



CIETmap: open source GIS and epidemiology software from the CIET group

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The CIET group:



- bring scientific research methods to local government and community levels
- worked in 48 countries worldwide on a range of topics including sexual violence and HIV/AIDS, land mine awareness, prenatal care, education, water and sanitation
- dedicated to building the community voice into planning; capacity building

CIET levels of analysis:

- **level 0: coverage and outcomes (% of children vaccinated)**
- **level 1: individual risk (odds ratios): the risk of an unvaccinated child compared with a vaccinated one**
- **level 2: gains: # of children spared if all were vaccinated**
- **level 3: combined gains: the net effect of different interventions (vaccination, food supplements etc)**
- **level 4: investment options – the best combination of interventions with the available resources**

Use of GIS and maps in health planning: communication of evidence

- spatial perspective of access or risks**
- visually summarise complex data**
- can be less intimidating than charts or graphs**

However...

- **GIS software can be expensive (particularly in the developing country context)**
- **designed for use by GIS technicians and require training not easily available**
- **most are not designed in an epidemiological/health planning context**

CIETmap: free GIS and analysis software

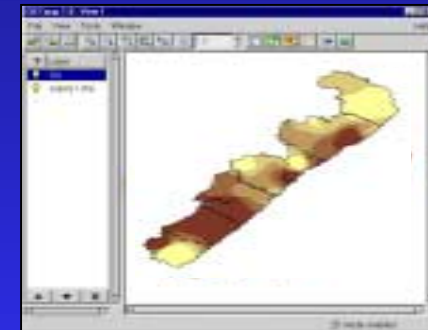
- analysis module can combine data from various sources; produce frequencies etc.



The screenshot shows the 'Output Data' window in CIETmap. It displays a table with columns for 'CLASS', 'COUNT', and 'PERCENT'. The data is as follows:

CLASS	COUNT	PERCENT
1	154	37%
2	205	50%
3	141	34%

- data can be seamlessly linked to maps (raster and vector)



- CIETmap can be customized in order to accommodate specific groups

- free to academic, non-profit and community researchers

CIETmap: analysis module

The analysis module is capable of most types of epidemiological analysis. It allows for basic frequencies through to epidemiological models of gains

The screenshot shows the CIETanalysis 1.0 software interface. The window title is "CIETanalysis 1.0 beta28". The menu bar includes "File", "View", "Window", and "Help". The "Data Set" is "SDZ1.REC" with "(2370 records of 2370 selected)". The "Selection" is empty, and the time taken is "0.115 s". The "Analysis Level" is set to "1". There are buttons for "Read" and "Select". The "TABLES" section has dropdown menus for "Outcome: DIARR", "Exposure: CLWATER", and "Strat 1:". The "Output" tab is active, displaying a table of results for a 2x2 contingency table. Below the table, it shows "single table analysis" with "Odds ratio 1.62", "Miettinen 95% CI for OR 1.33 - 1.96", "Chi square 23.38", and "Mantel-Haenszel 23.37". At the bottom, there are buttons for "Map", "Screen", and "Level 1", and a "Command Line" section with a history of commands and a "Close" button.

DIARR	CLWATER		Total
	1.0	2.0	
1.0	305	827	1132
>	26.9%	73.1%	48.3%
2.0	225	986	1211
>	18.6%	81.4%	51.7%
	42.5%	54.4%	
Total	530	1813	2343
	22.6%	77.4%	

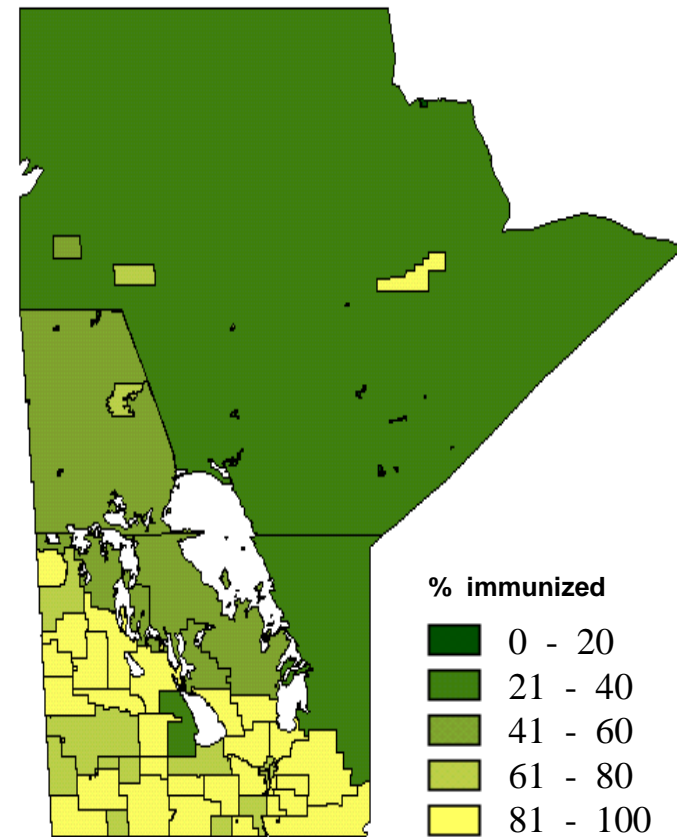
single table analysis

Odds ratio 1.62
Miettinen 95% CI for OR 1.33 - 1.96
Chi square 23.38
Mantel-Haenszel 23.37

Command Line:
History:
Command
3 TABLES DIARR CLWATER
4 LEVEL 1
5 TABLES DIARR CLWATER
Command: TABLES DIARR CLWATER
TABLES <var1> [<var2> ... <var10>]

CIETmap: vector maps

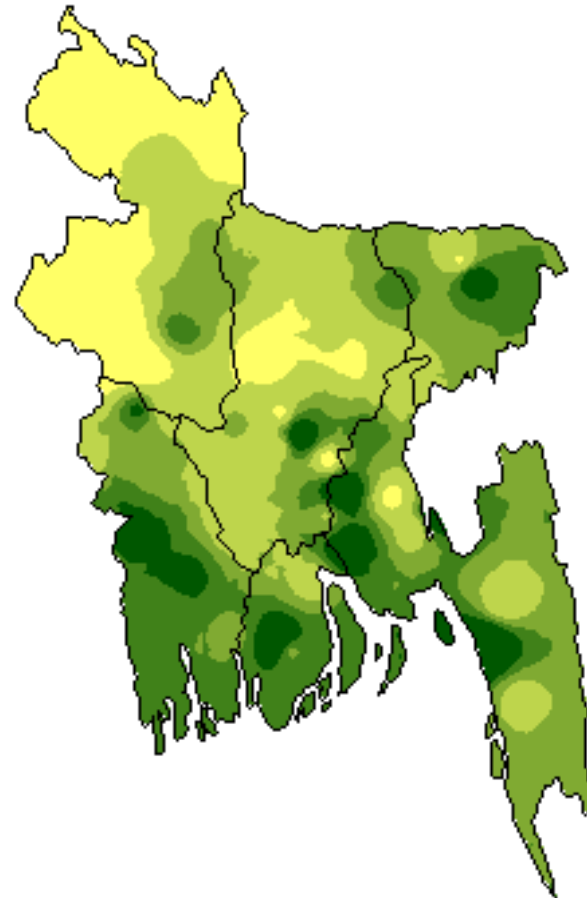
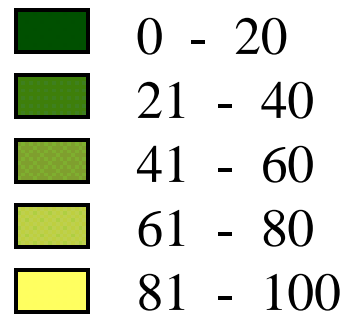
Vector maps can display layers like administrative boundaries and geographic features; and layers can be classified based on fields in the database



CIETmap: raster maps

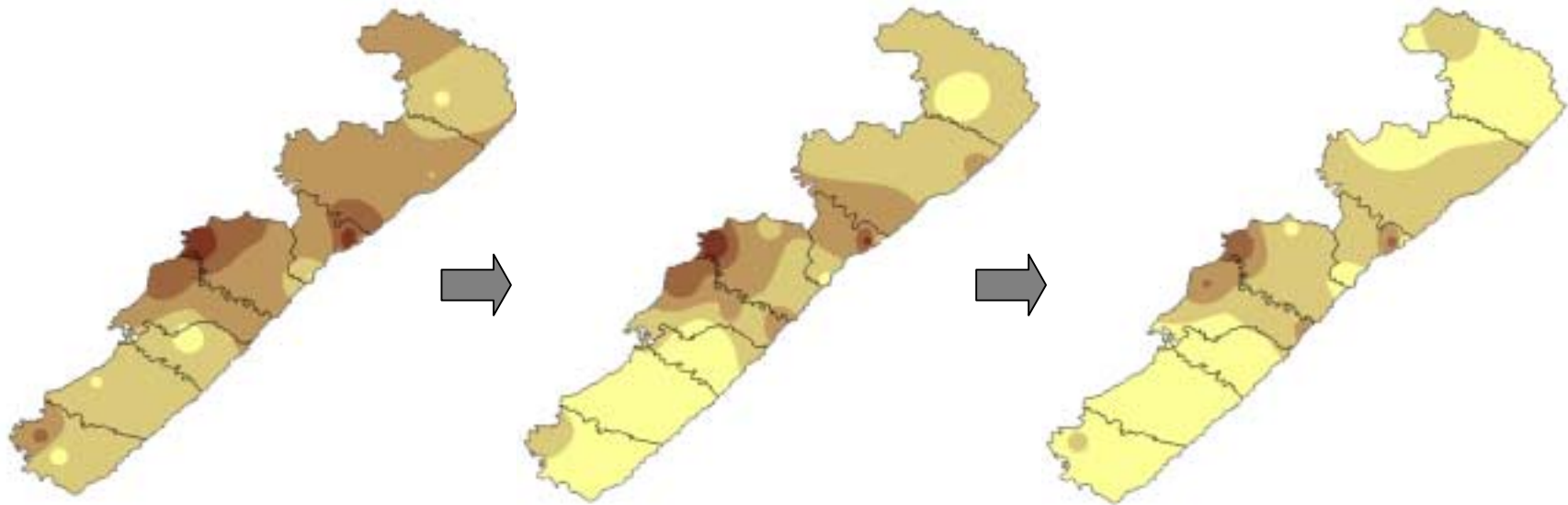
Raster maps are interpolated from a set of sample points (communities) that are weighted to represent the population

% of households with access to clean water



CIETmap: morph maps

The morph map module can be used to show the change in a variable over time (time-series), or to model the effect of a program (gains)



**% without
sufficient food**

**% without sufficient
food after implementing
Program A**

**% without sufficient
food after implementing
Program A *and* Program B**

CIETmap: free GIS and epidemiology software helping to build the community voice into planning

Who can use CIETmap?

- planners and decision makers
- academics and researchers
- other non-GIS technicians

CIETmap can be customized

- additional modules
- custom colour palettes
- preference settings
- help files/training modules

CIETmap v1.0: technical specifications

- built using OpenEv and Python
- installation file: approx 12mb, expands to 20mb
- Windows platform
- currently in 29th beta format; expected release:
Fall 2004