



Guide to Navigating the T21AEO Model

September 2005

A. Introduction

The Threshold 21 (T21) AEO is an analytical tool for strategy development and policy analysis for the four AEO scenarios. It integrates economic, social, and environmental considerations into a single, transparent computer model.

B. System Requirements

- System requirements necessary
 - PC format
 - 10MB of hard disk space
 - 32MB RAM or higher
 - Windows 95 or later

C. Installation Instructions

- Copy the file t21AEO-2-RO.exe in your drive
- When you see T21AEO-2-RO.exe, Double click on that file name
- You will be led through the Installation, License Agreement, and Registration processes (You need to fill in the company box after your name.)
- Target Directory – Here is where you indicate where the model will reside (the default is usually c:\Program Files\Venapp\T21AEO). It is important to remember *where* you install the model.
- Program Menu Choice - Choose where you'd like the model icon to reside (a common place is Venapp)

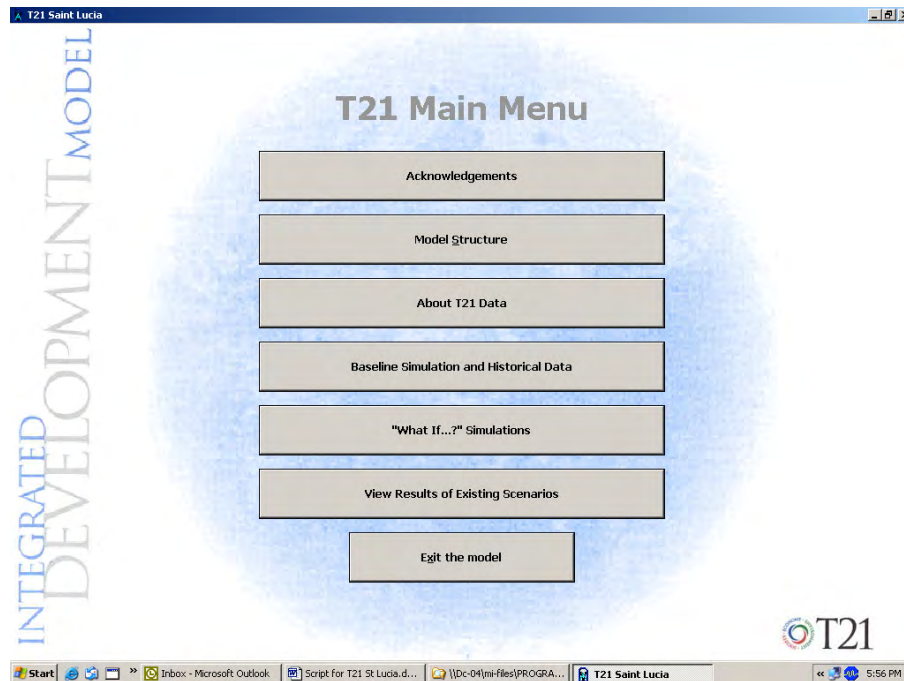
D. Installing and launching the demo model

- Install the demo model (see instructions above)
- To launch the demo, click on the Start Menu, select Programs, select Venapp (if that's where you saved it), and click the icon that displays T21AEO2
- The model will open to the following screen



Navigation Tutorial

Click anywhere or press any button to continue from the opening screen to the Main Menu:



The main menu is the launch site to begin navigating through the model. To begin your launch you will want to know where each button will take you and that is where we will begin. Buttons 1 and 3 are straightforward and just provide basic information about the model application to AEO and the data. We have included a tutorial for buttons 2, 4, 5, and 6. Every screen throughout the model has a button allowing you to return to the Previous Menu or the Main Menu.

1. Main Menu First Button – *Introduction*

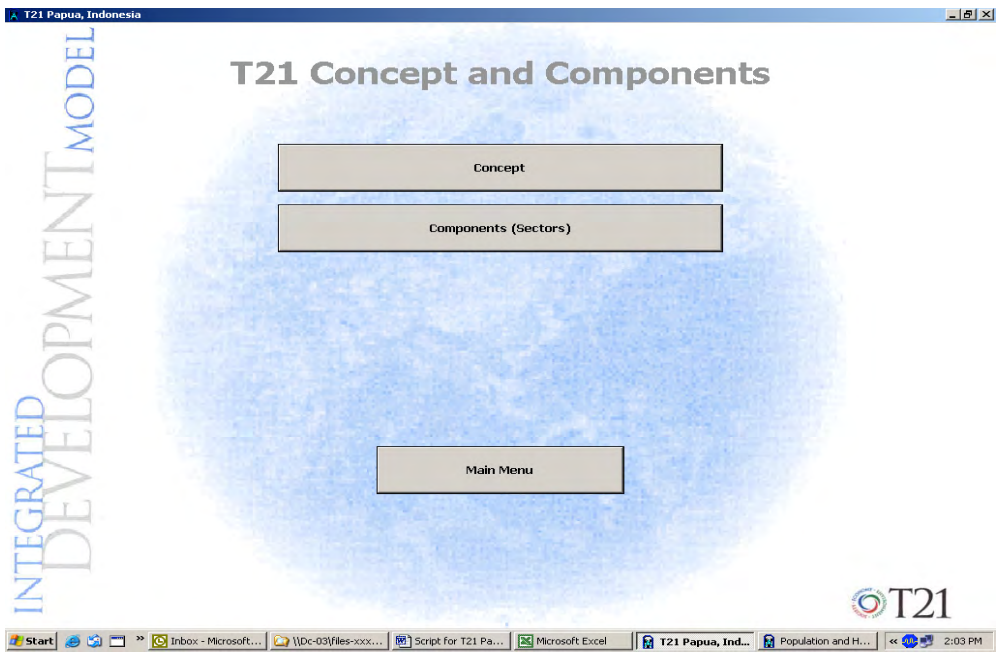
The first button on the Main Menu will take you to a screen of *Acknowledgements*, which shows a list of major sponsors who have supported the development of T21.

2. Main Menu Second Button - *Model Structure*

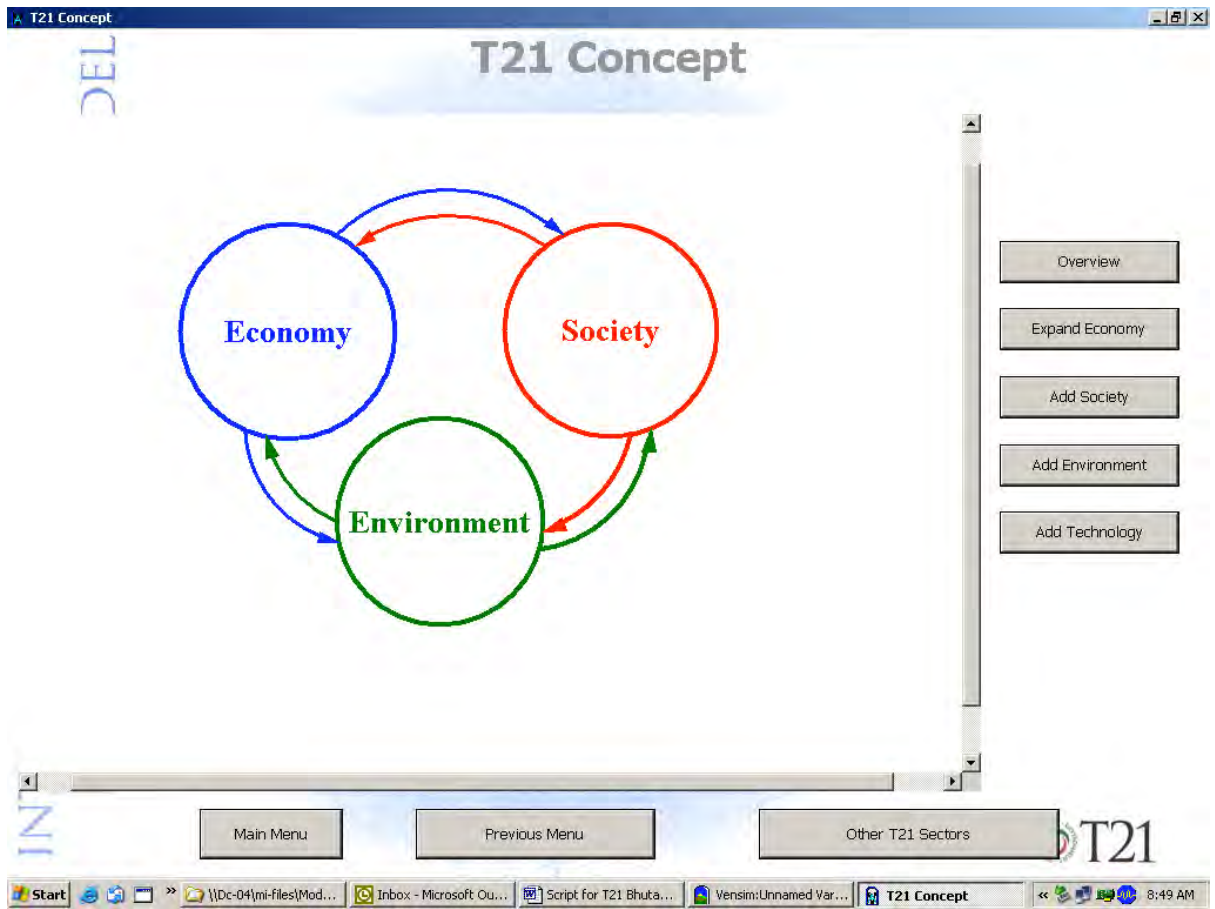
This button allows you to study the basic concept and structure of the model. It does so by showing you sketches of the model components and their relationships. Click on the *Model Structure* button and follow the tutorial below.

Tutorial - Exploring the Model Structure

- Once you've clicked the *Model Structure* button, the following T21 Components menu will appear as shown below:

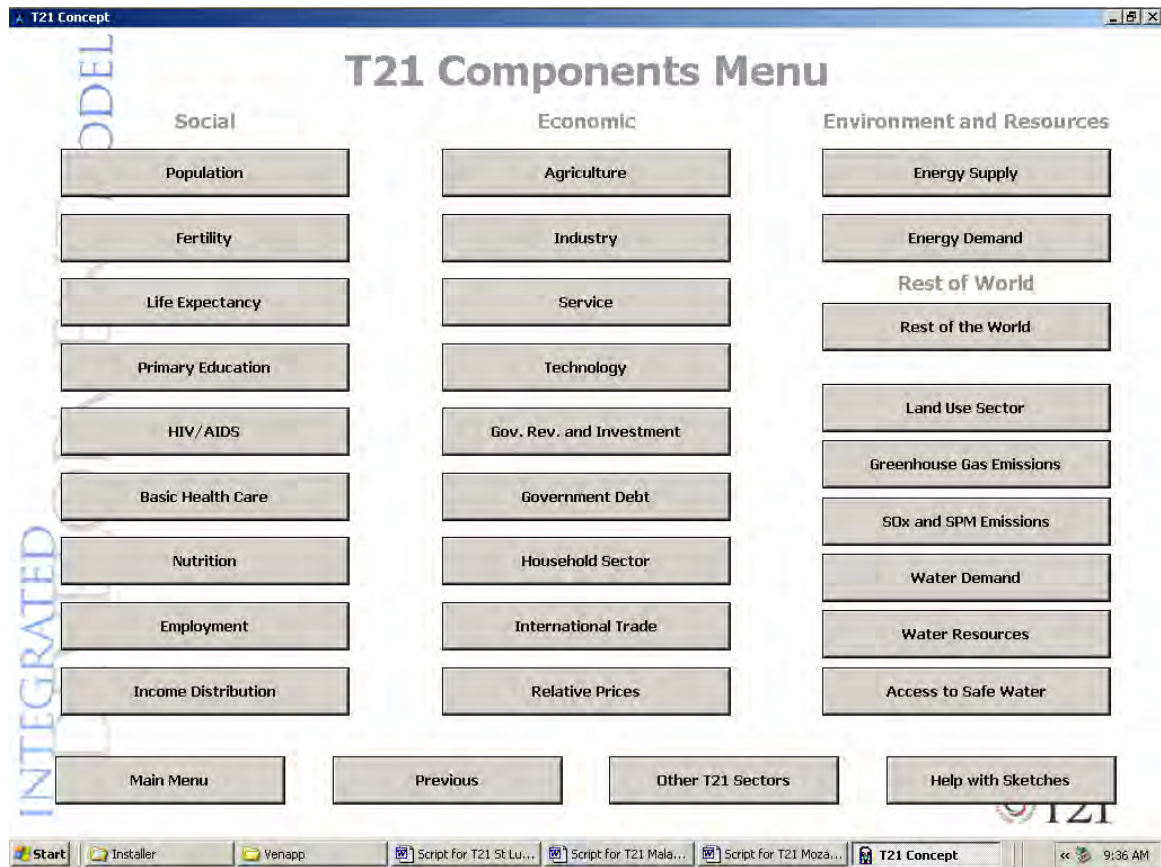


- Click the **Concept** button, the following concept screen will appear.

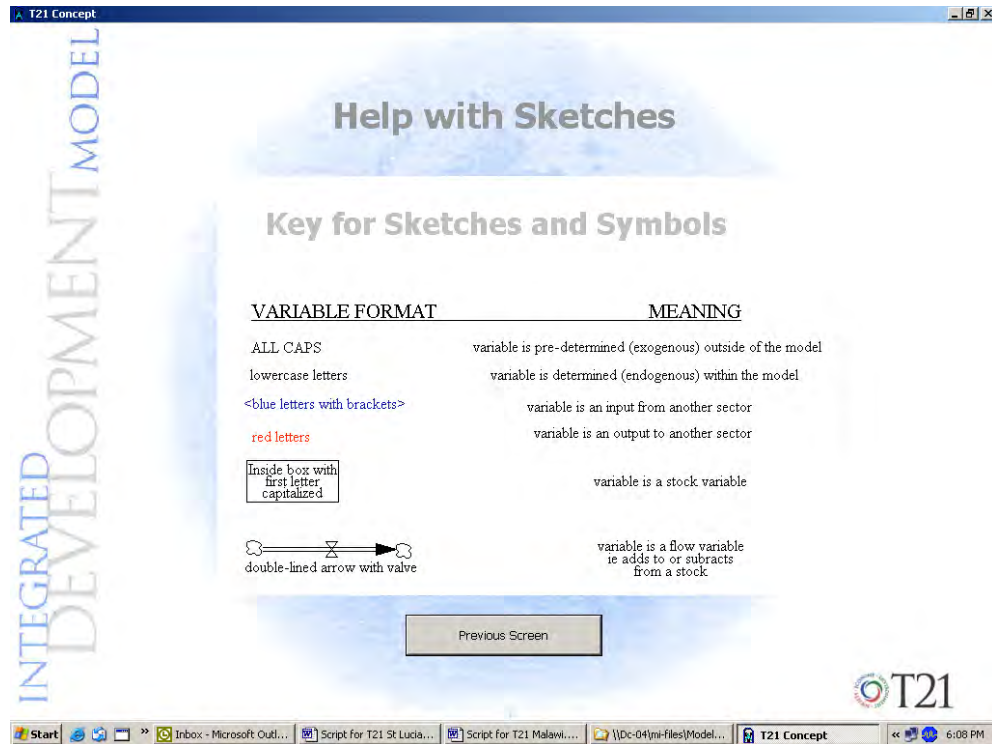


- This is the overview of the T21 model. Click the buttons at the right column from top down, you will see expansions of this overview. When you finish, click the **Previous Menu** button to return to the previous screen.

- Now click the **Components (Sectors)** button. The three components (social, economic, and environment and resources) plus rest of world will appear as shown below. The land, air and water sectors are in the bottom right of the screen:



- Under each component, there are multiple sectors. Click on any of the buttons to view a flow diagram of how each sector is being modeled.
- Click on the **Land** button to see a sketch of the Land sector:



- Click on the **Previous Screen** button to return to the Components Menu and explore some of the other sketches to understand how other components in the model are designed.
- When you have finished, click on the **Main Menu** button to return to the **Main Menu**.

3. Main Menu Third Button – *About T21 Data*

This button will demonstrate the major data sources and data items used in the T21 Model. When you finish, click the **Main Menu** button.

4. Main Menu Fourth Button - *Baseline Simulation and Historical Data*

This button will demonstrate how the model is calibrated and validated using country-specific historical data.

Tutorial - Exploring the Baseline Simulation and Historical Data

- Click on the **Baseline Simulation and Historical Data** button, and a screen as below will appear. Indicators (variables) are grouped into four components of social, economic, air and land and water.

T21 Concept

Baseline Simulation and Historical Data

Social

- Total Population
- Total Fertility Rate
- Life Expectancy
- Adult HIV Rate
- Under 5 Mortality
- Infant Mortality
- Adult Literacy Rate
- Age Cohorts 1998
- Proportion under Poverty

Economic

- Agriculture Production
- Industry Production
- Service Production
- Real GDP
- Real Per Capita GDP
- Daily per capita calorie
- Public Foreign Debt
- Public Domestic Debt

Air

- Coal Production
- Hydro Electricity Generation
- Oil Imports
- GHG emissions in CO2 Equiv
- SPM emission

Land and Water

- Forest Land
- Agriculture land in use
- Water Demand
- Water Resources

Main Menu

Adequate Sanitation Coverage

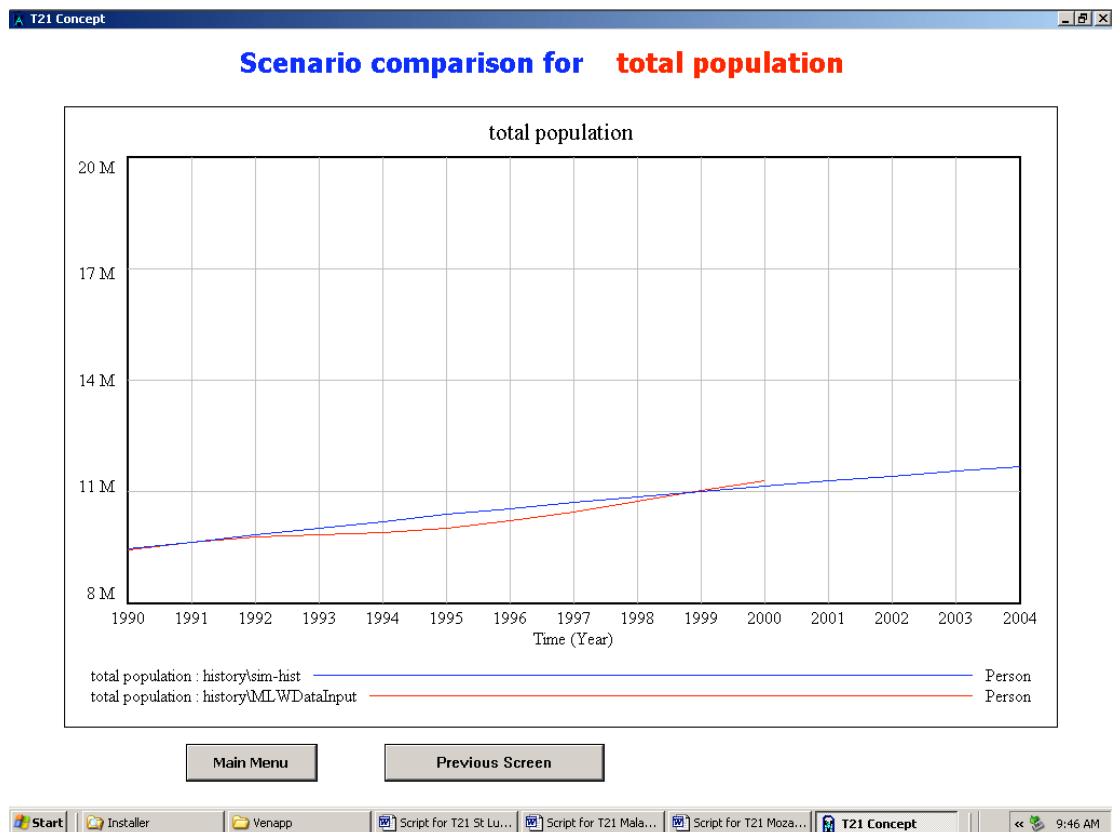
Access to Safe Drinking Water

INTEGRATED MODEL

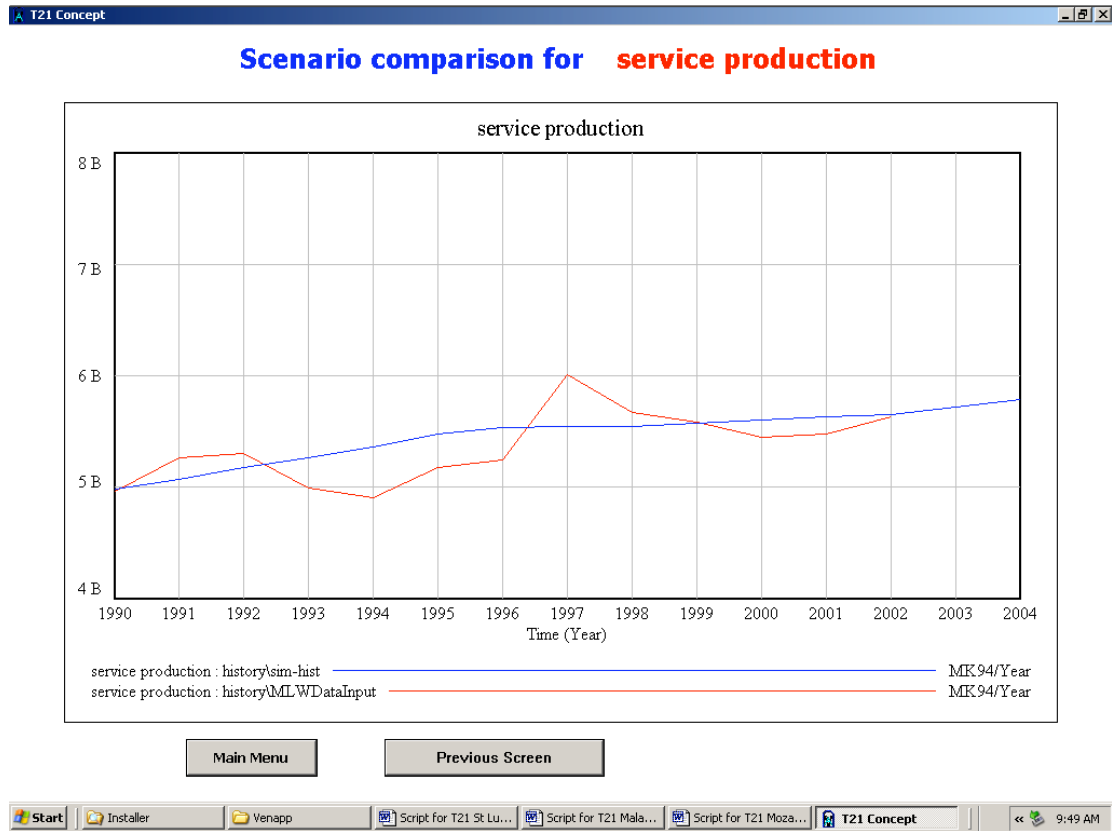
ODEL

Start | Venapp | Script for T21 St Lu... | Script for T21 Mala... | Script for T21 Moza... | T21 Concept | 9:46 AM

- Click on the **Total Population** button, and a graph will appear which includes both the baseline model results and the historical data for total population. The blue line is the simulation results from the model. Data from Malawi is the red line.



- This model baseline simulation is compared to actual historical data to validate the model and its ability to reflect the “reality” of the country. Notice, how the model calculations of the past (blue line) correspond to the available historical data (red line). Notice, also, that for many countries population and many other data are not available, or not of good quality.
- Click on the **Service Production** button and notice how the model calculations for service production (blue line) match actual data on service production (red line).



- Click on other buttons to view the comparisons of model results with historical data.
- When you have finished exploring the **Baseline Projections and Historical Data** click on the **Main Menu** button to return to the Main Menu and we will continue with the fifth button.

5. Main Menu Fifth Button – “What if...?” Simulation Button

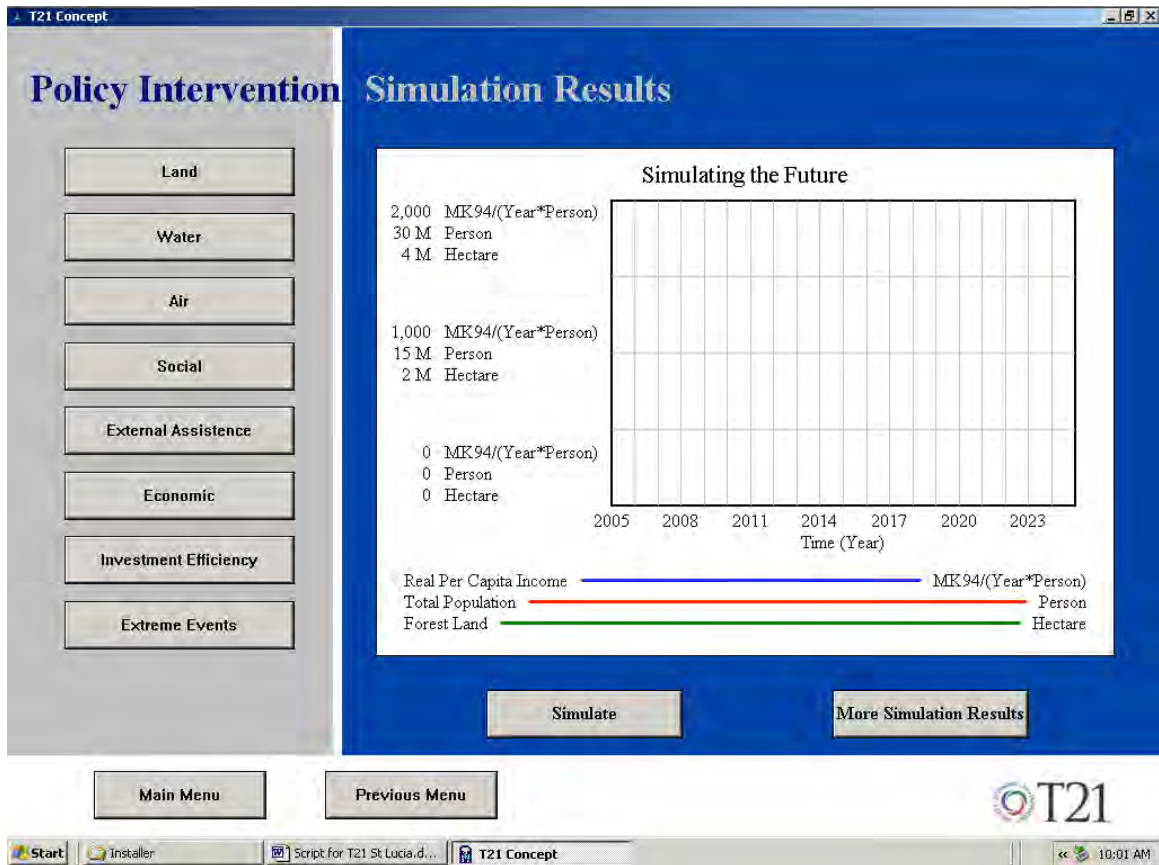
This button will demonstrate how the user can use the model to create his/her own scenarios and then examine the results.

Tutorial - Exploring to Create your Scenarios

- Click on the “**What if...?**” *Simulations* button, followed by the **Create and Name the Simulation** button,
- At this point a window will pop up, and you will be asked to either select an existing scenario or create a new scenario that will be saved for future reference under the name you give it. Create a

new scenario by typing *Reform* or another name of your choosing in the File Name box, followed by clicking on the **Save** button. Assume that by typing *Reform* it indicates you want to generate the *Reform* Scenario.

- Assume you entered (created) *Reform* (or *Reform.vdf*), followed by clicking on the **Save** button.
- If *Reform* is already existing, Vensim will ask you if you want to overwrite the existing file *Reform.vdf*. Click Yes.
- You will now see a screen entitled **Policy Intervention and Simulation Results**:



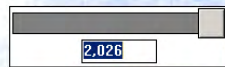
- This screen lists eight policy options in the left column.
- Click on the **Land** button
- This will bring up a screen which allows you to access and change the variables with are used to estimate the effects of land policy and land interventions in the model: Land policy that will affect the speed of land degradation, annual conversion of forest land to other land, such as for farming or for settlement, and annual human planting of trees to restore forest.



- As you are generating the Reform scenario, you should choose all the ratio buttons for the Reform scenario, which are all in green color.
- When you finish, click on the *Previous Screen* button to return to the **Policy Intervention and Simulation Results** screen.
- You can make more changes to other policy options in a similar fashion to what you have done with Land. Remember your choice of Reform, so please choose all the green radio button.
- The last policy button, *Extreme Events*, has a different structure, as below:

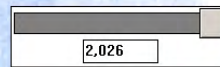
Extreme Events

Social Chaos



Social chaos can stop people from working and destroy productive capital. It is assumed that in the year when it happens, 20% of productivity will be lost and 10% of capital will be destroyed.

Natural Disaster

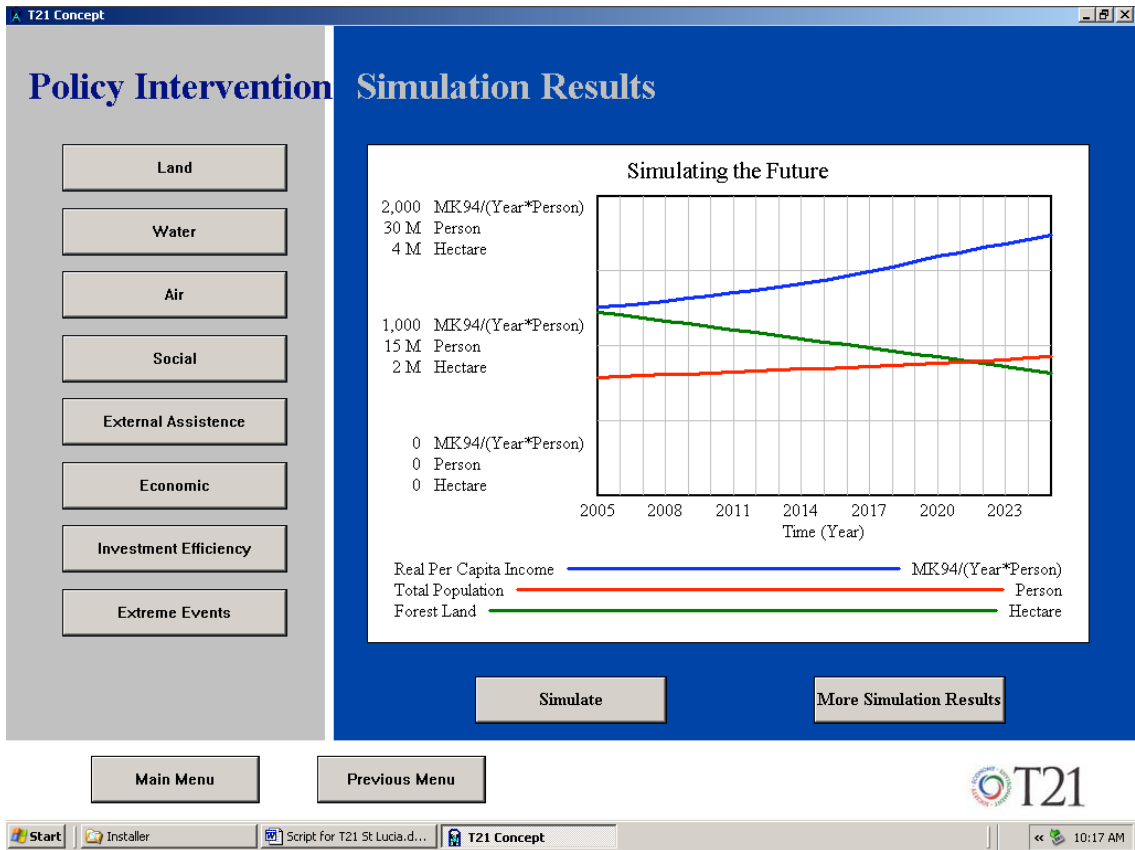


Natural disaster affects agriculture production. It is assumed that in the year when it happens, 50% of crop yield be lost

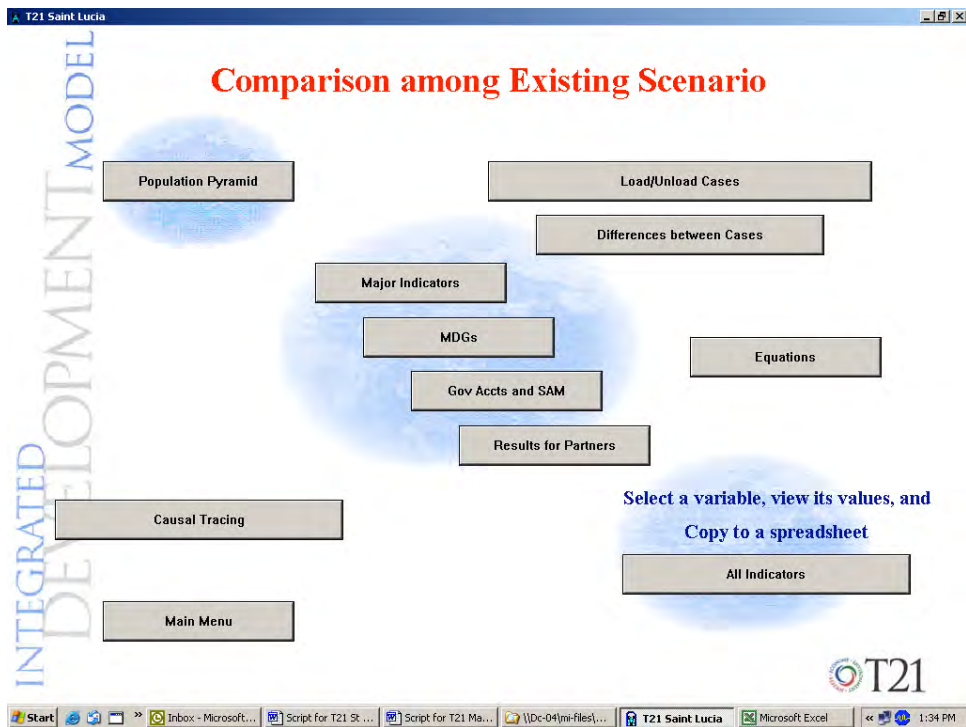
Previous Screen



- To simulate a natural disaster or a social chaos happening at a certain year, drag the slide bar to the year you want (between 2006 – 2025), or change 2026 to the year you want.
- When all the desired policy changes have been made, return to the **Policy Intervention and Simulation Results** screen.
- Click the *Simulate* button (at the lower middle of the screen) to simulate the model to 2025. You will see three lines extending quickly from 2003 to 2020 in the graph on the right. These three lines are three variables selected from over a thousand variables to represent your scenario. They are per capita income (blue), total population (red), and Forest Land (green).



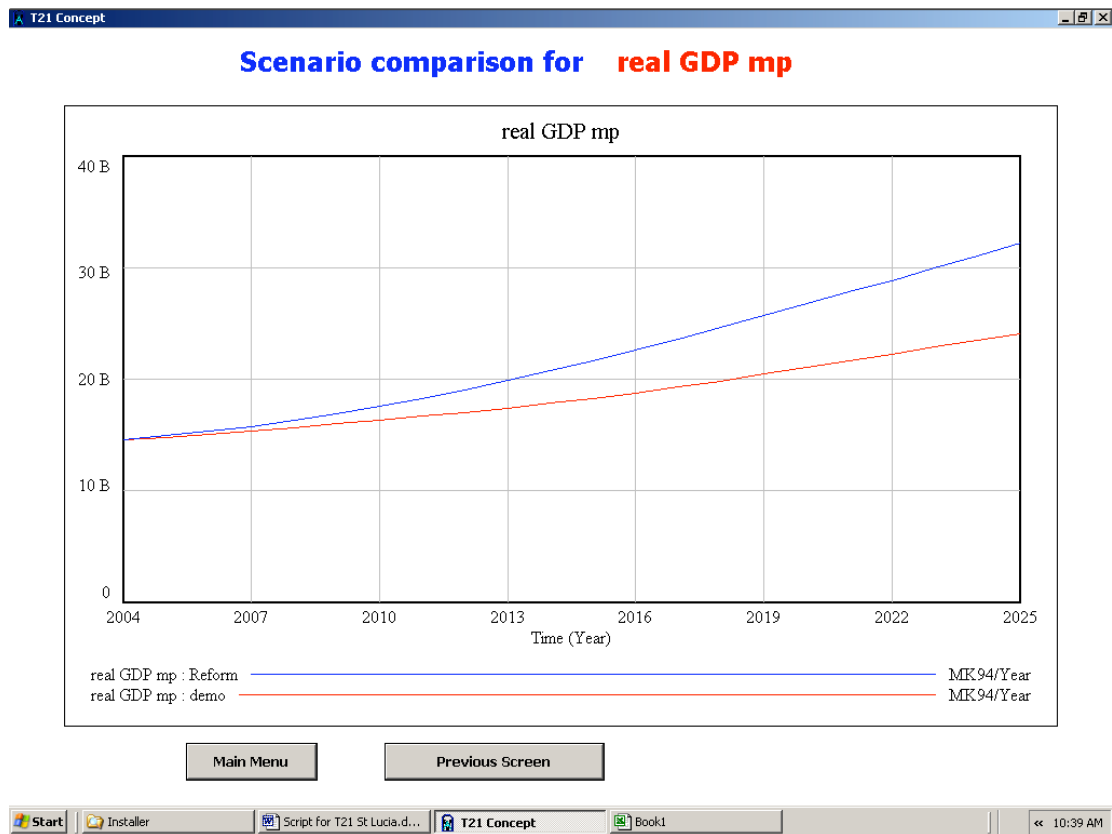
- Click on the *More Simulation Results* button at bottom right, and the following screen will appear.



- The button on top-right, the *Load/Unload Scenarios* button, allows the user to add or remove runs from the graphs displayed. Clicking this button will display a window with the currently included scenarios shown in the right-hand section (usually the current run and the base case) and available

saved runs in the left-hand section. By selecting and highlighting a desired run (single click) and then clicking the arrow in the center indicating the direction of the desired move, a run can be added to those shown, or removed.

- The button on the top-left, **Population Pyramid**, allows you to see the dynamic changes in population pyramid. The first button in the middle, **Major Indicators**, allows the user to compare multiple scenarios on each indicator. The three other buttons in the middle, **MDGs**, **Government Accounts** and **Results for Partners**, display more indicators from the last scenario (either created latest, or loaded last). The button on lower-left, **Causal Tracing**, allows you to examine the causes of each variable, either in graphical or tabular form. The button on lower-right, **All Indicators**, allows you to select any variable in the model, and then display its result in either graphical or tabular form. When it is in tabular form, you can export the result to the Window's clipboard, and then paste it to a spreadsheet for further study.
- Then click the **Major Indicators** button, and select the variable you want to display.
- Click on the **GDP** button to see a comparison of the real GDP at market price for the two scenarios (the base and your Current scenarios).



- Click on **Previous Screen** button to return to the **Major Indicators** screen. You can compare your scenario with the base case on many indicators in social, economic, and natural resources areas.
- Click on the **Previous** button to return to the **Comparison among Existing Scenarios** screen.

- Click on the ***Gov Acct and SAM*** button on the **Comparison among Existing Scenarios** screen to display a table of government accounts, or government expenditures, or SAM (Social Accounting Matrix). These can be downloaded to a spreadsheet using the ***Copy to Clipboard*** button.
- Click on the ***Results for Partners*** button to display a choice of the WB CAS, UN DAF, or CCA tables, which can be copied to a clipboard for transfer to a spreadsheet.
- Click on the ***Select Any Indicator*** button. A table showing the loaded runs for real GDP will be shown. The second button from the left on the bottom will allow the user to ***View asTable*** the graphic results, to ***Copy to Clipboard***, or to ***Select Other Indicators***. The later button will display a window that allows the user to select any variable to view graphically or as a table. A window will appear with all the variables listed alphabetically. The user can enter the first letters in the box in the bottom, or scroll down to find the desired variable, highlight it and click the ***OK*** in the window. Then click on the ***View as Table*** or ***View as Graph*** button to see the loaded run values of that variable. Finally the user can click on the ***Load/Unload Cases*** button on the previous screen to add or remove runs from the graph or table displayed. This is the location where the results of more then one scenario can be compared to the base case at the same time for any selected variable.
- The final button on the **Comparison among Existing Scenarios** screen is ***Causal Tracing***. This is a powerful feature of the model that allows users to trace the factors that lead to a given result. It is a little more complicated to use. Thos who want to use this feature should contact MI directly for instruction.
- Click on the ***Main Menu*** button to return to the **Main Menu**.

6. Main Menu Sixth Button – *View Results of Existing Scenarios*

This button will bring up the screen **Comparison among Existing Scenarios** screen explained above.

We will also answer questions e-mailed to us at info@threshold21.com. You can also find out more about how we can build a country-specific model of T21.

Find out more about the Millennium Institute at www.millenniuminstitute.net .