

Impact of shoreline changes on population in Cotonou, Benin

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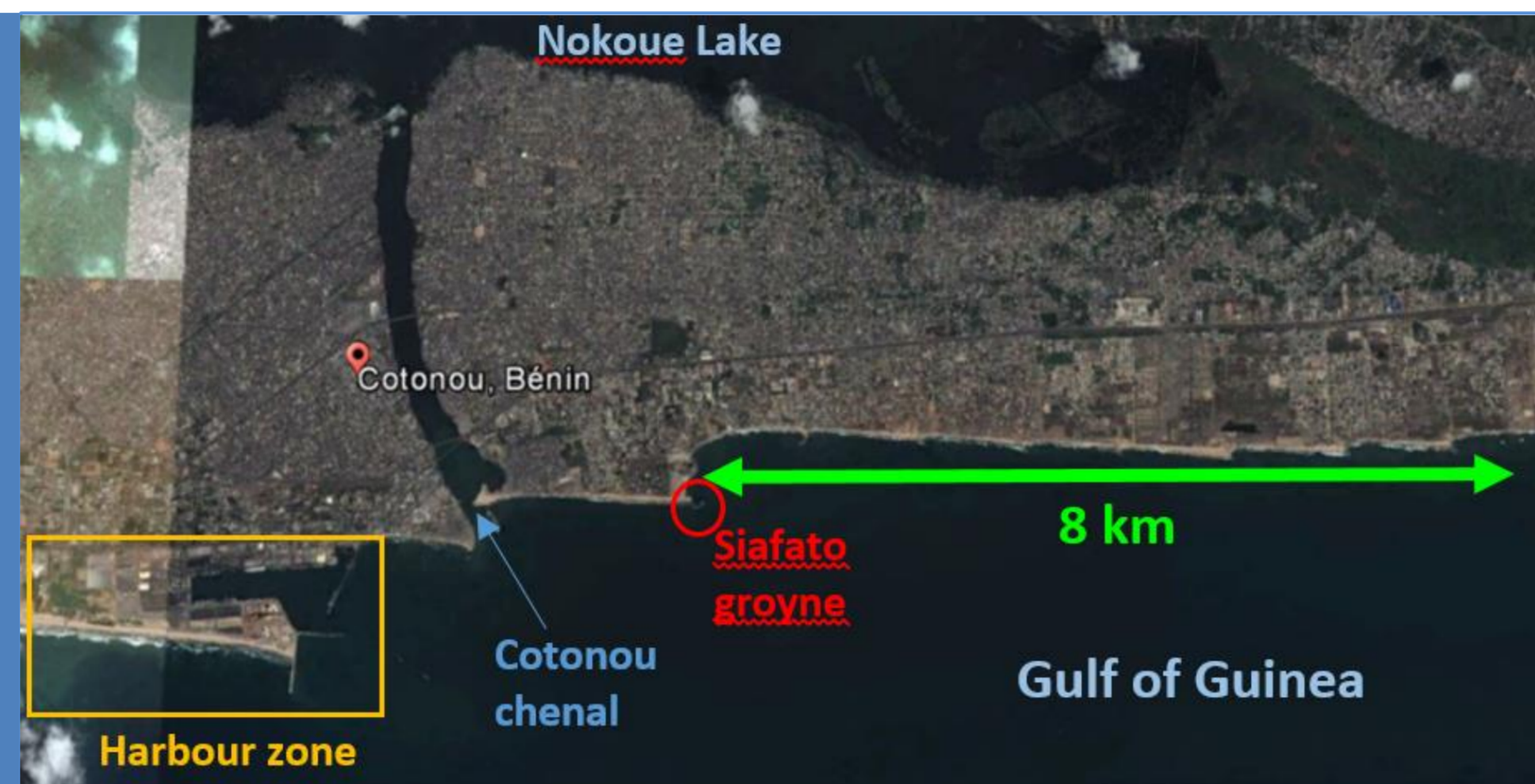
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Introduction

The shoreline of Cotonou (Benin) is affected by an intensive erosion for several decades, mainly due to unsuitable port infrastructures and human activities. This results in destruction of habitats and in population dynamics in the risk zone. In the future, the process would be worsened by a rising of the sea level as a consequence of global warming.

WHAT?

Assess the shoreline changes in a span of 8 km at the East of the Sifato groyne between 2002 and 2014 and understand the dynamic of population in the risk area



WHERE?

HOW?

We used a combination of very high resolution satellite imageries from Google Earth recorded in 2002, 2011, 2013 and 2014 and carried out field missions in September 2012, September 2013, July 2014 and February 2015

Results

Multi-temporal analyses of satellite imageries show that nearly 93 hectares of land were progressively recovered by the sea between 2002 and 2014 on the stretch of the first 8 km at the East of the Sifato groyne. This corresponds to an average coastline retreat of 115 meters in a span of 13 years, with variations from 38 to 145 meters.

Coastline retreat

Illustrations

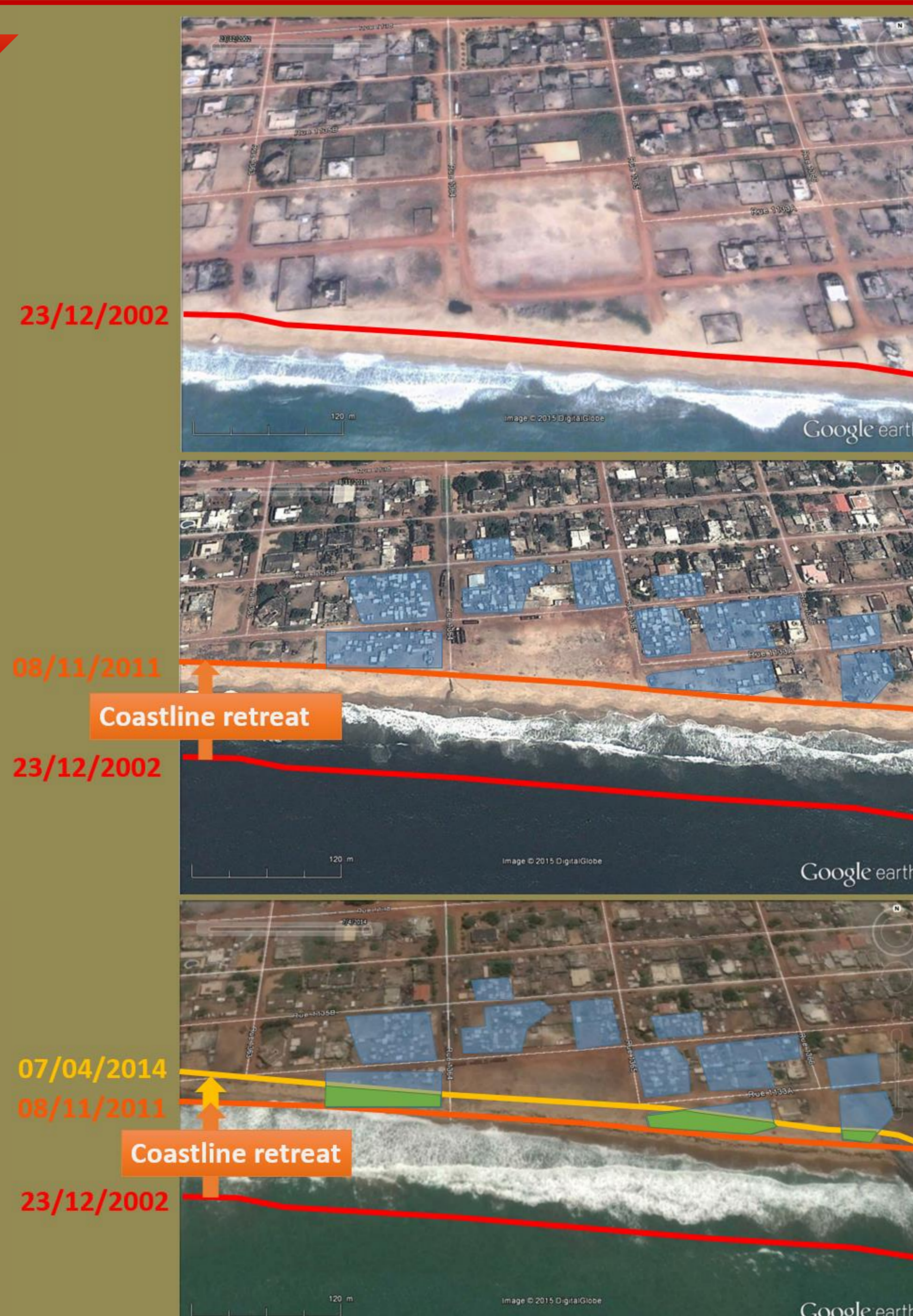


Population dynamics

From 2002 to 2014, around 765 houses disappeared by the encroachment of the sea in the study area :

- Well-off population leave the risk area when their houses are threatened and go inland.
- Fishermen prefer to stay in the risk area to be close to their activities.
- Precarious population have no financial and social capitals to migrate, they are trapped in the risk area.
- New settlements of poor population increase the at-risk population.

The analysis of intermediate images and the results of field works confirm a rapid process of settlement/destruction of makeshift houses in the coastal area. And then, the affected people successively move through the risk area.



Situation of the shoreline in 2002

Progressive replacement of parceled/standing houses by makeshift houses near the coastline

Rapid destruction of recent makeshift houses

CONCLUSION

There is an urgent need for effective measures to secure coastal population of the risk area. Update and respect of urban planning regulations, good governance, cooperation with other countries and involvement of local communities are all factors that are expected to alleviate the target population of this sensitive area.

