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(PAPER TITLE)
GEOGRAPHIC INFORMATION SYSTEM AND PUBLIC HEALTH DISEASES IN AFRICA

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INFORMATION SYSTEMS IN THE SURVEY OF PUBLIC HEALTH DISEASES IN CENTRAL AFRICA

PLAN OF PRESENTATION

1. MAP OF AFRICA SHOWING STUDY AREA

2. PROBLEM STATEMENT

3. PURPOSE OF THE STUDY

4. HYPOTHESES

5. JUSTIFICATION

6. Global Objective

7. Specific Objectives

8. METHODOLOGY
   - General Application of GIS

10. PLAN OF APPLICATION IN THIS STUDY

11. DATA PROCESSING AND ANALYSIS

13. CONCLUSION
REGION OF STUDY
CONGO BASIN
- Geographic location
- Tropical diseases
- Poor sanitation conditions

CAMEROON
- Administrative division of Cameroon
- Health District divisions of Cameroon
PURPOSE OF THE STUDY

To put in place a spatial data base that will facilitate the management of disease, this is in accordance with the World Health Organisation communicable and non communicable Disease policy.
Hypotheses

- The GIS System is a suitable method of studying public Health diseases where other methods have failed.

- The GIS System provides opportunities for linking public health information with ecologic system.
In (2004), the Ministry of Public Health indicated that:

- Health data is not routinely collected and analysed.
- Information feedbacks to the collection point have not been adequately developed.
- The information collected and analysed has experienced severe limitations in efficiency and performance in HD/HA.
- This has greatly influenced the activities of stakeholders such as NGO and religious networks involved in Health projects.
Global Objective

- The goal of the project is to enhance the development and maintenance of a spatial data base allowing for a continuous updating and edition of cartographic products meeting the needs for Public Health decision makers in Cameroon and Central Africa

Specific Objectives

1. To collect spatial health information in relation to ecological factors

2. To set a framework for the presentation of the spatial health and ecologic data in the form of maps, tables, charts and health zones.

3. To establish a conceptual framework for health data collection and analysis.

4. To develop a working methodology in collaboration with Ministry Public Health Delegations for elaborating a Public Health Information Management System.
Methodology

- What is GIS Procedure
- Spatial data collection
- Research instruments
- Health area questionnaire
- Evaluative research Design
General Application of GIS

PHYSICAL SPATIAL DATA

CLIMATE
- RAINFALL
- SPATIAL VECTOR/RASTER ON HUMIDITY DIFFERENCES
- SPATIAL DEMOGRAPHIC DATA IN HEALTH DISTRICT

TOPOGRAPHY
- TEMPERATURE
- SPATIAL DIFFERENCES AND DISEASE DISTRIBUTION

HYDROLOGY
- HUMIDITY
- SPATIAL VECTOR/RASTER ON HUMIDITY DIFFERENCES

RELIEF
- TEMPERATURE
- SPATIAL DIFFERENCES AND DISEASE DISTRIBUTION

SOILS
- TYPES OF SOILS
- DIFFERENCES IN FOOD NUTRIENTS AND DISEASES DISTRIBUTION

VEGETATION
- TYPES OF VEGETATION
- ECOLOGICAL INFLUENCES ON DISEASE DISTRIBUTION

….. CONTINUED
CONCEPTUAL FRAMEWORK FOR DATA ANALYSIS

Data Base Development

DISEASES
- Communication
- Non Communication

Determining geographic Distribution of diseases
Analysing spatial and temporal trends.
Mapping Populations at risk.
Stratifying risk factors
Assessing Resource allocation.
Planning and targeting interventions.
Monitoring diseases and interventions over time.

MODES OF DATA INTERPRETATION

Comparative / Global approach
Explanatory approach
Spatial Analysis
Content Analysis

TYPES OF RELATIONSHIPS TO BE ESTABLISHED

Simple comparison Reports.
Proximity analysis
Network analysis
Reclassification Overlay (vector)
GIS Data query
Correlations

OBSERVATIONS/DISCUSSION

Interrelationships between variables giving reliable conclusions
Long Term suggested solutions
Short Term Medium Term

RECOMMENDATIONS
Beneficiaries

- The Ministry of Public Health,
- GIS Application centres,
- Provinces as decentralised units,
- local council and municipalities,
- NGOs concerned with public health,
- Possibly countries of the concerned region and W.H.O.
Possible applications of GIS-based findings on policy and decision (existing or new):

- Evidence-based information for policy/decision-makers will be available
- They will become aware of the benefits of GIS technology and have greater trust in the predictions of health problems.
- The stake holders will be able to:
  - determine geographic distribution of diseases,
  - analyse spatial and temporal trends,
  - Map out populations at risk,
  - Classify risk factors,
  - Change resource allocation planning for various interventions,
  - monitor diseases and interventions over time.
CONCLUSION

- For GIS to have a significant impact on Public Health Policy in Africa, it requires not only money, equipments, data, and trained staffs, but also an active dialogue between scientists, GIS experts, policy makers, and the civil society.

- Policy dialogue stimulates the emergence of a demand for GIS analysis, which generates data products and services that will mitigate the management of Public Health issues in Africa.
PHYSICAL AND HYDROLOGICAL MAP OF THE CONGO BASIN
VEGETATION DISTRIBUTION IN THE CONGO BASIN

Désertique

Tropical humide

Tropical à saisons alternées

Semi-désertique
RAINFALL DISTRIBUTION
## ANNEX 1

### WAYPOINT LIST

- Province___________________
- Name of Division_____________
- Name of Sub-Division_________
- Name of Health District_______
- Name of Health Area____________
- Date______________________

### Observations __________________

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<tr>
<th>No Waypoint</th>
<th>UTM ZONE Geographic coordinates</th>
<th>Nature (code)</th>
<th>Designation</th>
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</thead>
</table>

### Code

- 0 Point of control:
- 1 Quarter:
- 2 Locality:
- 3 Health infrastructures:
- 4 Health Area Limits:
- 5 Divisional Limit :
- 6 Sub-Divisional Limits, 
- 7 Bridge:
- 8 Health District Limits
- Others (mention)
## ANNEX 2

### LIST OF TRACKS

- Province____________________
- Name of Division______________
- Name of Sub-Division__________
- Name of Health District_______
- Name of Health Area___________
- Date_______________________

Observations____________________

### Code

- 0  Point of control
- 1  Tarred Road
- 2  Untarred Road
- 3  Footpath
- 4  Seasonal roads
- 5  Others (mention)

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ANNEX 3

LIST OF QUARTERS/LOCALITIES IN HEALTH AREAS

- Province______________
- Name of Division________
- Name of Sub-Division____
- Name of Health District__
- Name of Health Area____
- Housing characteristics---
- Date_________________

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<th>Name of Block</th>
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ANNEX 4

HEALTH FACILITIES QUESTIONNAIRE

- Name of Division_________
- Name of Sub-Division_________
- Name of Health District_________
- Name of Health Area_________
- Name of Health facility_____

(Ownership)
1- Private
2- Denominational
3- Lay Private

(Category)
1- Reference Hospital
2- Provincial
3- District Hospital
4- Clinic
5- Integrated Health Centre
6- Pharmacy
7- Health Post
8- Traditional Clinic
9- Health School
10- Others (specify).

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<tr>
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ANNEX 5

COMMUNICABLE AND NON COMMUNICABLE DISEASES QUESTIONNAIRE

- Province_________________________
- Name of Division_____________________
- Name of Sub-Division_________________
- Name of Health District________________
- Name of Health Area_________________
- Name of Health facility_________________

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