

# Dryland nature-based solutions for informal settlement upgrading schemes in Africa

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## Introduction

Dryland ecosystems occupy 40% of Earth's terrestrial surface, characterised by high spatial and temporal rainfall variability. Drylands are particularly vulnerable due to changing rainfall patterns and land degradation – aggravating poverty, food and water insecurity. This is particularly the case in rapidly growing informal settlements across Africa. Building, protecting and restoring nature-based solutions (NbS) can benefit resource-constrained informal settlements, due to cost-effectiveness, health and economic co-benefits. Yet, little effort has been made to implement NbS in fragile drylands peri-urban areas. Concurrently, less attention has been paid to adaptation in informal settlements, even though living conditions often cannot withstand extreme events. City and national governments use upgrading schemes to address rapid unplanned peri-urban growth and build resilience. In some instances, in-situ upgrading programmes combined with flexible tenure systems and NbS can significantly benefit peri-urban populations and the wider city landscape.

## Focus

Based on an ongoing research in Namibia, Kenya and Tanzania, the "Peri-Urban Resilient Ecosystems" partnership presents ten practical recommendations to strengthen informal settlement upgrading schemes through NbS for urban policy makers, planners, designers, shack dweller federations and local authorities operating in dryland systems.

Link to full brief: <https://africa.iclei.org/wp-content/uploads/2021/02/nbs-policy-brief-final.pdf>.  
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## Recommendations

### 1: Integrate dryland nature-based solutions into in-situ upgrading schemes

Given the range of interventions classified as NbS and the cross-sectoral co-benefits, as new processes and designs for informal area upgrading are interrogated and implemented, opportunities for NbS implementation should be explored. NbS measures are often more cost-effective than manufactured and engineered alternatives in the long term.

### 2: Effectively partner with civil society organizations and the private sector

Communities, supported by NGOs, local governments and relevant Slum/Shack Dwellers Federations actively seek good relations with politicians and city officials to support co-production and have developed methods for effective engagement. Involving stakeholder consultation from the outset to explore NbS in upgrading, can help ensure alternatives are feasible.



### 3: Integrate hybridised approaches of green, blue and grey infrastructure

Use the urban living system (e.g., green areas, riverbeds) and the built environment (e.g., roads, buildings) together to better meet all the integrated needs of cities. Policy makers can also help by encouraging experimentation, learning, and innovation in the private sector through subsidies and tax incentives for NbS.

### 4: Explore integrated approaches to upgrading with complementary co-benefits

Integrated approaches for climate adaptation and mitigation that fosters interconnections among sectors, between governance levels, from the settlement and city scale to the wider catchment and different phases of infrastructure's lifecycles build stronger environmental, social, and economic sustainability.



BENEFITS INCLUDE

- Eg. Provide water to communities
- Eg. Provide flooding control and regulate the quality of water to help with water insecurity
- Eg. Stabilise the soil to help protect soil erosion and ensuring good quality soil to reduce food insecurities
- Eg. Maintains diversity of plants and animals which are important for resilience to shocks and changes
- Eg. Aesthetic, spiritual and human well-being benefits such as ecotourism for the country and livelihood generation



Examples of informal settlement landscapes, resource extraction and NbS in Windhoek, Gobabis, Oshikati, Namibia. Credits: Thorn, J., Marchant, R.

### 5: Keep drylands alive through soil biodiversity

Soil biodiversity and soil organic carbon management are vital elements in supporting multiple ecosystem services. Upgrading schemes can consider the promotion of agroecological practices to maintain soil organic matter in and around homes in informal settlements to sustain key landscape functions and increase self sufficiency.

### 6: Plant indigenous trees along roads and in households

Prior to upgrading settlements, developments often clear away important habitat for biodiversity. Woody and herbaceous species can help restore degraded ecosystems based on biophysical and ecological properties and socio-economic value. We encourage environmental by-laws that require developers to proactively include plans for indigenous tree planting on their land, enforced through regular consultation.



### 7: Link informal transport networks with green spaces

Inherited poor urban designs means communities often face costly and long commutes to employment opportunities. Parks and green spaces can create more connected cities, through pedestrian or cycling routes, whilst addressing urban sprawl, improving health and wellbeing and reducing GHG emissions. Doing so requires ensuring pedestrian security and maintaining clean routes void of solid waste.

### 8: Shift perspective from "unplanned" to "unserviced"

Informality, including the informal economy and informal settlements, is an integral part of most growing African cities and the source of innovations that can be harnessed for the betterment of the wider city. Changes in perceptions of decision makers regarding informality is necessary not only to foster better engagement with informal settlement representatives and municipalities, but also use NbS as the ideal entry point to service settlements.



### 9: Experiment with "untried beginnings"

The principle of 'Urban Tinkering' re-imagines the use of existing urban elements, such as open green spaces or dilapidated buildings, and identifies valuable shifts in how they work. NbS are extremely well positioned to support this experimentation, design adaptability and innovation - allowing infrastructure to serve multiple functions that address context specific challenges.

### 10: Generate and use relevant data for evidence-based decision making

Climate change provides large investment prospects to transform cities. Currently, insufficient data and knowledge prevent promising business cases from becoming apparent and compelling. Meanwhile, too often decisions are made ignoring the evidence base. Due to the governance and finance frameworks inherent to NbS implementation, NbS can help collect the necessary data, laying the foundation for an investment-friendly environment.

