

PROJECT: A GIS BASED PROCEDURE FOR BIOMASS ESTIMATION AND IDENTIFICATION OF SITE SUITABILITY FOR FACILITIES IN MANICA, MOZAMBIQUE.

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OBSERVATION: Project developed as a thesis in the Master of Geographic Information Systems, Technologies and Applications in FCUL.



Objectives:

The present study aims to define a methodology able to identify the potential location of biomass in Manica province, Mozambique. Using remote sensing techniques, identifying the models that better adapt to the quantity calculation of available biomass within these sites and classifying the likeliness of the terrain for biomass gathering places. In synthesis the questions tried to be answered in this study are:

1. Where is the biomass present within Manica (Mozambique) region?
2. Which are the biomass quantities present in Manica?
3. Where industrial support structures could be implemented?

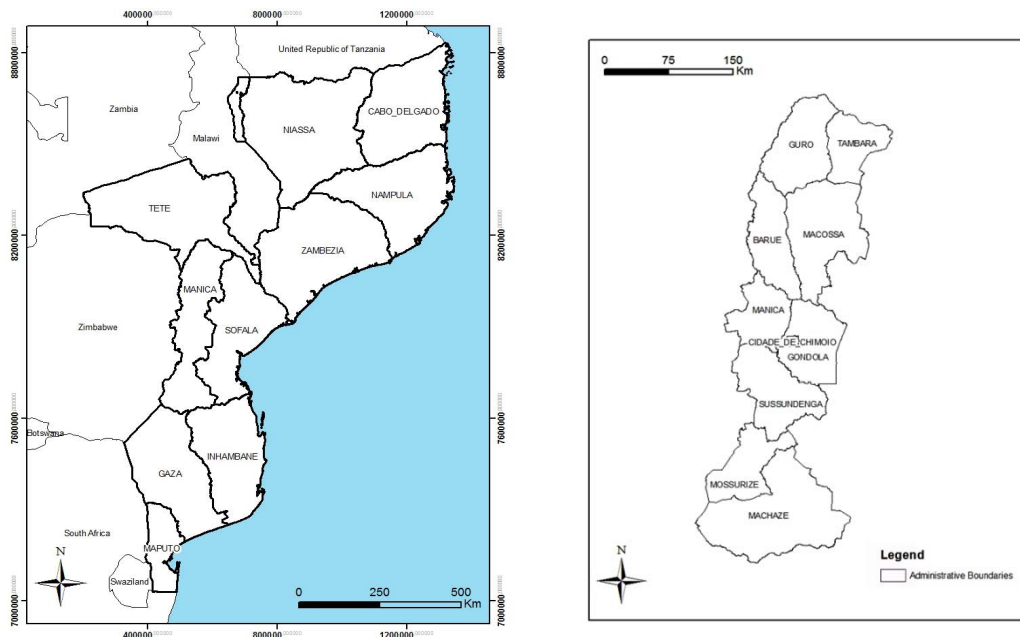


Figure 1 – Mozambique provinces and Manica districts.

Description of the project:

Manica (Mozambique district) is located in Mozambique between Zimbabwe and the Indian Ocean and offers privileged conditions for the economic development of the forestry sector, not only because of its geographical location, but as well as its forests.

In Mozambique there is a great need in terms of spatial data and literature related to the forestry sector. The methodology adopted in this study is intended to address some of the issues in the sector, by using remote sensing techniques, geographical information systems and models to quantify biomass and identifying site suitability for the installation of forest facilities in Manica, Mozambique.

Results:

As a result, this study proves that there is an uneven distribution of biomass, where the highest values are concentrated in the central districts that have average amount higher than 35 tons/ha. It was verified that the districts of Gondola, Manica and Sussudenga have higher ability for the installation of biomass support structures.

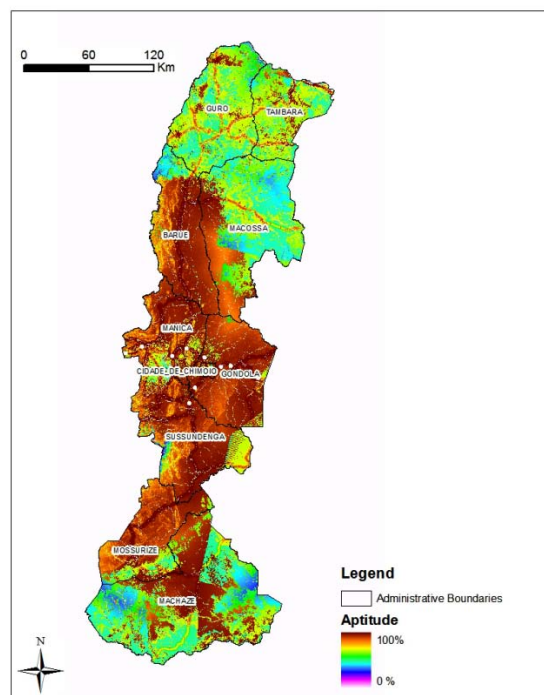


Figure 2 – Aptitude map.

Table 1 - Values of biomass in the different districts sorted by amount of total biomass.

Table 1

District	Area (ha)	Average biomass (ton/ ha)	Total (ton)
MACHAZE	1 328 610	20,649	33 867 800
SUSSUNDENGA	710 759	36,165	31 732 500
GONDOLA	576 643	39,403	28 050 000
BARUE	577 043	36,143	25 747 000
MOSSURIZE	501 949	36,052	22 340 100
MACOSSA	955 740	17,413	20 545 200
MANICA	438 275	35,267	19 081 700
GURO	692 489	13,285	11 357 100
TAMBARA	428 279	16,530	8 739 680
CIDADE DE CHIMOIO	17 427	30,460	655 320

Table 2 - Average percentage of aptitude by district.

Table 2

DISTRICT	Average of aptitude (%)
GONDOLA	73
MANICA	71
SUSSUNDENGA	70
MOSSURIZE	69
BARUE	69
CIDADE DE CHIMOIO	67
MACHAZE	56
TAMBARA	53
MACOSSA	52
GURO	51

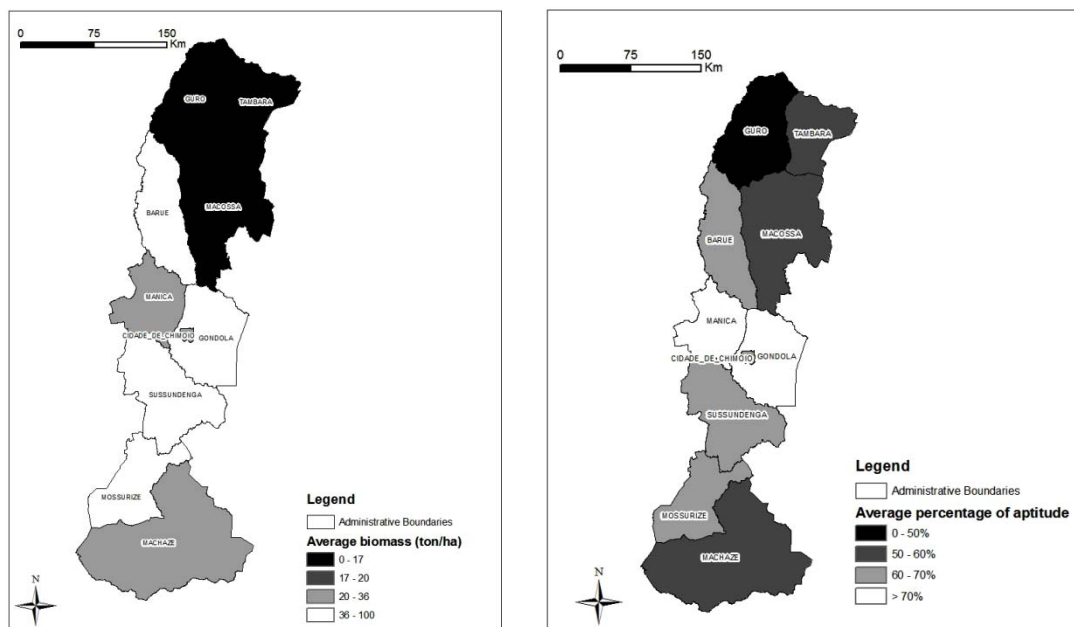


Figure 3 – Average percentage of aptitude by district and average of total biomass per hectare per district.