

# Natural Disasters and Complex Emergencies: Geo-Referencing their Human Impacts

David Hargitt & Antonio Zugaldia



# Centre for Research on the Epidemiology of Disasters (CREED)

- Impacts of Natural Disasters
- Conflict and Health Research
- Database and Information Support
- Capacity Building and Training



# EM-DAT: The International Disaster Database

- Occurrence & Impacts of disasters
- Natural & technological disasters
- 1900 to today
- Inclusion criteria
- National Resolution

[www.emdat.be](http://www.emdat.be)



# EM-DAT Outputs:

Centre for Research on the Epidemiology of Disasters

## THIRTY YEARS OF NATURAL DISASTERS 1974-2003: THE NUMBERS

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UNIVERSITÉS  
DE LOUVAIN

Centre for Research on the Epidemiology of Disasters (CRED)

## CRED CRUNCH

"Disaster Data: A Balanced Perspective" Mar 2005

The Centre for Research on the Epidemiology of Disasters (CRED) is pleased to present its first CRED CRUNCH publication. As part of our objective of providing the international community with more statistics for the worldwide assessment and impact of disasters, we present a first comprehensive overview report on the progress and development in disaster prevention.

All countries and regions are included, including the types of disasters that would be the most common. In the last issue, CRED CRUNCH presents information on the occurrence and impact of natural disasters in 2004.

2004 was clearly dominated by the Indian Ocean tsunami which accounted for nearly 94% of all reported deaths from natural disasters. By the end of the year, the global response to the disaster was unprecedented, with as many as 100 million people engaged in relief efforts. The impact of the tsunami was felt in many parts of the world, with significant loss of life and property in many countries.

As a disaster does not only affect the immediate area, but also the surrounding regions, the impact of the tsunami was felt in many parts of the world, with significant loss of life and property in many countries.

The information on disaster prevention, through together, is not only relevant to disaster prevention and mitigation, but also to the development of the disaster risk reduction program, including the mitigation of disaster risk in urban areas, high vulnerability areas and the building of disaster-resilient communities.

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	2004	1974-2003
No. of disasters	100	1000
No. of countries affected	120	150
No. of people affected	2,200,000	200,000,000
Total population affected	1,100,000,000	5,000,000,000
Estimated economic damage (US\$)	110,000,000,000	15,000,000,000,000

Annual number of deaths by disaster type

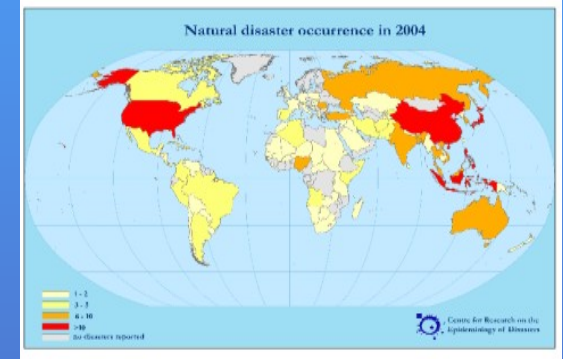
Annual number of people affected by disaster type

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## Annual Disaster Statistical Review

### The Numbers and Trends 2007

J.M. Scheuren  
O. Le Polain de Waroux  
R. Below  
D. Guha-Sapir  
S. Ponserre\*



## World Disasters Report

Focus on community resilience

International Federation of Red Cross and Red Crescent Societies

United Nations Development Programme

## REDUCING DISASTER RISK

### A CHALLENGE FOR DEVELOPMENT

United Nations

ISDR

## Living with Risk

A global review of disaster reduction initiatives

2004 Version • Volume I

United Nations

## Natural Disaster Hotspots

### A Global Analysis

THE WORLD BANK



# CE-DAT: The Complex Emergency Database

- Compilation of Field Surveys
- Epidemiological Indicators
  - Mortality Rates
  - Malnutrition Rates
  - Vaccination coverage
- Geo-referenced using longitude/latitude

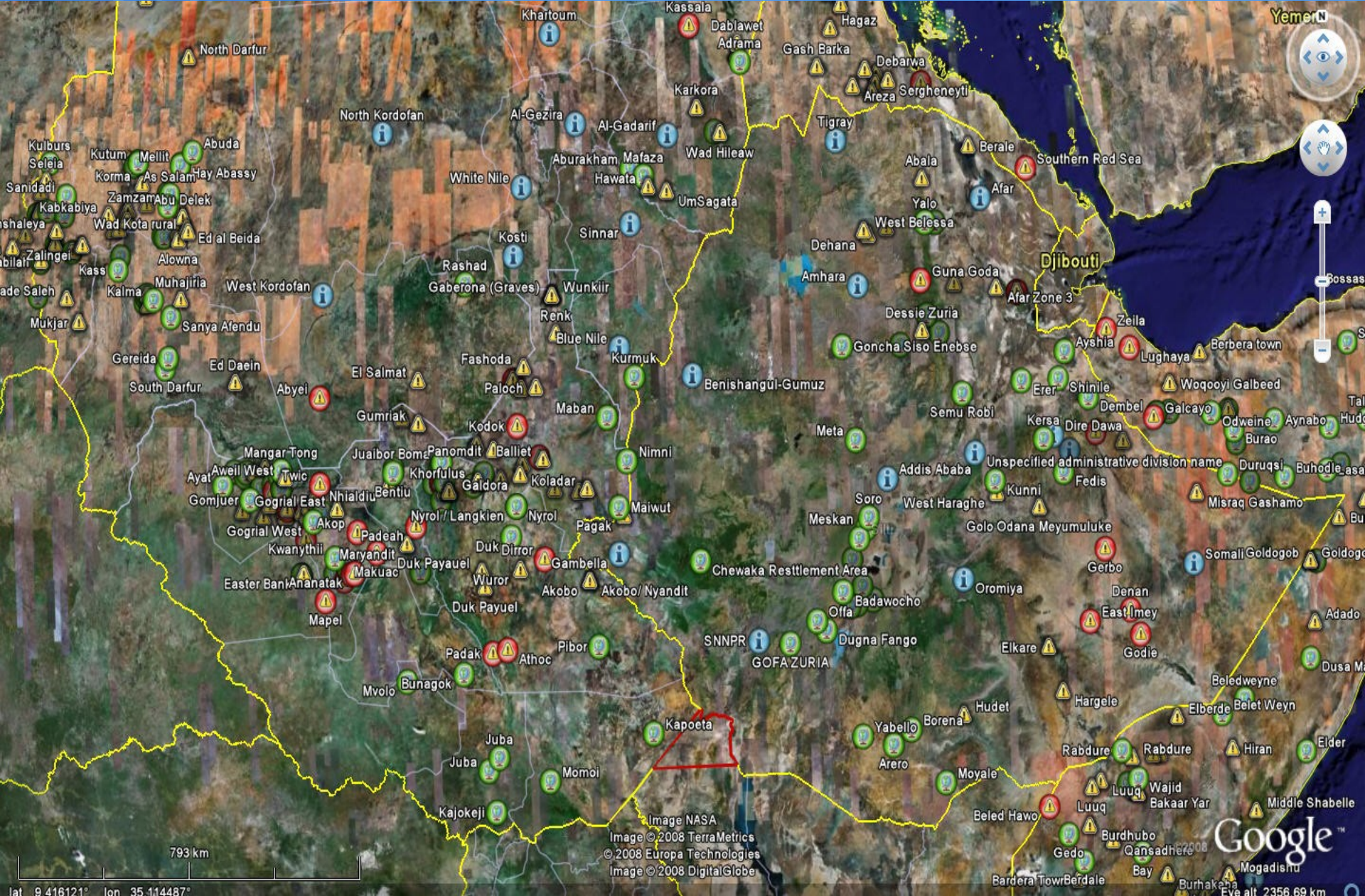
[www.cedat.be](http://www.cedat.be)



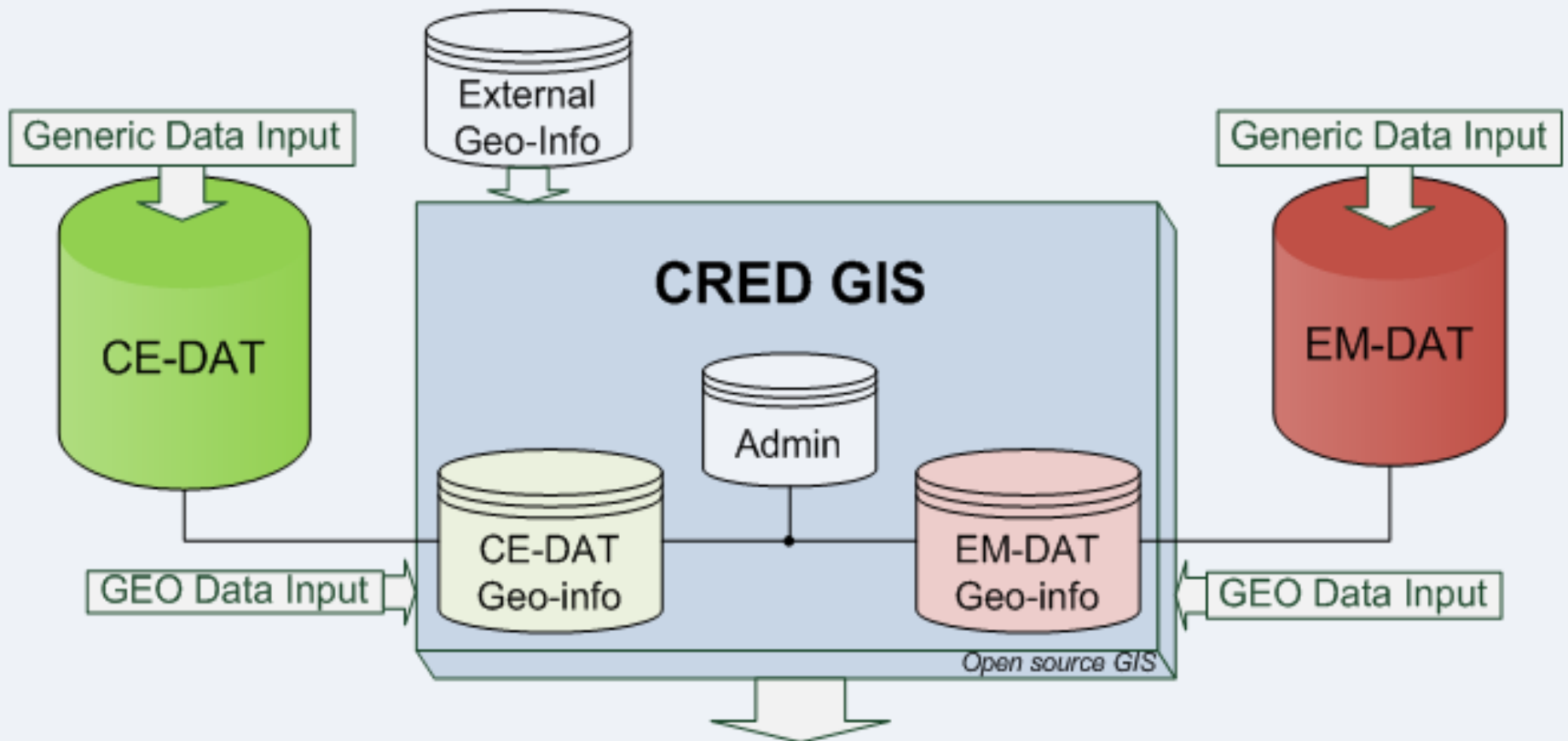
# CE-DAT Outputs:



# Acute malnutrition In the Horn of Africa



# From Points to Polygons



- Maps
- Web-integrated geo-services
- Geo-statistical analyses
- Added values for the databases and improved services

# From Points to Polygons

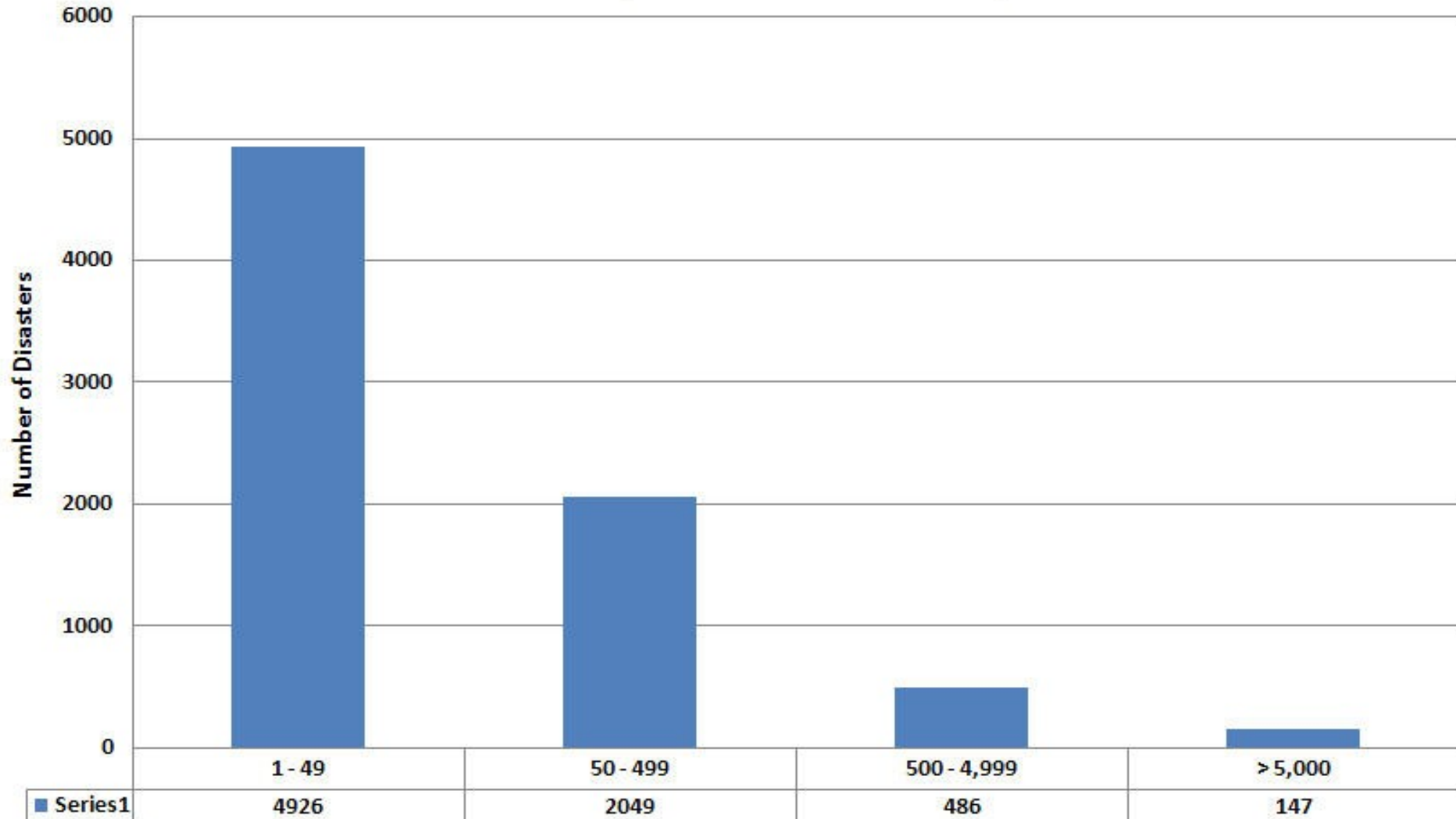
- Software: PostGIS stack
- Multiple Geocoders
- Datasets:
  - FAO GAUL Dataset
  - WHO/UNICEF DRC Health Zones
  - WFP/VAM Livelihood Zones
- Custom data entry interfaces



# Space technology & EM-DAT

## Disaster footprints

Disaster Occurrence by Numbers of Persons Reported Killed



# From Satellites to the Field: Bridging the gap

- Tracking displaced populations
- Population distribution/densities
- Sampling methods



# Space technology & CE-DAT

## Sampling methods

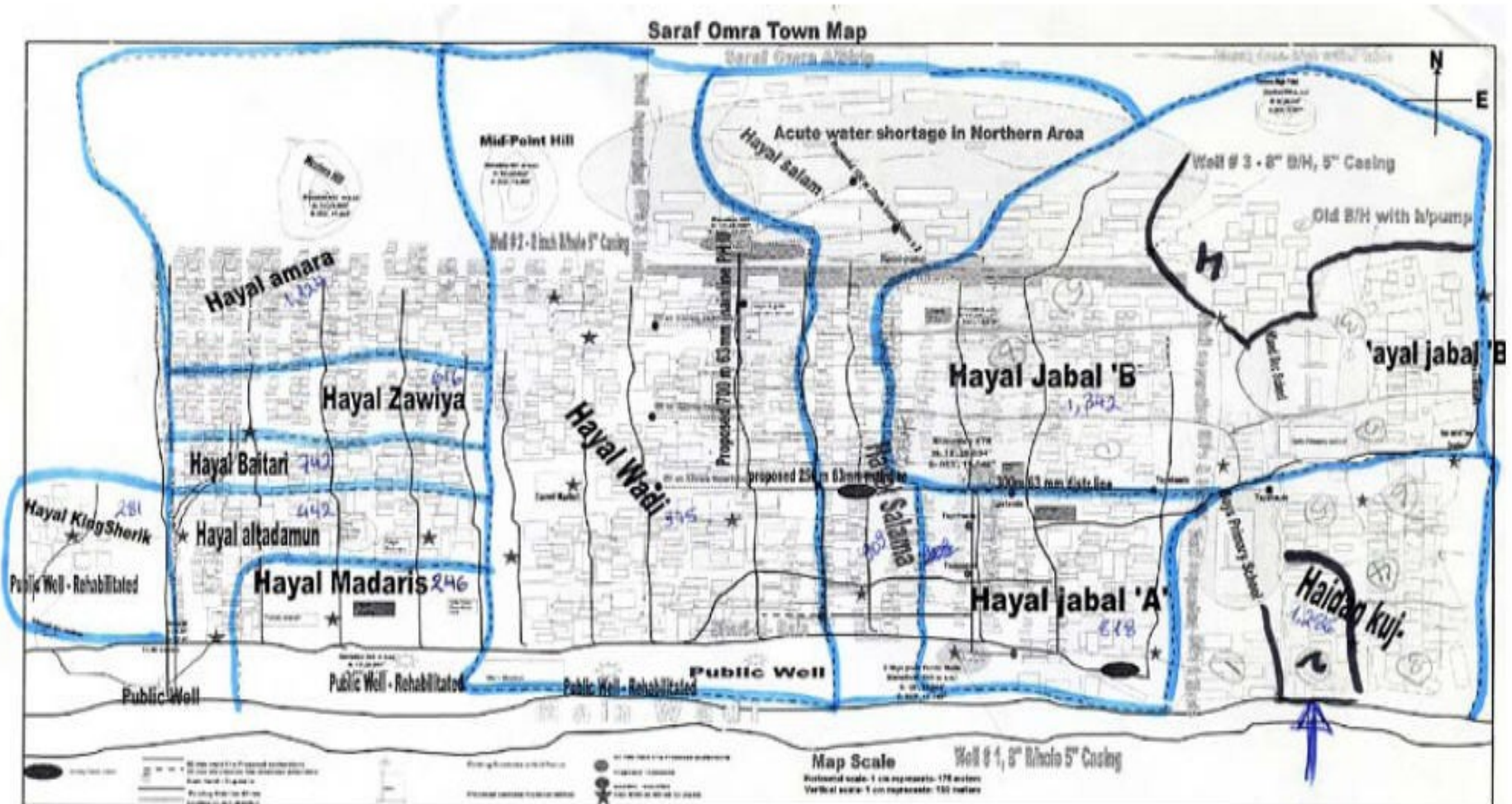


Figure 2.1 – Sampling procedure (geographical segmentation)

Thank you

[www.cred.be](http://www.cred.be)

