A graphical user interface for GLOBIOM

Introduction to the GAMS Graphical Interface Generator (GGIG) as a tool to transition from excel-based modeling to PE modeling

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Introducing GGIG and its features
GGIG

- **GGIG** - GAMS Graphical Interface Generator
- A framework for adding a graphical user interface (GUI) to GAMS
- Developed by Institute for Food and Resource Economics (ILR), University Bonn.
  - Wolfgang Britz, Alexander Gocht, Torbjörn Jansson, others…
- Used by several models:
  - CAPRI, CGEBox, FarmDyn, Aglink-COSIMO, …
- Rich feature set.
- Used GGIG to implement a GUI for GLOBIOM FABLE
- Makes it easier to use GLOBIOM, but is optional.
GGIG – What can it do?

- Analyze your own baseline
- Compare your baseline with FAO (eventually national) statistics
- Visualize and integrate calculator scenarios
- Run GLOBIOM, and analyze and compare scenario runs
Select and filter scenario results
View and compare your results in an organized table format

- Organize the data in your preferred format
- Compare with FAO (national) statistics
- Filter desired elements
- Produce desired statistics on changes between years and scenarios.
GGIG – Graphs

Different types of charts and graphs

Production by main agricultural crops in China (FAOSTAT vs FABLE baseline)

Wheat exports by global region (2010)
A – FABLE development branch
B – FAO statistics
GGIG: maps
Run GLOBIOM

Scenario Settings
- Run label: myrun
- Precompute scenario: 
  - Scenario 1: SSP2
  - Scenario 2: O_Ref
  - Scenario 3: scenBASE
- Scenario end year: 2050
- Scenarios:
- Output name: baseline

GLOBIOM for FABLE

Tool Name worksteps
- Data
- Model
- Scenarios
- Exploit results
- Exploit results GGIG

Tool Name tasks
- Import scenarios definition from calculator
- Run scenario and output results

GGIG

GLOBIOM.org

GAMS Graphical User Interface Generator
IIASA

Wolfgang Briott

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License Admin: Albert Brouwer, browner@iiasa.ac.at

--- Starting compilation

User name: Albert Brouwer
User type: runner
Installing and setting-up GGIG for GLOBIOM
Installing: brief

• Provided via a public GitHub repository: https://github.com/iiasa/GLOBIOM_GUI

• Clone the GLOBIOM_GUI repository to a GUI subdirectory of your local GLOBIOM_FABLE repository.

• Read the repository README and GUI Web Page for details.
Most of you already have GAMS installed, and have a GAMS license, but if not…

- GLOBIOM is implemented in GAMS.
- GAMS can be downloaded from https://gams.com
- A GAMS license supporting the CONOPT and CPLEX solvers is required. Training licenses with time-limited validity are available on occasion for the purposes of FABLE trainings.
Detailed: Java

- Java 8 or higher required: GGIG is Java-based.
- Java 8 is recommended (tested).
- Often already installed.
- If not, Java can be downloaded here: https://adoptopenjdk.net
- If/once installed, determine the path to your java executable/binary, on Windows it can be something like C:\Program Files\AdoptOpenJDK\jdk-8.0.212.03-hotspot\bin\java
Some of the scripts included with GLOBIOM are R scripts. A documentation page has been provided that explains how to install R and the required packages.

The GLOBIOM repositories are hosted on GitHub (cloud platform), and require a Git (version control system on your pc) client to access.

- If you have none, create a GitHub account here: https://github.com/join
- Install one of the many git clients. For example the “GitHub Desktop” client, or the more powerful but less user-friendly command line client.
To clone the development branch of the model using the git command line client do:

• `cd <some empty directory>`
• `git clone https://github.com/iiasa/GLOBIOM_FABLE`
• `cd GLOBIOM_FABLE`
• `git checkout development`

This will create a `GLOBIOM_FABLE` directory containing the GUI-ready model.

If you do not have access to the repository, request it.
To in addition install the development branch of the source data for GLOBIOM do:

- cd GLOBIOM_FABLE
- git clone https://github.com/iiasa/GLOBIOM_FABLE_Data Data
- cd Data
- git checkout development

This will create a Data directory holding the input data next to the Model directory.

If you do not have access to the repository, request it.
To in addition install the GGIG GUI for GLOBIOM do:

• cd GLOBIOM_FABLE
• git clone https://github.com/iiasa/GLOBIOM_GUI GUI

This will create a GUI directory next to the Model and Data directory.

Edit file GUI/GGIG_java_path.txt and there paste the earlier-determined path to the java binary/executable of your Java installation so that the GUI knows where to find Java.

Start the GLOBIOM GUI with GUI/globiom.bat
Detailed: GLOBIOM GUI Settings

When first starting the GUI, open the settings dialog via the Settings → Edit settings menu and customize for your machine.
Closing remarks

- Thursday we will show how to work with the GLOBIOM GUI
- To make the most out of that, try to have the GUI installed before then.
- Install with a Git client so that you can pull in updates easily.
- As a further preparation for Thursday, try to run the model up to step 7 (output).
- Esther, Andre and I are available to support you with that.
Thank you!