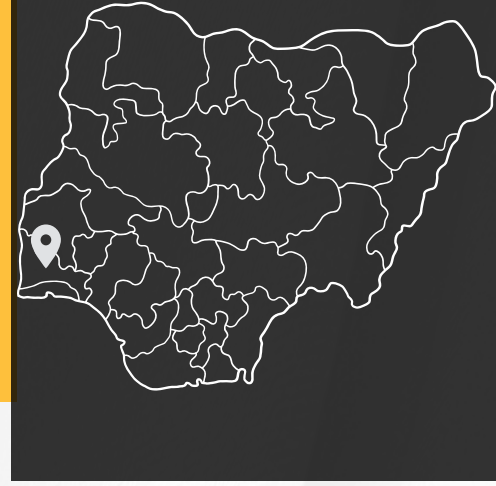


# A CASE STUDY PROFILE ON BIOGAS PRODUCTION FOR FOREST CONSERVATION IN NIGERIA



## CASE STUDY BACKGROUND

Over 70% of Nigerians rely on biomass for fuelwood, especially in rural communities. This has led to the destruction of over half of the country's primary forests, exacerbating issues such as flooding and reduced crop yield. In 2019, Nigeria's government added biogas energy to their Integrated Energy Plan (IEP) to provide its citizens with affordable, reliable, and sustainable energy. Rural communities in Owode Town, in Yewa South Local Government Area (LGA) of Ogun state are adapting to climate change by utilizing organic waste to conserve the depleted forest resources and restore biodiversity. This case study focuses on the communities' adaptive options and other co-benefits.

## MAIN FINDINGS

### MOTIVATION FOR ACTION

The communities are particularly motivated to sustain their means of livelihood, to avert the increasing incidences of climatic impacts especially in heat islands, and to improve negative health outcomes that result from consistent fuelwood use.

## PRACTICES & STRATEGIES

Some of the adopted practices and strategies include:

- Use of all kinds of agricultural biomass wastes and residues. e.g. sun-dried seed as substitutes for fuelwood.
- Use of agricultural waste to produce biogas.
- Use of agricultural biomass, e.g. palm kernel during rainy seasons as a substitute for fuelwood.

## MAIN OUTCOMES

- The community has established nature-based solutions as important, profitable actions that have the capacity to sustainably restore the natural ecosystem by reducing several climate-induced hazards and risks associated with unsustainable harvesting of forest resources.
- The actions have also improved the lives and livelihoods of community members.

## ALIGNMENT WITH NDCS

The actions align with a number of national policies, strategies, and action plans developed to address climate change impacts, natural hazards and disasters, environmental sustainability, and the socio economic improvement of Nigeria, in major adaptation policy frameworks such as Nigeria's updated NDCs,

## CO-BENEFITS

1. Forest protection and rejuvenation.
2. Improved health and well-being of the communities.
3. Use of biomass by-products for soil quality improvements.



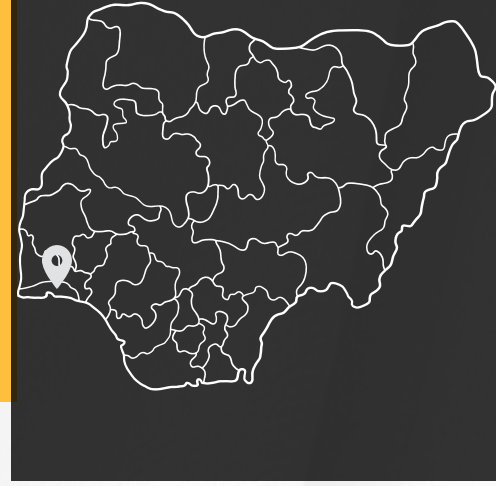
## LIMITATIONS AND CHALLENGES

1. Limited or no access to international forest conservation frameworks such as REDD+
2. Limited supporting policy and environmental governance.

## OPPORTUNITIES

1. Potential to increase transfer of technological know-how leading to an increase in investments in renewable energy, improved energy efficiency, and interest in developing and deploying clean energy technologies
2. Increase in the resilience of the communities' natural ecosystems and the reforestation of degraded areas.
3. Opportunity to increase the social resilience of the communities in light of its broad and multidimensional approach.

# A CASE STUDY PROFILE ON FISHERIES AND THE AQUACULTURE SECTOR OF NIGERIA



## CASE BACKGROUND

Fish farming and aquaculture provide livelihoods in rural and peri-urban areas of Nigeria. However, climate change and existing socioeconomic factors are negatively impacting the sector, impacting food security and livelihood opportunities, including income generating opportunities. To adapt to some of the challenges, local fish farmers have devised traditional methods and strategies and locally-sourced materials to improve fish quality and quantity. This case study is focused on Abesan and Shagari Estates in Lagos State,

## MAIN FINDINGS

### MOTIVATION FOR ACTION

The community is motivated to maintain a source of livelihood and reduce the cost of fish production. There is also a need to avert the increasing incidences of climate change impacts, especially flooding.

### PRACTICES & STRATEGIES

Some of the adopted practices and strategies include

- Robust monitoring, evaluation, learning, and knowledge sharing.
- Drilling of deeper water boreholes for easy access to constant water.
- Use of white and black plastic sheets to enclose the fish ponds containing the hatchlings and fingerlings,
- Inclusion of training and apprenticeship programs that ensure that best practices are passed on.
- Use of storage tanks to store, aerate, and monitor the water quality

### MAIN OUTCOMES

- It has built the resilience of the fish farmers to the impacts of climate change affecting their livelihoods and increased their adaptive capacities to these impacts.
- It has also improved the economic, social, and environmental sustainability of the community.

### ALIGNMENT WITH NDCS

The practices are found within three priority sectors including agriculture, forestry, and other land use (AFOLU); food security and health; and fresh water and coastal wetlands of the NDCs and other national policies and strategies, including including the NAP framework, NASPA-CCN, NCCPRS, and the 2021 Climate Act.

## CO-BENEFITS

1. Improved economic development of the community and Nigeria at large from the creation of green jobs in the fisheries and aquaculture sector with positive returns on investment in accordance with SDGs 14 and 13.
2. Reduction in food insecurity and hunger in the community and environs by increasing fisheries and aquaculture production, while increasing the farmers adaptive capacity (SDG 2).
3. Building community and organizational resilience to climate change and help in creating a more equitable and sustainable future (SDG 13).



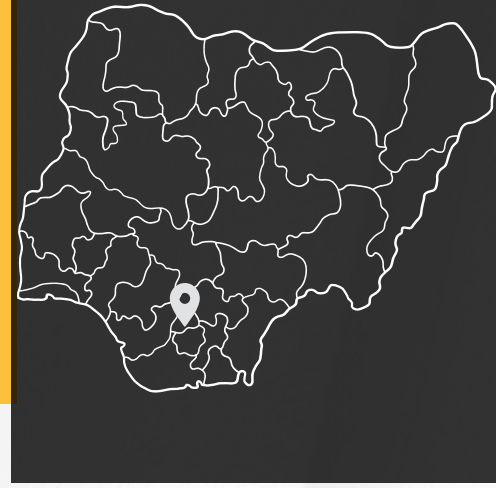
## LIMITATIONS AND CHALLENGES

1. Limited access to financial services (insurance, credit and advisory).
2. Lack of medium to advanced technological know-how and experienced manpower to expand fish farming
3. Lack of proper waste management systems to minimize pollution.
4. Poor government and policy support.

## OPPORTUNITIES

1. Need for additional support to reduce the vulnerability of communities to climate impacts.
2. Additional investment in disaster risk reduction through government investment in early warning systems, emergency management plans, and disaster risk reduction strategies
3. Education and awareness-raising campaigns for increased public understanding on potential ways to enhance fish farming in the face of climate change

# A CASE STUDY PROFILE ON LAND DEGRADATION IN RURAL AREAS OF SOUTH-EASTERN NIGERIA



## CASE BACKGROUND

Gully erosion is one of the processes that lead to land degradation in south-eastern Nigeria, forcing communities to migrate and lose their livelihoods. These events are attributed to the high population density of the south-east region, coupled with erratic weather patterns that exacerbate these catastrophic events. Abatete and other communities within Anambra state, who rely on subsistence agriculture and petty trading, are particularly affected. Understanding the adaptive capacities of these communities toward land degradation and the motivation behind their actions is important for improving climate resilience and adaptation strategies.

## MAIN FINDINGS MOTIVATION FOR ACTION

The communities are motivated to sustain their source of livelihood, farming, and fear losing their homes, farms, and access roads to soil/gully erosion. Another motivation is the associated co-benefits with the women farmers' cooperative society.

## PRACTICES & STRATEGIES

Some of their adaptation practices and strategies include

- Planting of erosion-resistant trees at soil/gully erosion sites.
- Placing sandbags at active gully erosion hotspots.
- Making of high ridges/mounds around the vegetable beds to control soil erosion.
- Placing of wood logs and twigs in developing gullies to control erosion.
- Use of sand bags filled with periwinkle and palm kernel shells in place of sand.

## MAIN OUTCOMES

- Improved accessibility to farm roads, thereby increasing productivity and shelf-life of perishable foods.
- Improved lives and well-being of the community.
- Reduced poverty and food insecurity.
- Improved livelihoods of minority groups including people with disabilities, women, and youth, thereby fostering social integration.

## ALIGNMENT WITH NDCS

These adaptation actions have a direct connection to three key priority sectors of the NDCs, which include agriculture, forests, and biodiversity, and are within the strategic plans of some national policies, such as the NASPA-CCN, NAPF, NAPGCC, and the Land Degradation Neutrality (LDN) of Nigeria.

## CO-BENEFITS

1. The action has led to a significant increase in food security for the community as advocated in SDG 2.
2. Food security and employment opportunities in the agricultural sector as in SDGs 2, 13, and 15.
3. Enhanced social cohesion.



## LIMITATIONS AND CHALLENGES

1. Lack of government support.
2. Limited access to financial services such as insurance and credit facilities.
3. Lack of scientific knowledge needed to mitigate deep-seated gullies.
4. Solutions are not very effective because they are not very complex.

## OPPORTUNITIES

1. Increasing investment in climate change adaptation technologies and infrastructure in regards to land degradation including installation of climate-smart technologies and other early warning systems for monitoring and prediction.
2. Promoting sustainable agricultural practices and food security including the introduction of mixed cropping, agroforestry, use of animal manure, etc.
3. Supporting local livelihoods through poverty alleviation, job creation, and income.