

GIS, Malaria and Indonesia

Motivation

- Malaria kills 1.5-2.7 million people each year
- GIS Research \neq GIS Deployment

Literature Review

- How is GIS being used?
- What GIS software is available?
- Where is GIS used in research and control?
- What are the limitations?

1. Mapping malaria incidence/prevalence, relationships between related variables (land cover, elevation, movement, etc), modeling risk, ways to collect remote data, general commentary/reviews.
2. ArcView/ArGIS and MapInfo. EpiInfo/EpiMap and HealthMapper
3. Mostly in sub-Saharan Africa. Being rolled out in India/Sri Lanka, but not in Southeast Asia.
4. Lack of staff, data limitations, cost of hw/sw, no informed decision makers, misunderstood results, no spatial analysis, lack of sw support, dominance by technocrats

Problems: Data

- Disease reporting problems
- Environmental data
- Movement of people

1. Double counting of individuals, out of date or non-reporting, not visiting closest (or any clinic)
2. Specialized data, scale not appropriate, digitizing data
3. No timely data on the movement of people within a country.

Problems: Technology

- Hardware
- GIS software
- Training

1. Less of a problem, but OS updates still an issue.
2. Software is expensive (\$1–2k). HealthMapper or custom built.
3. How to use GIS and how to use it to understand/control malaria.
 - Training, but no access to software/computers
 - Training the wrong person.
 - Interpreting and using info to manage.

Solutions: Data

- Pilot program
- Weather data
- Digitization
- People movement

1. Pilot program shows decision makers what is possible, find out problems/costs on small scale
2. Extrapolate existing data, add more weather stations, satellite data
3. Hand digitize/automated scanning, convert to GIS (\$1.5k), or contract it out.
4. Health officers should conduct surveys to determine movement (maybe pilot study).

Solutions: Technology

- HealthMapper
- ArcView, ArcExplorer
- Training programs

1. Software is expensive. HealthMapper is free and designed with malaria in mind.
2. Main office uses ArcView, sends it down to local offices.
3. Focus on training GIS/spatial analysis and malaria control.

Discussion

- Are you satisfied with the solutions presented in the paper?
- Best case scenario, what would it take for GIS to succeed?
- What (if any) are the big issues in GIS that technology could help with?