

DEXES Output

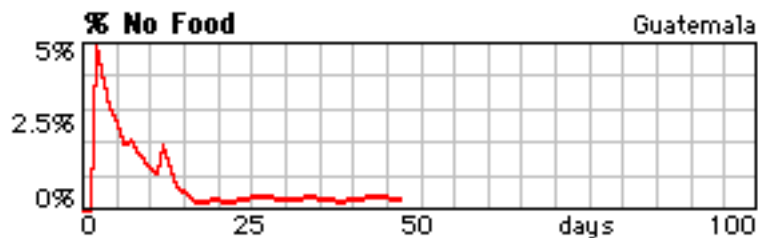
by Loren Cobb

Summary:

Primary DEXES output takes two forms: (a) graphs of all state variables, and (b) maps colorized in various ways to communicate regional data. Secondary DEXES output includes a data file of all state variables, and a log of all significant activity, including scripted and triggered events, user-initiated actions, and network events.

1. Time Series Graphs:

Most of the state variables in DEXES are graphed as simple time series, as in the following example, which shows the percentage of the population without access to clean drinking water:

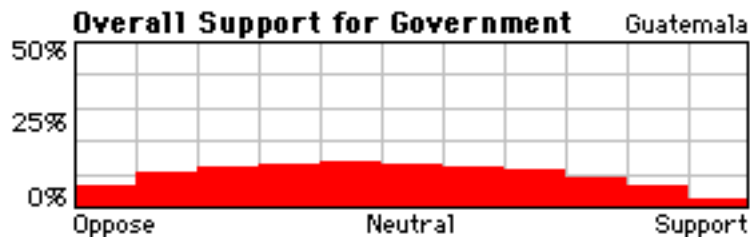


Each such graph should be available for every state variable at both regional and national levels of aggregation. The user should have the ability to change the scale on both axes. It is advisable to display standard and user-defined sets of graphs, so that the user can instantly see the relationships between state variables. In DEXES, the standard sets have some overlap. They are:

- **Socio-Medical:** % Displaced, % Dysentery, % Cholera, Daily Civilian Mortality, % No Water, % No Food, % No Power, Severity of Civil Unrest.
- **Political:** Overall Support for the Government, Overall Support for Int'l Forces, Government Competence, Government Corruption, Political Participation by each faction, Perceived Bias of Int'l Forces by each faction.
- **Public Opinion:** Support for the Government by each faction, Support by Int'l Forces by each faction, Support by each faction for its own militia, Perceived Bias of Int'l Forces by each faction.

- **Conflict:** Severity of Civil Unrest, Intensity of Armed Conflict, % Displaced, Political Participation by each faction, Overall Support for the Government, Government Competence, Government Corruption.
- **Economy:** Economic Growth Rate, Inflation, Unemployment, Tax Rate, Size of the Underground Economy, Export-Import Balance.

Many of the DEXES public opinion variables are probability distributions, rather than single-valued time series. Internally, DEXES represents these distributions with two parameters, namely the mean and polarization of the “Beta” probability density function. There are at least three different ways to display these distributions: a) as a probability density function, b) as an approximate histogram, or c) as a time series of the two parameters. The DEXES program uses option (b), the approximate histogram, as illustrated here:



This type of display was chosen because it is the most familiar to nontechnical audiences. For the purposes of output from a PC version of DEXES, it will be sufficient simply to output the 11 bin heights for each histogram, from which the histogram can be fully reconstructed and displayed.

2. Output Data Files:

The current version of DEXES outputs two optional data files:

- The “Data History” file contains the values of all state variables at user-chosen regular time intervals (usually daily, but hourly or weekly intervals are also available).
- There are two log files, named “Log File” and “La Crónica,” which provide a moment-to-moment log of all significant events. The two log files differ only in language: the first is in English, the second in Spanish. Events logged in these files include all scripted and triggered events, all user-initiated unit actions, and network events such as the attachment, disconnection, or re-attachment of remote workstations. When events or actions directly affect DEXES state variables, then the logged memorandum includes a summary of these effects.

3. DEXES Map Output

The standard DEXES map is based on a zoomable background bitmap, usually (but not always) obtained through the MUSE program of NIMA. Alternative bitmaps can be readily obtained from commercial mapping programs or by scanning paper maps. Superimposed on this background bitmap are double-clickable objects of interest to the simulation user. These objects include:

- **The nation.** Double-clicking within the national boundary (but not on any other object), while the “Show Areas” option is off, results in the display of the national boundary itself, and the appearance of a dialog box that provides current information on the state of the nation:

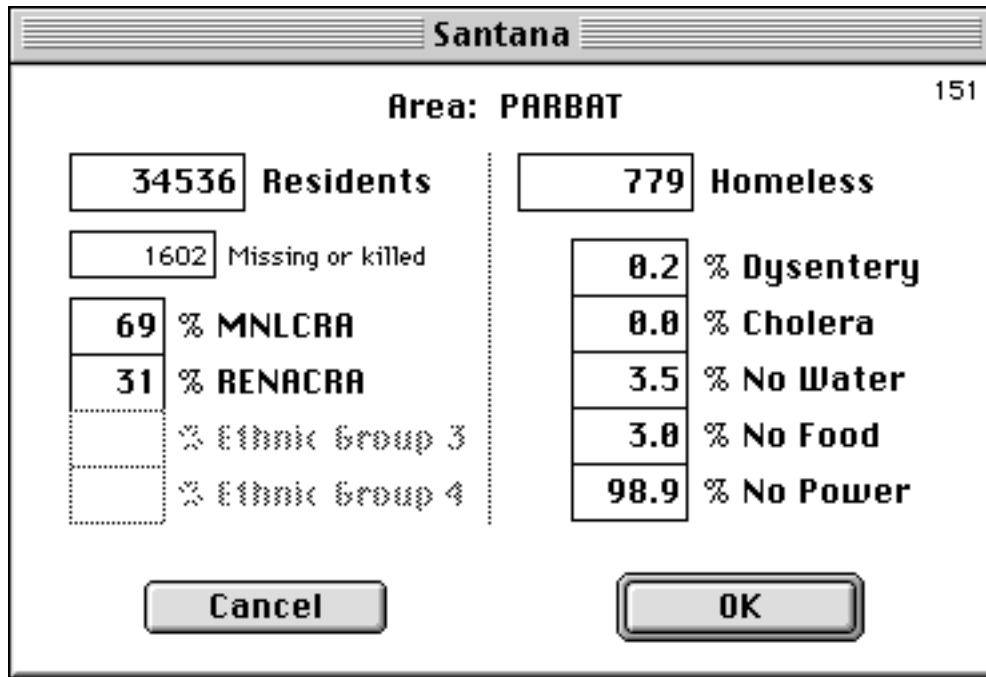
The screenshot shows a dialog box titled "Cratenia". At the top left, there is a "Color" dropdown menu set to "None" and a "Show Chart" button. The main content is divided into two columns by a vertical dotted line. The left column contains population statistics: "Residents: 1205720", "Displaced Persons: 504200", and "Total Population: 1256140". The right column contains percentages for different categories: "61.2% MNL CRA", "38.8% RENACRA", and "0.0%". Below these, there are health indicators: "6.8% No Water", "6.9% No Food", "57.5% No Power", "0.3% Dysentery", and "0.0% Cholera". At the bottom, there are "Cancel" and "Okay" buttons.

Category	Value
Residents	1205720
Displaced Persons	504200
Total Population	1256140
MNL CRA	61.2%
RENACRA	38.8%
Other	0.0%
No Water	6.8%
No Food	6.9%
No Power	57.5%
Dysentery	0.3%
Cholera	0.0%

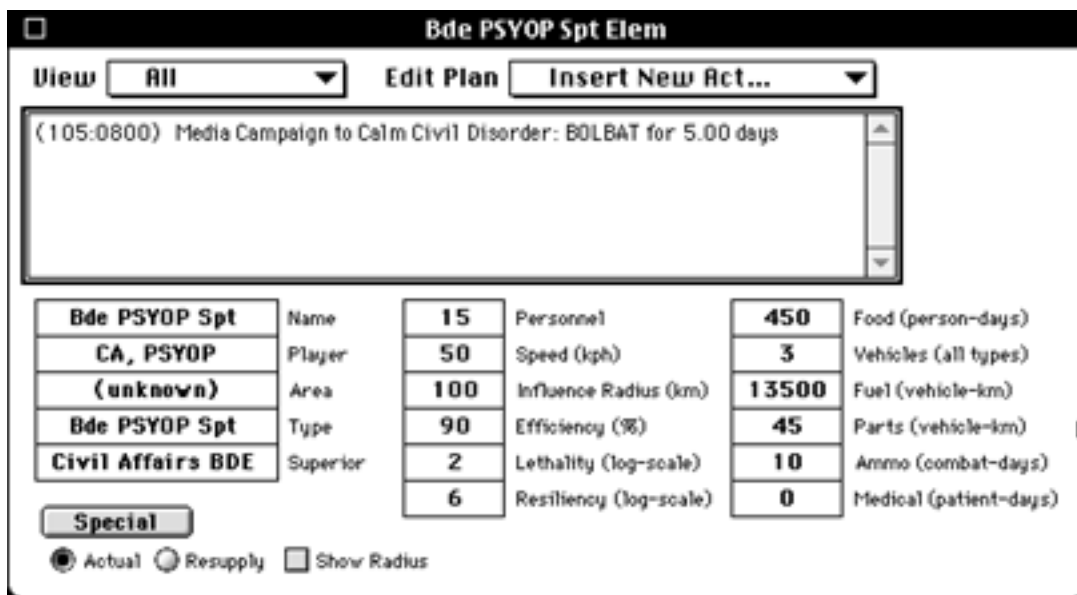
The chart for any one state variable can be shown within this dialog, by pushing the “Show Chart” button. A different state variable can be selected by operating a simple popup menu.

- **Provinces or Areas of Operation.** When the “Show Areas” option is on, then double-clicking anywhere on the map (but not on any other object) results in the highlighting of the selected area, and the appearance of a dialog box that provides current information on the state of the area. The dialog is identical to the one shown immediately above for national data.
- **Cities or Displaced Person Camps.** When the “Show Cities” option is on and the “City” selection tool is in use, then double-clicking on the symbol for a city results in the highlighting of the city, and the appearance of a dialog box that provides current

information on the state of the city. An example follows, for the city Santana, which is within the “PARBAT” (Paraguay Battalion) Area of Operations:



- **Units.** When the “Show Units” option is on and the “Unit” selection tool is in use, then double-clicking on the icon for a unit results in the highlighting of the unit, and the appearance of a complex dialog box that provides current information on the state of the unit. An example follows, for the UN’s Brigade PSYOP Support Element.



The unit dialog has a variety of display options, the most comprehensive of which is shown above. The scrollable list box near the top displays a summary of

the unit's current plan of action. The statistics at the bottom show the current supply status of the unit (DEXES has the capability of modeling supply parameters, though these are seldom used in exercises). Double-clicking on any element in the plan causes a special plan dialog to appear, which allows the player to modify any element of any pending action in his current plan:

Bde PSYOP Spt Elem 0804

Action: Media Campaign to Calm Ci

The object of this action:

Country Unit

Area of Ops None

City or DP Camp

Zone of Influence

Location

BOLBAT

Status: Waiting

When previous action ends.

At scheduled start time:

Day D+ 105 (dd)

Time: 0800 (hhmm)

Duration: 5

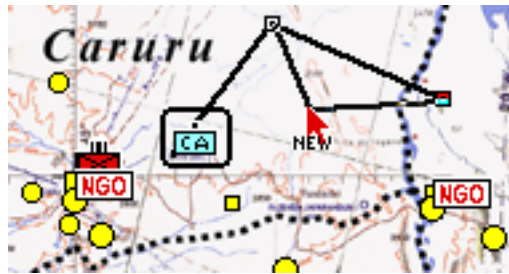
Unit: Days ▼

Intensity: 100 %

Reading from top to bottom, the information displayed in this dialog includes **who** does **what** to **whom**, **when**, for **how long**, and with what **intensity**. The orange arrows at the bottom of the dialog allow the user to iterate through his list of actions. Actions that this type of unit is capable of taking (as specified by the scenario designer) are chosen from a popup menu at the top of the dialog. The effects of each permitted action are also up to the scenario designer.

- **Unit Movements.** DEXES allows the user to construct and edit, entirely by mouse, a unit plan that consists of a series of movements. These movements are shown in the unit and unit action dialogs, and can also be edited there by the user. Pending

movements in the plan are shown the user on the map as in the following example, in which the user is in the process of inserting a new movement into an existing plan:



- **Comparative Map Colorization:** DEXES allows the user to compare areas and cities with respect to the severity of specified state variables. The colorization scheme runs through the spectrum from green (acceptable) through yellow (caution) to red (critical), including all intervening shades of the spectrum. In the following example the user is comparing the state variable “% No Water.” The rural district of the Area of Operation in the center of the figure is orange, indicating a condition approaching critical. Some towns in the area are already critical, while some are doing fairly well.

