UNIVERSITY OF TWENTE.

Monitoring Urban Expansion on Agricultural Lands in Egypt between 1986 and 2006, Asyut Governorate SMSSs as a Case Study.

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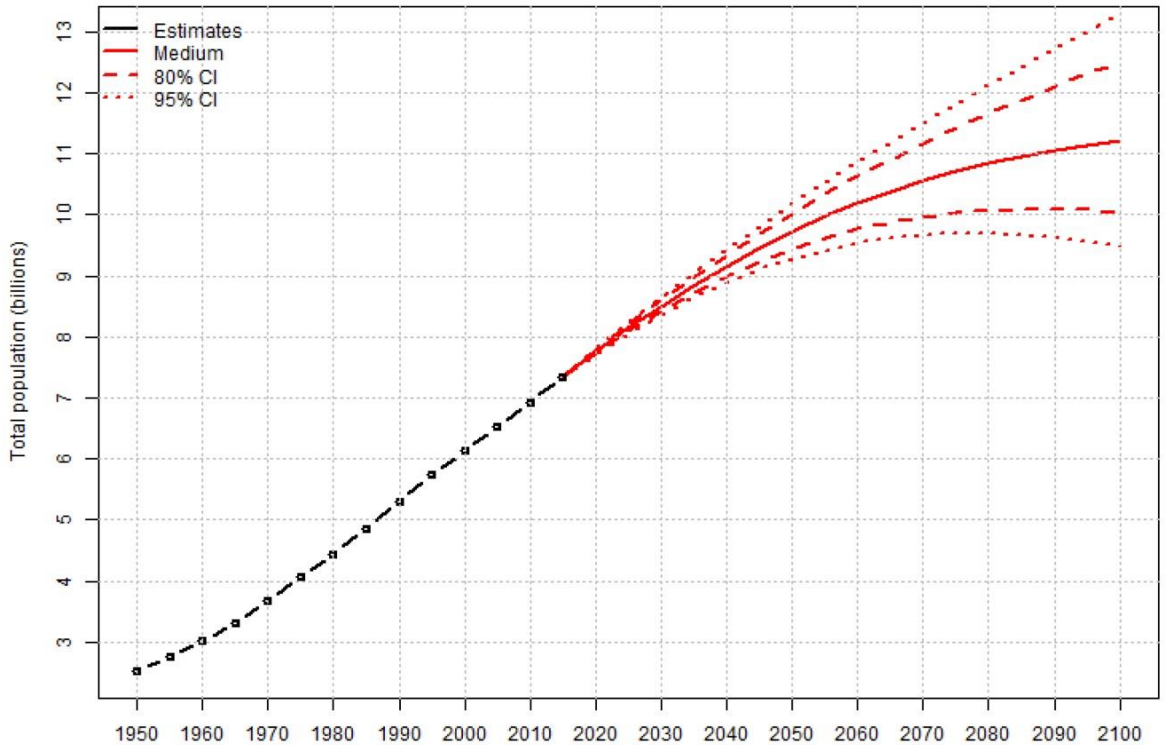
INTRODUCTION:

- Global population is increasing.
- The demand for land and food is increasing.
- More than 1 Million Ha. is lost yearly due to urban expansion in developing countries.



RESEARCH PROBLEM:

- Egypt losses around 50,000 acres of its agricultural land yearly.
- Two scenarios for urban expansion on agricultural lands in the Nile Valley and Delta.
- Urban expansion on agricultural land happens around SMSSs.
- Development plans are based on population growth criterion.

Agricultural land (100 thousand Acres)-Optimostic scenario

RESEARCH QUESTION:

- What are the different ranges of SMSSs urban expansion on agricultural land?
- To what extent does population growth rate drive SMSSs expansion on agricultural land?

AIM OF THE STUDY :

- To analysis the correlation between SMSSs expansion on agricultural land and its population growth rate in the Nile valley.

METHODOLOGY:

Identify urban expansion rate

Identify population growth rate.

Descriptive Ana.

Non Parametric Correlation Ana.

DATA:

- Data for the analysis is compiled from official statistics supplemented (GIS maps and reports).

STUDY AREA:

- Asyut governorate which consists of 1146 SMSSs and 11 cities.
- Total area of 25,926 km^2
- 4.3 million inhabitants.
- Chosen cases =116 SMSSs which are fully surrounded by agricultural land.

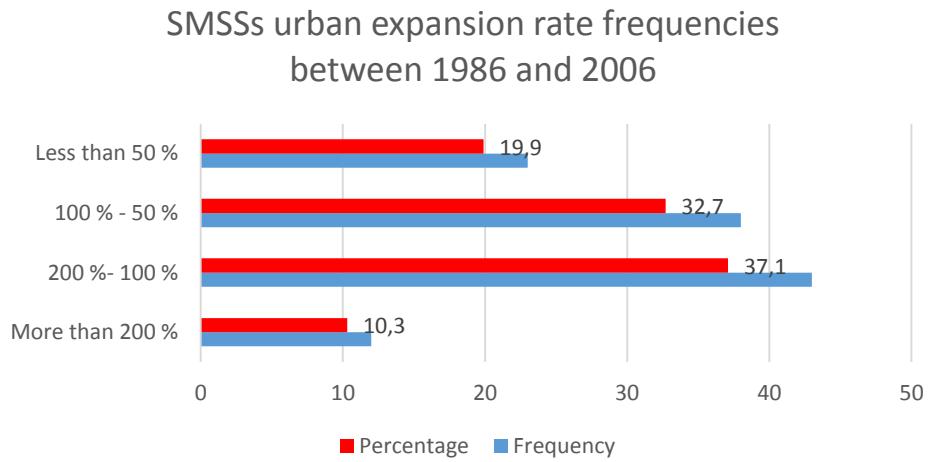
RESULTS:

Table (1): Descriptive Statistics for SMSSs

	N	Minimum	Maximum	Sum	Mean	Std. Deviation
PO_G_R	116	-1,01	197,27	6892,68	59,93	28,81
EX_G_R	116	11,26	782,39	13785,64	118,84	113,33

- The total built up area for the 116 SMSSs has been expanded by 100% between 1986 and 2006.
- More than 4200 acres of agricultural land have been lost.

RESULTS:



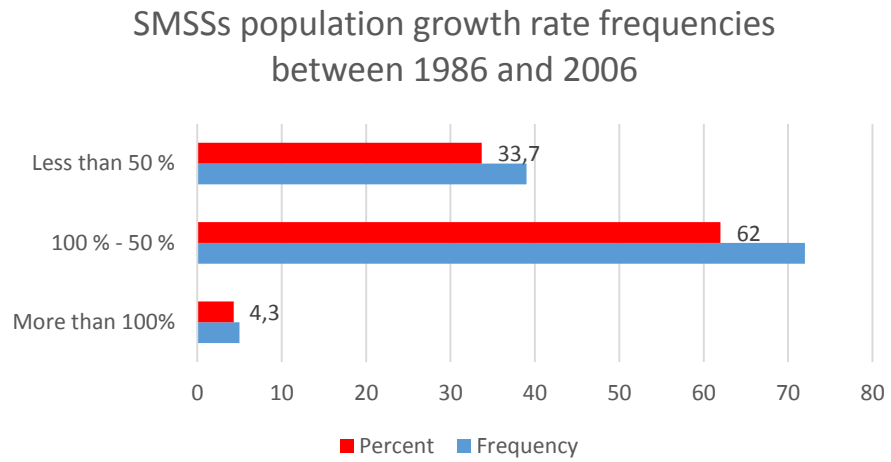


Table (2) : The highest and lowest rates (%) of SMSSs urban expansion Between 1986 and 2006.

SMSS name	Urban expansion rate	Population growth rate
Awlad Ali	782.39	31.17
Alsarakna	593.98	37.38
Mazyana	11.2	197.27
Elbarod Sharq	17.67	153.8

RESULTS:

Table (3) : The Spearman's rho correlation analysis between urban expansion rate and population growth rate of 116 SMSSs

			Population growth rate	Urban growth rate
Spearman's rho	Population growth rate	Correlation Coefficient	1,000	,088
		Sig. (2-tailed)	.	,349
		N	116	116
	Urban expansion rate	Correlation Coefficient	,088	1,000
		Sig. (2-tailed)	,349	.
		N	116	116

CONCLUSION:

- SMSSs had grown with very contradictive rates.
- Population growth rate has no significant effect on urban expansion.
- Some SMSSs have restrictive forces for urban expansion, but other have driving forces for urban growth.

WHAT IS NEXT?

Choose number of SMSSs with high and medium and low urban expansion rates :

1. Identify urban growth types (infill growth, outlying growth, etc.) based on remote sensing analysis
2. Identify Land use characteristics (connectivity, proximity, centrality, etc.) based on GIS analysis.
3. Identify different actors and underlay processes which lead to urban expansion on agricultural land or resist it.
4. Sustainable development approaches for each category.