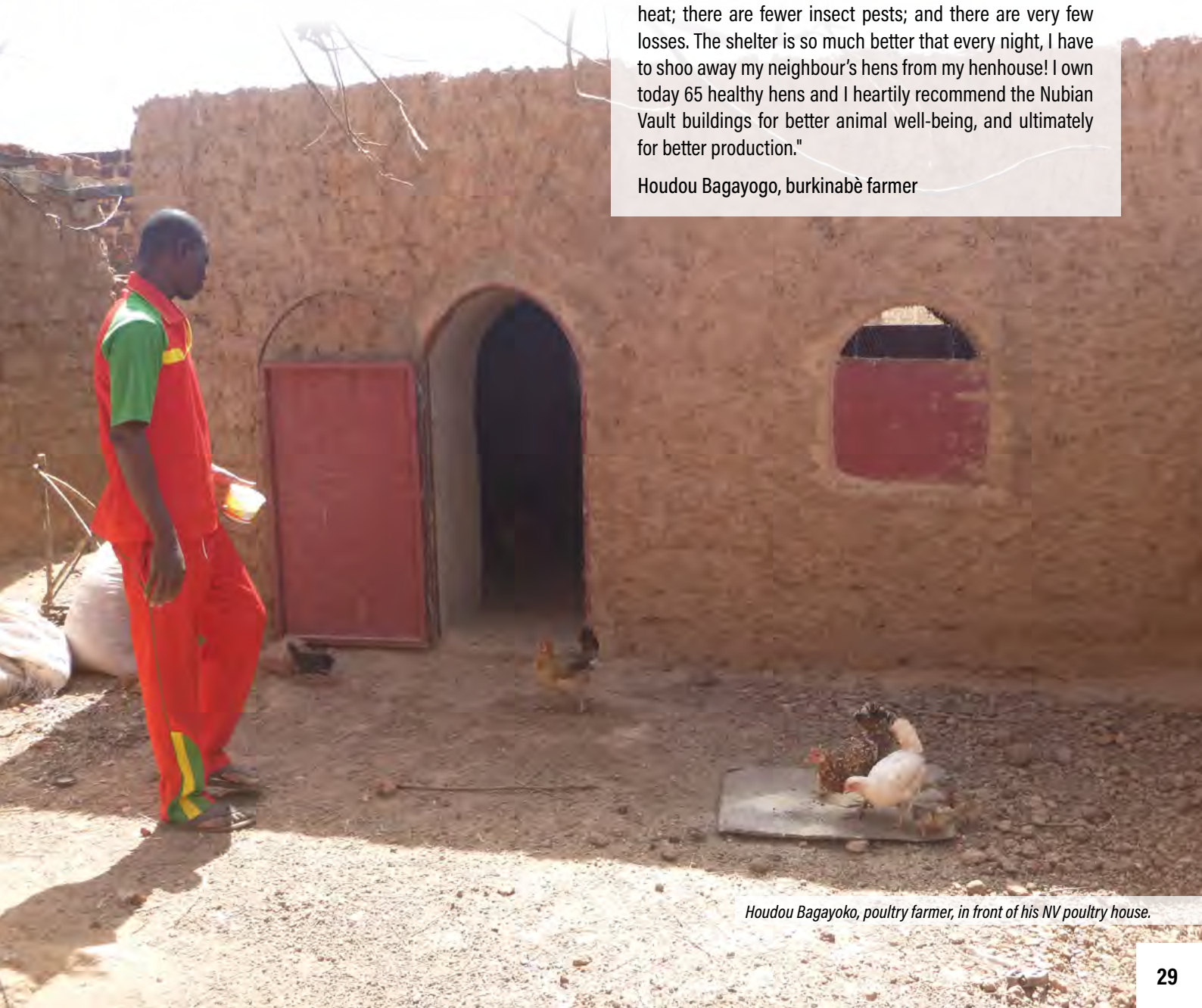
Welt Hunger Hilfe Burkina Faso (WHH-BF), in partnership with the association Project Ecology and Reforestation (PER) and AVN, initiated a pilot Nubian Vault poultry construction activity in the commune of Kongoussi from January to April 2018. This action aimed to support poultry farmers in the province of Bam (northern central region) in order to improve farming conditions in an effort to adapt against climate change.

This activity inscribes itself within the project: "Changing agricultural practices to prepare against strong rainfall and rising temperatures". Its objective was to test Nubian Vault technology in order to prepare for its expansion on a larger scale.

The 4 beneficiary poultry farmers (2 of which are women) all contributed to the realization of this pilot project with the providing of materials and preparation of bricks. Later, AVN helped by employing 6 NV builders to insure construction. **During this first phase, 4 VN henhouses of 14 m² were constructed.** In continuity of the project, other similar constructions are planned for the next season. ■

"Before now, my henhouse was made of sheet metal. On the inside, the heat was very unpleasant to my 35 hens, and half of the eggs ended up rotting. Now that I have a Nubian Vault building, my hens enjoy comfortable shelter. There is less heat; there are fewer insect pests; and there are very few losses. The shelter is so much better that every night, I have to shoo away my neighbour's hens from my henhouse! I own today 65 healthy hens and I heartily recommend the Nubian Vault buildings for better animal well-being, and ultimately for better production."

Houdou Bagayogo, burkinabè farmer



Houdou Bagayoko, poultry farmer, in front of his NV poultry house.



Burkina Faso

A Skill

The start of the season saw a lot of work done to improve methodologies and training monitoring tools, thus helping to strengthen the abilities of trainer masons (TMs) and the Training Team's regional frameworks.

412 members of the workforce were available this season (+17%), with good mobilization of new apprentices (+50%), boosted by the PISCCA project in the Yako region, as well as of artisans and entrepreneurs (+28%).

171 trainees benefitted from training incentives at 95 promotion sites, which fell short of the objective, in particular for the Cement Mason Promotion (lack of trainee motivation, poor harvest season, low rainfall).

The involvement of trainer masons (TMs) continues to rise: **25 TMs and potential TMs were involved in training trainees.** 9 Technical Modules on Specific Stages (TMSS) were held at 12 different worksites. The business skills of 92 trainees were strengthened via 8 "worksite management" training modules.

The rate of those who were awarded qualifications at the end of the season rose by 31%, illustrating the efforts surrounding this core part of the programme.





■ Trainer masons: a future-looking job

Trained in the technique in 2004, David Loué Koulou is now a Nubian Vault entrepreneur and trainer mason, having built more than 60 Nubian Vaults and having trained many apprentices. This season, he received support from AVN's Training Team on how to use the new monitoring tools. He explains the advantages thereof:

The trainer's role

"As a trainer, I am and always have been "the oldtimer" to the young people on my team, so I try to get close to them to better understand them and to better train them. I've always used the Mason's Manual to explain the technique using images. Those who have been to school can read, and I explain things to them. On-site, if a mason has trouble with a certain job, I observe what he's doing and correct his positioning. The way we use the tools and how they're applied to the work is essential. I pay close attention!

The time spent on training is very important, and I take the time to do it properly. Once I even convinced the team to work with a Swiss engineer for free to learn new techniques. On my own worksites, I always let the client know that I'm going to take extra time for training. Some of them have even paid for members of their family to be trained!

I also try to reproduce as best I can the pedagogical advice given during the annual Masons' Congresses. I always say that if I train a

lot of people well, I could get work for a lot of masons. Thus far, at least 12 of my trainees have become artisans, and I'm very proud of them."

Evolutions in training methods

"The creation of the Trainee Evolution Booklet is an opportunity for training: apprentices know where they are in their journey and that pushes them to develop their capabilities. For example, Wembié [editor's note: one of David's apprentices] knows the difference between the operations for which he is already proficient and those for which he still needs to acquire or strengthen his skills. He is therefore better able to identify his needs.

At one point, I had three worksites to manage at the same time and my teams had to occasionally quit working to go back to placer mining. I then had to train new masons to rebuild my team and to meet demand, but it was difficult to do so quickly. Now, with the new training methods, I know that I could do that in an efficient way, which is encouraging." ■



Burkina Faso

A Market

The development of partnerships remains one of the essential activities for the large-scale deployment of the programme in Burkina Faso.

The involvement of civil society actors continues to grow: partners already involved with AVN (AKNGS, FNGN, the NAAM Unions) are investing in their functions and actively participate in the awareness-raising campaigns. Other organizations have also shown interest in bringing the programme to the areas they work in, in particular the Foundation for Community Development (FDC) in the Koubri region and the Provincial Association of Nong-Taaba Craftsmen and Guilds from the Boulgou Province

(APAGAN-B). They would then become potential partner operators under the framework of the future IU-IT strategy.

As regards political bodies, the projects proposed to the ministries have not led to anything thus far. The interest of mayors' offices and of regions, on the other hand, is on the rise, in particular following the specific action plans proposed by AVN teams. Indeed, a partnership was finalized in March with the Mayor's Office of Ouagadougou (see below), and two cultural buildings were constructed by the Mayors' Offices of Kourouma and Biéha.

■ The Mayor of Ouagadougou to be involved in deployment of the NV

At the end of March, the Mayor of Ouagadougou and AVN, signed a partnership agreement which aims to accelerate the the diffusion of adapted construction techniques in Burkina Faso, and in particular in the conurbation of Ouagadougou.

This partnership comes under the aegis of the *Politique Nationale de l'Habitat et du Développement Urbain* (PNH DU), linked to the *Plan National de Développement Économique et Social du Gouvernement* (PNDES). These political orientations imply a choice of ecologically responsible techniques adapted to local populations and economies, such as the NV, for the construction of public and community buildings.

There are plans to construct some demonstration buildings and help support the training of technical staff from the construction sector.

This three-year partnership will:

- promote the inclusion of adaptation of the construction sector in the development plans for Ouagadougou;
- respond appropriately to the construction needs of the conurbation;



- help train and accompany technical staff of the municipality in charge of the sector, as well as artisans, construction firms, and other relevant actors;
- help preserve and highlight the country's architectural heritage;
- involve advocacy and awareness raising activities for political decision-makers, development operators, and international cooperation partners. ■

The government of Quebec is also working on the climate resilience of populations in Burkina Faso

This season, the government of Quebec allocated financial aid of \$900,000 CAD to Unisféra, a Montreal-based organization, as part of its International Climate Cooperation Program (PCCI), to help fund AVN's programme in Burkina Faso. This cooperation project is intended to run for four years (2017-2020) and is a perfect opportunity to develop the Nubian Vault concept in the region.

Amongst other things, it provides for the construction of more than 900 buildings, including 50 community buildings, benefitting more than 5,000 people and allowing for savings of nearly 20,000 tonnes of greenhouse gases and for the vocational training/employability of 600 NV apprentices and masons.

In this framework, Unisféra is also supporting AVN on project management (planning, monitoring/evaluation, relations with the donor) and on the processes that focuses on CO2 savings generated by the programme. Finally, this collaboration also implies the mobilization of international actors in developing the Nubian Vault programme. ■

For more information, see www.environnement.gouv.qc.ca/programmes/coop-climatique-internationale.



Financé par





Mali

POPULATION

18,5 million inhabitant
(58% rural)

GDP PER CAPITA

\$ 780 - 24th African Rank
(World Bank 2016)

CLIMATE

Sudano-Sahelian

OPENING OF AVN PROGRAMME

in 2009

HUMAN RESOURCES

21 local employees

DEPLOYMENT

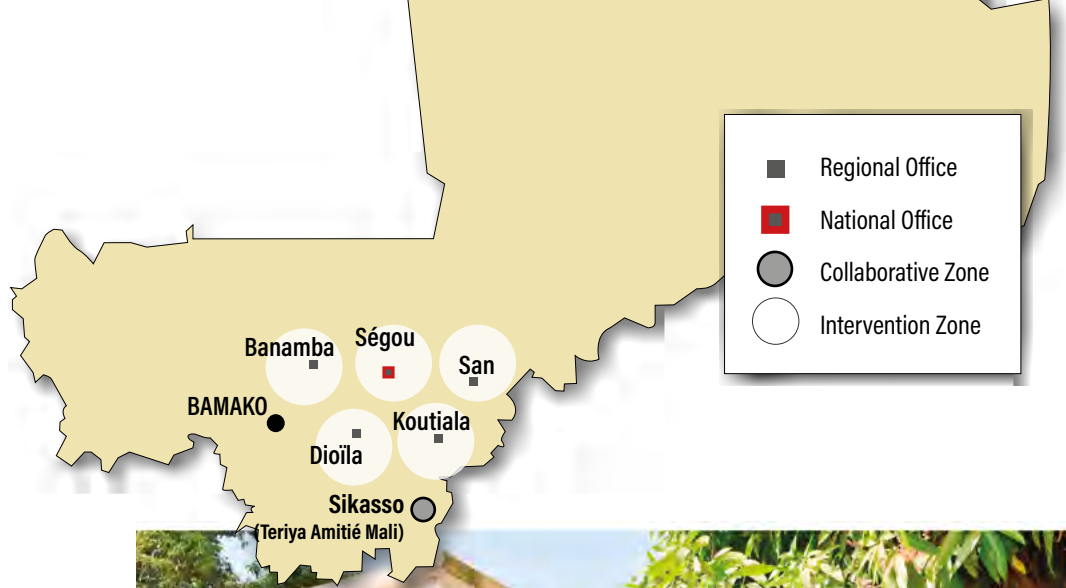
1 national office
5 regional offices

BUILDINGS CONSTRUCTED

1,072 projects since 2007

LOCAL PARTNERS

AOPP/UACT, Teriya Amitié Mali,
Mairie de Keme-Kafo, Miniankala-
Kafo, CFP de Tominian, SOS Faim



The AVN team from Koutiala in front of their office.

Key Data

Construction of the 1st community buildings in partnership with local and international NGOs

2006

1^{re} AVN local team and opening of Ségou region

2009

Regional duplications in Koutiala and Dioïla

2013

Regional duplications in San and Banamba

2015

Partnership with a national entity (AEDD/PGRNCC project)

2018

Summary

With 255 worksites completed for a total of 6,082 m², the market continues to grow (+24%), largely due to the construction programmes implemented in three regions.

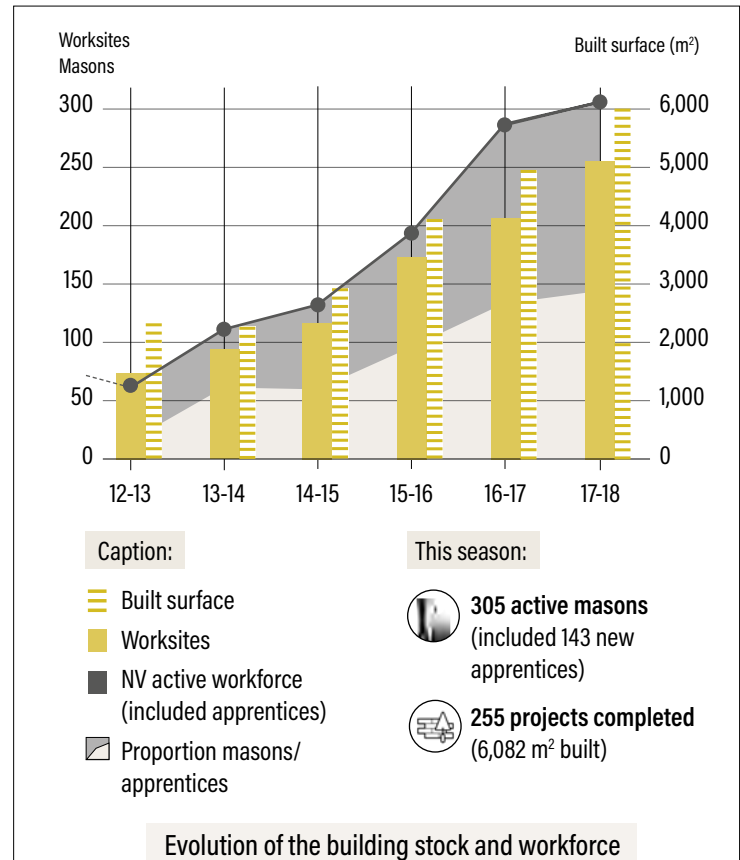
More than 95% of worksites benefitted from financial incentives. 133 trainees benefitted from NV training on 94 promotional sites.

94% of clients are farmers who opt for rural housing. Nine community buildings were built, including three for productive use.

27% of projects were found directly by the masons, without help from AVN teams, bearing witness to the empowerment of the market.

305 apprentices, masons and artisans were active, including 56 artisans and entrepreneurs (+12%). The number of new apprentices is stagnant.

27 trainer masons and potential trainer masons gave on-site training sessions this season.



Evolution of the building stock and workforce per season in Mali since 2012-2013



Construction of a double NV classroom for Niéna kindergarten.



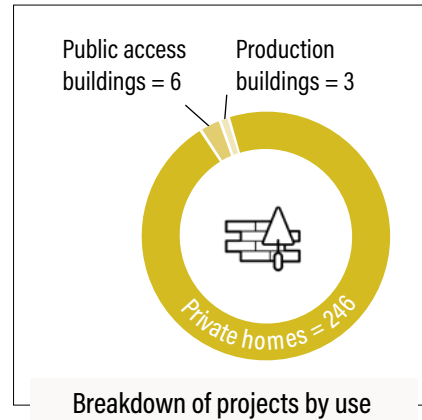
Mali

A Roof

Production in Mali grew by 24% this season, with much of that growth in the regions of Dioïla, Banamba and San, zones where the programme specifically focused on access to housing financed by the Dubai Charity Association is being implemented.

255 worksites were completed. Amongst them, there were nine community buildings (+50%), including two classrooms of 39 m² built by the Teriya Amitié Mali association in Niéna and the Séguekuy association in Bénéna, as well as an 80 m² dispensary built by the Tapama association. The construction of a Productive Energy Centre at Koury, a project led by GERES, is also worth noting (*see below*). This increase in demand for community buildings demonstrates that the NV concept is generating a growing interest in such a use in Mali.

The financial incentives proposed are persuasive: 95% of the market receives an incentive, most of which falls under the General Public Incentive (PIGP) and the Cement Mason Promotion (CMP), which allows beneficiaries to build their own home.



The NGO SOS Faim is working with AVN on several awareness-raising campaigns vis-à-vis farmers' groups and national NGOs, which is the first step in completing the planned projects (construction of a barn, training).

The opening of the Sikasso region, which was supposed to occur at the start of the season, is still pending.

A new NV economic centre in Mali

Two years after the Electrified Activity Area opened in Konséguéla, Mali, a new Nubian vault project led by GERES is now being carried out in the commune of Koury: a Productive Energy Centre (PEC). This will allow about 15 rural companies to carry out their work and to boost local trade, which will, amongst other things, benefit the 54,000 inhabitants of the commune (which covers 16 villages).

Managed by the commune of Koury's Association of Artisans and Workers, the PEC will be supplied by electricity coming both from a local network and from a 100% renewable plant (solar

energy and plant-based fuels). This hybrid system will guarantee the autonomy of the artisans in the event of network problems.

The decision to use the NV technique to build this centre makes sense because it will allow artisans to work in optimal conditions given climate constraints, it will boost the impact the project has in terms of energy (reduced CO₂ emissions, local materials) and finally, it will allow local young people to be trained and employed in the field of NV masonry. ■

For more information, see www.geres.eu/fr/



An artisan working in Konséguéla's Electrified Activity Area.



Masons on a construction site in Mali.



Mali

A Skill

305 members of the workforce (+8%) were active this season, including a growing proportion of qualified masons and chief masons (+16%). Productivity remains stable with an average of 100 m² built per mason during the season.

The cement masons were particularly active this season: 51 people were trained on 34 worksites under the Improved Cement Mason Promotion, with 60% passing their qualifications at the end of the season.

The implementation of new support methodologies for training led to **strengthened skills for 15 trainer masons (TMs) / potential trainer masons (PTMs) and for 6 training managers**, as well as to the monitoring of 136 trainees (48% of all those working) using the Trainee Evolution Booklet.

In addition to the technical training modules, **two initiation to business modules were provided to 24 artisans and entrepreneurs**; this included training on how to establish a cost estimate, in particular.



Training workshop on the use of the Trainee Evolution Booklet.



Mali

A Market

Advocacy vis-à-vis local and state authorities continues in Mali, as illustrated by significant progress, in particular with those partners that come from civil society.

SOS Faim Belgique worked with AVN on raising awareness with several farmers' groups and national NGOs that have projects that are just starting:

- the Dièbouougou Union of Cereal Producer Cooperatives (USPCPD) in the Dioila region;
- the NGO Yèrèyeton de Baraouéli in the Ségou region;
- the Advice and Support for Basic Education group (CAEB) in the Nioro, Kolokani and Nara zones.

The Association Kounda 78 approved a three-year development project which will in particular involve building a school in Kayes. AVN also signed a **partnership agreement with the Vocational Training Centre in Tominian** (*see below*).

At the institutional level, **the Malian Office for Housing and the Office du Niger** approved a construction project for 10 NV social housing units in the Bèwani zone (in the Ségou region), and **the Agency for Environment and Sustainable Development (AEDD)** has confirmed a project to build 10 administrative buildings in the three PGRNCC cercles (Nioro, Nara and Banamba), which will benefit local populations.

■ A "Nubian Vault" curriculum at the *Centre de Formation Professionnelle* of Tominian

Fousseny Dangnoko, Director of the Centre de Formation Professionnelle of Tominian (San region) and Thomas Granier, co-founder and CEO of AVN signed a partnership agreement in February for the development of a pilot training module in the Nubian Vault technique.

This new option for NV artisan masons, including technical and entrepreneurial training both on-site and in the Centre, is a sign of significant progress in the development of the NV sector in Mali and, in the adaptation of the broader construction sector to the social and environmental challenges of the Sahel.

Since its opening in 2014, the CFP of Tominian offers many training modules in ten professional sectors: a real asset for young people hoping to get training in the region and gain durable and suitable employment. During its inauguration, the President of Mali Ibrahim Boubacar Keita had underlined the importance for these centres "*in promoting courses and qualifications leading to jobs for young local people (...) a daily concern in Mali*".

The inclusion of a "Nubian Vault" option in this formal curriculum will offer:

- **an adapted construction solution** benefiting the local population and economy;
- **access to jobs** with a promising future for local youth without the need for prior qualifications;
- **the growth of agricultural economies** through the increase in out-of-season job opportunities;
- **the accompaniment of construction professionals** in the changes needed in their practice with regard to development and climate challenges;
- **the recognition of the importance of the trainer mason's role**, essential for the endogenous development of the NV skill base;

... and will thus respond to the expectations of the Government and local populations concerning questions of rural development. ■

The Dubai Charity Association (DCA) has committed to a major adapted housing project in Mali.



After financing the construction of the first entire village of NV houses at Diakré (Mauritania) between 2016 and 2017, the Dubai Charity Association has this season renewed its commitment to adapted housing for the greatest number of people.

The Sheikh Zayed Village project, started in September 2017, has involved the construction of 133 NV houses, benefiting 657 people in 80 villages in southern Mali.

203 local NV apprentices and masons have benefited from training on the totality of the construction sites, stimulating the potential NV offer in the regions concerned.

The DCA has also agreed to continue the project next season, with plans for the construction of 121 new houses, with many impacts throughout the country. ■

More details at www.dubaicharity.ae



Senegal

POPULATION

15,4 million inhabitant
(55% rural)

GDP PER CAPITA

\$ 958 - 23th African Rank
(World Bank 2016)

CLIMATE

Sahelian

OPENING OF AVN PROGRAMME

in 2010

HUMAN RESOURCES

2 local employees et 1 VSI
for the NV Fouta project

DEPLOYMENT

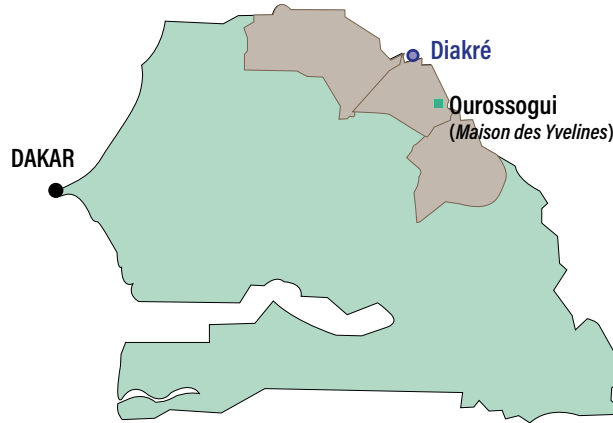
1 partnership office AVN/LP

BUILDINGS CONSTRUCTED

143 projects since 2010

LOCAL PARTNERS

Le Partenariat, Malem Auder



VN mill in Boulel, a project by Malem Auder.

Key Data

Construction
of the 1st buildings
in the Matam region

2007

Opening of northern
regions with the NGO
Le Partenariat

2011

1st AVN local team
and opening of
Thiès region

2013

Focus on kickstarting
the public and
community markets

2015

Collaborative
partnerships
with CSOs

Start of the NV
Fouta Project with the
NGO *Le Partenariat*

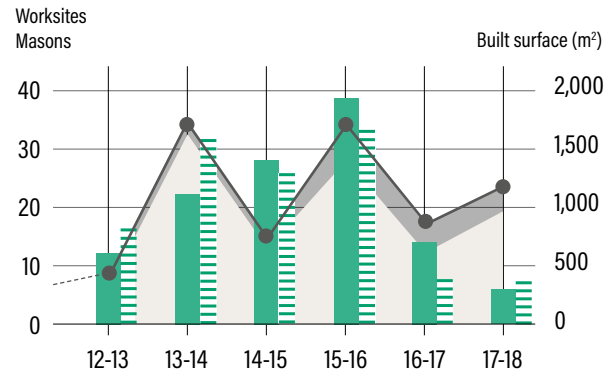
2018

Summary

AVN's activities in Senegal are now largely focused on public and community kickstarting, such as with the NV Fouta project implemented in northern Senegal with the NGO Le Partenariat (see next page).

This strategic choice has been considerably bolstered by the growing interest of Senegalese institutional actors to opt for the NV technique for their community construction needs, thus providing the NV market with added visibility (model buildings) and recognition (political integration).

Through the NV Fouta project, the training of local workers is increasing, and the interest of technical actors in being trained to work on NV projects bodes well for a proliferation of projects in the coming seasons.



Caption:

- Built surface
- Worksites
- NV active workforce (included apprentices)
- Proportion masons/ apprentices

This season:

- 23 active masons** (included 19 new apprentices)
- 6 project completed** (376 m² built)

Evolution of the building stock and workforce per season in Senegal since 2012-2013





Senegal



NV Fouta Project

The first implementation year of the NV Fouta project in Senegal saw four worksites completed: a nurse's accommodation, two health clinics and the first phase of the Department of Matam's administrative offices. Each received support from the joint AVN/Le Partenariat team for issues of awareness raising, training, assistance and support for the various actors involved.

■ Implemented activities

Technical on-site training

Trainees received Full Building Site Training (FBST) on each worksite from a trainer mason and with logistic support from the NV Fouta project team. The pedagogical approach taken consisted in having the trainees work in specific positions chosen based on their needs (identified ahead of time by the trainer mason), with their progress monitored via a personalized assessment of their skills. During this process, the on-site work is generally extended by 15%, with the extra time dedicated to training.

In addition, **at one worksite four brickmakers benefitted from the Technical Module on Specific Stages (TMSS) training.**

Academic training

To supplement the technical on-site training, **three academic modules were offered, including two technical ones** – How to read the NV Mason's Manual and How to read it in depth – and one business one on drafting cost estimates.

Entrepreneurial support

As part of the project to build the Department of Matam's administrative offices – the first NV project subject to the Senegalese public procurement code – **the NV Fouta team and**



The NV Fouta project team followed up on a construction site.

architect Mathieu Hardy (Al Mizan) offered workshops to help establish a, a necessary tool to drawing up the technical and financial proposal required by this procedure. These workshops concerned in particular how to read and draft complex plans as well as the mathematical essentials.

The Matam Departmental Council also received support in drafting the call for tenders for the project.

Technical assistance

The NV Fouta team supported a technician from the Department of Matam in terms of monitoring and checking on the various worksites (identification of points of particular caution, theoretical reminders of the stages of construction, etc.).

Awareness raising

In addition to its support and training activities, **the NV Fouta team also increased its awareness-raising activities vis-à-vis clients**, on the one hand, encouraging them to guide their investments to adapted NV buildings, **and sector actors**, on the other hand, encouraging them to offer this technique.

Completed projects

Mboloyel health case

Surface: 83,5 m²

Location: Mboloyel, Municipality of Bokidiawé, Department of Matam

Client: Local Association Kawral Mboloyel

Project Manager: Habitat Moderne (execution), Departmental Council of Matam (monitoring and control)

Project completed between December 2017 and March 2018

Full Building Site Training (FBST) for 9 trainees included 7 Senegalese
Support of a technician





Senegal

Completed projects (continued)

Polel Diaobé Maternity

Surface: 90 m²

Location: Polel Diaobé,
Department of Kanel

Client: Polel Diaobé Health
Committee

Project Manager: Borom Darou
(execution), Departmental Council
of Kanel (monitoring and control)

Project completed between
February and July 2018

Full Building Site Training (FBST)
for 7 trainees included 6 Senegalese

Support of a technician and of a
local enterprise



Department of Matam's administrative offices (Phase 1)



Surface: 391 m²

Location: Matam, Department of Matam

Client: Departmental Council of Matam

Project Manager: Habitat Moderne/RichMan (execution), Al Mizan (conception) and Departmental Council of Matam (monitoring and control)

Project started in January 2018



Full Building Site Training

(FBST) of 28 trainees

included 11 Senegalese, and 4 bricklayers in specific module

Support of a technician and of a local enterprise



Senegal

Completed projects (continued)

Mboloyel Staff housing

Surface: 49 m²

Location: Mboloyel, Municipality of Bokidiawé, Department of Matam

Client: Local Association Kawral Mboloyel

Project Manager: Habitat Moderne (execution), Departmental Council of Matam (monitoring and control)

Project completed between April and July 2018

Full Building Site Training (FBST) for 9 trainees included 7 Senegalese
Support of a technician





Results of the season

4 projects completed

266 m² built

3 local enterprises involved

31 apprentices and masons active

4 artisans and entrepreneurs active

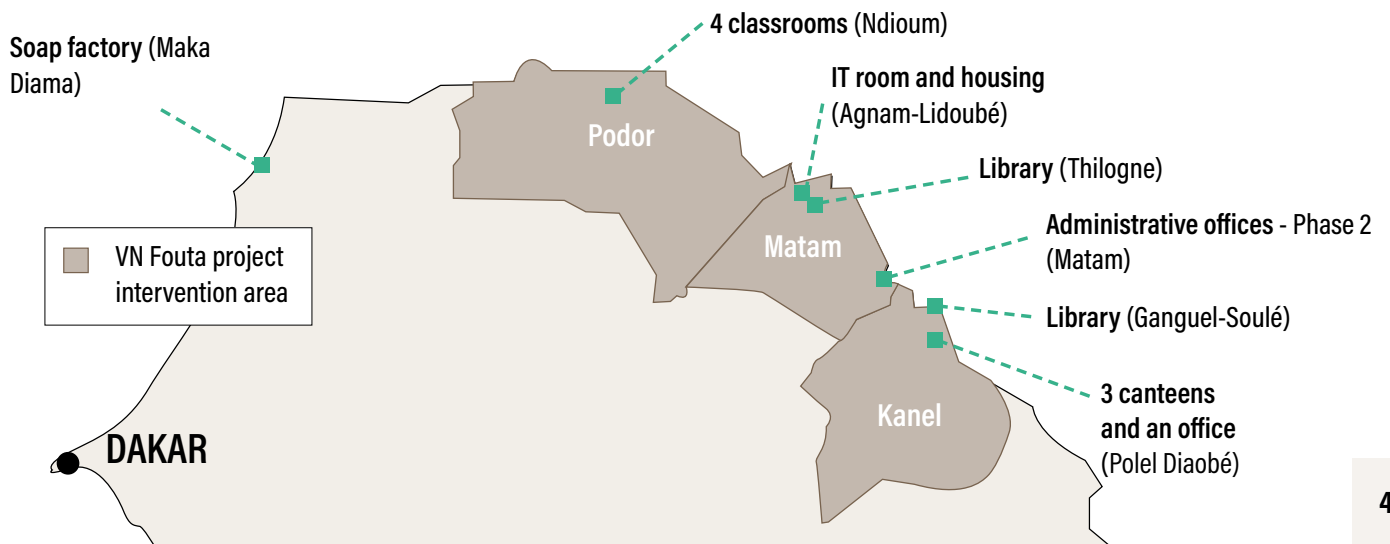
37 clients, 14 enterprises and

6 project managers sensitized



Prospects

Several new projects are planned as part of the NV Fouta project for the next seasons, for multiple impacts:





The NV *Maison des Yvelines* winner of the low-carbon Green Solutions Award

Last November, during the COP23 meeting in Bonn, AVN received the low-carbon building prize from the Green Solutions Awards / Construction21, for the *Maison des Yvelines* project in Ourosogui, northern Senegal.

Financed by the French *Département des Yvelines*, this exemplary building of 370 m² was constructed by a local NV enterprise - Richard Somda's firm *Habitat Moderne* - and overseen by the NGO *Le Partenariat* and AVN, with the support of local technical partners and the architect Mathieu Hardy (*Al Mizan architecture*).

150 participants from 19 countries submitted innovative eco-responsible architectural solutions for this international competition, solutions which had to integrate human beings as a central factor ensuring durability.

The *Maison des Yvelines*, as do all NV buildings, fits these criteria very well. In addition, the low-carbon performance of NV buildings extends well beyond the passive and thermal comfort properties of their architecture. In effect, the overall construction process relies on simple techniques with little or no mechanisation, and the use of locally sourced raw materials with a very low carbon footprint. For example, 342 tonnes of CO₂ were economised for this project, and 19 NV masons were trained on the construction site.

The *Maison des Yvelines* has soon become a reference point in the region, for both the local population and institutional actors. The President of Senegal, Macky Sall, who visited the building in March, praised its architectural qualities.

The President of the Conseil Départemental de Matam, Amadou Djibril Diallo, expressed his intention to encourage and accentuate all modern construction techniques and to build the future administrative offices of the Department of Matam using the NV technique. This new project is now in construction. Its execution, accompanied by the NV Fouta team, is yet another example of the progressive integration of the NV concept into local public policies. ■





Ghana

POPULATION

28,8 million inhabitant
(44% rural)

GDP PER CAPITA

\$ 1 513 - 20th African Rank
(World Bank 2016)

CLIMATE

Sudano-Sahelian

OPENING OF AVN PROGRAMME

in 2014

HUMAN RESOURCES

5 local employees et 1 VSI

DEPLOYMENT

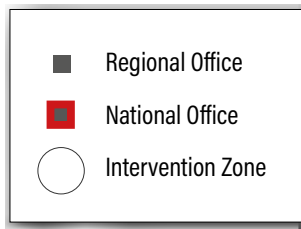
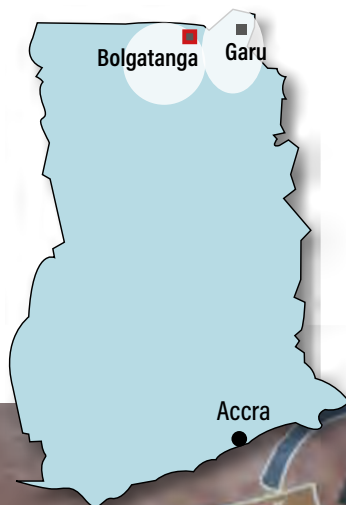
1 national office and
1 regional office

BUILDINGS CONSTRUCTED

54 projects since 2014

LOCAL PARTNERS

Youth Harvest Fondation,
Peal Deng, Widows and
Orphans



Part of the AVN team with Ghanaian VN masons in front of the Bolgatanga office.

Key Data

Exploratory missions
and recruitment of a
national coordinator (VSI)

2012

1^{ère} AVN local team
and opening of the
Bolgatanga region

2014

1st private and
institutional projects
and local partnerships

2016

1st local masons
and apprentices
trained

Regional
duplication
in Garu

Construction
of the first NV
health building

2018

Summary

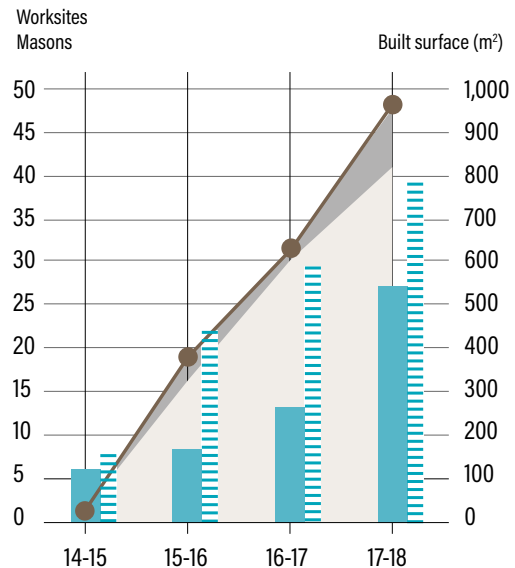
The fourth season of AVN's deployment in Ghana saw exponential market growth, with kickstarting efforts around the town of Bolgatanga and in the Garu region.

The number of buildings constructed doubled, expanding by **27 buildings (795 m²)** this season, including **the first NV built in the country** for use as a health facility; this was carried out in partnership with a local NGO.





The Ghanaian market refocused on a more rural market, which was largely brought about by the opening of the Garu region last season.

The active workforce consists of **48 apprentices and masons, including 30 new apprentices**, most of whom are motivated by the implemented incentives.



Two potential Ghanaian trainer masons are receiving support from AVN's training team to master new training supervision tools.



Caption:

-  Built surface
-  Worksites
-  NV active workforce (included apprentices)
-  Proportion masons/apprentices

This season:

-  **48 active masons** (included 30 new apprentices)
-  **27 projects completed** (795 m² built)

Evolution of the building stock and workforce per season in Ghana since 2014-2015





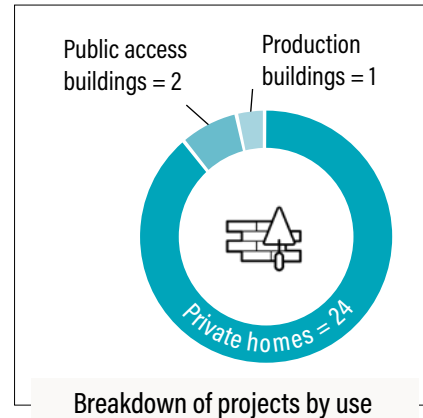
Ghana

A Roof

Production is going well in Ghana with **27 worksites completed, more than twice the number in the previous season**. While Ghanaian demand had thus far mainly consisted in a clientele of tradesmen and civil servants, **most buildings this season (85%) were for private rural clients**, AVN's core target group.

This successful strategy to refocus on rural areas can be explained by:

- **more targeted awareness-raising efforts**, in particular through the opening of the Garu region (50% of worksites were in this new region). The opening of the regional NV office, a reference building, brought more than 120 people together in October, inaugurating the season in a remarkable and noteworthy way;
- **the emergence of a first generation of Ghanaian chief masons from rural zones**



- **the establishment of incentive systems** that encourage clients to build (78% of the market benefitted from this).

Two community buildings were completed, including the Balungu maternity clinic (a project carried out with AVN's partner, Peal Deng); this is the first NV health facility in Ghana.

■ A second season that marks the beginnings of a market in Garu

By extending the Ghanaian NV market to the Garu region last season, AVN aimed to refocus its activities in favour of rural populations, the programme's core target group. The AVN programme has been open in Ghana since 2014 around Bolgatanga, and until now has had a somewhat peri-urban dynamic, which did not allow for optimum roll-out (more expensive labour and materials).

The new territorial setting has led to better results vis-à-vis its objectives, both in terms of young people deciding to undergo NV training and in terms of the interest of local populations in the technique. In fact, production in Ghana doubled this season, and of the 27 buildings completed, 15 of them are located in the Garu region. 26 apprentices, masons and

artisans were active, with 21 joining the training programme this season, and benefitted from support from AVN's trainer masons. 14 awareness-raising sessions were carried out in villages (reaching a total of more than 1,500 people) by the regional AVN team.

Next season, market growth in the Garu region is expected to continue to rise. Particular attention will be placed on awareness raising vis-à-vis NGOs and CSOs in order to further develop demand for NV community buildings. The inauguration of the Garu regional office at the end of October drew more than 100 visitors; this model building should help draw potential partners to the NV technique for their construction needs. ■



Rural awareness raising.



Construction site of a NV house in Ghana.



Ghana

A Skill

Just like last season, the annual strategy emphasized strengthening the offer and prioritized apprentices who had already begun the training process, as well as motivated cement masons.

30 new apprentices joined the training programme (+25%). Most masons, artisans and apprentices mobilized in previous seasons are still in training, which is promising for the Ghanaian programme. **Four academic modules, four technical modules and two congresses were held**, including training sessions on the new tools.

"Cement Mason Super Promotion" (SPMT) activities dominated: **13 SPMT worksites were completed (282 m²), mobilizing more than 30 trainees, led by 4 Burkinabe Trainer Masons (TMs) and 2 potential Ghanaian TMs.**

There were 48 active apprentices and masons: this represents encouraging growth (+55%), consistent with the Ghanaian NV market production results, which doubled compared to last season.

80% of those active passed their qualifications, including seven qualified masons and two qualified artisans. In addition to the good profiles identified amongst the apprentices, this first generation of artisans and masons could be trained as trainers starting next season.

The involvement of the Technical Expertise Team in co-developing the plans and cost estimates for the Balungu maternity clinic, approved by the Ghana Health Service, is worth noting.



Ghanaian masons involved in promoting the NV.



Ghana

A Market

This season, AVN-Ghana concentrated on further developing partnerships already begun with:

- **Local association Peal Deng**, thus demonstrating a desire to position itself as an actor that both disseminates the NV concept and raises awareness about it. The first health facility in Ghana was built this season, thanks to Peal Deng.
- **The Youth Harvest Foundation (YHF)**, which has supported AVN in its awareness-raising efforts for two seasons now, and which is preparing a project that incorporates NV buildings.

Local NGO the Widows and Orphans Movement (WOM) is a potential new partner for a housing project to benefit indigent families. AVN worked with WOM on several awareness-raising activities this season.

Exchanges with institutional partners, the Department for Rural Housing (DRH), the Department for Community Development (DCD) and the Ministry of Local Government and Rural Development (MLGRD), were not pursued this season, with national coordination focused more on on-the-ground activities and territorial development.

Some progress is nevertheless worth noting: collaboration has begun with the Mayor's Offices in Tongo and Garu, and the Cabinet Director of the regional Minister for the Upper East region has expressed interest in AVN, which could support the programme in the region.

In addition, the Ghana Health Service approved the maternity clinic project this season, managed by AVN's partner Peal Deng in Balungu.



Preparation of banco.

The French Embassy renews its support for AVN

Following initial support in 2017/2018, the Cooperation and Cultural Action Service (SCAC) of the French Embassy to Ghana expressed renewed faith in AVN's programme by approving €10,000 in financing for a new project this season.

Just like last season, the activities provided for are mainly based on training, in particular on the Cement Mason Super Promotion (SPMT). In total, 24 beneficiaries (12 masons and 12 apprentices) will benefit from accelerated training in the NV technique, while at the same time having the opportunity to build their own adapted home. Classroom sessions will also be held to deal with the more theoretical training modules and to strengthen the capacities of the NV apprentices and masons.

This renewed financial support bears witness to the close collaboration between the French Embassy in Ghana and AVN. ■



A ROOF,
A SKILL,
A MARKET

- NO WOOD
- NO IRON
- NO CEMENT

The Nubian Vault Association

SUSTAINABLE BUILDING FOR RURAL URBAN GHANA

AVN Ghana team in front of the Garu office.



Benin

POPULATION

11,1 million inhabitant
(55% rural)

GDP PER CAPITA

\$ 789 - 33th African Rank
(World Bank 2016)

CLIMATE

Sudano-sahelian

OPENING OF AVN PROGRAMME

in 2014

HUMAN RESOURCES

6 local employees and 1 VSI

DEPLOYMENT

1 national office

BUILDINGS CONSTRUCTED

54 projects since 2014



Key Data

1st NV constructions requested by first clients and partners

2011

Exploratory missions and recruitment of a national coordinator

2012

1st AVN local team and opening of Djougou zonal office

2014

1st projects, masons and apprentices trained and local partnerships

2016

Regional duplication in Tanguiéta

2018

Summary

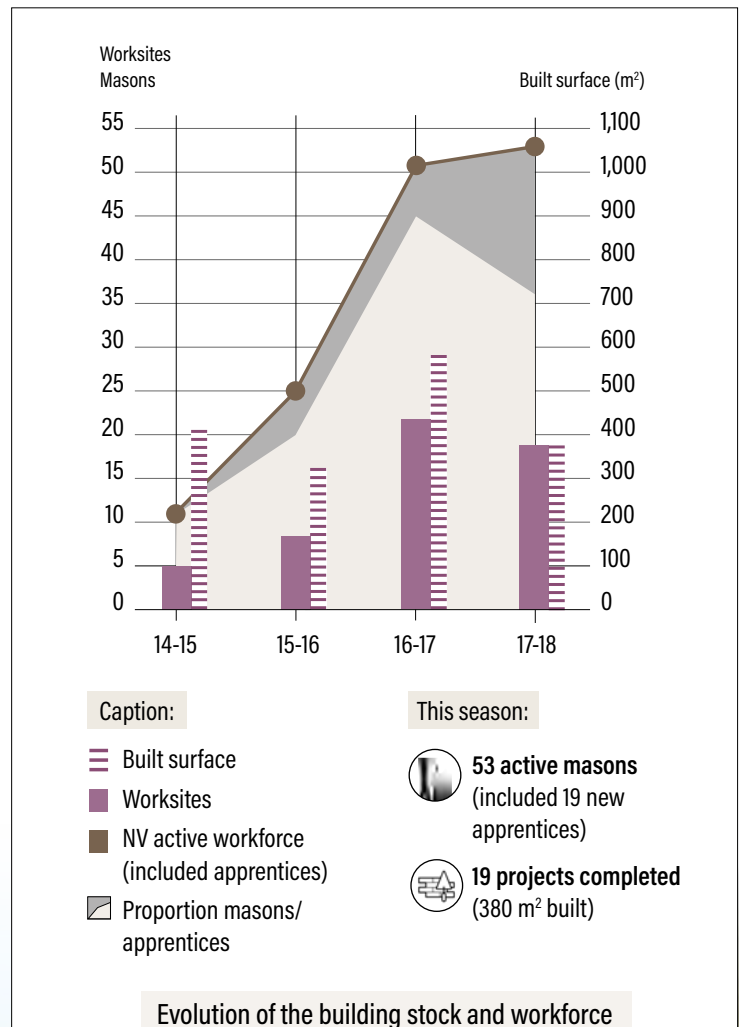
The deployment of AVN's programme in Benin continued to grow during this fourth season, despite production results lower than those of last season.

19 worksites were completed, including one community building, for a total surface area of 380 m² (-35%).

91% of the market received incentives, including 58% under the promotions for cement masons, whose commitment to NV training is on the rise.

The efforts to strengthen and monitor training have led to the emergence of a first generation of masons who are 100% Beninese, with three active chief masons and four more newly qualified at the end of the season.

The opening of the Tanguiéta zonal office offers new opportunities for building and for raising awareness. As part of this expansion, two new staff members have joined the on-site team.





Benin

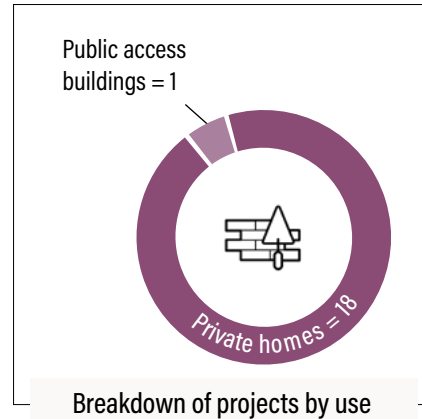
A Roof

The official opening of the Tanguiéta region has allowed AVN to expand its activities to northern Benin. 15 pilot arrondissements are active: 9 in the Djougou region and 6 in the Tanguiéta region, with 5 opening this season.

The production objectives are down with 19 worksites completed (-14%), 18 of which are private homes. The market has clearly slowed for several reasons:

- an early rainy season led to worksite interruptions and to withdrawals by clients;
- payments for cotton and cashew nut harvests were very late this season, preventing farmers from investing before the month of March (beginning of the rainy season);
- a land registry operation forced the suspension of certain worksites.

One company accommodation unit was built for the NGO Kpakitchou, a project for which the Technical Expertise Team provided support (cost estimate and plans).



Targeted on-the-ground missions and supervision by training masons were the teams' priority this season, pushing awareness-raising vis-à-vis institutional actors and NGOs to the background. The inauguration of the Djougou office and of the Women's Association in Vanhoui (see below) at the end of the season did however allow for awareness to be raised vis-à-vis many civil society actors.

Budgetary constraints delayed the construction of the regional Tanguiéta office until next season, although the team, which is working out of rented offices, is fully operational and active.

Inauguration of the NV for the Vanhoui women's association

In mid-June, the "Wahala Têma" village association in the village of Vanhoui (southeast of Djougou) was inaugurated. The NGO Dedras, which funded the project, attended the launch, as did AVN's Benin team and local religious and political authorities.

Built in 2015 with the support of women beneficiaries (who provided the team of masons with food and water), this building now allows this community of village rice processors to work in better conditions and to benefit from better-adapted storage space, thus boosting the conservation of the foodstuffs.

This building also plays the role of a "demonstration Nubian vault" for the region, aimed both at encouraging local actors to turn to the NV technical concept for their construction needs and at appealing to young Beninese and encouraging them to train as NV masons.

AVN teams led widespread awareness-raising campaigns vis-à-vis farmer organizations about the advantages of the concept for the sector in Benin this season. ■

For more information, see dedras.org



Inauguration of the NV for the Vanhoui women's association.



Fabrication of banco bricks.



Benin

A Skill

Awareness-raising activities and those to strengthen training were broadly pursued this season.

The fall in production had an impact on the percentage of the workforce active during the season with **51 workers (-6%), including in particular four NV artisans**, representing the first generation of Beninese masons with that level of qualification. **Four new artisans also qualified at the end of the season**, bringing the number of potential worksite foremen up to eight, including four trainer masons.

Nineteen new apprentices were active during the season (-47%): this lower figure is due to a strategic decision to prioritize strengthening the skills of those apprentices already working in order to favour the quick emergence of endogenous artisans. In addition, they were constrained by the early rains, which slowed the arrival of necessary materials to their worksites. **This slowdown is reflected in the numbers of those who newly qualified (-22%)**.

We did however see strong motivation from cement masons (CMs): **thirty-one CMs were active this season (+3%)** as part of the Cement Mason Promotion (CMP), most of whom then raised awareness with other CMs about joining the NV training process (snowball effect).

Four potential Beninese trainer masons (TMs), supported in their work by training managers from AVN's Training Team (see interview) and **four Burkinabe TMs come to help, implemented the new training methodology for 38 trainees**.

Forty-six trainees benefited from technical on-site training, including 15 who followed Technical Modules on Specific Stages (TMSS). **Eight academic modules and two congresses** were also organized.



■ Training supervision by AVN-Benin

Recruited as a popularization leader in October 2015, **Fortuné Ozias Zoumarou** is now a National Training Manager (NTM) for AVN Benin.

"My mission as an NTM this season was to plan all of our training activities, both for actors from the sector and for trainers, and, with the Training Team, to help develop new modules and to test them on the ground. This involved the monitoring and assessment of trainees and trainers, both in the classroom and at worksites, and capitalizing on everyone's experiences.

On site, my role is to make sure that the transfer of skills is carried out properly, through the use of specific methodologies and tools such as the Trainee Evolution Booklet and through the trainers' teaching methods. I also support the training manager for the Tanguiéta region in his role.

The reorganization of the Training Team has led to significant progress: the redefinition of the project managers' roles, the production of monitoring/evaluation tools, the creation of a business training chapter, the showcasing of trainer masons (TMs) and their selection. Improvements can still be made, in particular in terms of empowering the masons and strengthening their marketing skills, to how TMs pass on their knowledge and to managing funds and the team.

As the "father" of Beninese masons, I encourage those measures that allow our strategy to evolve and I'm optimistic as regards the benefits of its implementation for the Nubian Vault market. The role of training managers will be more and more important on the ground since they are in charge of supporting operators as far as possible." ■



Benin

A Market

The potential partnerships with two NGOs (ADRIA-ONG and AFREDEV) identified at the beginning of the season were not finalized. **The search for new partners continues, in particular amongst local farmers' groups** (see article below). AVN could further develop ties to the women rice processors' association in Vanhoui and to the Cashew Producers' Union in order to bring together a network of local actors from the agricultural sector.

Several attempts to revive the "20,000 social housing units" project, led by the Ministry for Living Environment and for Sustainable Development (MCVDD), have been made *vis-à-vis* the MCVDD and the Ministry of Planning and Development. The government has not followed up on this at all and the project has seemingly been abandoned. Nevertheless, AVN remains attentive to institutional partnership opportunities in future housing programmes.



The local AVN team and farmers' groups in front of the Djougou office.

Significant work was carried out this year in terms of identifying and raising awareness with different actors, in particular:

- the Mayor's Office of Djougou, which for several seasons now has been a target of awareness raising on incorporating NVs into the commune's development plans; this has been revived. A project to build a pilot health care centre is being studied;
- the Mayor's Office in Bassila and the town council of Matéri;
- the Departmental Authority for Vocational Training;
- the Atacora-Donga Departmental Authority for Living Environment and Sustainable Development.

Several Ministries were met with at the beginning of the season:

- the Ministry of Agriculture, Livestock and Fisheries: a request for agricultural buildings is being studied;
- the National Agricultural Research Institute of Benin (INRAB), which is particularly interested in working with AVN on studies on the use of NVs for agricultural storage;
- the Ministry for Foreign Affairs and Cooperation: AVN is now registered in the Ministry's records.

The strategic orientations foreseen for next season should allow for the galvanization of interest by new partners, with farmers' groups the main target for dissemination of the programme.

Increasing awareness among farmer communities: a challenge for Benin

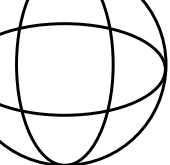


This season, AVN Bénin welcomed members of the executive offices of communal and departmental Farmers' Unions. The aim of the meeting was to identify dynamic and interested Farmers' Unions with a capacity to assist AVN in spreading the VN concept among their communities (the villagers that constitute AVN's target population).

Ideas for collaboration were drafted with the rice producers from Djougou (URCPR-D), and with the cashew nut producers (UCCPA), who wish to build AVN structures for their offices.

The Nubian Vault technique has been generally well received by farmer communities because it provides solutions to various rural issues (economical structures that are adapted to needs and uses, create job, and strengthen the local economy) and improves the yield and working conditions of those who use it.

As an illustration, the meeting's participants had the opportunity to visit the AVN offices in Djougou, a recently inaugurated model structure. For AVN, the next step will be to meet the board of each organization to develop already existing ideas and to imagine new ones. ■



France & International

International events

The 2017/2018 season was full of opportunities for AVN to continue its advocacy for adapted housing in the Sahel. While last year witnessed an increase in issues linked to housing, building and the rural and urban environment in international considerations, the implementation of projects actually having an impact on these issues remains practically non-existent. AVN continues its efforts on several complementary fronts:

Building and housing

In France and at the international level, issues of building and housing are little by little becoming more important. AVN is recognized as a distinctive actor that is both an on-the-ground operator and an organization that makes strategic proposals. AVN has been represented at meetings of experts, invited by the embassy of France to Chad for a conference on sustainable housing in the Sahel, to a symposium in India to celebrate one hundred years since the birth of Laurie Baker and to the Low-Tech Lab colloquium in France. It also participates in international discussions, in particular at the World Urban Forum and the Roundtable of the Global Alliance for Building and Construction.

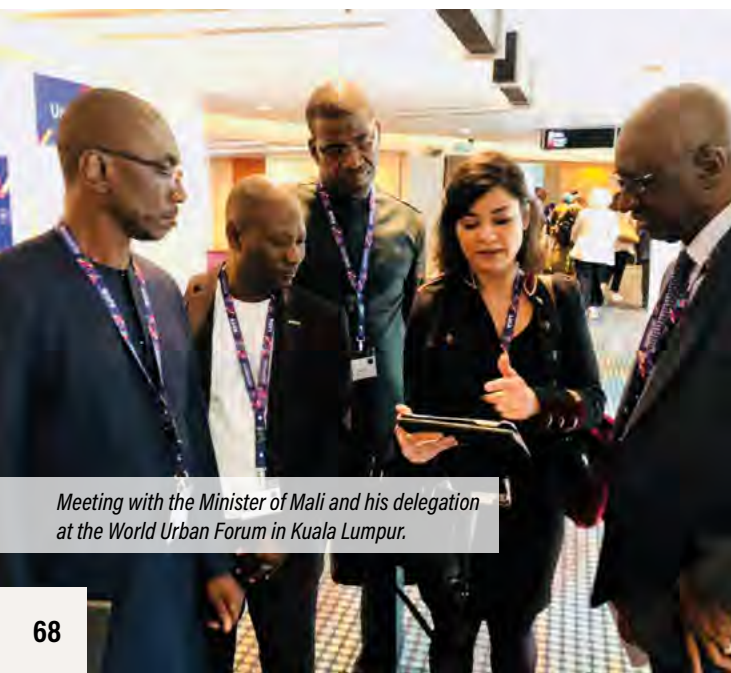
Climate and environment

AVN continues to maintain an active presence and is welcomed at major international environmental conferences; in particular this season, it was present at the Conference of the Parties on Climate Change (COP23 in Bonn), at the One Planet Summit in Paris and at Climate Change in Agadir. AVN also contributed to more specialized conferences, in particular to a reflection day on issues of wood and energy held by the Desertification Working Group and to the Green Initiative for the Sahel set up by the AFD and the MEAE.

Finally, the season closed at the Climate Change Summit - Africa in Ivory Coast with a first meeting by a group of West African non-state actors who would like to get involved in issues of sustainable housing at their level.

Investment, Entrepreneurship and Social and Solidary Economy

Thematic development activities must be supported by an encompassing view of what that means, as well as by an approach that strengthens the capacities of local actors. Through its market programme, AVN is at the very core of that philosophy, which it promotes at many forums: in San Francisco at the SOCAP (Social Capital) Summit, in Paris at the Africa Time for a New Deal conference, in Ouagadougou at the SEED Forum and at various meetings of humanitarian actors, such as DIHAD and the *Occitanie Coopération* Agora. The sectoral approach is intrinsic to the development model put in place by AVN, which it presented at a *Groupe Initiatives* reflection day on the issue.



Meeting with the Minister of Mali and his delegation at the World Urban Forum in Kuala Lumpur.



1 Africa Time for a New Deal
Paris (France) - September 2017

2 Climate Chance
Agadir (Morocco) - September 2017

3 Autodesk University
Capetown (South Africa) - September 2017

4 GABC Panel
Abidjan (Ivory Coast) - September 2017

5 Low-Tech Lab Seminar
Paris (France) - September 2017

6 SOCAP
San Francisco (USA) - October 2017

7 World Habitat Day
Ouagadougou (Burkina) - October 2017

8 Occitanie Coopération Agora
Carcassonne (France) - November 2017

9 COP 23
Bonn (Germany) - November 2017

10 Wood and Energy Workshop - GTD
Paris (France) - November 2017

**11 Meeting « Green Initiative
for the Sahel »**
Paris (France) - December 2017

12 One Planet Summit
Paris (France) - December 2017

13 SEED Forum
Ouagadougou (Burkina) - September 2017

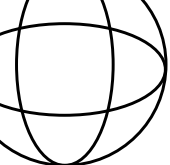
14 World Urban Forum
Kuala Lumpur (Malaysia) - February 2018

15 DIHAD
Dubai (United Arab Emirates) - March 2018

16 Laurie Baker Birth Centenary
Thiruvananthapuram (India) - March 2018

17 Terra Education III
Grenoble (France) - June 2018

18 Climate Chance
Abidjan (Ivory Coast) - June 2018



France & International

Other countries

The programme's strategic choices this season did not lead to AVN's programme opening in third countries, with the focus placed more on consolidation of the programme in the regions in which it is already present. The discussions with Chad begun last season did continue, however, fuelled by existing opportunities.

The growth of the autonomous market also led to Nubian Vaults being constructed in countries adjacent to those in which AVN is active, in Mauritania and Togo (*see below*).



An NV in southern Togo

Upon the initiative of a Togolese client, this model Nubian Vault was built by Burkinabe NV chief mason Drissa Sawadogo (who has built many of the NV buildings in Burkina Faso) and his team in Sanguera, northwest of the capital, Lomé.

This project is particularly remarkable because it was carried out in a region located in a subtropical zone, which is an environment for which AVN has not yet validated the NV concept.

Its construction was therefore subject to the use of adapted techniques, as the client, M. Kowouvi, states: *"A Nubian Vault on the equator is possible...under certain conditions and taking precautions, of course!"*



Visit of the NV by the students from EAMAU.

In addition, students from the Lomé School of Architecture (EAMAU) visited the building last June, in the framework of possible future cooperation with AVN.

The completion of this project reflects the empowerment of the client/mason relationship and the expansion of the NV concept outside of AVN's intervention zone, which is essential for the large-scale deployment of the NV market.

Advocacy France

Strengthened by its on-the-ground expertise and aware of the importance of the issue of adapted housing in developing countries, during the 2017/2018 season AVN began to deploy an advocacy campaign targeting French institutions working on international development and cooperation and on climate activities, so that they would incorporate adapted housing issues into their strategies.

AVN thus proposes an Adapted Building Plan for Sahelian Africa, which is a strategy based on four pillars: Information, Training, Innovation and Incentives. This proposal puts forward strategic elements that allow the issue of adapted housing to be included in international development initiatives, in order to achieve additional benefits that reinforce the long-term impacts.

Information: Raising awareness *vis-à-vis* all stakeholders as regards the importance of the issue, alternative technical concepts and methods of large-scale dissemination.

Training: Training actors from the building sector (including the informal sector, which is predominant in Africa) on eco-construction techniques that will allow the market to evolve.

Innovation: Favouring adapted, sustainable, bioclimatic and transferable techniques. In certain development contexts low-tech is a response for the future. Innovation also implies the dissemination of solutions via methods that draw inspiration from social entrepreneurship in terms of accessibility for as many people as possible.

Incentives: Implementing financial mechanisms (subsidized microfinance mechanisms, incentive measures) that allow the acceleration of the dissemination process to all populations, especially the most precarious.



AVN and its Burkinabè partners invited to One Planet Summit.

This proposal is in line with France's international commitments to the Sahel, the climate and sustainable development. France has indeed committed to working on development in the Sahel (the Alliance for the development of the Sahel), on the environment and climate (the Paris Agreement, the Climate Plan) and on building (the Sustainable Building Plan, the Global Alliance for Building and Construction). It has called for the creation of tangible impacts and for a "*change in scale in the mobilization of all sectors (...) so that no one is left behind and so that there are solutions for everyone*" (the Climate Plan of the Ministry for an Ecological and Inclusive Transition, July 2017).

AVN, like many other NGOs active in West Africa, has in particular been involved in a reflection group, the "Green Initiative for the Sahel", set up by the Ministry of Europe and Foreign Affairs and the French Development Agency, which looks at issues of rural development in the Sahel; AVN has defended the idea that that development can only be achieved by including all economic systems related to family farming, in particular the fields of housing, construction and vocational training.



3 - Our Means for Action

- Community Life** ▶ p. 73
- Human Resources** ▶ p. 73
- Communications** ▶ p. 74

■ Community Life

Established in 2000, AVN is a non-profit organization. It currently consists of 30 active members, including a board of directors made up of five people:

- **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.



Benoît Lambert, President of AVN, leads the visit of a NV with students from EAMAU (Togo).

■ Human Resources

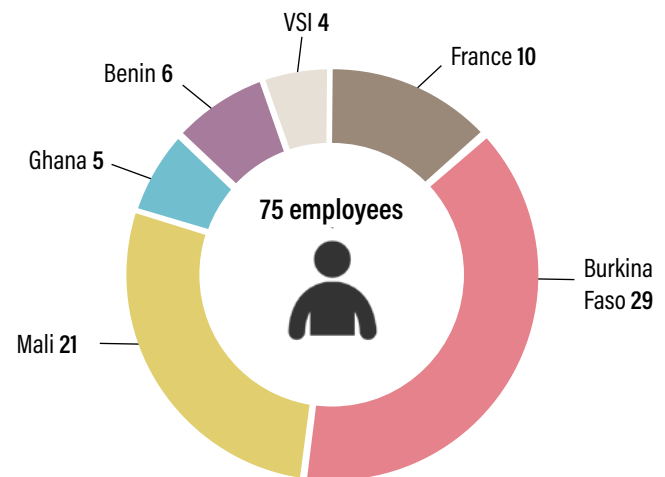
The re-structuring of the Training Team at the start of the season resulted in the following changes:

- **the upgrading of the staff** to National and Regional Training Managers;
- **the recruitment of 3 new staff members** (a National Training Manager and a construction technician in Mali, and a National Training Manager in Senegal)

Now, each country benefits from adequate monitoring of training activities at national and regional levels.

In Ghana, a VSI (a paid volunteer under the French international solidarity scheme), to be trained by the existing team from February, has been recruited with a view to replacing the National Coordinator at the start of the next season.

In Benin, the National Coordinator left at the end of the season, to be replaced by his deputy, which means that all the AVN team will be 100% Benin nationals as from next season.



Communications

New website



Following the hacking problems that occurred at the beginning of the season, AVN collaborated with the Terre Nourricière association based in Montpellier to create a new dynamic website: www.lavoutenubienne.org.

The screenshot shows the AVN website interface with several callout boxes pointing to specific features:

- Visit our social networks**: Points to the social media icons (Facebook, Twitter, YouTube, LinkedIn) in the top right corner.
- Browse in French and English**: Points to the language selection dropdown menu in the top right corner.
- Discover AVN's programme and teams, contact us in a few clicks**: Points to the 'HOME' and 'ABOUT US' navigation tabs.
- Our actions classified by theme, to better understand the stakes of the program**: Points to the 'OUR ACTIONS' section, which includes icons for 'Assessment of the situation in the field', 'Training of the actors', and 'Transferring know-how to local actors'.
- View our photos, videos, communication media and open source technical corpus**: Points to the 'ECONOMIC DEVELOPMENT' section, which features a large image of a person working in a field.
- Follow the implementation of the programme by country**: Points to the 'OUR PRIORITY ACTIONS' section, which includes a map of Africa.
- Awards and distinctions received since the start of the programme**: Points to the 'AWARDS AND RECOGNITION' section, which displays various award logos.
- Stay up to date with our latest news**: Points to the 'LATEST NEWS' section, which features a grid of news articles with images.
- Individuals, funders, field partners, ... find how to contribute according to your profile**: Points to the 'CONTRIBUTE' section, which includes icons for 'Individuals', 'NGOs & Associations', 'Businesses & Foundations', 'Institutional Bodies', and 'Others'.

Video: Diakré, the first entire village of NV houses

Between 2014 and 2017, AVN was instrumental in the construction of the very first village built entirely of Nubian Vaults funded by the Dubai Charity Association. Implemented by the NGOs *Banlieues du Monde* and *Le Partenariat*, with the support of AVN, the Sheikh Zayed Village of Diakré is made up of 51 private houses, a mosque, a literacy centre, and a maternity clinic, for the benefit of Mauritanian refugees who left the country during the war.

In 2017, the Mauritanian production company En Haut has made magnificent aerial and ground footage, which AVN compiled in a 3-minute video.



AVN's Actions for the Sustainable Development Goals

Following its contribution to the *Comité 21* report on the adoption of the Sustainable Development Goals (SDGs) by French non-state actors in 2017, AVN has produced a digital medium listing the scope of the actions of its programme in favor of the SDGs.

This document can be consulted on AVN's website, under "Resources / Communication Medias".



Follow Us





4 - Financial Report

Sound financial management

AVN 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. Specific audits are carried out to ensure that expenses comply with the expectations of the different 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 are regularly monitored and trained by the team at headquarters.

Monitoring of forecasts

AVN has for several years now had a budget that is updated quarterly. Expenditure is forecasted to take into account specific features requested by donors and local constraints. This periodic forecasting allows AVN to efficiently redirect the monitoring by headquarters and allows local coordinators to best manage fundraising. The steering committee, team managers and local coordinators work together to produce high-quality information both up- and down-stream..

Providing suitable IT resources

AVN has for several years used SAGA software to follow expenditure by country, project and donor. 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.

Motivated members of staff

In the Burkina Faso and Mali coordination offices, two skilled administrative and financial managers (RAFs) check the accounting information from the regional offices and import it into SAGA; this takes place in Boromo (Burkina Faso) for the six regions in Burkina Faso and in Ségou (Mali) for the five regions in Mali, Benin and Ghana.

At headquarters, the financial team checks, coordinates and produces the summary financial statements and reports to donors, administrators and accountants in France. Country coordinators are responsible for budgets and funding appeals and also check local expenditure.

A partnership that continues to develop

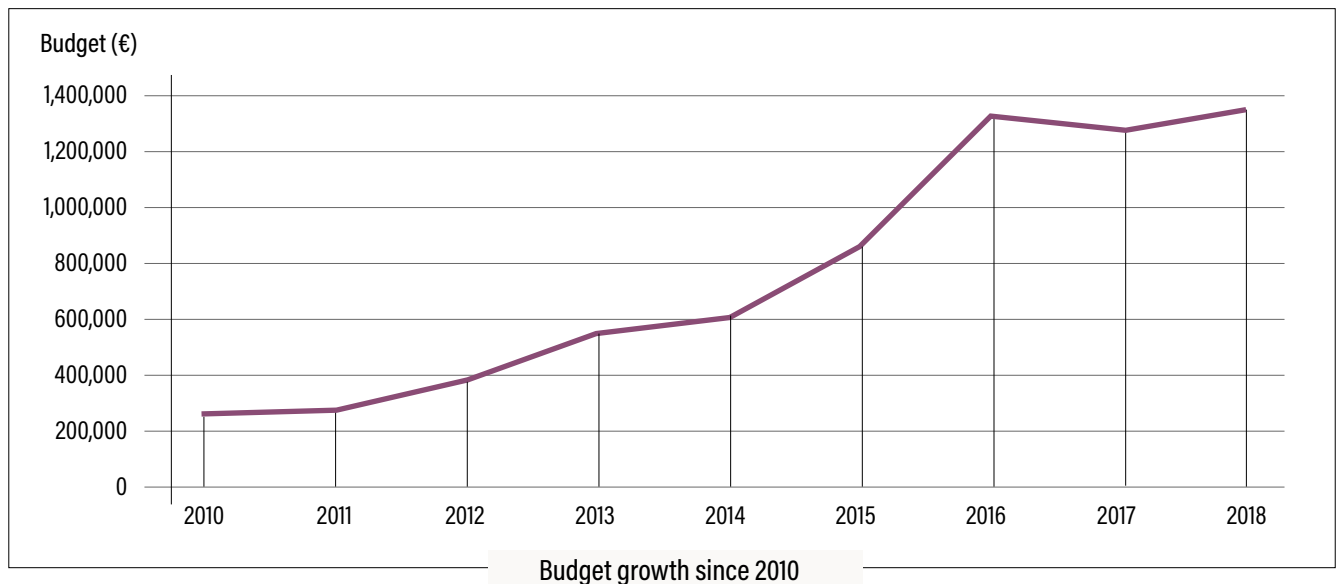
AVN has established close relationships with its partners, thus allowing it to subcontract some of its activities, in particular with the NGO *Le Partenariat* for activities in northern Senegal. This cooperation involves regular, reliable financial reports as well as a mutual understanding of administrative and financial procedures.

Regular cash management

The diversity of resources managed requires regular cash management, investment of liquid assets and using advances under the Dailly law. Funds received in advance of expenditure are placed in interest-bearing accounts paying around 2%. Foreign donors subsidising activities in dollars also means that those resources must be monitored to ensure that the currency exchange is properly applied in accordance with those activities.

Strengthened local management

AVN provides local actors with the resources to gradually gain autonomy through continual training and by having them take charge of different operations. The financial management tools are controlled locally and certain donors transfer their funding 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., the World Bank in Mali, the Canadian government in Burkina Faso, the French embassy in Ghana).



Statement of Resources & Expenses

| RESOURCES in EUROS | 2017-2018 | 2016-2017 |
|---------------------------------|------------------|------------------|
| French State Funds | 663,584 | 513,752 |
| Foundations | 595,829 | 638,066 |
| Individuals Social Investors | 63,981 | 62,046 |
| Other | 29,371 | 45,555 |
| Total Resources | 1,352,765 | 1,259,419 |
| In kind voluntary contributions | 45,875 | 63,213 |
| Total General | 1,398,640 | 1,322,632 |

| EXPENSES in EUROS | 2017-2018 | 2016-2017 |
|---------------------------------------|------------------|------------------|
| Salaries & Costs | 629,256 | 560,146 |
| Fees | 118,642 | 104,083 |
| Field missions | 391,148 | 305,977 |
| Fundraising & Administrative expenses | 99,449 | 106,232 |
| Investments & Constructions | 92,997 | 178,858 |
| Total Expenses | 1,331,492 | 1,255,296 |
| Result | 21,273 | 4,123 |
| In kind voluntary contributions | 45,875 | 63,213 |
| Total General | 1,398,640 | 1,322,632 |

Balance sheet

Sixty-eight percent of the accrued revenue recorded was collected in mid-January, with most of the remainder mainly concerning a French governmental agency.

To offset these late transfers, AVN had to take on a Dailly debt of €300,000, which was completely repaid in December 2018.

Certain donors have advanced funds to AVN for periods beyond 31 August. These funds are recorded under deferred revenue.

Expenses

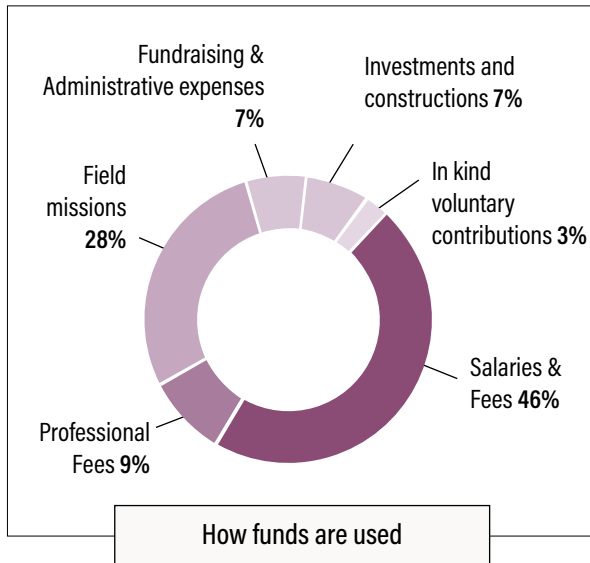
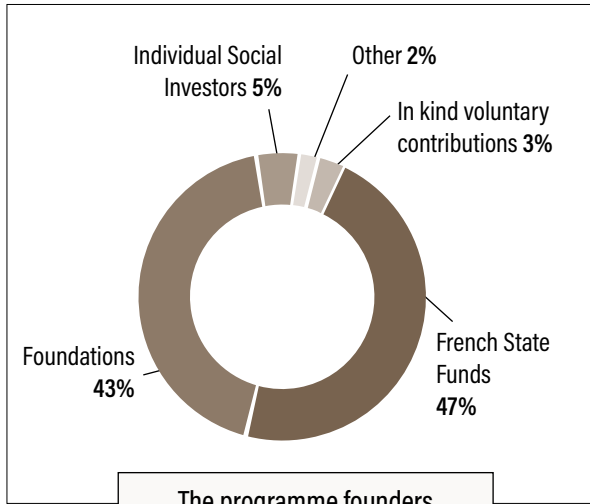
Incentives to build both for clients and masons were rolled out (€83,000). Training of masons is becoming a dominant activity, both at worksites and in group sessions (€60,000).

Work with the NGO *Le Partenariat* continues on the programme in Senegal (€118,000).

Active and passive balance sheet

| ACTIVE BALANCE SHEET in EUROS | 31/08/2018 | 31/08/2017 |
|-------------------------------|----------------|----------------|
| Assets | 10,070 | 17,838 |
| Other receivables | 9,833 | 11,187 |
| Products to receive | 278,239 | 244,200 |
| Treasury | 198,160 | 122,773 |
| Total assets | 496,302 | 395,998 |

| PASSIVE BALANCE SHEET in EUROS | 31/08/2018 | 31/08/2017 |
|--------------------------------|----------------|----------------|
| Stocks | 65,968 | 61,845 |
| The result of the exercise | 21,273 | 4,123 |
| Payables | 5,382 | 3,410 |
| Other debts | 347,031 | 176,986 |
| Prepaid income | 56,648 | 149,634 |
| Total liabilities | 496,302 | 395,998 |



AVN's founders and areas

| FOUNDERS | Burkina | Mali | Benin | Ghana | Senegal |
|-------------------------------------|---------|------|-------|-------|---------|
| French State | | | | | |
| AFD - DPO | █ | █ | █ | █ | █ |
| CD78 - Fouta | | | | | █ |
| ADEME | █ | █ | █ | █ | █ |
| CD78 - YCID | | | █ | | |
| Île de France | | █ | | | |
| SCAC - Ambassades de France | █ | | | █ | |
| Other | █ | █ | █ | █ | █ |
| International Foundations | | | | | |
| Alwaleed Philantropies | █ | █ | █ | █ | █ |
| OPEC - OFID | █ | █ | | | █ |
| Dubai Charity Association | | █ | | | |
| Autodesk - Silicon Valley | █ | █ | █ | █ | █ |
| World Centric | | █ | | | |
| World Bank - PGRNCC | | █ | | | |
| Government of Quebec | █ | | | | |
| French Foundations | | | | | |
| <i>Un monde par tous</i> | █ | | | | |
| <i>Transitions</i> | | | █ | █ | |
| Individuals Social Investors | █ | █ | █ | █ | █ |
| Local Partners | | █ | | | |
| Billing | █ | █ | █ | █ | █ |
| Other | █ | █ | █ | █ | █ |



5 - Partners and Awards

- Financial Partners** ▶ p. 81
- Field Partners** ▶ p. 82
- Network Partners** ▶ p. 84
- Prizes and Honours** ▶ p. 85

The Electrified Activity Area of Konséguéla (Mali).

■ Financial Partners

Financial partners who co-financed the 2017-2018 season



World Centric

This season AVN launched a new partnership with World Centric, a company working on eco-friendly packaging. Having started out as an NGO, in 2009 World Centric became a social enterprise that donates 25% of its profits to projects to reduce economic injustice and environmental degradation.

In 2017/2018 World Centric supported AVN in the Dioïla *cercle* in Mali, allowing 75 families to gain access to decent living accommodations with a positive environmental impact, as well as nearly 60 local masons to be trained on a green business technique.

For more information, see worldcentric.org.



Partnership with UN-Habitat

One year after winning the World Habitat Award, AVN signed a memorandum of understanding with UN-Habitat aimed at the implementation of joint activities linked to promoting access to affordable and sustainable housing for all in Africa.

The agreement sets out a cooperation framework that concretely defines the collaboration that began several years ago and that is motivated by shared objectives.

For UN-Habitat, AVN's programme should be highlighted as a large-scale example because it allows for the implementation of a viable solution for adapted and affordable housing for as many as possible.

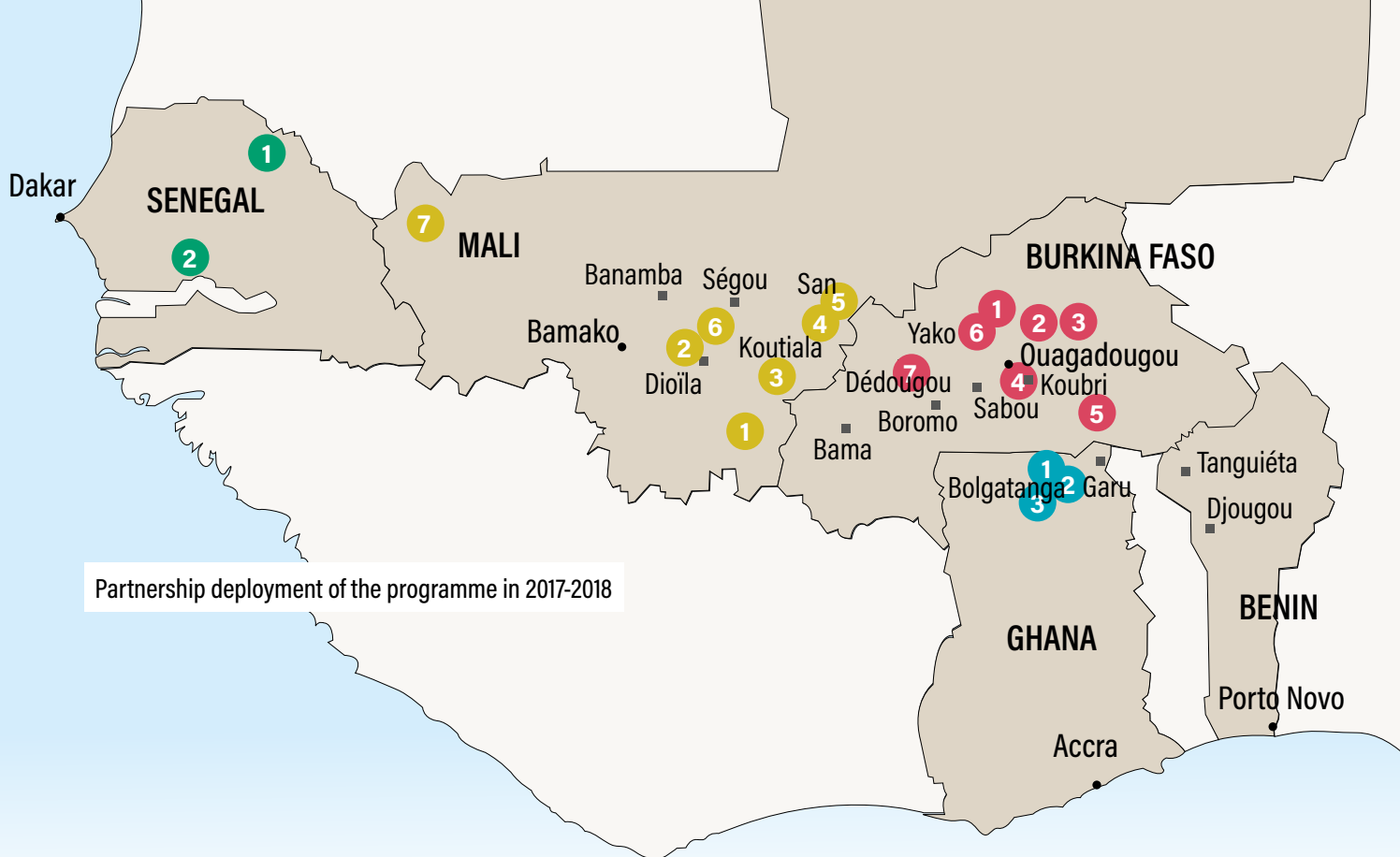
■ Field Partners

Burkina Faso

- 1 Kombi-Naam Association of Gomponsom for the Sahel (AKNGS)** - Farmers' group
 - ▶ Awareness raising, promotion of the NV housing microcredit, construction of NV agricultural and community buildings, training of local young people
- 2 Fédération Nationale des Groupements Naam (FNGN)**
 - Umbrella organization of farmers' groups
 - ▶ Development of AVN's programme and of the NV market
- 3 Viim Baoré Cooperative** - Farmers' group
 - ▶ Development of AVN's programme and of the NV market
- 4 Community Development Foundation (FDC)** - NGO
 - ▶ Integration of an "adapted housing" theme in their activities and construction of a model building in the Koubri region
- 5 Provincial Association of Artisans and Group of Artisans Nong-taaba of Boulgou (APAGAN-B)** - Group of artisans
 - ▶ Deployment of the programme and identification of partners or local operators
- 6 Credit and Savings Baoré Tradition Union/Naam (UBTEC)** - Microfinance Institution
 - ▶ Setting up and dissemination of NV housing microcredit products
- 7 Association for the Promotion of Inclusive Finance in Burkina (APFI-B)** - Microfinance Institution
 - ▶ Setting up and dissemination of NV housing microcredit products

Mali

- 1 Teriya Amitié Mali** - NGO
 - ▶ Awareness raising, construction of agricultural and community buildings, monitoring of NV mason training in Niéna commune
- 2 Mayor's office of Kemekafo** - Local authority
 - ▶ Awareness raising and promotion of NV use in Kemekafo commune
- 3 Miniankala-Kafo/Koutiala inter-community body** - Territorial authority
 - ▶ Awareness raising and promotion of NV use in the *cercle* of Koutiala
- 4 Farmer's Union of the Tominian Circle (UACT)** - Farmers' group
 - ▶ Awareness raising about NVs in the *cercle* of Tominian
- 5 Vocational Training Centre (CFP) of Tominian** - Vocational training actor
 - ▶ Implementation of a NV *curriculum*
- 6 SOS Faim Belgium** - NGO
 - ▶ Awareness raising and promotion of NV use in Dioïla, Ségou, Nioro, Kolokani and Nara regions
- 7 Kounda 78** - NGO
 - ▶ Dissemination of NV in Kayes region, construction of a NV college



Senegal

- 1 **Le Partenariat (LP) - NGO**
 - ▶ Development of AVN's programme and of the NV market in the regions of St. Louis and Matam, institutional kickstarting of the NV market, technical operator for the rehousing programme in southern Mauritania and co-operator for the Fouta NV project (institutional kickstarting of the NV market in the Departments of Matam, Podor and Kanel)
- 2 **Malem Auder - NGO**
 - ▶ Awareness raising in rural areas, support for community building projects in the Kaffrine region, monitoring of NV mason training

Ghana

- 1 **Youth Harvest Foundation (YHF) - NGO**
 - ▶ Awareness raising in rural zones, construction of community buildings, monitoring of NV mason training in the Bolgatanga region
- 2 **Peal Deng - NGO**
 - ▶ Awareness raising in rural zones, construction of community buildings in the Bolgatanga region
- 3 **Widows and Orphans Movement - NGO**
 - ▶ Awareness raising in rural zones in the Bolgatanga region

■ Networks



New networks in 2017-2018



Since COP23, AVN has been part of the **World Alliance for Efficient Solutions**, established by the **Solar Impulse Foundation**, which brings together the main actors involved in the development, financing and promotion of products, services, processes and technologies that protect the environment in a cost-effective way. One thousand of the most promising solutions will be selected and presented to governments, companies and institutions at COP24 to encourage them to adopt environmentally friendly objectives and more ambitious energy policies.

For more information, see solarimpulse.com/world-alliance.



In 2017, AVN joined the **Sustainable Buildings and Construction programme** coordinated by the United Nations Environment Programme (UNEP). Its objectives are to promote resource efficiency, mitigation and adaptation efforts, and a shift to sustainable consumption and production (SCP) schemes in the building and construction sector by sharing good practices, defining projects, creating networks of cooperation and encouraging the commitment of international actors in the field.

For more information, see oneplanetnetwork.org/sustainable-buildings-and-construction



As an active participant at the Climate Chance summits since their founding, AVN contributes to the **international Sustainable Building Coalition** piloted by the GABC as part of the climate action launched during the different summits. In June 2018, AVN and its partners also launched the **regional Sustainable Housing Coalition for West Africa** during the African summit in Abidjan.

For more information, see climate-chance.org

■ Prizes and Honours

Prizes and honours won in 2017-2018



During the COP23 meeting in Bonn, AVN received the **low-carbon building prize from the Green Solutions Awards / Construction21**, for the *Maison des Yvelines* project in Ourossogui, northern Senegal. Financed by the French

Département des Yvelines, this exemplary building of 370 m² was constructed by a local NV enterprise and overseen by the NGO *Le Partenariat* and AVN, with the support of local technical partners and the architect Mathieu Hardy.



After participating in Ouagadougou's *Salon International l'Environnement et des Énergies Renouvelables (SIERO) 2017*, AVN Burkina Faso was awarded the **special SIERO Eco-Habitat prize for sustainable development**. The Coordinator of the

event, M. Check Omar Yéyé stressed the fact that the Jury had voted unanimously for the NV concept in respect of its fulfilment of the Eco-Habitat prize criteria (bio-climatic qualities, local materials, respect for the environment, 'green' jobs).

Received in the past seasons



Prospects

AVN has now adopted a clear and transferable methodology. This means that it can provide good support to various development actors working in the Sahel.

In the future, AVN will significantly increase the deployment of its programme on behalf of adapted housing by relying on its networks of on-the-ground organizations and institutions. It will share its expertise with local actors present in cities and towns and will transfer its Nubian vault outreach methodologies to partners that become programme operators: grassroots organizations, farmers' groups, women's associations, etc.

Many of our partnerships are already sound and new links are to be woven wherever the Nubian Vault architectural alternative is suitable and where adaptation of the building sector and resilience to climate change are crucial.

With this new strategy, AVN is a dynamic conduit for the widespread dissemination of adapted housing in the Sahel, and it wants to work alongside a myriad of development actors.

Come join us!

Benoît Lambert
President of AVN




Acronyms

| | | |
|---|--|--|
| AEDD: Agency for Environment and Sustainable Development | FBST: Full Building Site Training | SCAC: Department of Cooperation and Cultural Action |
| ADEME: Agency of the Environment and the Control of Energy | FDC: Community Development Foundation | SDG: Sustainable Development Goals |
| ADRIA: Integrated Rural Development Association for Self-promotion | FNGN: National Federation of Naam Groupings | SIERO: International Exhibition of Renewable Energies of Ouagadougou |
| AFD: French Development Agency | GABC: Global Alliance for Buildings and Construction | TM: Trainer Mason |
| AKNGS: Kombi Naam Association of Gomponsom for the Sahel | GERES: Renewable Energies Group, Environment and Solidarity | TMSS: Technical Module on Specific Stage |
| APAGAN-B: Provincial Association of Artisans and Group of Artisans Nong-taaba of Boulgou | HR: Human Resources | TNB: <i>Tinyenga Niyemba Burkina</i> association |
| APFI-B: Association for the Promotion of Inclusive Finance in Burkina | INRAB: National Institute of Agricultural Research of Benin | UACT: Union of Farmers of the Tominian Circle |
| AVN: the Nubian Vault Association | LP: <i>Le Partenariat</i> | UBTEC: Union of Baoré Tradition of Savings and Credit |
| BCO: Basic Community Organization | MCVDD: Ministry of the Environment and Sustainable Development | UCCPA: Communal Union of Cashew Producers Cooperatives |
| BF: Burkina Faso | MEAE: Ministry of Europe and Foreign Affairs | UGN-B: Union of Naam Groupings of Boussé |
| BTP: Buildings and Public Works | MFI: Micro-Finance Institution | IU-IT: Implementation Unit - Implementation Territory |
| C1/C2/C3/C4/C5: Beginner Apprentice/ Apprentice Confirmed /Mason/Artisan Mason/ Entrepreneur | MLGRD: Ministry of Local Government and Rural Development | UNEP: United Nations Environment Program |
| CAEB: Advice and Support for Basic Education | NGO: Non Governmental Organization | URCPR-D: Union of Rice Producers from Djougou |
| SCAD: Canadian dollar | NTM: National Training Manager | USCPCD: Union of Cooperative Societies of Cereal Producers from Dièbouougou |
| CCTP: Cahier of Particular Technical Clauses | NV: Nubian Vault | VSI: Volunteer in International Solidarity |
| CD: <i>Départemental</i> Council | OFID: OPEC Fund for International Development | WHH-BF: <i>Welt Hunger Hilfe</i> Burkina Faso |
| CDD: Departmental Development Committee | OMH: Malian Office of Habitat | WOM: Widows and Orphans Movement |
| CFP: Vocational Training Center | UN: United Nations | YCID: Yvelines International Cooperation and Development |
| CHVN: Nubian Vault Housing Microcredit | OP: Farmers' Group | YHF: Youth Harvest Foundation |
| CM: Cement Mason | PBAAS: Adapted Housing Plan for the Sahel | |
| CO₂eq: Carbon equivalent | PBOQ: Priced Bill Of Quantities | |
| COP: Conference of Parties | PCCI: International Climate Cooperation Program | |
| CMP: Cement Mason Promotion | PEC: Productive Energy Centre | |
| CPD: Consumption and Sustainable Production | PER: Projet Ecologie et Reboisement | |
| DAO: Bid File | PGRNCC: Natural Resource Management and Climate Change Project | |
| DCA: Dubai Charity Association | PIGP: General Public Incentive | |
| DCP: Department for Community Development | PISCCA: Innovative Projects of the Civil Society and Coalitions of Actors | |
| DIHAD: Dubai International Humanitarian Aid & Development | PNDES: National Economic and Social Development Plan | |
| DPO: NGO Partnership Division | PNHDU: National Policy for Housing and Urban Development | |
| DRH: Department for Rural Housing | RAF: Financial and Administrative Manager | |
| EAMAU: African School of Architecture | RTM: Regional Training Manager | |
| ET: Entrepreneurial Training | | |



www.lavoutenubienne.org

 [thenubianvault](https://www.facebook.com/thenubianvault)

 [@earthroofs](https://twitter.com/earthroofs)

 [la Voûte Nubienne](https://www.linkedin.com/company/la-voûte-nubienne)

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