

# URBAN AND INFRASTRUCTURAL ISSUES

# 1

# 1A CHALLENGES AND CONDITIONS



Photography:  
Ade Adekola

NILE

MAKOKO FLOATING SCHOOL — AFRICAN WATER CITIES PROJECT

## MAJOR URBAN COMMUNITY CHALLENGES



BUILDING TECHNOLOGY



WATER SUPPLY  
AND MANAGEMENT



EDUCATION



SANITATION AND  
WASTE MANAGEMENT



ELECTRICITY



HEALTH & SECURITY

Source:  
NLÉ questionnaire kindly responded to by inhabitants of Makoko

## MAJOR ISSUES

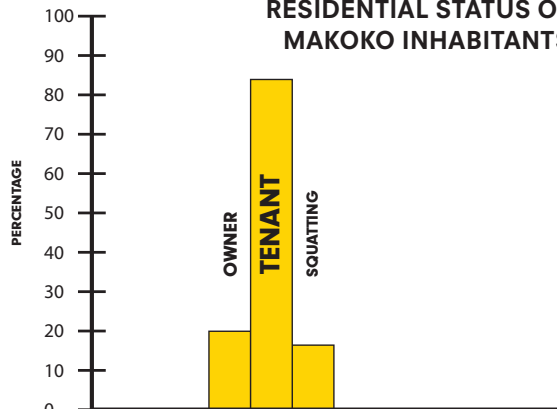
- Flooding
- Insecurity
- Disease (malaria)
- Waste accumulation
- Inadequacy of the drainage network
- Poor energy connection
- Land ownership issues
- The dominant housing type is wooden houses/shacks (35%) followed by one-storey concrete bungalows (22%)
- A large number of Makoko residents are tenants
- 10% of Makoko residents own their house
- 50% of households comprise of 4 – 6 persons
- Most Makoko residents live there because of existing family ties
- Major flooding occurs 3 – 4 times per year
- Flooding lasts up to 4 days
- Rivers overflow due to blockage caused by improper waste disposal
- 75% of residents observed no change in frequency of flooding events<sup>1</sup>
- 60% of respondents in Makoko have been living there between 2 and 10 years<sup>2</sup>
- 73% of respondents had no education above secondary level<sup>3</sup>

1 Adelekan, Ibidun O. Vulnerability Of Poor Urban Coastal Communities To Climate Change In Lagos, Nigeria

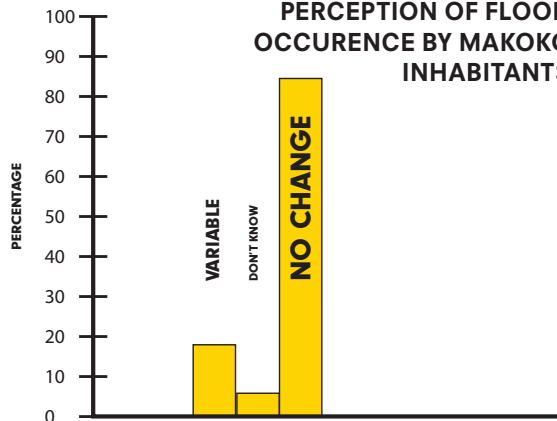
2 Adelekan, Ibidun O. Vulnerability Of Poor Urban Coastal Communities To Climate Change In Lagos, Nigeria

3 Ibid.

### RESIDENTIAL STATUS OF MAKOKO INHABITANTS



### PERCEPTION OF FLOOD OCCURENCE BY MAKOKO INHABITANTS



- Major occupations are fishery and trade  
Some work in government employment and as artisans
- Around 19% are unemployed<sup>1</sup>
- The land is owned by one large landowner (Olaiya Family)
- Only 7% have legal title of ownership<sup>2</sup>

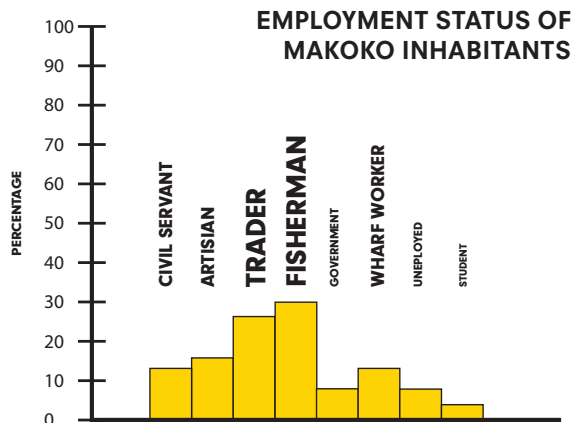
## OWNERSHIP

- Most Makoko residents claim that the process of obtaining legal title is expensive and laborious.
- The titles of ownership known to most of them are the building plan and land registration. Most do not have these documents (see table).
- The interviews show that most of the respondents simply do not see the importance of legal title in light of the quality of the buildings and the general environment.

The existence of approved building plans is refuted by the government officials in the ministry.

According to them, approved records of building plans do not exist for more than 65% of buildings in Lagos.

This claim of 65% contrasts with the 57.1% of Makoko residents who claim to have an



<sup>1</sup> Ibid.

<sup>2</sup> Field Survey, 2006

approved building plan. This discrepancy could be explained through incorrect answers given by residents out of fear for reprisal, but there are also indications that records of the city's approved building plans are not properly kept.

## LAND PROCUREMENT

Direct interviews revealed that very few of the plots in Makoko have been purchased by the current tenant. Most are instead occupied on a leasehold basis, whereby the occupants are required to pay an annual rent to the land owners (in this case the family representatives).

A sizable proportion of the occupants admitted that they moved in and occupied the space without the consent of land owners (self acquisition).

**Self acquisition occurs especially in areas on the lagoon (this Portion of the site belongs to the federal government), and areas along the canal at Ajegunle.**

Some occupants claimed that they acquired the occupied and developed land from their relatives who were original occupants who had now migrated elsewhere. There are instances where the community found in these areas—in this case, the major ethnic group—has a collective leasehold title which is sublet to the community.

This arrangement is observed in Makoko, where three major dominant groups, Ilajes, Eguns and Ijaws, were identified.

## SOURCE OF LAND PROCUREMENT

Government	7.1%
Community (major ethnic group)	9.5%
Family owner (Olaiya)	57.1%
Transfer from previous occupants	7.1%
Self acquisition	11.9%
Purchased from vendor	7.1%

## REASONS FOR NOT HAVING LEGAL TITLE

Not interested	16.7%
Will soon relocate	2.4%
Not aware of the implications	14.3%
Too expensive and laborious	66.7%

## MAKOKO RESIDENTS AND BUILDING PLANS

Have an approved building plan	57.1%
Do not have an approved building plan	42.9%

Source:

Urbanization, slum development and security of tenure: the challenges of meeting Millennium development goal 7 in metropolitan Lagos, Nigeria - FIELD SURVEY 2006 By Tunde Agbola & Elijah M. Agunbiade

## RECOMMENDATIONS

- This research is intended as a wake-up call to policy-makers and stakeholders in the city of Lagos. The negative socio-economic and environmental consequences of this process need to be reduced both to solve currently observed problems and to prevent future ones.
- A forum involving all the major stakeholders in the city should develop a vision of how to regularize the city's informal settlements and develop an inclusive city for all its citizens.
- This must be preceded by a land audit to assess the legal ownership of the land occupied by informal settlements.
- As recommended by the Lagos State Urban Renewal Authority, all the identified blighted areas should be declared and designated as special zones or districts for regularization.

Source:

Urbanization, slum development and security of tenure: the challenges of meeting Millennium development goal 7 in metropolitan Lagos, Nigeria - FIELD SURVEY 2006 By Tunde Agbola & Elijah M. Agunbiade



Photography  
NLE

**“We are a community with a great and bright future. Yes, people living on water, people that are great fishermen.”**

Noah Shemedede  
Community figure

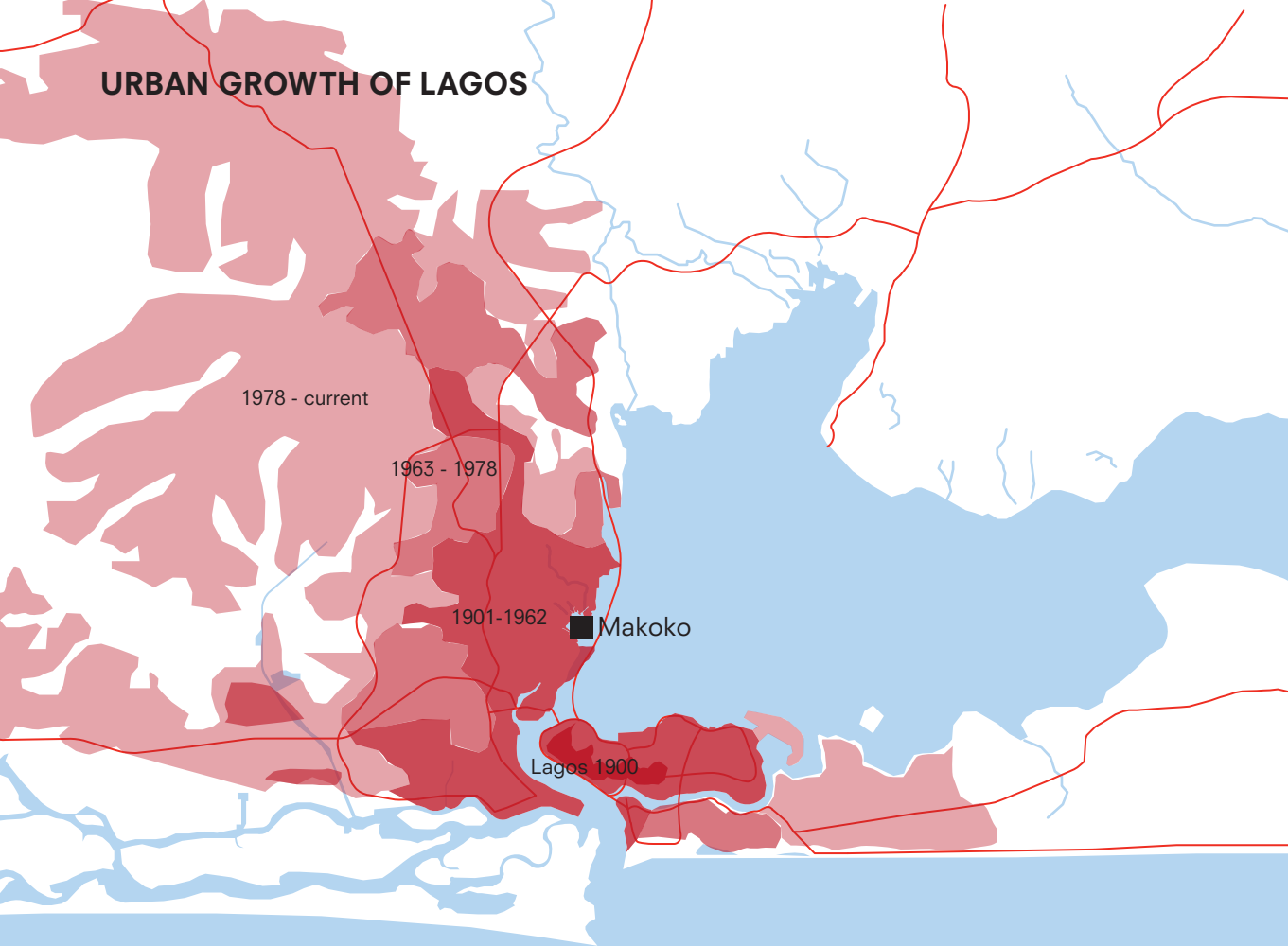


Photography:  
Bishop

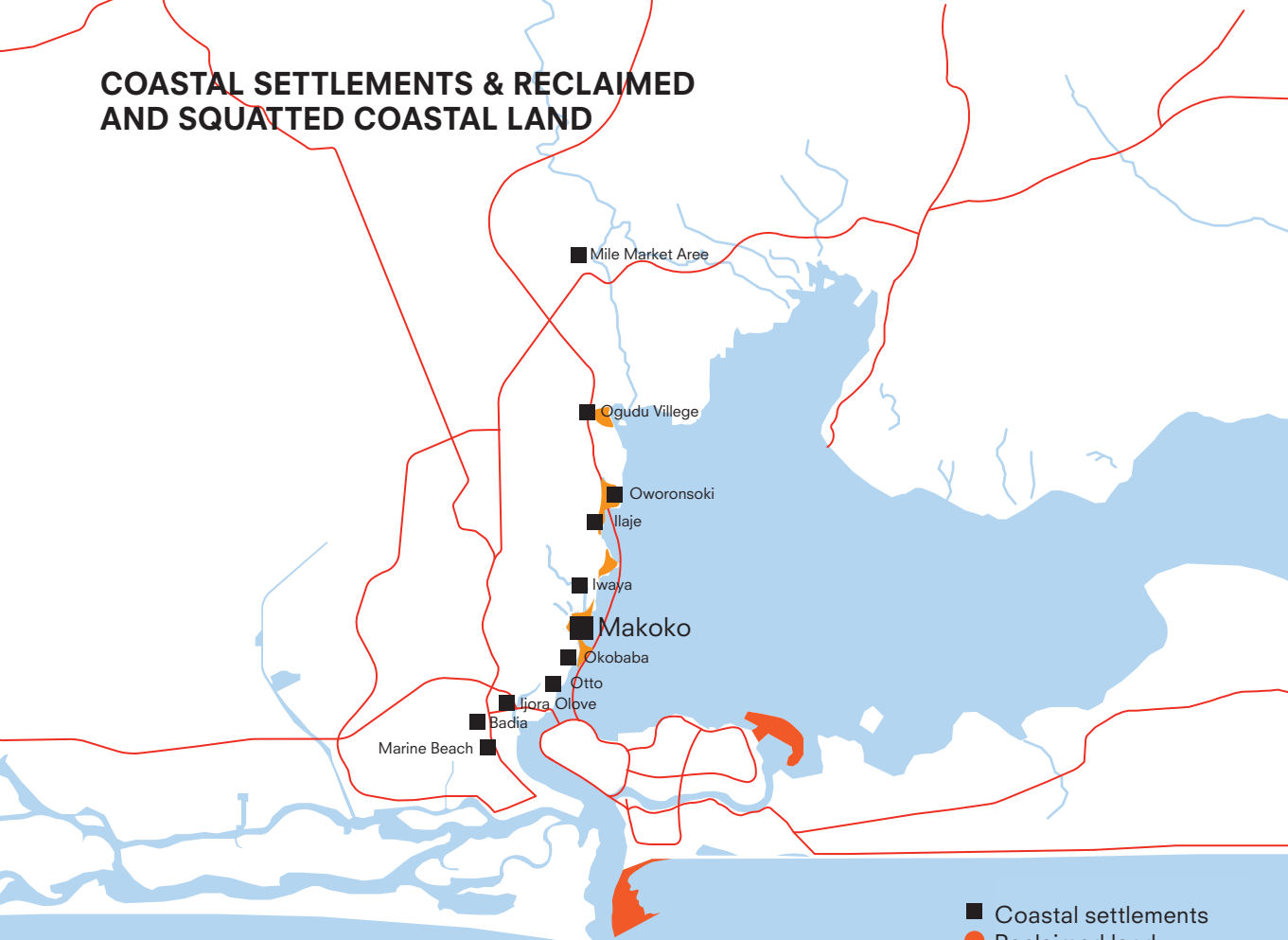




# URBAN GROWTH OF LAGOS



# COASTAL SETTLEMENTS & RECLAIMED AND SQUATTED COASTAL LAND



- Coastal settlements
- Reclaimed land
- Squatted land

Source:  
SNC-Lavalin Report 1995

## CLIMATE IN LAGOS

- The average temperature in Lagos, Nigeria is 26.4 °C (80 °F).
- The warmest average maximum temperature is 33 °C (91 °F) in February & March.
- The coolest average minimum temperature is 21 °C (70 °F) in August.
- Lagos receives on average 1,626 mm (64 in) of precipitation annually or 136 mm (5.3 in) each month.
- There are 121 days annually on which more than 0.1 mm (0.004 in) of precipitation occurs—or 10 days in an average month.
- The month with the driest weather is January, where only two rainfall days are recorded with 40 mm (1.6 in) of total precipitation.
- The month with the wettest weather is June, where 20 rainfall days are recorded with 336 mm (13.2 in) of total precipitation.
- Mean relative humidity for an average year is 84.7%, ranging from 80% in March to 88% in June, July, September and October.
- There are 1,885 sunshine hours annually and approximately 5.2 sunlight hours for each day.
- Average sunshine hours per day range between 3.0 hours per day in July & August and 6.7 hours per day in February.

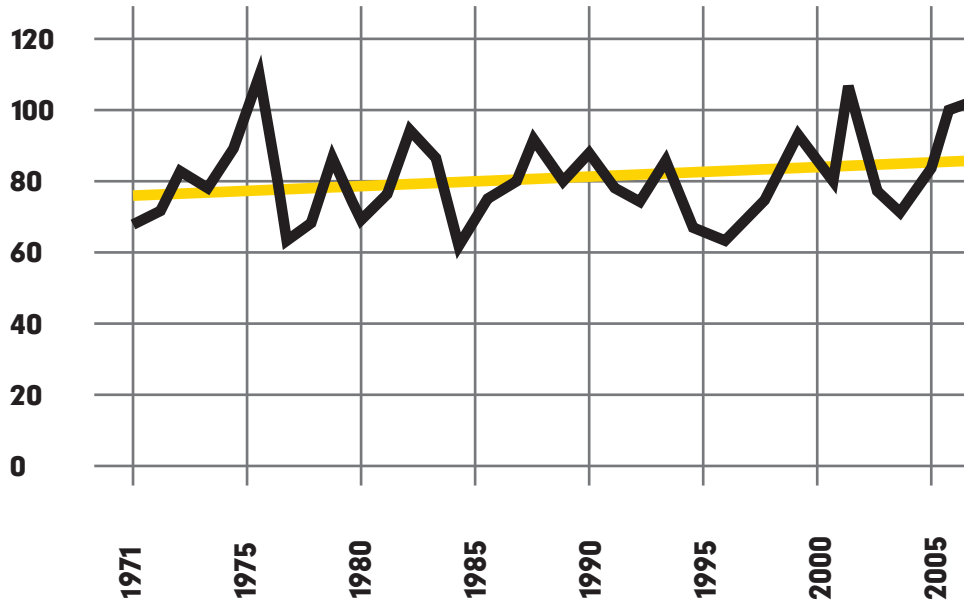
## RAINFALL

While the mean annual rainfall for the 25-year period 1971-1995 was 1,697.79mm, that for the 10-year period 1996-2005 was 1,647.26mm. Although the difference in mean annual rainfall in the two periods is not much, fewer rain days are recorded during the more recent ten-year period relative to the 1971 – 1995 period.

**This demonstrates the fact that the fewer rainstorms recorded in the latter period are much heavier than those of the earlier period. This creates a tendency towards producing more floods.**

Source:  
<http://www.climatetemp.info/nigeria/lagos.html>

# RAINFALL MEAN



$y=0.253x+76.35$   
 $R^2=0.040$

— MEAN  
— LINEAR (MEAN)

# FLOODING

## SEA LEVEL RISE ADAPTATION

### ENGINEERING APPROACHES

- Sea-walls
- Groynes
- Barrages and barriers
- Elevation of infrastructure
- Dolosse and gabions
- Off shore reefs
- Beach nourishment and replenishment
- Water pumps
- Beach drainage

### BIOLOGICAL APPROACHES

- Dune cordons
- Coastal mangroves
- Estuary and wetland rehabilitation
- Kelp beds

### SOCIO-INSTITUTIONAL APPROACHES

- Vulnerability mapping
- Risk communication
- Enforcing a buffer zone
- Preventing activity that compromises the coastline (e.g. sand mining)
- Early warning systems
- Planned relocation

Source: UNEP, The Status of the Nigerian Coastal Zones, 2005



Photography  
Noah Shemedé



Photography  
Noah Shemedé

## FLOODING

Makoko's housing on stilts and use of waterways for transportation and public space offers some strong ideas which could resolve many of the problems caused by flooding. However, Makoko residents are still greatly affected by frequent flooding due to their lack of effective coping strategies for many of the impacts of flooding.

Community members noted that sections of the community that have benefitted from improved drainage systems experienced less flooding than areas where the drainage system is poor. The community addresses the flooding impact in the following ways:

### COMMUNITY LEVEL IMPACTS

#### IMPACT

Damage to roads

Disruption of movement

Dirty environment

Flooding of community

School children prevented from going to school

#### COPING STRATEGY

Roads are sand-filled or filled with wood shavings

Use of rain boots; taking available unaffected routes. Residents are often left helpless

Surroundings cleared after flood events

Staying indoors while a community member(s) clear blocked drainage channels

Children stay home until flood water subsides

## HOUSEHOLD IMPACTS

<b>IMPACT</b>	<b>COPING STRATEGY</b>
Damage to and deterioration of building infrastructure	Roads are sand-filled or filled with wood shavings
Flooded houses and rooms	Use of rain boots; taking available unaffected routes. Residents are often left helpless
Prevalence of malaria	Surroundings cleared after flood events
Homelessness	—
Destruction/damage of household property	Relocation of property to outside the community; keeping property above flood level
Disease	Use of local herbs/medicine

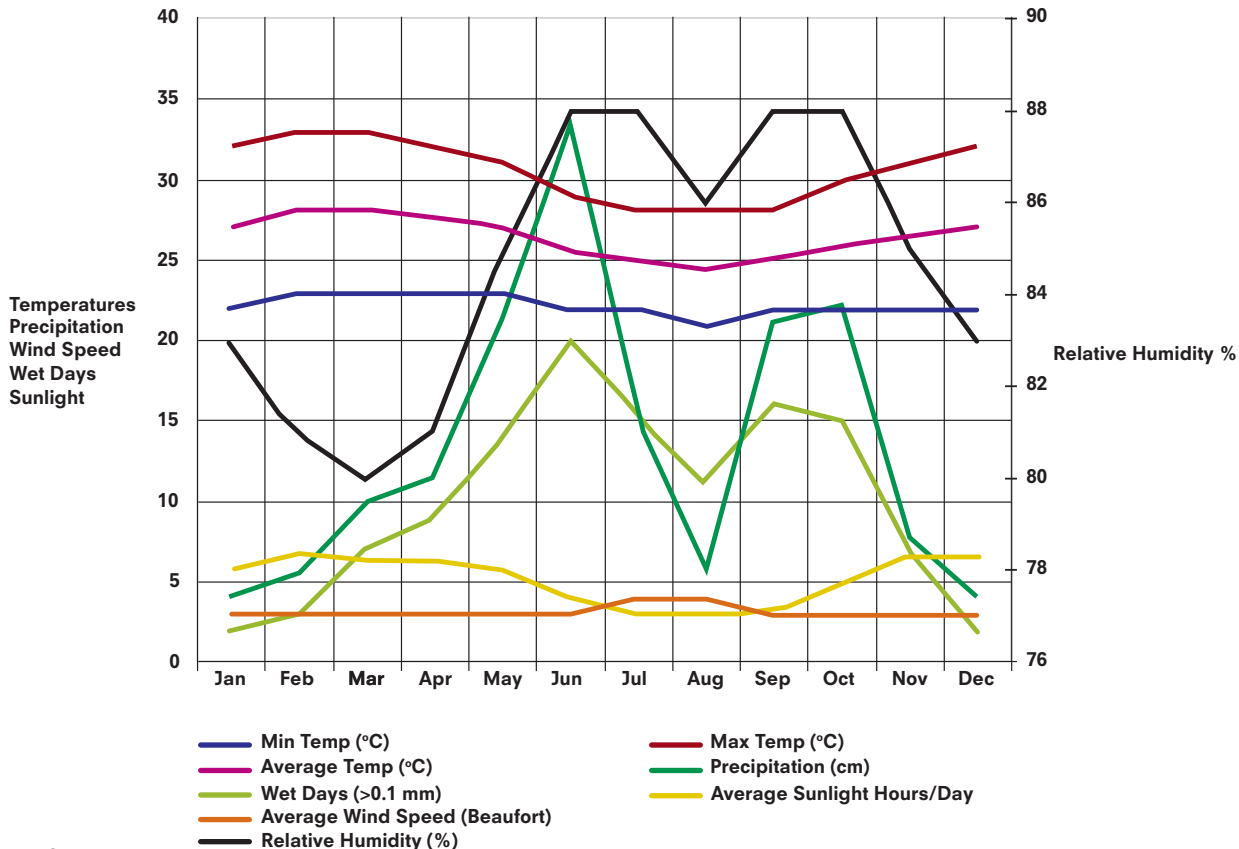
## INDIVIDUAL IMPACTS

<b>IMPACT</b>	<b>COPING STRATEGY</b>
Poor health condition resulting from unnecessary sickness, including different skin diseases	—
Effect on social relationships as friends/family cannot visit each other	—
Disruption of economic activities	—
Scarcity of food	—

Source: Vulnerability of Poor Urban Coastal Communities to Climate Change in Lagos, Niberia by Ibidun O. Adelekan

# CLIMATE IN LAGOS

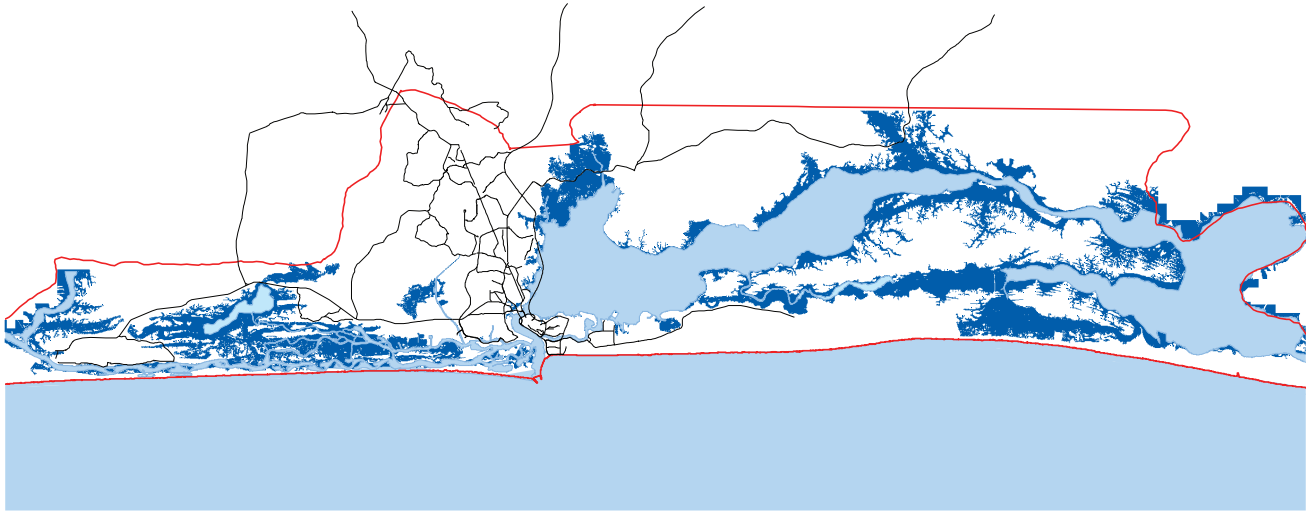
Measured at an altitude of 40m



Source:  
[www.climateemp.info](http://www.climateemp.info)



# FLOOD RISK IN LAGOS



**PROJECTED FLOODING AFTER A  
SEA LEVEL RISE OF 1 METRE**

Source:  
Bas van de Sande, GIS Consultant

## SOCIAL CHALLENGES

Makoko faces immense challenges. The government services are very limited. This reflects a complete lack of governance or political interest in the community. Community issues are addressed by the Baale—the Chief and most respected person in Makoko. The people’s concerns relate primarily to poverty, crime, unemployment, and the need for small-scale businesses.

A great number of children living in Makoko do not attend school. According to a needs assessment conducted in 1998 with local chiefs and other stakeholders, poverty and survival were the major challenges facing Makoko residents.

Chiefs and parents were mainly concerned about the high rate of teenage pregnancy and anti-social activities of ‘area boys’ (small gangs, formed by young men who drop out of school and misuse alcohol and drugs). On the other hand the young people were concerned about their parents’ inability to provide resources for their education, parental unemployment, and the unsanitary and cramped conditions in which they lived. Young people often expressed a feeling of helplessness.

In response to these concerns, several organizations and foundations, in collaboration



Photography:  
NLE



Photography:  
NLE

with the Makoko community, offer different community programs.

These programs take the shape of a variety of projects, workshops, seminars and activities involving education, health and human rights. These images are from the 'Back to School Project' held at the Makoko HMI Youth Centre.

Source:  
HIV prevention with especially vulnerable young people/  
Case studies of success and innovation. Thomas Coram  
Research Unit Institute of Education, University of London May  
2006 p. 23-33



Photography:  
Dipo Agoro



Photography:  
Dipo Agoro

# RECOMMENDATIONS

Our research identifies that urgent action and attention is required in the following:

## SEWAGE

- Monitoring of health of the coastal environment from sewage and solid waste
- Low cost technology sewage treatment and management facilities

## SOLID WASTE

- Implementing sound disposal methods
- Implementing sustainable collection and disposal techniques
- Formulating and implementing waste minimisation strategies
- Waste to recycling strategies
- Community conscientization of waste disposals

## CLIMATE CHANGE

- Development of national climate change plan of action
- Inventory of Greenhouse gases
- Coastal protection from flooding and erosion resulting from sea level rise.

## EXPLOITATION OF FISHERY RESOURCES

- Strengthening legal instruments for effective management of fishery resources
- Fish stock assessment
- Community conscientization for sustainable exploitation of fishery resources
- Development of coastal aquaculture

## OIL SPILLS

- Remediating polluted areas
- Improving facilities in Nigerian ports
- Building capacity for oil spill management and technical acquisition
- Monitoring of oceanographic processes and health of sensitive ecosystems.