



## ADAPTATION FUND

# PRE-CONCEPT FOR A REGIONAL PROJECT/PROGRAMME

## PART I: PROJECT/PROGRAMME INFORMATION

Title of Project/Programme: Adapted Building: Transformative Practices for Better Building in the Sahel  
Countries: Burkina Faso, Mali  
Thematic Focal Area<sup>1</sup>: Food Security *Choose an item.*  
Type of Implementing Entity: Regional  
Implementing Entity: Sahara and Sahel Observatory  
Executing Entities: Nubian Vault Association, Ministry of Environment, Green Economy and Climate Change (Burkina Faso), Agency for the Environment and Sustainable Development (Mali)  
Amount of Financing Requested: 4,790,000 (in U.S Dollars Equivalent)

### Project / Programme Background and Context:

In Sahelian Africa, access to adapted housing is difficult, and climate changes have increased the gravity of the issue: wood resources are imperilled by construction needs, inadequate materials render living conditions even more precarious, and buildings are nearly never considered in a sustainability and resilience perspective. This frailty of housing systems – **which include private housing, community buildings and production infrastructures** – imprisons populations in vicious circles of poverty and vulnerability to climate changes.

Housing issues affect all types of human establishments (HE) in the Sahel, but rural areas know specific challenges, many linked to climate change:

- The need to preserve depleted wood resources in an area undergoing fast deforestation and desertification (for economic production as well as community wellbeing and resilience): building practices must adapt to changes in available resources and offer improved energy efficiency.
- The need for adapted agricultural infrastructures, in particular food and products storage (food and income security): local productions are too often destroyed because of their storage in inadequate buildings incapable of providing shelter from increasing heat, wind and violent rains.

Furthermore, adaptive systems must be embedded into the socio-economic models that prevail, including self-building practices,<sup>2</sup> informal artisanship, and local employment for youths.

There is today no integrated policy in either of the countries addressing the challenge, due mainly to lack of knowledge regarding the issue and alternative solutions. Individual initiatives, such as that of the Nubian Vault Association, have been developed, but need today the means and support for coordinated national and regional scaling, to match the scope of the issue.

Context: The project will take place in Burkina Faso and Mali, in 11 regions (Burkina: rural communities of Sabou, Koubri, Bama, Yako, Dédougou; Mali: areas of Segou, San, Banamba, Dioïla, Koutiala, Sikasso) to build country-wide deployment with regional interaction. All these localities face the same challenges regarding climate change and natural resources. Target populations are mainly rural communities in the Sahel, especially smallholder farmers with low incomes and strongly affected by climate change and its impact on ecosystems, which influences their income (agricultural production and storage) and living conditions (weak resilience to adverse

<sup>1</sup> Thematic areas are: Food security; Disaster risk reduction and early warning systems; Transboundary water management; Innovation in adaptation finance.

<sup>2</sup> Self-building refers not exclusively to building one's own home, but to most informal economy practices, such as the work of experienced yet not formally certified artisans. It is the most prevalent system in Sahel, and Burkina Faso has set its promotion as an objective, recognizing its value for disseminating good practices and supporting economic growth (National Housing Construction Plan, Component 2).

weather). The agricultural sector employs between 75 and 85% of the population of these countries. 2.5 million people in Burkina Faso and 3 million people in Mali are subject to systemic food insecurity consistently exacerbated by climate change (USAID 2016).

### **Project / Programme Objectives:**

The proposed project's objective is to enable community and ecosystems resilience in Burkina Faso and Mali through large-scale dissemination of climate-adapted building solutions in policy and in practices. Adapted human settlements to climate change provide better shelter for vulnerable populations, particularly in rural areas. The Nubian Vault approach is a tool for resilient socio-economic development and a solution that ensures a sustainable use of natural resources.

Overall objective: Generate a transformation of policies and practices among public and private stakeholders in the Sahel to adopt and promote adapted building concepts and techniques.

Component 1: Institutional inclusion of better building practices into national and regional policies.

Component 2: Implementation of adapted building programmes at the national and local level.

Component 3: Capacity building for community appropriation of adapted building.

### **Project / Programme Components and Financing:**

<b>Project/Programme Components</b>	<b>Expected Outcomes</b>	<b>Expected Outputs</b>	<b>Countries</b>	<b>Amount (US\$)</b>
1. Component 1: Institutional inclusion of better building practices into national and regional policies	Outcome 1.1: Improved policies are developed that promote sustainable and resilient human establishments through adapted building	1.1.1: A regional adapted housing strategy is designed for Sahel-wide replication. 1.1.2: Mainstreaming of the new adapted building in the national habitat strategies. 1.1.3: National resilient building needs are identified and integrated into climate adaptation action plans of the specific areas	Burkina Faso, Mali	250,000 \$
	Outcome 1.2: Increased awareness to appropriate building needs and solutions among national policymakers	1.2.1: Advocacy and awareness raising action plan and tools on the proposed adapted building are developed for the benefit of policy makers. 1.2.2: Sensitization of policy makers and stakeholders on the added value and the techniques of the proposed adapted building 1.2.3: Knowledge exchange platform for regional use is designed to share best practices in adapted building techniques.	Burkina Faso, Mali	250,000 \$
Component 2: Implementation of adapted building programmes at the national and local level	Outcome 2.1: Adaptive buildings are implemented for the benefit of vulnerable populations.	2.1.1: Identification of the targeted sites and design of the "master plan". 2.1.2: Development of the architectural plans of the identified buildings. 2.1.3: Buildings are constructed by qualified local artisans, with community participation. 2.1.3: Information workshops are organized among local authorities 2.1.4: Construction needs, clients, builders are identified (supported or autonomous market)	Burkina Faso, Mali	1.850,000 \$

	Outcome 2.2: Increased availability of better building financial solutions for lower-income populations: microloans and financial incentives	2.2.1: Establishment of micro-enterprise for building materials production 2.2.2: Awareness actions and training for public and micro-financial institutions within targeted areas 2.2.3: Adaptive housing microcredit tools and financial incentives to better building practices are deployed among identified target populations 2.2.4: Building for each unit in 2.3.3. of a private house, inducing direct practice transformation among end-user beneficiaries	Burkina Faso, Mali	630,000 \$
3. Component 3: Capacity building and awareness-raising for a better community appropriation of adapted building techniques	Outcome 3.1: The targeted stakeholders and actors are trained and handle the building technique	3.1.1: On-site and in-class technical training modules to the NV adapted building method for local youths and conventional artisans 3.1.2: Training-of-trainers on building material production process and techniques 3.1.3: Organization of training session for the final beneficiaries (local population and masons) 3.1.4: Training modules for other building stakeholders and entrepreneurial issues (local authorities, conventional building businesses, architects, etc.)	Burkina Faso, Mali	750,000 \$
	Outcome 3.2: The targeted stakeholders, civil society and local population are informed and sensitized on the benefit of VN and their capacities are enhanced to disseminate and replicate adapted building strategies	3.2.1: Development of a sensitization and awareness strategy for population (farmers' organizations, women's groups, local NGOs) and local authorities (village, town and district councils) 3.2.2: Design and development of communication tools 3.2.3: Implementation of awareness raising campaigns	Burkina Faso, Mali	300,000 \$
4. Project/Programme Execution cost				475,000 \$
5. Total Project/Programme Cost				4,030,000 \$
6. Project/Programme Cycle Management Fee charged by the Implementing Entity (if applicable)				285,000 \$
<b>Amount of Financing Requested</b>				<b>4,790,000 \$</b>

**Project Duration:** *(In years and months)* 4 years (48 months)

## PART II: PROJECT / PROGRAMME JUSTIFICATION

### COMPONENTS

The *Adapted Building* project presents 3 components: (1) Institutional inclusion of better building practices into national and regional policies, (2) Implementation of adapted building programmes at the national and local level and (3) Capacity building and awareness-raising for a better community appropriation of adapted building techniques.

The project components are structured as follows:

## **Component 1**

### **Outcome 1.1: Improved policies are developed that promote sustainable and resilient human establishments through adapted building**

1.1.1: A regional adapted housing strategy is designed for Sahel-wide replication.

1.1.2: Mainstreaming of the new adapted building in the national habitat strategies.

1.1.3: National resilient building needs are identified and integrated into climate adaptation action plans of the specific areas

### **Outcome 1.2: Increased awareness to appropriate building needs and solutions among national policymakers**

1.2.1: Advocacy and awareness raising action plan and tools on the proposed adapted building are developed for the benefit of policy makers.

1.2.2: Sensitization of policy makers and stakeholders on the added value and the techniques of the proposed adapted building

1.2.3: Knowledge exchange platform for regional use is designed to share best practices in adapted building techniques.

## **Component 2:**

### **Outcome 2.1: Adaptive buildings are implemented for the benefit of vulnerable populations.**

2.1.1: Identification of the targeted sites and design of the “master plan”.

2.1.2: Development of the architectural plans of the identified buildings.

### **Outcome 2.2: Increased availability of better building financial solutions for lower-income populations: microloans and financial incentives**

2.2.1: Establishment of micro-enterprise for building materials production

2.2.2: Awareness actions and training for public and micro-financial institutions within targeted areas

2.2.3: Adaptive housing microcredit tools and financial incentives to better building practices are deployed among identified target populations

2.2.4: Building for each unit in 2.3.3. of a private house, inducing direct practice transformation among end-user beneficiaries

## **Component 3:**

### **Outcome 3.1: The targeted stakeholders and actors are trained and handle the building technique**

3.1.1: On-site and in-class technical training modules to the NV adapted building method for local youths and conventional artisans

3.1.2: Training-of-trainers on building material production process and techniques

3.1.3: Organization of training session for the final beneficiaries (local population and masons)

3.1.4: Training modules for other building stakeholders and entrepreneurial issues (local authorities, conventional building businesses, architects, etc.)

### **Outcome 3.2: The targeted stakeholders, civil society and local population are informed and sensitized on the benefit of VN and their capacities are enhanced to disseminate and replicate adapted building strategies**

3.2.1: Development of a sensitization and awareness strategy for population (farmers' organizations, women's groups, local NGOs) and local authorities (village, town and district councils)

3.2.2: Design and development of communication tools

## **INNOVATION**

At the core of the project is the Nubian Vault building alternative, an ancestral construction technique revived, simplified and standardized by AVN for dissemination among Base of Pyramid populations in the Sahel region, mainly rural populations living with under \$2 PPP/day.

The Nubian Vault is an all-earth construction technique, designed on a simple modular model: each element is a room of 3.25 m wide and any length, with a vaulted ceiling and terraced roof. Elements can be combined to create large buildings (largest today is 470 m<sup>2</sup>) adapted for various uses. NVs exist today as private homes, schools, offices, produce storage houses, hotels, health centres, etc. NVs are simple to build and the technique can be learned by anyone without technical or educational background within the target populations.

The Nubian Vault answers a number of challenges these populations face today, climate adaptation being prevalent among these, with two main factors:

- Increase in temperature extremes & violent weather episodes (rain, winds, etc.) that significantly diminish already precarious living conditions and productivity settings (food and produce storage, health services, education, commercial production, etc.).
- Disappearance of wood and straw, used for traditional architecture, today commonly replaced by cement blocks and metal sheets, despite their inadequacy.

The introduction of the NV solution is an innovative answer to climate challenges in the Sahel, empowering communities to tackle the climate challenges they face using near vernacular know-hows and locally embedded systems. Rewarded by the World Habitat Award (UN-Habitat, BSHF), its value has already been demonstrated through practice: local dissemination projects have led to 2,500 buildings constructed, and 700 active masons and apprentices across the Sahel.

## RESILIENCE, SUSTAINABILITY AND CO-BENEFITS

**The main impact of the project is the increase communities' resilience** in rural areas of the Sahel: climate-adapted buildings signify better living conditions for all, in particular vulnerable BoP populations. This includes private housing, but also community buildings and workplaces, with associated benefits: **increased productivity in agricultural and commercial activities, food security (storage), increased income and savings on building renovation and materials replacement, improved health care and education services.**<sup>3</sup> Another set of co-benefits rests in the compatibility of the NV building technique with local apprenticeship systems, enabling rural youths to **learn and practice an income-generating trade** in local circuits, curbing rural exodus.

**Environmental impacts:** Deforestation and desertification in both countries make alternatives to tree cutting for construction imperative. The NV solution preserves resources that contribute to communities' wellbeing and economic growth (Shea, Gum Arabic or other productive trees).

The project includes **concrete adaptation actions** to be conducted, including housing and building components created within existing green growth projects (Burkina's Eco-Villages and Mali's PGRNCC project) and community-led construction, leading to several thousands of houses built.

**Sustainability is integrated** into the project design: the market creation approach ensures impacts beyond the end-term of the project, through income-generating activities for the beneficiaries. Housing is a long-lasting investment and introducing adaptive practices benefits several generations. The housing market is perennial by nature; currently the NV market growth is measured at approximately +30%/year (average over last 12 yrs), offering increasingly strong economic opportunities for local craftsmen. Around 1,000 apprentices, masons, entrepreneurs will be trained in this project, spearheading a booming economic green sector. Appropriation of the NV method by local CSOs leads to communities' ability to replicate better building practices in all autonomy.

## CONSULTATION & COMMUNITY PARTICIPATION

Consultations will be organized to ensure coherence of the project's aims with beneficiary communities' needs (these include farmers', women's and masons' coops). AVN's 17 years of experience disseminating the NV concept within 800 towns and villages of the Sahel ensures relevance of the project. Communities participate to the project via construction projects (provision of materials and workforce) and dissemination of the NV concept (relay-persons, CSOs, clients).

## REGIONAL VALUE

The project serves as a **momentum initiator** for the entire Sahel region, which knows the same challenges regarding climate adaptation needs, housing inadequacy and lack of integrated approaches in policy-making. **Burkina Faso and Mali present today the best conditions for large-scale dissemination of adaptive housing systems:** first generations of trained NV masons and artisans in addition to the political will in order to develop a large-scale approach to its appropriation, both nationally and in regional collaboration. The participation of the Min. of Environment of Burkina Faso and the AEDD of Mali ensure the integration, *at governmental level*, of adapted housing policies into adaptation strategies. Cross-border cooperation will be ensured through regular steering committee meetings. The NV solution has been introduced in 4 other countries of the region, Senegal, Benin, Ghana and Mauritania. Other LDCs (Sudan, Chad) have expressed their interest in developing similar national and regional strategies for adaptation of

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<sup>3</sup> In schools in particular, teachers testify that pupils have better academic results in Nubian Vault buildings

building and HE sectors. Regional impact is furthermore called for by the international community's support to Sahelian integration ('Alliance for the Sahel', EU Trust Fund for the Sahel, etc.), aiming at sustainable development and security.

### COHERENCE WITH NATIONAL POLICIES AND STANDARDS

The project is coherent with national development, climate adaptation and housing strategies in both countries. Burkina Faso has inscribed the Nubian Vault in its NDC to strengthen a vulnerable housing and urban development sector.<sup>4</sup> Mali has set a similar emphasis on adaptation of building methods in its Sustainable Development Framework: promotion of local materials, energy efficiency and the NV solution.<sup>5</sup> Mali's NAPA identifies the promotion of income-generating activities as a key basis for adaptation, associated to a "technology package to train people on simple adaptation" actions, which matches exactly the proposed project's *modus operandi*. **Operational implementation of these ambitions is yet to be fully developed in both these countries, and is the purpose of the present project.** This proposal can be tied to specific initiatives as well: in particular, it will support the integration of housing components into Burkina Faso's Eco-Village project and Mali's National Resource Protection project (PGRNCC), which are today still lacking despite the stated ambition to create sustainable HEs. The project also aims to help develop integrated standards in areas closely connected to housing, which today fail to support adaptive practices: building standards, energy efficiency, sustainable land management, self-building, etc.

### COST EFFECTIVENESS

Housing is a considerable investment in all contexts, its long-lasting nature and heavy environmental impact justify careful consideration of sustainability issues at conception. In rural settings and for individual homes, the NV solution can be up to 50% cheaper than conventional building techniques, through the participation of the population in the building process (providing materials and unskilled workforce). For community and urban buildings, this ratio is diminished due to technical necessities, but the durability and low-maintenance of the finished structure make it a better long-term investment, with the addition of adaptive co-benefits. Furthermore, the promotion of local materials and workforce creates endogenous economic growth. This project supports improved policies in this field for more efficiency in national and regional building/housing initiatives.

### LEARNING AND KNOWLEDGE MANAGEMENT

The proposed project is one of knowledge, information and skills transmission to a variety of stakeholders, from national public institutions to local smallholder communities. Technical and methodological capitalization is necessary for its short and long-term effectiveness. It is ensured by AVN and the Steering committee, in open source for replication to other Sahelian countries.

## PART III: IMPLEMENTATION ARRANGEMENTS

The management and implementation arrangements of the project are as follows:

- The Sahara and Sahel Observatory (OSS), Regional Implementing Entity, is in charge of the overall supervision of the project and the connection between project partners and the Adaptation Fund. It is also part of the project Steering Committee.
- The Nubian Vault Association (AVN) serves as regional coordinator for the project, in charge of ensuring effective design and implementation of activities, coordinating partners' engagement and all financial, monitoring and reporting aspects to the Adaptation Fund. It leads the project Steering Committee. It is also Executing Entity, contributing its knowledge and experience in dissemination of adaptive housing practices in the Sahel.
- National entities (Burkina Faso: Ministry of Environment, Green Economy and Climate Change, Mali: Agency for the Environment and Sustainable Development) participate in the implementation of the project, and are also direct beneficiaries of component 1.

A project Steering Committee is to be set, composed of each abovementioned institutions, in order to monitor the effective implementation of the project, and contribute to capitalization and experience-sharing activities. It will meet on a regular basis in either Burkina Faso or Mali.

<sup>4</sup> Priority n°9, with stated targets of 20,000 individual homes and 2,000 community buildings (see esp. pp. 3, 33, 44)

<sup>5</sup> *Cadre Stratégique pour la Relance Economique et le Développement Durable 2016-2018*, Objective 26, page 100

## PART IV: ENDORSEMENT BY GOVERNMENTS AND CERTIFICATION BY THE IMPLEMENTING ENTITY

### A. Record of endorsement on behalf of the government<sup>6</sup>

<i>Ambroise KAFANDO, Director General of Cooperation, Ministry of Economy, Finance and Development, Burkina Faso</i>	Date: July 21 <sup>st</sup> , 2017
<i>Boureïma CAMARA, Director General, Environment and Sustainable Development Agency, Mali</i>	Date: July 28 <sup>th</sup> , 2017

### B. Implementing Entity certification

<p>I certify that this proposal has been prepared in accordance with guidelines provided by the Adaptation Fund Board, and prevailing National Development and Adaptation Plans (NAPAs) and subject to the approval by the Adaptation Fund Board, <u>commit to implementing the project in compliance with the Environmental and Social Policy of the Adaptation Fund</u> and on the understanding that the Implementing Entity will be fully (legally and financially) responsible for the implementation of this project.</p>	
<p>Implementing Entity Coordinator  <b>Mr. Khatim KHERRAZ</b>          Executive Secretary          SAHARA AND SAHEL OBSERVATORY (OSS)</p> <p>Signature: </p> 	
Date: (Month, Day, Year) <b>August 4<sup>th</sup>, 2017</b>	Tel. and email (+216) 71 206 633 <a href="mailto:boc@oss.org.tn">boc@oss.org.tn</a>
Project Contact Person: <b>Mr. Nabil BEN KHATRA</b>	
Tel. and email: (+216) 71 206 633 <a href="mailto:nabil.benkhatra@oss.org.tn">nabil.benkhatra@oss.org.tn</a>	

<sup>6</sup> Each Party shall designate and communicate to the secretariat the authority that will endorse on behalf of the national government the projects and programmes proposed by the implementing entities.



MINISTERE DE L'ENVIRONNEMENT,  
DE L'ASSAINISSEMENT ET DU  
DEVELOPPEMENT DURABLE

Agence de l'Environnement et du  
Développement Durable (AEDD)



N° **1291**

/MEADD/AEDD-FVC

REPUBLIQUE DU MALI  
*Un Peuple - Un But - Une Foi*

Bamako, le **28 JUIL 2017**

*The Director General of the Environment  
and Sustainable Development Agency*

To

The Adaptation Fund Board  
c/o Adaptation Fund Board Secretariat  
Email : [Secretariat@Adaptation-Fund.org](mailto:Secretariat@Adaptation-Fund.org)  
Fax: 202 522 3240/5

**Subject : Endorsement for the project "Adapted Building: Transformative Practices for Better Building in the Sahel".**

In my capacity as designated authority for the Adaptation Fund in Mali, I confirm that the above regional project proposal is in accordance with the government's national priorities in implementing adaptation activities to reduce adverse impacts of, and risks, posed by climate change in the selected region.

Accordingly, I am pleased to endorse the above project proposal with support from the Adaptation Fund. If approved, the project will be implemented by the Sahara and Sahel Observatory and executed by the Nubian Vault Association, the Ministry of the Environment, Green Economy and Climate Change of Burkina Faso, and the Agency for the Environment and Sustainable Development of Mali.



The Director general

**Boureïma CAMARA**  
Chevalier de l'Ordre National



21 JUL 2017

**Letter of Endorsement by Government**

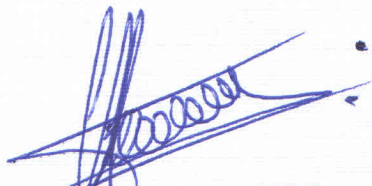
To: The Adaptation Fund Board  
c/o Adaptation Fund Board Secretariat  
Email: [Secretariat@Adaptation-Fund.org](mailto:Secretariat@Adaptation-Fund.org)  
Fax: 202 522 3240/5

Subject: Endorsement for the project "Adapted Building: Transformative Practices for Better Building in the Sahel"

In my capacity as designated authority for the Adaptation Fund in Burkina Faso, I confirm that the above (select national or regional) project proposal is in accordance with the government's (select national or regional) priorities in implementing adaptation activities to reduce adverse impacts of, and risks, posed by climate change in the Burkina Faso.

Accordingly, I am pleased to endorse the above project/programme proposal with support from the Adaptation Fund. If approved, the project/programme will be implemented by the Sahara and Sahel Observatory and executed by the Nubian Vault Association, the Ministry of the Environment, Green Economy and Climate Change of Burkina Faso, and the Agency for the Environment and Sustainable Development of Mali.

Sincerely,



**Monsieur Ambroise KAFANDO**  
Fund National Designated Authority  
Director General of Cooperation  
Of Minister of Economy, Finance and Development  
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