

Thursday June 6 2019, FABLE Consortium meeting

GGIG for GLOBIOM

Baseline analysis and comparison with FAO statistics



IIASA, International Institute for Applied Systems Analysis



Baseline analysis



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IS Name - Title

12/06/2019

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GDX files available for your analysis

- Baseline_ggig.gdx
 - Gives you the baseline for the 37 GLOBIOM regions from the GLOBIOM development branch.
 - Colombia not separated out here, sorry!
- Bogota_FABLE_GLOBIOM_Yearly.ggig.gdx
 - Gives you the GLOBIOM data that is linearly interpolated between 2000-2030
- Parameters:
 - output_ggig → direct GLOBIOM output by 37 region, output_cr_ggig → GLOBIOM output at the 0.5 degree resolution, output_ag_ggig → GLOBIOM output by aggregated item and region, output_ag_reg_ggig → GLOBIOM output by aggregated region, output_ag_item_ggig → output by aggregated item
- Bogota_FABLE_FAO_ggig.gdx
 - Gives you the FAOSTAT between 1990-2016
- Parameters:
 - output_ggig, output_ag_ggig, output_ag_reg_ggig

Commonly used parameters for baseline analysis

Supply side

- Evolution of
 - Area (AREA)
 - Production (PROD)
 - Productivity (YILD, irrigated and rainfed)

Environment

- Evolution of
 - Land cover (LAND)
 - Emissions (EMIS)

At the spatially explicit level within the country At the country/region level

Demand side

- Evolution of
 - Consumption (CONS, FOOD, FEED, OTHU, CALO)

Market

- Evolution of
 - Trade
 - (EXPO,IMPO,NETT)
 - Prices (XPRP)

Output parameters and which can be compared to FAOSTAT

		Can compare
VAR_ID	VAR_UNIT	with FAOSTAT?
Anim	1000 TLU	
LAND	1000 Ha	Х
Area	1000 Ha	Х
Prod	1000 t	Х
Prod	1000 t dm	
Prod	1000 m3	
Prod	PJ	
Feed	1000 t	Х
Feed	1000 t dm	
food	1000 t	Х
food	1000 t dm	
POPT	Mln pers	
XPRP	USD 2000 per ton	Х
XPRP	USD 2000 per m3	
XPRP	USD 2000 per GJ	
YILM	fm t/ha	
YILM	dm t/ha	
OTHU	1000 t	Х
OTHU	1000 t dm	
OTHU	1000 m3	
OTHU	PJ	
IMPO	1000 t	Х
IMPO	1000 t dm	
IMPO	1000 m3	Х
EXPO	1000 t	Х
EXPO	1000 t dm	
EXPO	1000 m3	Х
EMIS	Mt CO2eq/yr	Х
CONS	1000 t	Х
CONS	1000 t dm	
CONS	1000 m3	
CONS	PJ	
NETT	1000 t	
NETT	1000 t dm	
NETT	1000 m3	

		Can compare
VAR_ID	VAR_UNIT	with FAOSTAT?
NTMS	Percent	
GDPT	Bn USD 2005	
XPRI	USD 2000 per ton	
XPRI	USD 2000 per m3	
XPRI	USD 2000 per GJ	
ХСРІ	USD 2000 per 1000 kcal	
ARRF	1000 Ha	
ARIR	1000 Ha	
HARV	1000 Ha	
LRNT	USD 2000 per ha	
YILD	fm t/ha	х
YILD	dm t/ha	
YIRF	fm t/ha	
YIRF	dm t/ha	
YIIR	fm t/ha	
YIIR	dm t/ha	
YEXO	fm t/ha	
YEXO	dm t/ha	
LYLD	kg protein/ha	
LYXO	kg protein/ha	
FEEF	kg protein/t dm feed	
FEXO	kg protein/t dm feed	
ANFD	1000 t dm	
BIOU	1000 t	
BIOU	1000 t dm	
FRTN	1000 t	
FRTN	1000 t dm	
FRTP	1000 t	
FRTP	1000 t dm	
WATR	km3	
CALO	kcal/cap/d	Х
CALT	kcal/cap/d	
ECH4	Mt CO2eq/yr	
EN2O	Mt CO2eq/yr	
ENCO	Mt CO2eq/yr	

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Baseline comparison

Examples for Argentina (ArgentinaReg)



Supply side analysis area, production and productivity spatially

Production of wheat in 1000 t



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GLOBIOM for FABLE	1.		and ci	ick show re	Suits	
Data	i 4.	Right click	pivot table a	nd organize	e sets: Colrov	v in table
Model			rows, yea	ar in table o	columns	
Scenarios		5. Sel	ect item with	n unit you v	want to displa	IV
C Exploit results	6	Select in	view type m	an Ifasker	، select shan	, efile in:
Exploit results GGIG	0.	Jeicet III				chie in.
▼ Taal Name taala				JI → COO →	COIROW.ZIP	
No aggregation GGIG						View type
ttems aggregated GGIG	Item		Indicator		OutputGDX	Table
Regions aggregated GGIG	Wheat and products 2020	2030	✓ Area cultivated	2040	baseline_ggig	
Items and regions aggregated GGIG						
Spatially Explicit GGIG	Transposing and Merging					×
			Table control area Animation		0	
			Box (1)		10	
CR231228 0.20			Box (2)		1	
(8231220			Box (3)		39	
			Box (4)		20	
CR231230			Box (5) OutputGDX(1)		1	
CR231231 8.44	4.83	0.14	Table area	0 Table column groups		
CR231232				6 Table columns		
CR231233 0.03	0.03	0.03	0 1238 Table row groups Table rows	Year(6)		0.03
			ColRow(1238)			
CR231234 1.63	1.03	1.63				1.63
CR231235 0.68	0.68	0.68				0.68
CR231236 0.22	0.22	0.22				0.22

Supply side analysis area, production and productivity nationally



Analysis of wheat production, area and yield evolution. Area goes down, yield goes up, production remains about the same.

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How to get there?

- 1. Click Exploit results GGIG in left-side panel
- 2. Click No aggregation GGIG in left-side panel
- 3. Load in Baseline_ggig.gdx and click show results
- 4. Right click pivot table and organize sets: Year in table rows, indicator and units in table columns
 - 5. Right-click anywhere in graph, go to selection \rightarrow columns \rightarrow select items you want to show
 - 6. Select region and item

Tool Name worksteps	\sim	🙆 Transposing and Merging 🛛 🕹
Data		Table control area Animation 0
Model		Box (1) 37
◯ Scenarios		Region(37)
C Exploit results		
		Box (3) 1 DutputGDX(1)
	~	Box (4) 104 104
- Tool Name tasks		Table area
No aggregation GGIG		0 Table column groups
Items aggregated GGIG		903 Table columns
		Table row groups Table rows Table cells area
Regions aggregated GGIG		Year(6)
O Items and regions aggregated GGIG		
Spatially Explicit GGIG		

Demand side analysis Food, feed, othu for wheat



Analysis of wheat food, feed, other use and total consumption

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Environment Land cover and emissions



(See slide 8 on how to get there in the GUI)

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Trade Exports of wheat by region



🔴 ArgentinaReg 🌑 AustraliaReg 🜑 BrazilReg 💛 CanadaReg 🌑 ChinaReg 🔵 CongoBasin 😑 EU_Baltic 🜑 EU_CentralEast 🜑 EU_MidWest 🌑 EU_North 🜑 EU_South 🔍 Former_USSR 🜑 IndiaReg 🜑 IndonesiaReg 🜑 JapanReg 🜑 MalaysiaReg 🌑 MexicoReg 👁 MiddleEast 💛 NewZealandReg 🕏 NorthernAf 💿 Pacific_Islands 🌑 RCAM 👁 RCEU 👁 ROWE 👁 RSAM

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How to get there?

- 1. Click Exploit results GGIG in left-side panel
- 2. Click No aggregation GGIG in left-side panel
- 3. Load in Baseline_ggig.gdx and click show results
- 4. Right click pivot table and organize sets: Items in table rows, Region in table columns
- 5. Select Export as indicator, year for the year, 1000 t for the

unit

🚱 Transposing and Mergir	a X
Table control area	5
Animation	0
Box (1)	43
Indicator(43)	
Box (2)	6
Pox (2)	24
Linit(21)	21
Pox (4)	
DutputGDX(1)	
	0 Table column groups
L.	
	37 Table columns
0 104	Region(37)
Table row groups Table rows	Table cells area
Item(104)	



Item : Wheat and products

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Now try yourself 🙂

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Comparison with FAOSTAT

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Supply: Area change compared to FAOSTAT



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Name - Title

How to get there?

Tool Name worksteps	- ^ 1 r	Result exploitation				
OData				Sc	enario 1	Baseline_may19_FABLE_FAO_ggi
Model				Sc	enario 2	output_FAOSTAT_FABLE_ggig
			ANFD "Animal feed intake" Anim "Animal number"	^ Sc	enario 3	
Exploit results			ARIR "Area cultivated - irrigated"	Sc	enario 4	
Exploit results GGIG			ARRF "Area cultivated - rainfed" Area "Area cultivated"	Sc	enario 5	
•	✓	Indicator selection	HARV "Area harvested" BIOU "Biofuel use"	Sc	enario 6	
No aggregation GGIG			ECH4 "CH4 emissions" ECO2 "CO2 emissions"	Sc	enario 7	
Utems angregated GGIG				Sc	enario 8	
Regions aggregated COIG			ArgentinaReg "Argentina"	Sc	enario 9	
			AustraliaReg "Australia"	Sce	enario 10	
tems and regions aggregated GGG			Braziikeg "Brazii" CanadaReg "Canada"	Sce	enario 11	
Spatially Explicit GGIG		Region sele	ChinaReg "China" ection CongoBasin "Congo_Basin"	Sce	enario 12	

4. Right click pivot table and organize sets: Items in table row groups, outputgdx in table rows, year in table columns 5. Select your region, unit and indicator on top of the graph

🚱 Transposing	and Merging			>
Table control area				
Animation			0	
Box (1)			37	
Region(37)				
Box (2)			21	
Unit(21)				
Box (3)			0	
Box (4)			43	
Indicator(43)				
Table area				
	0	Table column	groups	
	41	Table column	S	
104	2	Year(41)		
Table row groups	able rows	Table cells a	rea	
Item(104) Du	tputGDX(2)			

---1---- Click-Exploit results-GGIG in left-side panel Click No aggregation GGIG in left-side panel Load in Bogota FABLE FAO ggig in 3. scenarios1 and Bogota_FABLE_GLOBIOM_Yearly_ggig and click show results Copy Save as. Print... Zoom In 6. Select the Zoom Out Auto Range years you want Chose colors . to see: Customize graph selection \rightarrow Back to Table View Customize. columns Copy to clipboard Reset Export .. Columns. Print .. Rows. Selection . Row groups View... ni file er Boere User typ Change weights

2.

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Area cultivated for wheat in 2010



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How to get there?

- 1. Click Exploit results GGIG in left-side panel
- 2. Click No aggregation GGIG in left-side panel
- 3. Load in Bogota_FABLE_FAO_ggig in scenarios1 and Bogota_FABLE_GLOBIOM_Yearly_ggig and click show results
- 4. Select regions in the rows, item in the columns of the table.

¥.	Wheat and products
Argentina	4931.56
Australia	9819.66
Brazil	1846.87
Canada	10922.38
China	23060.73
Congo_Basin	6.57
EU_Baltic	609.90
EU_CentralEast	7642.28

Indicator	Year	Unit	OutputGDX
Area cultivated 🗸 🗸 🗸	2010 ~	1000 Ha 🗸 🗸	GLOBIOM_Yearly_ggig

5. Select indicator, year, unit and .gdx file

Additional features that you might want to try

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		Set statistics
		Treat zeros as missing values for statistics Only show outliers
🕑 Customize view 🛛 👋		Set outlier detection method No outlier detection
Dialog Only monospaced 12 bold Fraction digits and decimal separator 2 Separator between merged data dimensions Fill up merged Dims Selection for : Region Selection for : Year Column width 97 Row width 125 Hide empty rows Hide empty columns Cut off limit to determine empty cells 0 V Use default pivoting for tables Show histogram Use classification colors for tables Show only selected items Image: Comparison output Absolute and percentage difference Comparison output Absolute and percentage difference Image: Comparison Streat Data dimensions used for comparisons Image: Comparison Streat Image: Comparison Streat Element used for comparisons OutputGDX Z000 Image: Comparison Streat	 Hide empty rows and columns Absolute and percentage output 	Set outlier detection method No outlier detection Select statistics Sum Nobs Mean Median StdDev q1 q3 min max minOutlier maxOutlier freeEval Free evaluation field ok Cancel Update Define statistics
ok define colors define statistics store settings load settings		

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