



Fourth Edition

**“NATURAL HAZARDS AND CULTURAL
HERITAGE”
PRESERVATION STRATEGIES
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TITLE: Desertification in Africa: Mali Facing Challenges and Solutions by 2030

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**MALI
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This presentation will address one of the major environmental challenges of our time: desertification in Africa, with a particular focus on Mali. As an architect, my role is to propose visions and concrete solutions for building a more resilient future. We will explore current challenges, the stakes for sustainable development by 2030, and innovative architectural and urban planning strategies to address them, integrating the Sustainable Development Goals and regional initiatives.

- Key Findings
- Desertification is a major challenge in Mali, exacerbated by climate change and air pollution.
 - Mali has already made significant progress in combating desertification, notably through dune stabilization and reforestation.
 - Mali's national strategy aims for sustainable and balanced development of the territory, supporting territorial and administrative reform.
 - The 2030 Agenda for Sustainable Development and the African Union's Agenda 2063 provide essential frameworks for actions to combat desertification.
 - The New Urban Agenda offers a global roadmap for sustainable urbanization, relevant to Malian cities.

MALI: VERS UN FUTUR RÉSILIENT - STRATÉGIES ARCHITECTURALES ET URBAINES CONTRE LA DÉSERTIFICATION

ENJEUX ACTUELS & DÉFIS

1. LA DÉSERTIFICATION AU MALI: UN DÉFI MAJEUR



Causes Aggravantes: Changement Climatique, Pollution de l'Air, Pression Démographique.

Desertification (encroachment of sand) is a acritical threat to agriculture and communities.

Climate change intensifies droughts and extreme weather events, accelerating land degradation.

Air pollution contributes to regional warming and respiratory health issues.

SOLUTIONS & STRATÉGIES

2. STRATÉGIES ARCHITECTURALES ET URBAINES INNOVANTES

Cycle de Régénération Territoriale

Stabilisation des Dunes (Planting native species) → Reforestation en "Ceinture Verte" → Agriculture Agroforestière → Développement Urbain Compact et Vert

Significant progress made: Dune stabilization and reforestation programs.

Projets Locaux

National strategy for sustainable development, supporting land reform and balanced growth.

Développement Territorial Équilibré

Architectural design focuses on passive strategies, local materials (banco), and integrated green spaces.

CADRES & OBJECTIFS

3. CADRES MONDIAUX ET RÉGIONAUX POUR L'ACTION

Agenda 2030 (ODD) → Agenda 2063 (UA) → Agenda 2063 (UA)

Agenda 2030 (ODD) → Agenda 2063 (UA)

2030 Agenda (ODD) provides essential targets for combatting desertification and building sustainable communities.

Afrique que nous voulons

African Union's Agenda 2063 guides regional cooperation and resilience-building efforts.

New Urban Agenda offers a global roadmap for sustainable, inclusive, and climate-resilient cities in Mali.

Desertification in Africa: Mali Facing Challenges and Solutions by 2030

MALI: DÉSERTIFICATION EN AFRIQUE – DÉFIS ET SOLUTIONS VERS 2030

Présentée par Hamet Alpha Diop, Architecte Senior

CONTEXTE & DÉFIS ACTUELS

1. LE MALI FACE À L'AVANCÉE DU DÉSERT



La désertification est une menace majeure pour l'agriculture et les communautés.



Le changement climatique intensifie les sécheresses et les événements météorologiques extrêmes.



La pollution de l'air aggrave le réchauffement régional et affecte la santé respiratoire.

STRATÉGIES ARCHITECTURALES ET URBAINES INNOVANTES

2. VERS UN HABITAT ET UN URBANISME DURABLES



Utilisation de matériaux locaux (banco) et de techniques traditionnelles améliorées pour la construction.



Stratégies de conception passive pour le confort thermique, réduisant la dépendance énergétique.



Planification urbaine intégrant des espaces verts en réseau et la gestion durable de l'eau.

PROGRÈS & INITIATIVES RÉGIONALES

3. AVANCÉES ET CADRES DE RÉFÉRENCE



Fixation des dunes et vastes reboisements: Progrès significatifs déjà réalisés.



Agenda 2030 pour le développement durable (ODD) comme cadre d'action global.



Agenda 2063 de l'Union Africaine: Cadre régional pour une Afrique résiliente.

MISE EN ŒUVRE & MILESTONES

4. FEUILLE DE ROUTE VERS 2030



La stratégie nationale vise un développement équilibré, en appui à la réforme territoriale.



Le Nouvel Agenda Urbain offre une feuille de route pertinente pour les villes maliennes.

Background

Africa, and the Sahel region in particular, is on the front lines of the fight against desertification. This phenomenon—characterized by land degradation in arid, semi-arid, and dry sub-humid areas—results from various factors, including climatic variations and human activities. In Mali, the advancing desert is a tangible reality, manifesting as strong winds, extreme temperature fluctuations, and heightened ecosystem degradation.

MALI: ANALYSE STRATÉGIQUE ET RÉPONSES ARCHITECTURALES FACE À LA DÉSERTIFICATION AU SAHEL

CONTEXTE GÉOGRAPHIQUE ET CLIMATIQUE

1. LE DÉFI SAHELIEU AU MALI



CAUSES ET MANIFESTATIONS

2. FACTEURS DE DÉGRADATION



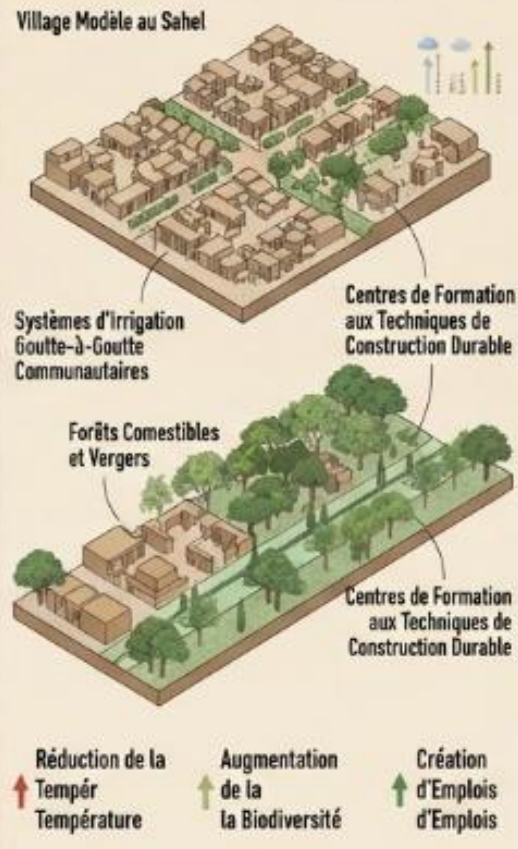
STRATÉGIES D'ADAPTATION ARCHITECTURALE

3. RÉPONSES BÂTIES et RÉGÉNÉRATION



PROJETS PILOTES ET IMPACT

4. VISION VERS 2030 - PROJETS PHARES



Challenges

The challenges linked to desertification in Mali are numerous and interconnected:

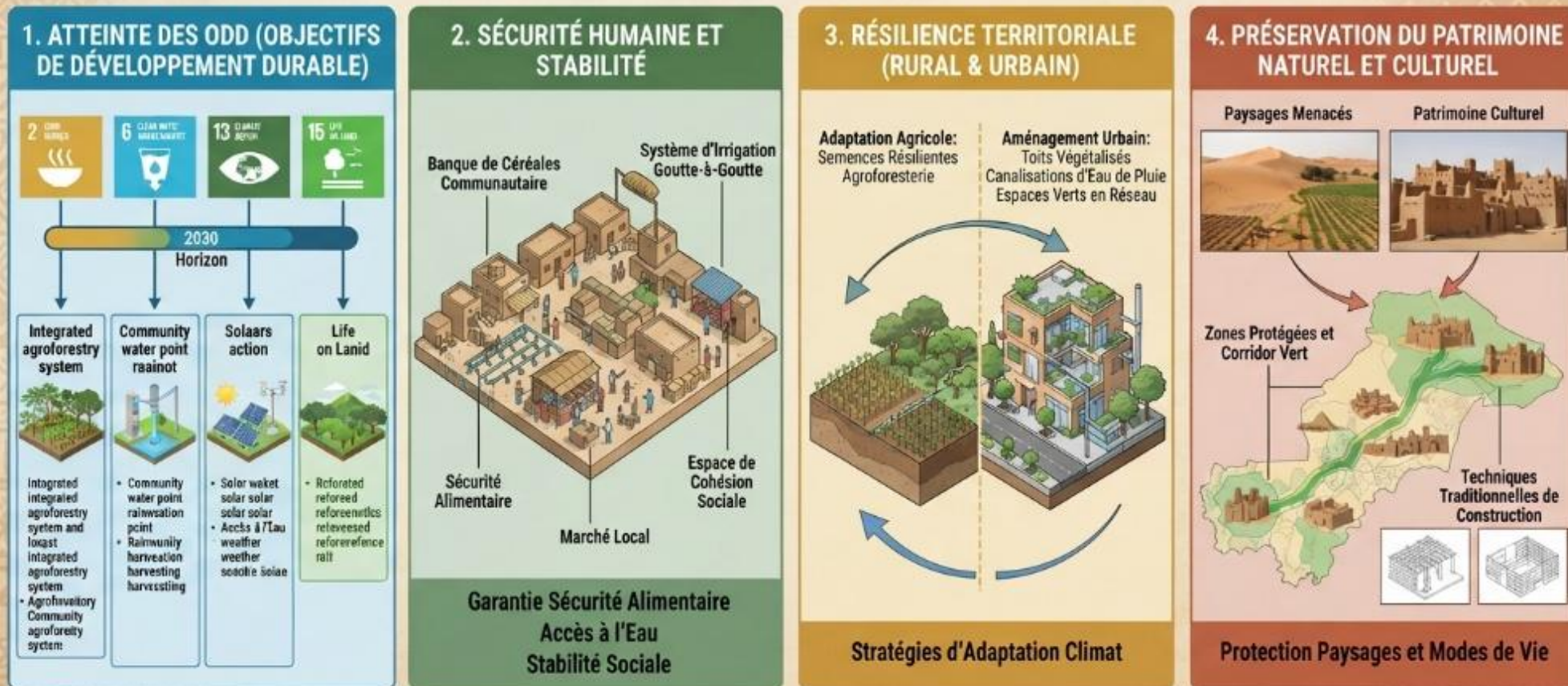
- Environmental:
 - o Loss of biodiversity: Decline in plant and animal species adapted to Sahelian ecosystems.
 - o Soil degradation: Wind and water erosion, salinization, and loss of fertility in agricultural land.
 - o Water stress: Reduction of surface and groundwater resources, affecting agriculture and access to drinking water.
- Socio-economic:
 - o Food security: Declining agricultural and pastoral yields, threatening the livelihoods of the population.
 - o Population displacement: Rural exodus and forced migrations due to the inability to make a living from the land.
 - o Conflict: Increased tensions surrounding access to increasingly scarce natural resources.
- Architectural and Urban Planning:
 - o Fragility of infrastructure: Earthen buildings, although well-suited, are vulnerable to the onslaught of strong winds and heavy rain.
 - o Urban planning: The need to adapt cities to an increasingly hostile environment (dust and heat management).

Challenges for 2030

For Mali, the 2030 horizon represents a critical deadline for reversing the trend of desertification and ensuring sustainable development. The major challenges include:

- Achieving the Sustainable Development Goals (SDGs): Particularly SDGs 2 (Zero Hunger), 6 (Clean Water and Sanitation), 13 (Climate Action), and 15 (Life on Land).
- Human security: Guaranteeing food security, access to water, and social stability to prevent crises.
- Territorial resilience: Developing adaptation strategies for rural and urban areas in the face of climate shocks.
- Preserving natural and cultural heritage: Protecting landscapes and traditional ways of life threatened by desertification.

MALI: DÉFIS ET STRATÉGIES VERS 2030 - VERS UN DÉVELOPPEMENT DURABLE ET RÉSILIENT



Solutions: The Architectural and Urban Planning Approach

As an architect, I firmly believe that our profession has a pivotal role to play in developing sustainable solutions.

- Strategies to Combat (Rural) Desertification:
 - o Reforestation and the Great Green Wall: Support and expand reforestation and ecosystem restoration projects. Mali has already made progress in dune stabilization and reforestation efforts.
 - o Sustainable land management: Implement resilient agricultural and pastoral practices, such as agroecology and integrated natural resource management.
- Sustainable Urban Planning and City Resilience:
 - o Integrated spatial planning: Develop a National Spatial Planning Scheme (SNAT) to ensure balanced development, drawing on the New Urban Agenda.
 - o Green cities: Integrate green spaces, parks, and ecological corridors to mitigate urban heat islands and foster biodiversity.
 - o Urban water management: Implement rainwater harvesting and reuse systems, as well as permeable infrastructure to recharge groundwater aquifers.
- Local Materials and Adapted Construction:
 - o Earthen architecture (Banco): Promote the use of—and innovation with—local materials like *banco* (mud brick), which offers excellent thermal mass and reduces the need for artificial air conditioning.
 - o Bioclimatic design: Design buildings that maximize natural ventilation, shading, and insulation to minimize energy consumption.
 - o Research and development: Invest in research into new materials and construction techniques suited to desert conditions.
- Community Engagement:
 - o Involve local populations in project design and implementation, valuing their traditional knowledge and expertise.

AFRICA: SOLUTIONS ARCHITECTURALES ET URBANISTIQUES POUR LA RÉSILLENCE ET LA DURABILITÉ

1. STRATÉGIES DE LUTTE CONTRE LA DÉSERTIFICATION (RURAL)



2. AMÉNAGEMENT URBAIN DURABLE ET RÉSILIENCE DES VILLES

Planification Territoriale Intégrée (SNAT)



 **Villes Vertes: Corridors Écologiques et Espaces Publics Végétalisés**

 **Gestion de l'Eau en Milieu Urbain: Toits Végétalisés, Systèmes de Récupération d'Eau de Pluie et Infiltration Perméable**

3. MATÉRIAUX LOCAUX ET CONSTRUCTION ADAPTÉE

Architecture en Terre (Banco): Innovation et Masse Thermique



Conception Bioclimatique: Ventilation Naturelle et Ombragement



Recherche et Développement: Nouveaux Matériaux Désertiques



4. ENGAGEMENT COMMUNAUTAIRE ET SAVOIR-FAIRE TRADITIONNEL

Co-conception et Implication Locale



Valorisation de l'Expertise Traditionnelle



Mise en Œuvre Participative



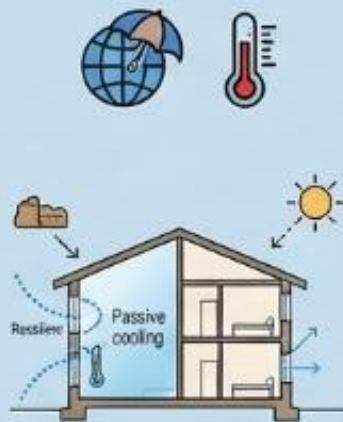
Inclusion, Formation, et Pérennisation des Projets.

Practical Takeaways

- Integrate climate resilience into all architectural and urban planning: Every new project must consider the impacts of climate change and resource scarcity.
- Promote the use and innovation of local materials: Mud brick and other natural materials are assets for sustainable construction adapted to the Sahelian context.
- Develop green infrastructure: Green spaces and water management systems are essential for creating more livable and resilient cities.
- Strengthen intersectoral collaboration: Architects must work together with urban planners, engineers, ecologists, and communities to develop holistic solutions.
- Support ambitious public policies: Support the implementation of Vision Mali 2063 and the goals of the 2030 Agenda for Sustainable and Balanced Development

AFRICA: PRACTICAL TAKEAWAYS FOR SUSTAINABLE AND RESILIENT DEVELOPMENT IN THE SAHEL

1. INTÉGRER LA RÉSILIENCE CLIMATIQUE



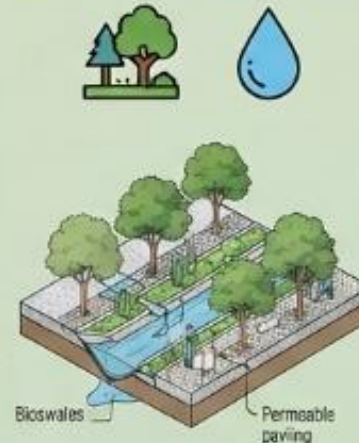
Prendre en compte les impacts du changement climatique et la rareté des dans tous les projets.

2. PROMOUVOIR LES MATÉRIAUX LOCAUX



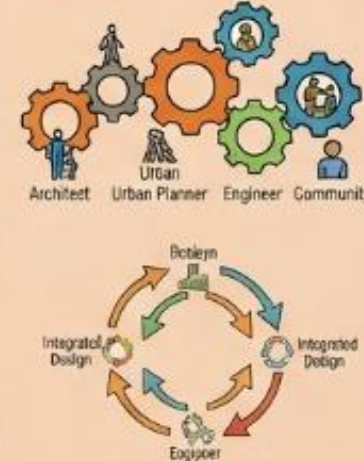
Valoriser la brique de terre et les matériaux naturels une construction adaptée au contexte sahélien.

3. DÉVELOPPER LES INFRASTRUCTURES VERTES



Créer des espaces verts et des systèmes de gestion de l'eau des villes vivables et résilientes.

4. RENFORCER LA COLLABORATION INTERSECTORIELLE



Travailler ensemble pour développer des solutions holistiques entre et communautés.

5. SOUTENIR LES POLITIQUES PUBLIQUES AMBITIEUSES



Appuyer la mise en œuvre de Vision Mali 2063 et des Objectifs de Développement Durable.



THANK YOU FOR
YOUR ATTENTION