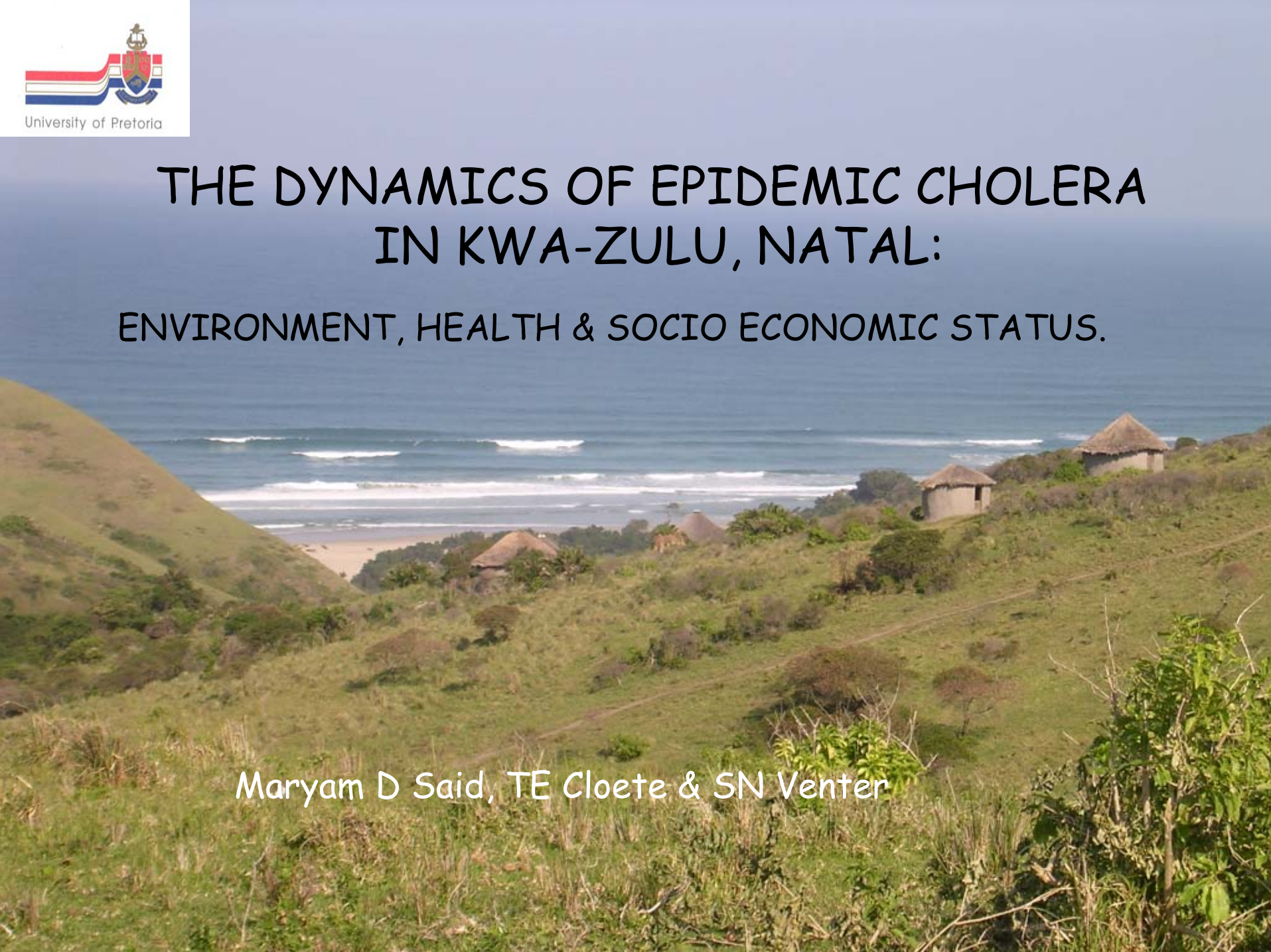
University of Pretoria

THE DYNAMICS OF EPIDEMIC CHOLERA IN KWA-ZULU, NATAL:

ENVIRONMENT, HEALTH & SOCIO ECONOMIC STATUS.



Maryam D Said, TE Cloete & SN Venter

INTRODUCTION

- The first case of the 2000-2002 cholera epidemic was reported in KZN in Aug 2000.
- The epidemic rapidly spread to the 9 health regions of KZN.
- By the close of the epidemic in Feb 2002, over 122,000 were affected by the disease.

OBJECTIVES

- To investigate the role of the various demographic, climate, social and environmental factors in the spread of the disease.

METHODOLOGY

PART I

- Analysis of the cholera toll in KZN and identifying the areas with the highest, intermediate and lowest incidence.

- Collection of climatic, environmental, demographic and socio economic data for the areas identified above.

METHODOLOGY

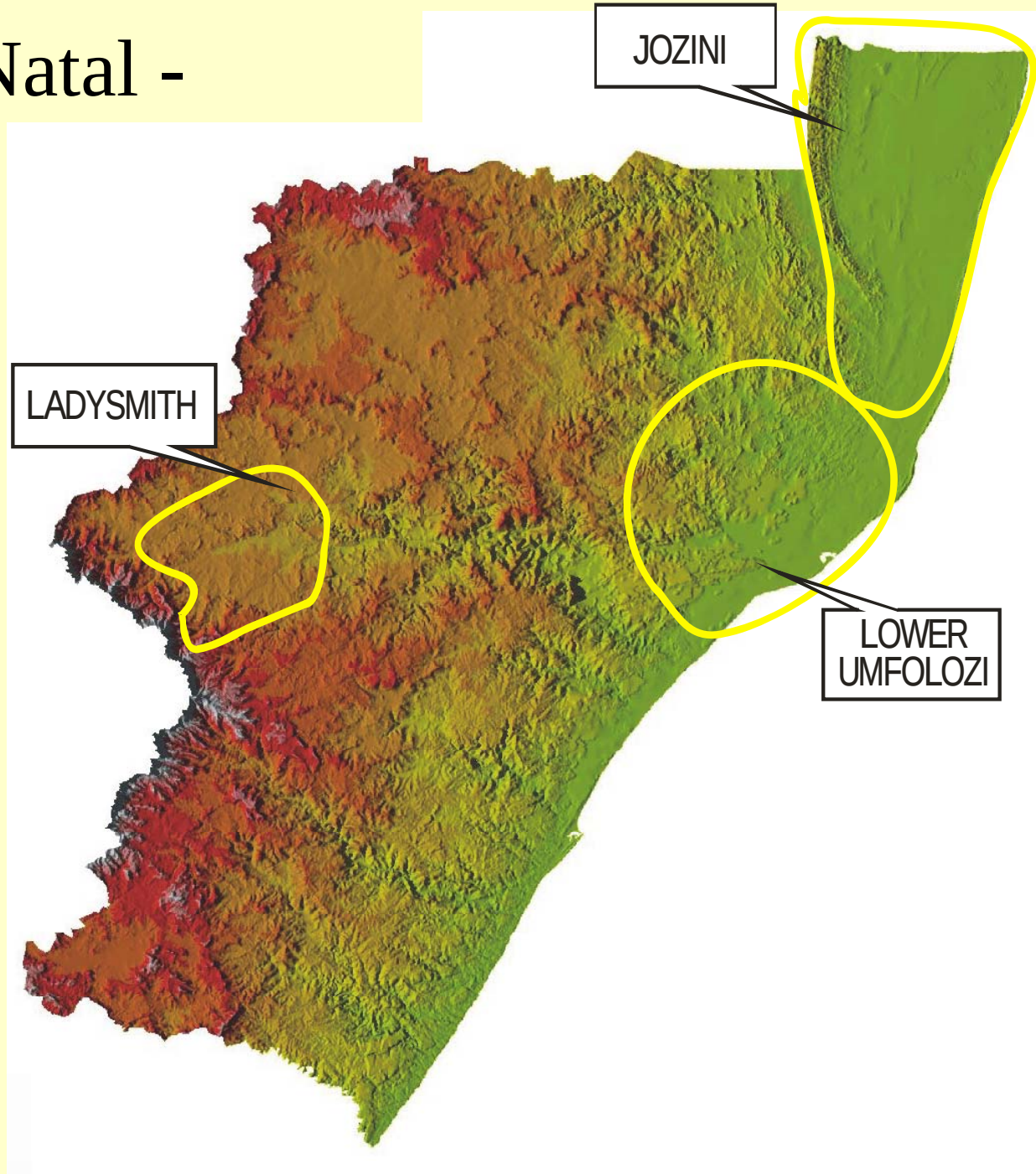
PART II

- A pilot study was done to compare 10 areas within Lower Umfolozi (most affected) to 8 areas of Jozini (least affected) regions .

- The analysis performed on the pilot study was extended to the entire KZN Health Regions that recorded the highest, intermediate & lowest incidences.

KwaZulu-Natal -

selected study areas



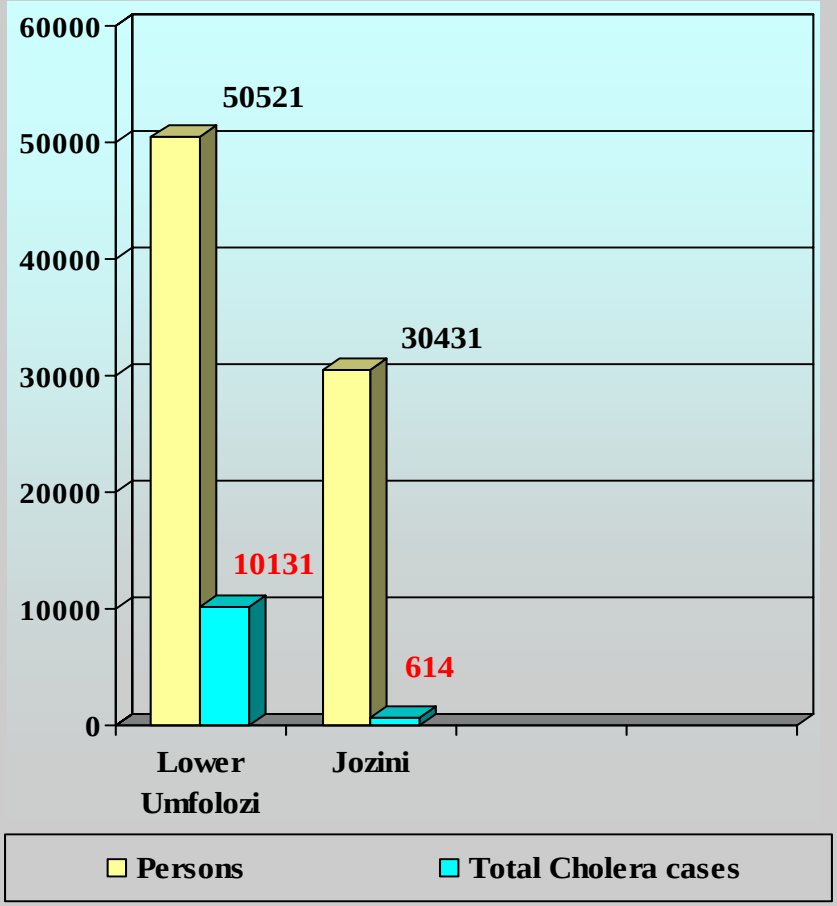
RESULTS

PILOT STUDY **ENTIRE HEALTH REGIONS**

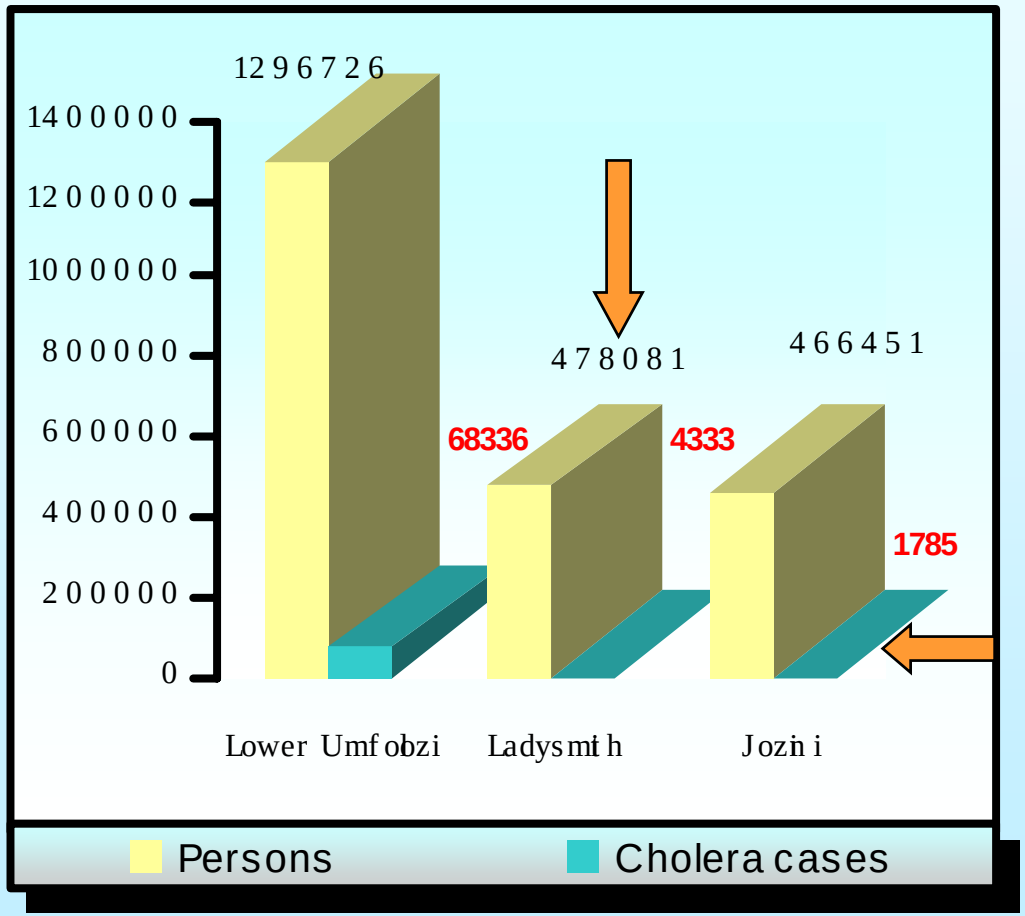
DEMOGRAPHY	LU	JOZ			LU	LS	JOZ
Persons	50521	30431			1296726	478081	466451
Population density/km^2	260.5	122.6			141	34	96
No. of households	10612	4419			237018	84519	72478
No. persons/household	4.8	6.9			5.5	5.7	6.4
No. of households/km^2	54.7	17.8			25.8	6	15
Total cholera cases	10131	614			68336	4333	1785
Cumulative incidence rate (Cases/100pers)	20.0	2.0			5.3	0.9	0.4

RESULTS

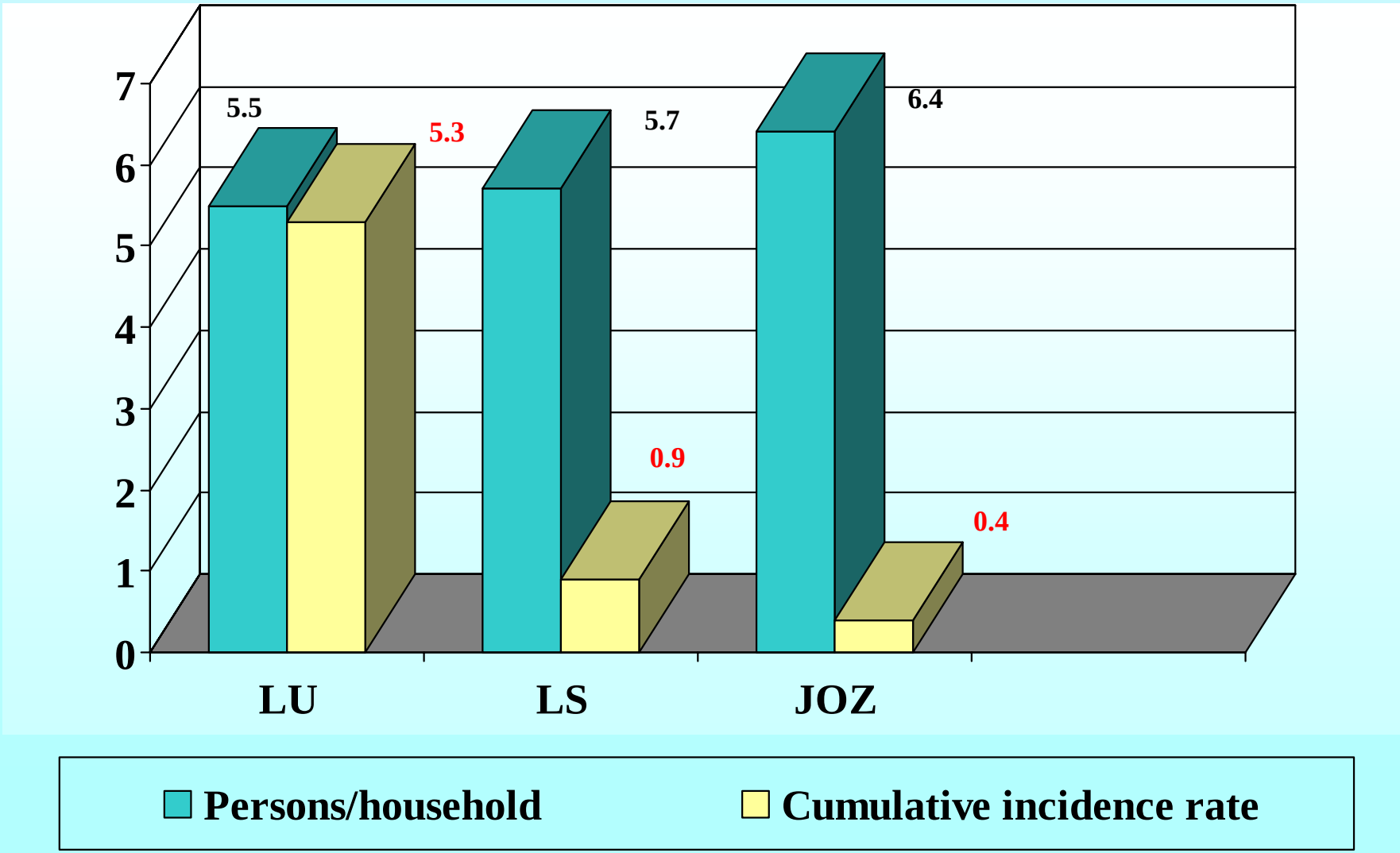
Pilot Study



Entire Health Regions



Cholera incidence vs. household size in LU, LS & JOZ



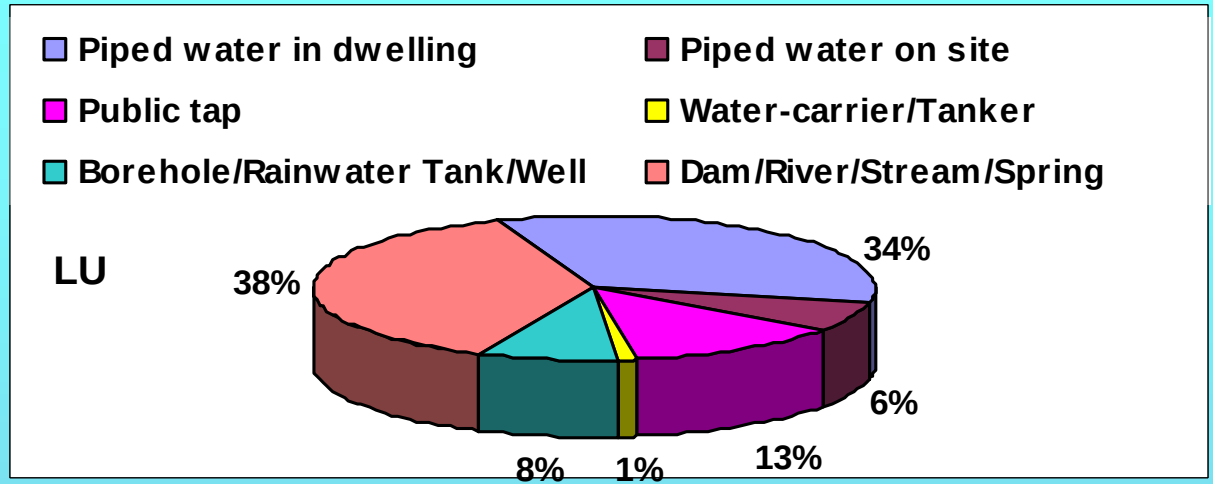
RESULTS

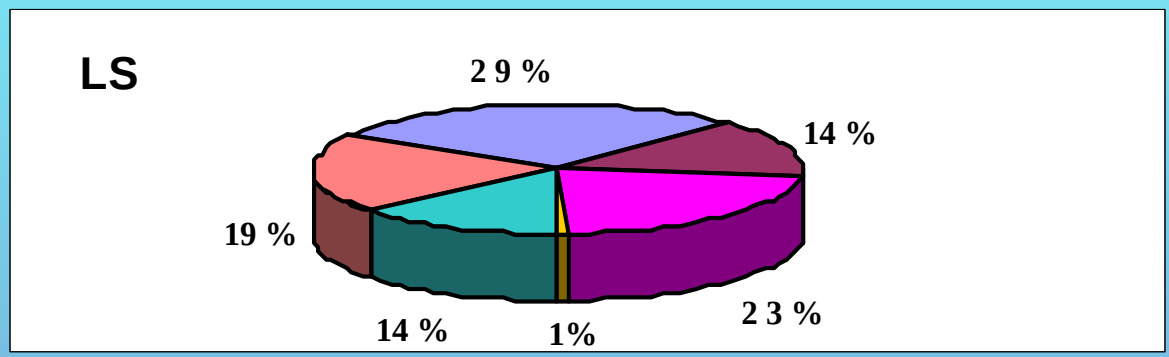
Water

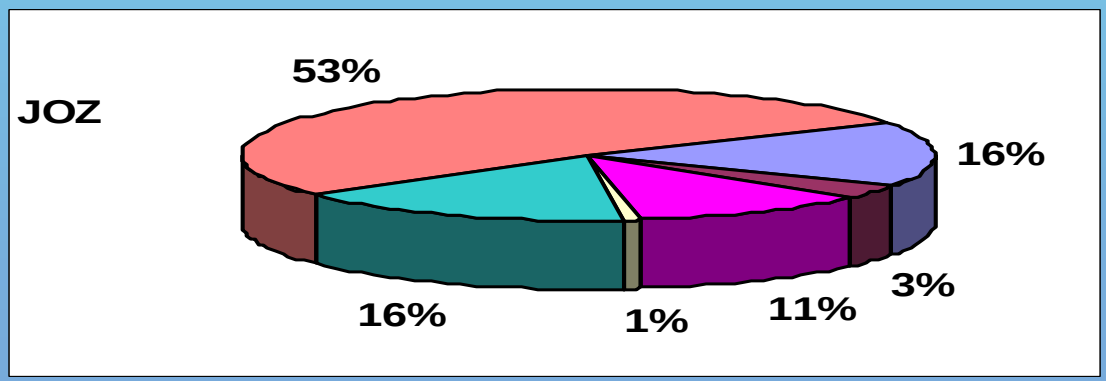
	Pilot					
	Piped water in dw	Piped water o	Public tap	Water-carrier/Tanker	Borehole/Rainwater Tan	Dam/River/Stream/S
LU	47.6	10.5	17.5	1.0	2.4	23.5
JOZ	3.4	2.8	11.7	0.5	12.5	68.1

Entire HR						
	Piped water in dw	Piped water o	Public tap	Water-carrier/Tanker	Borehole/Rainwater	Dam/River/Stream/S
LU	32.9	6.2	12.6	1.0	7.8	36.7
LS	28.8	13.5	22.6	0.8	13.5	19.1
JOZ	16.3	3.2	11.3	0.8	16.0	52.1

Water services in LU, LS & JOZ







RESULTS

Sanitation

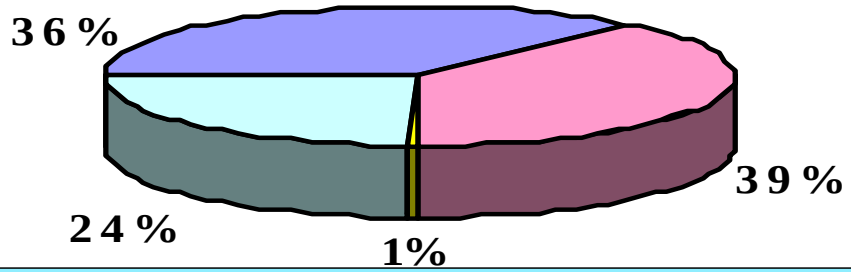
Pilot				
	Flush or Chemical Toil	Pit Latrine	Bucket Latrine	None of the above/Unspecified
LU	49.2	43.5	0.1	11.1
JOZ	5.3	37.4	0.8	56.0

Entire HR				
	Flush or Chemical Toile	Pit Latrine	Bucket Latrine	None of the above/Unspecified
LU	35.9	38.1	0.6	24.1
LS	31.9	48.1	1.4	18.5
JOZ	16.9	37.1	0.7	46.5

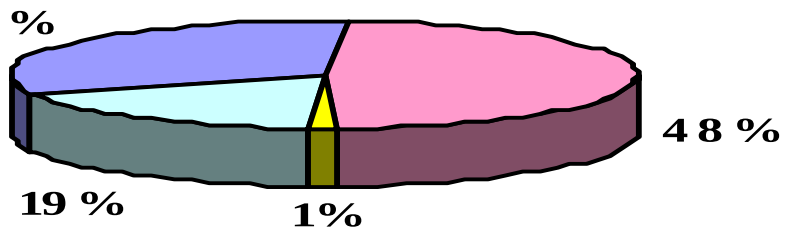
Sanitation services in LU, LS & JOZ

Flush or Chemical Toilet
Pit Latrine
Bucket Latrine
None of the above/Unspecified

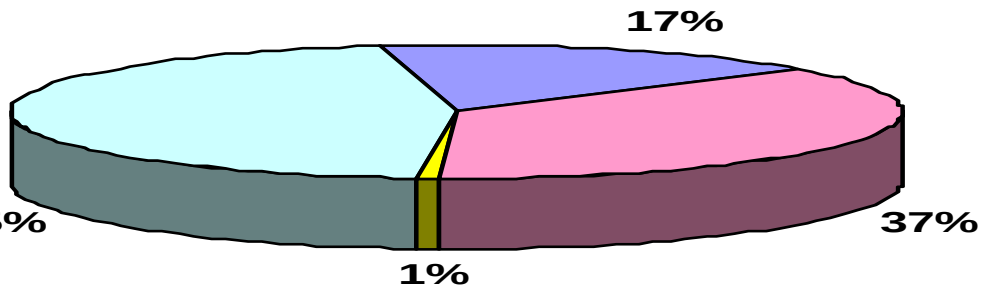
LU



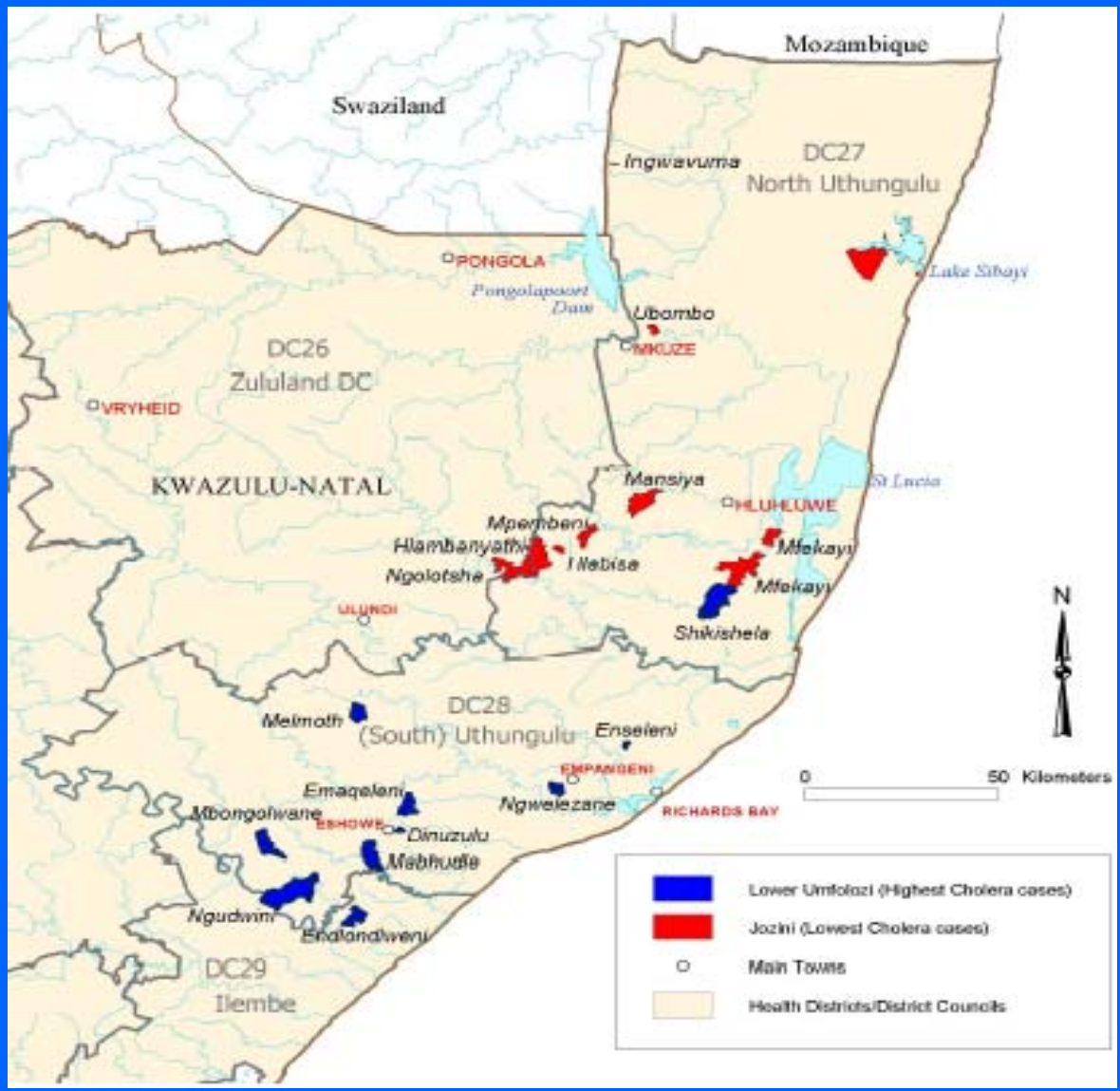
LS



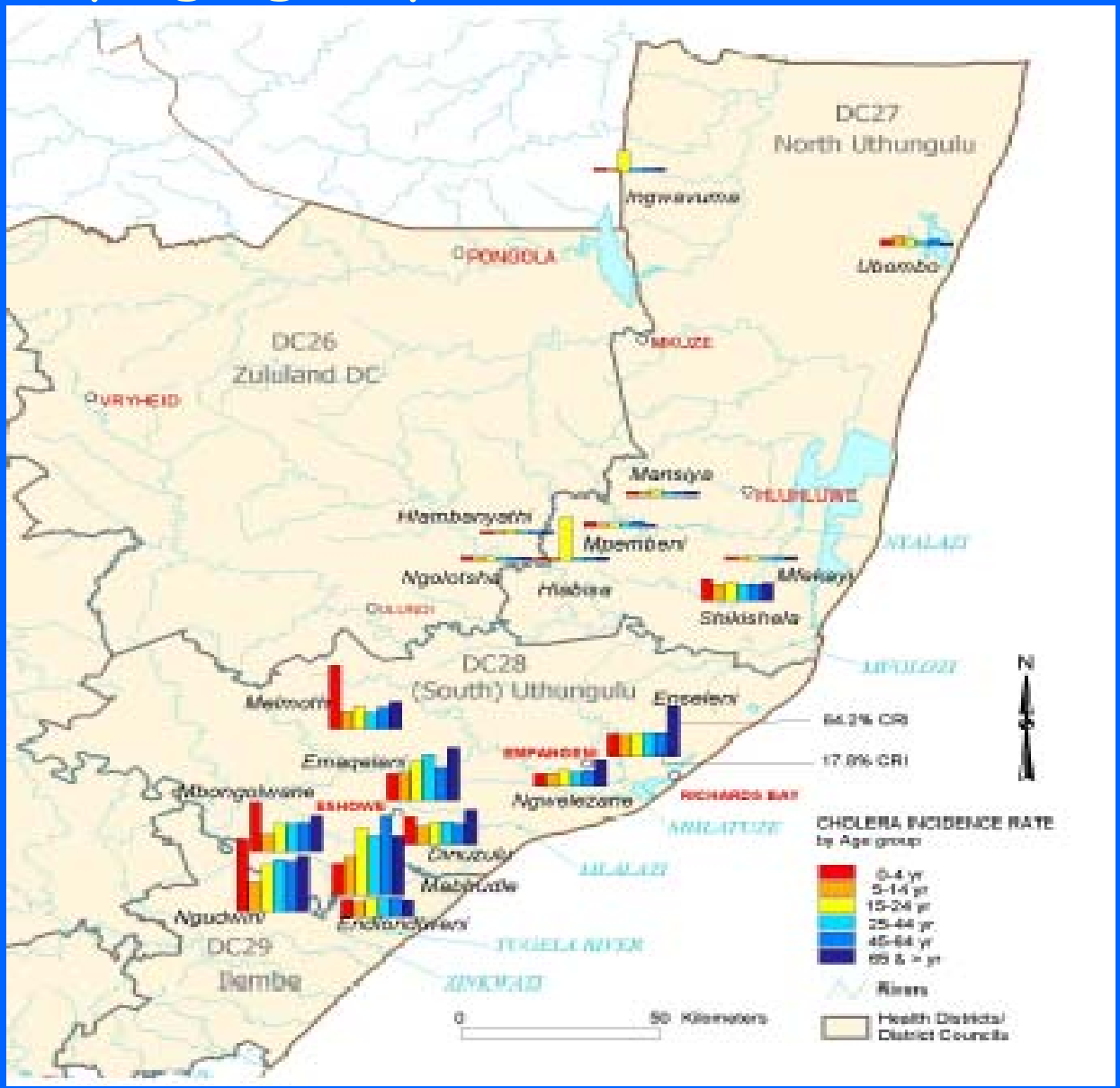
JOZ



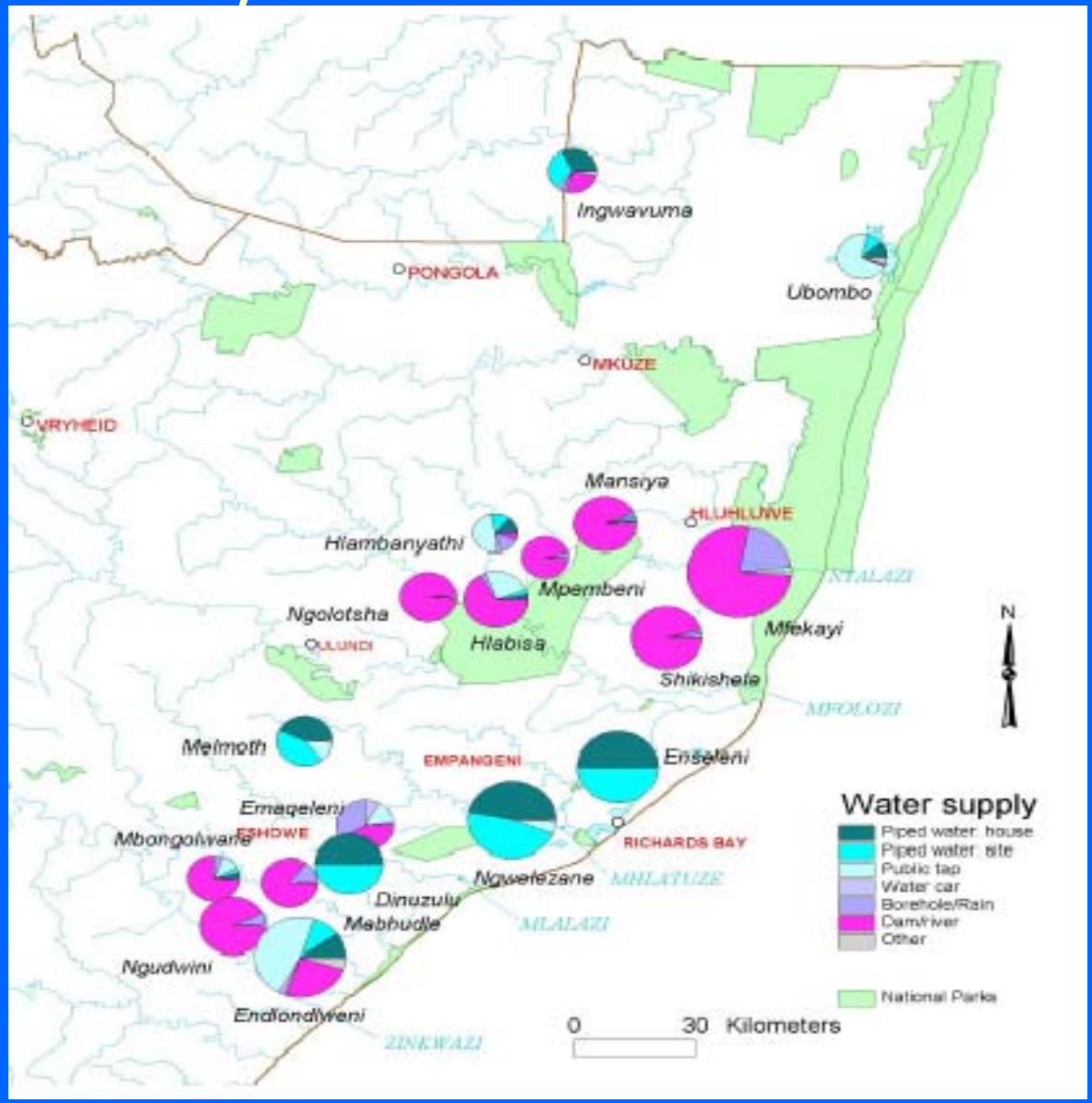
Place names that recorded high cholera cases in L-Umfolozi & Jozini



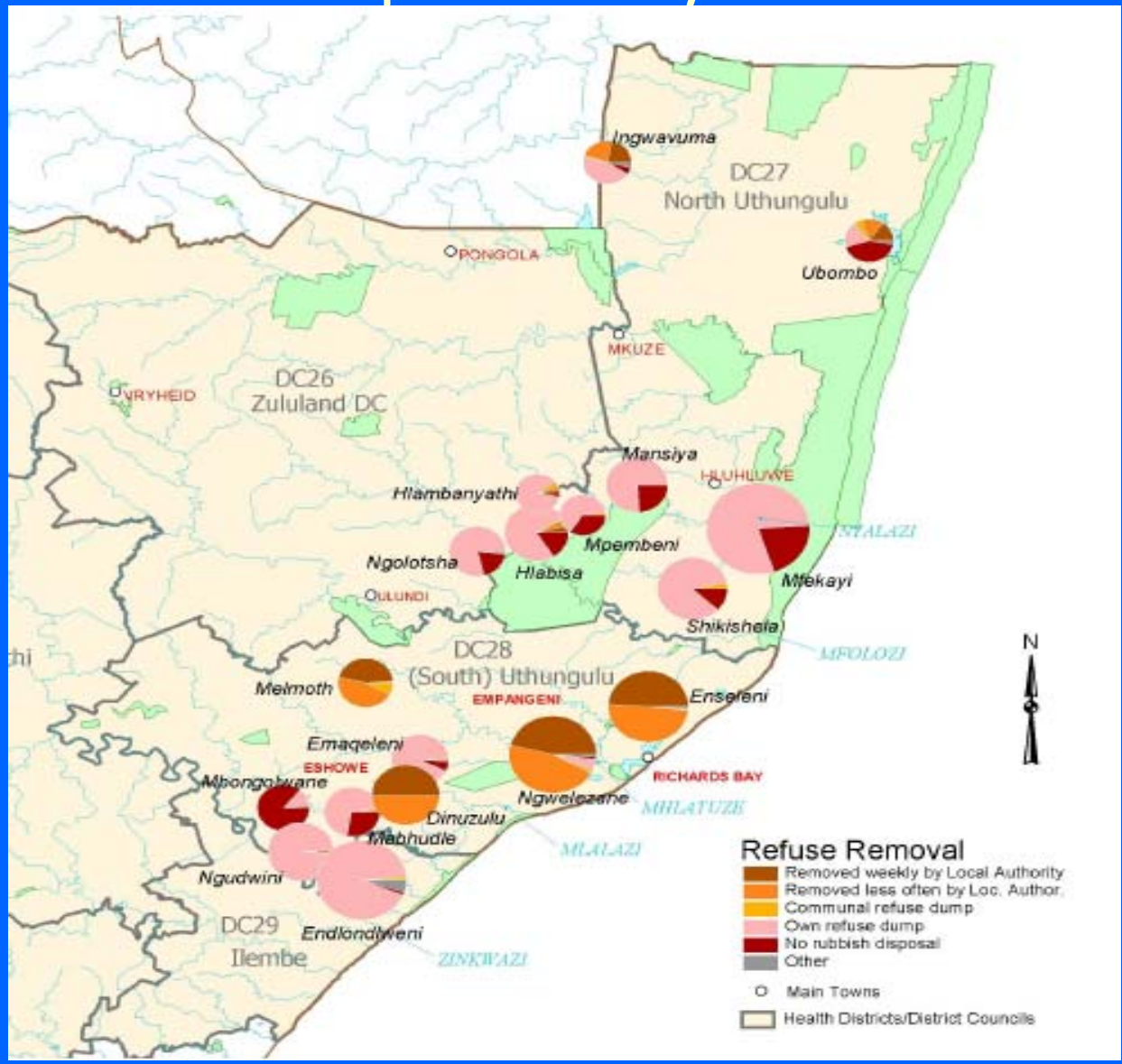
A comparison of the cumulative incidence rate of cholera by age groups in L-Umfolozi & Jozini



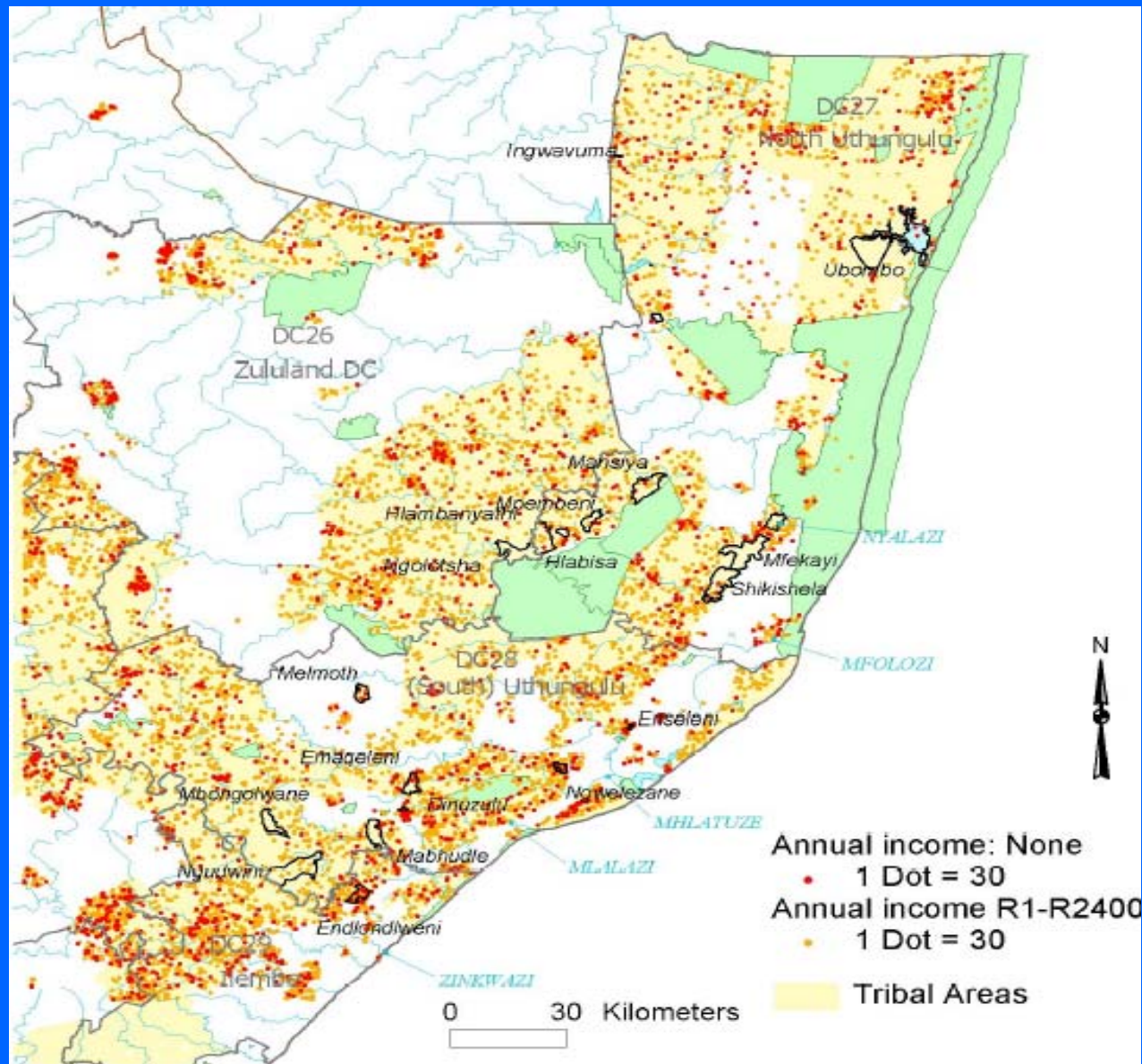
The distribution of water supply & services in the study areas of L-Umfolozi & Jozini



Refuse removal options in L-Umfolozi & Jozini pilot study areas



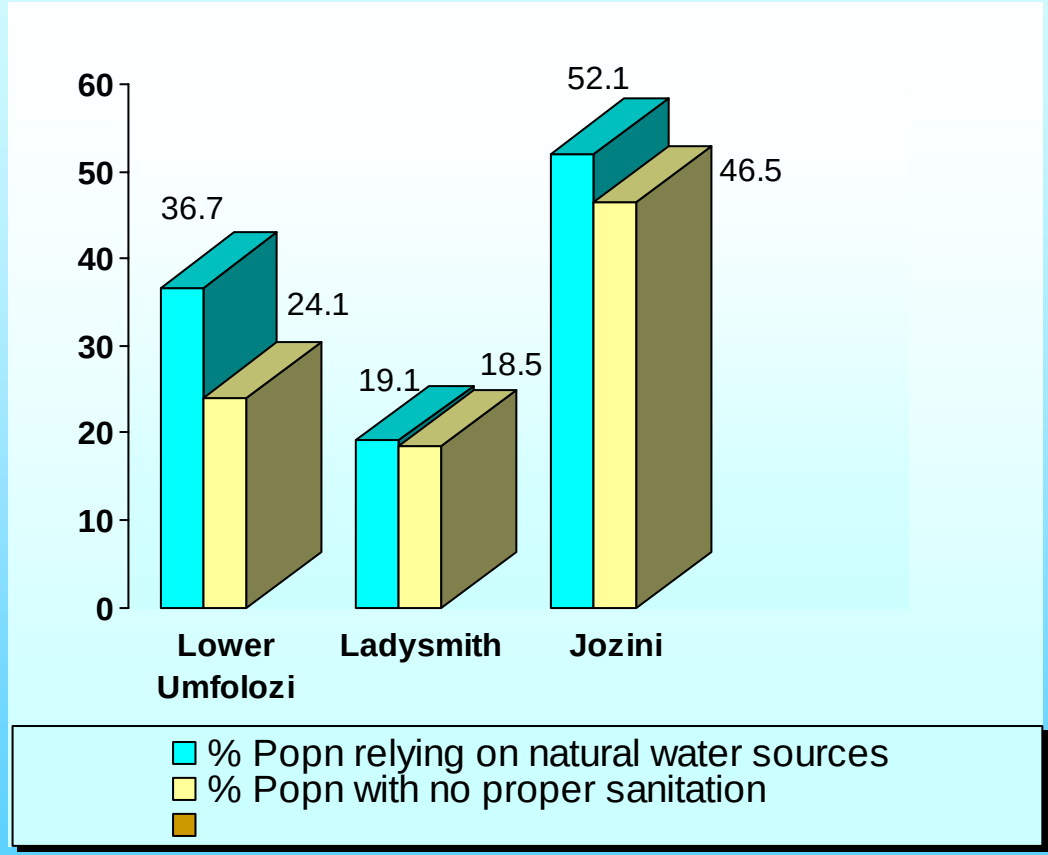
Annual income of the population in the pilot study areas of Lower Umfolozi & Jozini



DISCUSSION

- Lower Umfolozi had a cholera incidence rate 13 times higher than Jozini, & 5.8 times higher than Ladysmith, although it had a relatively better basic service delivery than both.

- There were more households/km^2 in Lower Umfolozi than in Jozini & in Ladysmith.



CONCLUSION

- There is a possibility that water supply and sanitation levels on their own may not necessarily have been the primary drivers of the cholera epidemic in KZN.

- The population density and other factors may possibly play a determining role in the spread of the disease.

FUTURE WORK

- The findings will be used as a basis for the assessment of other social and environmental factors that may also contribute to the spread of epidemic cholera in KZN.
- Perform a multi factorial analysis to guide the interpretation of the data in a larger context.
- Examine the correlations between the different factors associated with cholera.

ACKNOWLEDGEMENTS

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