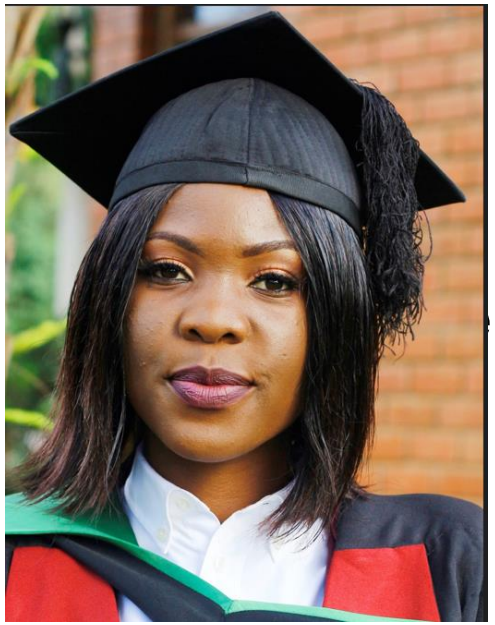
ASSESSING THE IMPACT OF LAND USE ON WATER QUALITY USING GIS AND RS:MUDI RIVER,BLANTYRE

RIC 2022

September 6-8, 2022



SARAH CHIRWA
UNIVERSITY OF MALAWI-THE POLYTECHNIC

Acknowledgement

Sarah Chirwa1

Mr Charles Kapachika[2]

(1) The Polytechnic, Malawi.

(2) The Polytechnic2,Malawi.

sarahchirwa96@gmail.com

RCMRD

Outline

- Introduction/Background
- Problem statement
- Objectives
- Methodology(Data and Methods)
- Results/Outputs
- Conclusion and recommendations

RCMRD

Introduction/Background

- **Water is one of the most precious resource available to us**
- **Rivers are valuable sources of water for drinking, irrigation, industrial use, recreation etc.**
- **Many rivers particularly in developing countries are heavily polluted (Adie et al 2018)**
- **Mudi River had quality water in 1980s-no longer the state**

Problem statement

- Despite the existing waste control laws and policies, anthropogenic activities continue to degrade the quality of water in Mudi river
- Earlier noted by Kumwenda et al 2012 and Chaima 2015
- GIS technology was not used
- This study aimed at assessing the impact of land use on water quality using GIS technology

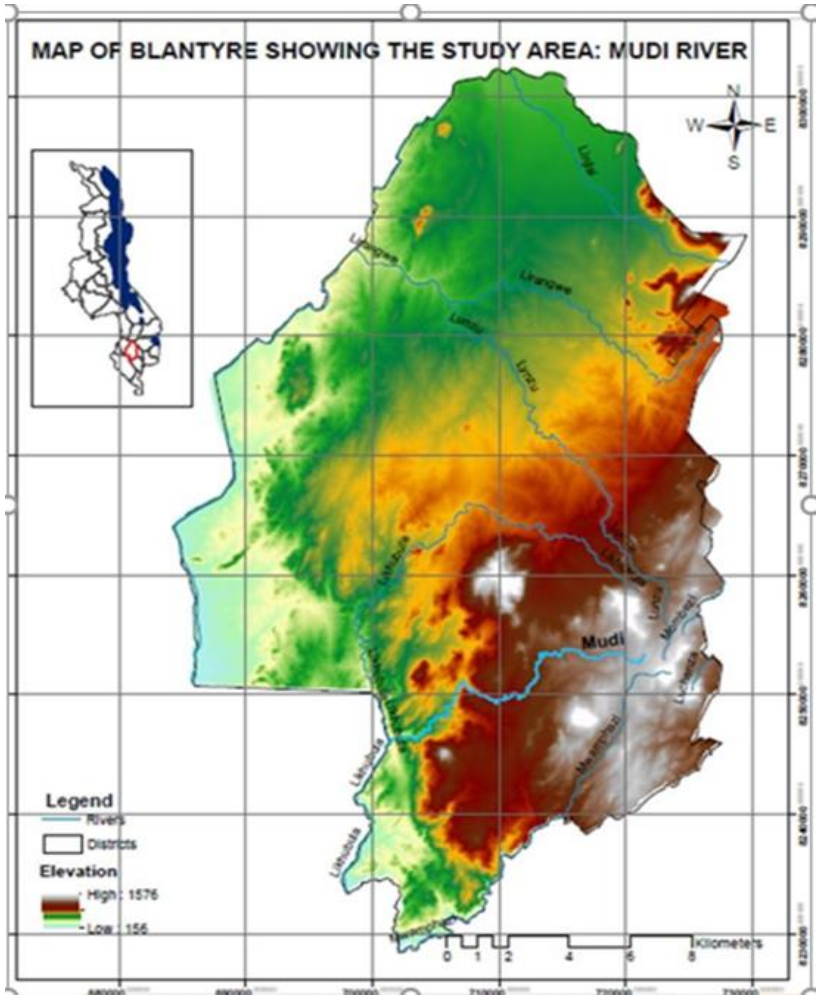
RCMRD

Objectives

- To record the locational coordinates of sample stations
- Measure water quality parameters (EC,TDS,PH,TURB,TEMP,NIT)
- To determine the spatial variations of the measured water quality parameters
- To delineate watersheds based on the sample point
- To carry out a correlation analysis between the land use categories and the measured water quality parameters within the watersheds

RCMRD

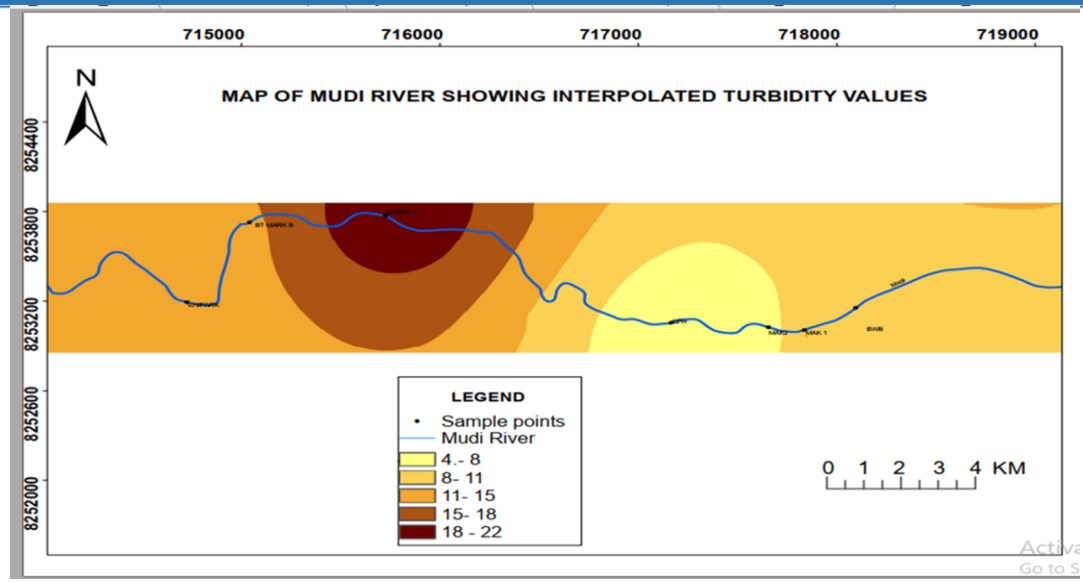
Methodology (Data & Methods)

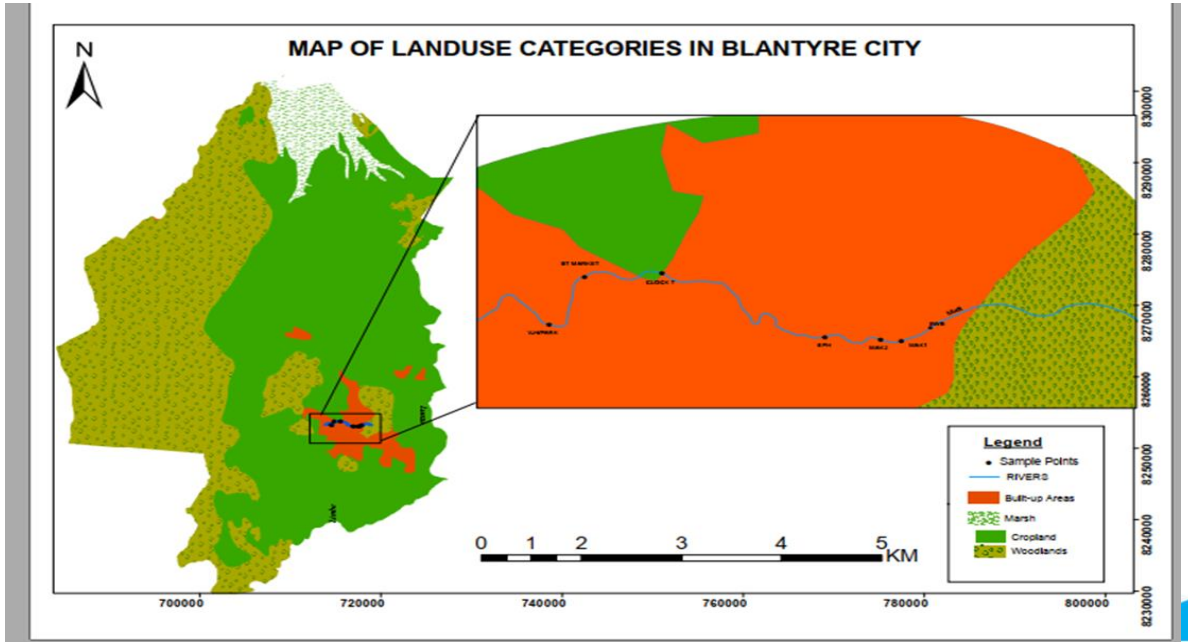


- 7 sample points were selected
- Samples collected in the middle of the river using a sterile white plastic bottle of 250 ml (Elbag, 2006)
- Results compared with WHO & Malawi Bureau of Standards (MBS).
- Kriging Interpolation to determine spatial variation

RCMRD

Results/Outputs





RCMRD

Conclusion and Recommendations

	EC	TDS	PH	TURB	NITRATES	CROPLAND
EC	1					
TDS	0.99398	1				
PH	0.781835	0.791038	1			
TURB	0.56108	0.606996	0.511505	1		
TEMP	0.94781	0.932555	0.822858	0.590347		
NITRATES	0.92075	0.923378	0.857249	0.39246	1	
CROPLAND	0.97670	0.998283	0.931509	0.999492	0.9987	1

- **some of the water quality parameters were within standards(TDS) some parameters exceeded the MBS and WHO standards**
- **Positive correlation**

➢ **Improve management approaches – environmental awareness**

➢ **continuous monitoring -Geospatial technologies**

➢ **proper land-use planning and catchment management**

RCMRD

Thank You for your Attention

Questions?

RCMRD