

# Model for Analysis of Energy Demand (MAED)

#### Hands-on 3: Setting Up the Structure Part II

#### Learning outcomes

By the end of this exercise, you will be able to:

- 1. Navigate subsectors
- 2. Add and delete subsectors
- 3. Define the structure of the Industry sector
- 4. Define the structure of the Household sector

### Activity 1: Navigating Subsectors

In the previous hands-on we learnt how to manage case studies and declare the case definitions. The next step in establishing the model structure is the defining of the subsectors of the economy.

Let us open the Demo MAEDD 1 case study that we created in Hands-on 2. The economic sectors are predefined and are shown in the main menu under Energy Intensities. You will have to click the drop-down menu to view them. In MAED-D, the **Industry sector** is further divided into the **Agriculture, Construction, Mining, and Manufacturing sectors**. From now on we shall refer to all of tabs in the Sectors & Clients block as sectors.



AED Model for Analysis of Energy	y Demand					MAED D 🗸	Ab
Es Fr	General information Name of the case study Demo MAEDD 1						
anage case studies	Definitions (name, years, description)	8	Units				
eneral information	Name of the case study		Population				
cial economic data	Demo MAEDD 1		O Thousand  Million				
ergy intensities	Years 2010,2015,2020,2025,2030,2035,2040,2045,2050		GDP Million [10 <sup>4</sup> ] O Billion [10 <sup>4</sup> ] O Trillion [1	0'"]	USI	Dollar	
nsport	Case description The data used in this demonstration case correspond to a hypothetical scenario for a hypothetic	al country.	Transport Pessenger (pkm) O Million [10 <sup>4</sup> ] O Trillion [1	0'²]			
usehold vices	They are there only for illustration purposes and will need to be replaced by actual country and so the user of the model.	enario specific data by	Transport Freight (tkm) O Million [10 <sup>9</sup> ] O Trillion [1	012]			
lculate			Energy unit				
sults		4	GWyr     PJ     Tcal     Mtoe	O GBTU			
	Sectors & Clients						
	Agriculture Construction Mining Manufacturing Energy Service #	Household Transport	>	Specific Electricity use	Thermal use	Motive Power	
	Farming						

However, even though sectors are predefined and fixed in MAED-D, users can define the subsectors that they want to study. The number of subsectors to be defined by the user depends on the information available regarding both the economy and the energy consumption, which will be discussed in upcoming lectures.

For now, let us see how the model was structured for the Demo MAEDD 1 case study. This can be seen in the bottom half of the general information page in the Sectors & Clients block. The agriculture sector only has one subsector defined: Farming. Each sector needs to have at least one subsector, that is why the first subsector cannot be deleted.



WMED wate keep date keep	MAED								-
cs cs cs   Manage case studies   Manage case studies   Case disformation   Sector at future (the case study general MED 1)   Manage case studies   Manage case studies   Case disformation   Sector at Lucie (the case study general MED 1)   Manage case studies   Manage case studi	MAED Model for Analysis of Ener	ay Demand						ма	
Manage case studies   Cancel Information   Social economic data   Bocylinetensities   Industry   Industry   Transport   Household   Services   Calculate   Results   Sectors & Clients	En Es Fr	General information Name of the case study Demo MAEDD 1							
Ceneral Information   Social economic data   Energy intensities   Industry   Transport   Household   Services   Calculate   Results	Manage case studies	Definitions (name, years, description)	Units						
Secial economic data  Fergy intensities  Get data data data data data data data da	General information	Name of the case study	Population						
* Bergy intensities       *	Social economic data	Demo MAEDD 1	O Thousar	id 🧿 Million					
Image:	<ul> <li>Energy intensities</li> <li>Industry</li> </ul>	Years 2010;2015;2020;2025;2030;2035;2040;2045;2050	GDP Million [	10"] O Billion [10"]	O Trillion [1	012]	US	Dollar	
Mousehold       They are there only for illustration purposes and will need to be replaced by actual country and scenario specific data by         In Results       Images of the model.         Images of the model.       Images of the model.         Images of the model. <td>Transport</td> <td>Case description The data used in this demonstration case correspond to a hypothetical scenario for a hypothetical country.</td> <td>Transport Pes Million [</td> <td>senger (pkm) 10*]</td> <td>O Trillion [1</td> <td>012]</td> <td></td> <td></td> <td></td>	Transport	Case description The data used in this demonstration case correspond to a hypothetical scenario for a hypothetical country.	Transport Pes Million [	senger (pkm) 10*]	O Trillion [1	012]			
Sectors & Clients         Sectors & Clients         Image: sectors & Clients	Household	They are there only for illustration purposes and will need to be replaced by actual country and scenario specific data the user of the model.	Transport Frei	ght (tkm)	<b>• • • •</b>	041			
Central Construction Mining Manufacturing Energy Service Household Transport  Sectors & Clients  Agriculture Construction Mining Manufacturing Energy Service Household Transport  Sectors & Clients  Agriculture Construction Mining Manufacturing Energy Service Household Transport  Sectors & Clients  Agriculture Construction Mining Manufacturing Energy Service Household Transport  Sectors & Clients  Agriculture Construction Mining Manufacturing Energy Service Household Transport  Sectors & Clients  Secto	Services		O Million [	10°] (O) Billion [10°]	Trillion [1	012]			
Image: Sectors & Clients       Agriculture Construction Mining Manufacturing Energy Service Household Transport       Image: Sectors & Clients       Image: Secto	Calculate	-	Energy unit	O PJ O Tcal	O Mtoe	GBTU			
Sectors & Clients      Agriculture Construction Mining Manufacturing Energy Service Household Transport      Specific Electricity Thermal use Motive use	Results		4			- -			
Agriculture Construction Mining Manufacturing Energy Service Household Transport           Image: Construction Mining Manufacturing Energy Service Household Transport         Specific Electricity Thermal use Motive Power		Sectors & Clients							
Specific Electricity Thermal use Motive use Power		Anriculture Construction Mining Manufacturing Energy Service Household Trai	sport						
						Specific Electricity use	Thermal use	Motive Power	
									_
									_

The subsectors for other sectors can be accessed by clicking on their names. Please pause and explore the subsectors defined in other sectors of Demo MAEDD 1 case study.

MAED Model for Analysis of Energy	Demand		MAED D 💙 🖌	ibout (
En Es Fr	General information Name of the case study Demo MAEDD 1			
Manage case studies	Definitions (name, years, description)	8	Units	8
General information	Name of the case study		Population	
ocial economic data	Demo MAEDD 1		Thousand  Million	
nergy intensities ~	Years 2010,2015,2020,2025,2030,2035,2040,2045,2050		GDP           Image: Million [10°]         Billion [10°]         US Dollar	•
nsport	Case description The data used in this demonstration case correspond to a hypothetical scenario for a hypothetical country.		Transport Pessenger (pkm) Million [10"] Million [10"] Trillion [10"]	
rvices	They are there only for illustration purposes and will need to be replaced by actual country and scenario spithe user of the model.	cific data by	Transport Freight (f/sm) Million [10 <sup>4]</sup> Eillion [10 <sup>4]</sup> Trillion [10 <sup>12</sup> ]	
Iculate			Energy unit	
sults			● GWyr O PJ O Tcal O Mtoe O GBTU	
e>				
	Sectors & Clients			
	Agriculture Construction Mining Manufacturing Energy Service Household	d Transport	Specific Electricity Thermal use Motive use Motive	
	Farming		2 2 2	



Click on the Agriculture sector to look at the subsectors that are defined inside. We currently only have one subsector defined: Farming. All tables in MAED-D should have this subsector. Let us check, for example, the table of the GDP structure

MAED Model for Analysis of Ene	rgy Demand													MAED D	Abou
En Es Fr	Social economic data Name of the case study Demo MAEDD 1														
Manage case studies	Demography GDP														
General information															
Social economic data	GDP												di i	<   >   ≛	
Energy Intensities	Item	Unit	2010	2015	2020	2025	2030	2035	2040	2045	2050	Chart			
ndustrv	GDP	US\$ Million	54.13092	67.78036	84.06328	103.26305									
14656.9	GDP Growth rate	% p.a.		4.60000	4.40000	4.20000									
ransport	GDP per capita	US\$/Cap	2229.86802	2516.56917	2840.79860	3207.55620									
lousehold	Sectorial shares of GDP											-			
Services	Agriculture	%	21.50000	19.40000	17.40000	15.50000									
	Construction	%	2.30000	2.30000	2.30000	2.20000									
Calculate	Mining	%	5.10000	4.80000	4.30000	3.80000									
Results	Manufacturing	%	15.20000	16.10000	16.80000	16.90000									
	Energy	%	5.90000	5.60000	5.00000	4.30000									
⇔	Service	%	50.00000	51.80000	54.20000	57.30000									
	Total	8	100.00000	100.00000	100.00000	100.00000									
	Data notes	e annua growarrate r	or each period	, and step									- de	<   >   <b>\$</b>	BI
	Item	Helt	2010	2015	2020	2025	2020	2025	2040	20.45	2050	Chart			_
	Item	Unit	2010	2015	2020	2025	2030	2035	2040	2045	2050	unaft			
	Ampleulture														
	Agriculture		100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000				
	Agriculture Farming	%	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000				
	Agriculture Farming Total	%	100.00000 100.00000		)										
	Agriculture Farming Total Construction	5	100.00000 100.00000		2										

Let us also check the energy intensity of motive power.

En Es Fr	Name of the case study Demo MAEDD 1												
Manage case studies	The second states	FI Theorem 1	Develoption	(F		P.E. eta antica ta				Develop	the of Passar Passar in	PIC constants	
Ganeral information	Power use	use	ACM	n or Energy Po	orms in	ACM	Mani	afacturing	В	Manufa	cturing	Manufacturin	g
Social economic data													
Litergy biopsities	Energy intensities of Motive Power (fi	nal energy per un	it of value ad	dded)								uli s s 🗴 🛨	
Industry	Item	Unit	2010	2015	2020	2025	2030	2035	2040	2045	2050 Chart		
	Agriculture										8		
Transport	Farming	kWh/US\$	1.40000	1.30000	1.25000	1.20000							
Household	Construction	1110 0100									-		
Services	Buildings	kWh/USS	0.10000	0.10000	0.10000	0.10000							
Calculate	Metal orea	ktaris /LICÉ	0.20000	0.20000	0.20000	0.20000							
	Non-metal ores	kWh/USS	0.20000	0.20000	0.20000	0.20000							
Results	Manufacturing										-		
00	Basic materials	kWh/US\$	0.15000	0.15000	0.15000	0.15000							
	Data notes												



## Activity 2: Adding and Deleting Subsectors

Let us now see how to add and delete subsectors in a sector. Return to the general information page and select the agriculture tab in the Sectors & Clients block. We can add a subsector to the agriculture sector by clicking the plus button. This should create a new subsector called Agr\_2. To change the name simply type it in the field. Change the name of the new subsector to Others. Remember to click save to save the changes.

MAED									- 0
MAED Model for Analysis of Energy D	www General information Name of the case study Demo MAEDD 1						Success Data save	MAED	) 🗸 About (?
Manage case studies	Definitions (name, years, description)	8	Units	3					8
General information	Name of the case study	_	Banuda	tion					
Social economic data	Demo MAEDD 1		O T	housand 💿 Million					
Energy intensities	Years 2010,2015,2020,2025,2030,2035,2040,2045,2050		GDP	Aillion [10*] O Billion [10*]	O Trillion	[10'2]	US	Dollar	*
Transport	Case description The data used in this demonstration case correspond to a hypothetical scenario for a hypothetical country.		Transp N	oort Pessenger (pkm) Aillion [10*] 🜔 Billion [10*]	O Trillion	[1014]			
Household Services	They are there only for illustration purposes and will need to be replaced by actual country and scenario specific the user of the model.	data by	Transp N	oort Freight (tkm) Aillion [109] 💿 Billion [109]	O Trillion	[10'']			
Calculate			Energy	y unit	_	_			
II Results			() G	Wyr 🔿 PJ 🚫 Tcal	O Mtoe	O GBTU			
↔									
	Sectors & Clients								8
	Agriculture Construction Mining Manufacturing Energy Service Household	Transport							
	D					Specific Electricity use	Thermal use	Motive Power	
	Farming					<b>~</b>	~	~	
	Others								×

Let us examine the same tables that we saw a moment ago. Go to the GDP page. We can now see the Others subsector under the Agriculture Sector.



MAED																- 6	σ
MAED Model for Analysis of Energy	y Demand														MAED D 🔪	Abo	ut (?
En Es Fr	Social economic data Name of the case study Demo MAEDD 1																
Manage case studies	Demography GDP																
General information																	
Social economic data	GDP												di	<   ;	• <u>  ±</u>		2
✤ Energy intensities	Item	Unit	2010	2015	2020	2025	2030	2035	2040	2045	2050	Chart					
Industry	GDP	US\$ Million	54.13092	67.78036	84.06328	103.26305											
T	GDP Growth rate	% p.a.		4.60000	4.40000	4.20000											
Transport	GDP per capita	US\$/Cap	2229.86802	2516.56917	2840.79860	3207.55620											
Household	Sectorial shares of GDP											-					
Services	Agriculture	%	21.50000	19.40000	17.40000	15.50000											
	Construction	%	2.30000	2.30000	2.30000	2.20000											
Calculate	Mining	%	5.10000	4.80000	4.30000	3.80000											
Results	Manufacturing	%	15.20000	16.10000	16.80000	16.90000											
	Energy	%	5.90000	5.60000	5.00000	4.30000											
	Service	%	50.00000	51.80000	54.20000	57.30000											
	Total	%	100.00000	100.00000	100.00000	100.00000											
	* Enter GDP data for first Year & Average a Data notes Distribution of GDP by subsectors	annual growth rate fo	r each period	/timestep									di	<   >	1 <u>±</u>	8 (	ঽ
	- Item	Unit	2010	2015	2020	2025	2030	2035	2040	2045	2050	Chart					
	Agriculture											-					
	Farming	%	10.00000	100.00000	100.00000	100.00000											
	Others	%															
	Total	%	100.00000	100.00000	100.00000	100.00000											
	Construction																
												-					

Let us now go to the Energy Intensities of Motive Power. We note that the Others subsector does not appear under the Agriculture Sector.

En Es Fr	Energy into	ensities												
Manage case studies	Hame of the case													
General information	El-Motive Power	EI-Specific Electricity use	El-Thermal use	Penetratio ACM	n of Energy Fo	orms in	Efficiencies in ACM	Temp Manu	perature level ufacturing	in	Penetrat Manufac	ion of Energy Forms in turing	Efficiencies in Manufacturing	
Social economic data	Energy intens	ities of Motive Power (fi	nal energy per un	it of value a	dded)								dr   🖌   🕹   🖻	a
Energy intensities	Itom		Unit	2010	2015	2020	2025	2020	2025	2040	2045	2050 Chart		
Industry	Agricultu	ITE	Unit	2010	2015	2020	2023	2030	2033	2040	2045	2030 Chart		
Transport	Farming		kWh/US\$	1.40000	1.30000	1.25000	1.20000							
Household	Construc	tion										-		
Services	Buildings		kWh/US\$	0.10000	0.10000	0.10000	0.10000							
	Mining											-		
Calculate	Metal ore	is .	kWh/US\$	0.30000	0.30000	0.30000	0.30000							
Results	Non-meta	al ores	kWh/USS	0.20000	0.20000	0.20000	0.20000							
	Basic ma	terials	kWb/USS	0.15000	0.15000	0.15000	0.15000							
	Data notes													

This is because the programme has not been informed about the end-use categories to be studied in the Others subsector. We must go to the general information page and select the



End-Use categories for the Others subsector. Check all three end-use categories for the Others Subsector to include them as end-uses. Remember to save the changes.

MAED			- 0
MAED Model for Analysis of Energy	y Demand	MAED	o ✓ About ⑦
En Es Fr	General information Name of the case study Demo MAEDD 1	Success Data saved successfully	
Manage case studies	Definitions (name, years, description)	Units	8
General information	Name of the case study	Benulation	
Social economic data	Demo MAEDD 1	Thousand I Million	
Energy intensities ~	Years 2010,2015,2020,2025,2030,2035,2040,2045,2050	GOP         Item (10°)         Billion (10°)         Trillion (10°)         US Dollar	Ŧ
Transport	Case description The data used in this demonstration case correspond to a typothetical scenario for a typothetical country.	Transport Pessenger (pkm) O Million [109] Billion [109] Trillion [1014]	
Household Services	They are there only for illustration purposes and will need to be replaced by actual country and scenario specific data by the user of the model.	Transport Freight (tkm) Million [10" Billion [10" Trillion [10"]	
Calculate		Energy unit G GWyr PJ Tcal Mtoe GBTU	
I Results			
$\leftrightarrow$			
	Sectors & Clients		8
	Agriculture Construction Mining Manufacturing Energy Service Household Transport		
	•	Specific Motive Electricity Thermal use Power use	
	Farming		
	Others		×
		@2020. V	ersion: 2.0.0.2020

The programme will now build tables for input data in the energy intensities of Specific Electricity use, Thermal use, and Motive Power. Let us look at the energy intensities of motive power to confirm this.



Manage case studies     General information     Social economic data     Enet	Active EI-Specific Electricity use	El-Thermal use	Penetratio ACM	n of Energy Fo	orms in	Efficiencies in	Temp	erature level i	n	Penetra	tion of Ener	nu Parana in	Efficie		
General information     Social economic data     Ene	Votive El-Specific Electricity ver use	El-Thermal use	ACM	n of Energy Fo	orms in	Efficiencies in	Temp	erature level i	n	Penetra		the set of the second of the second sec	Ethole		
Social economic data						ACM	Manu	facturing		Manufa	cturing	gy Porms in	Manu	acturing	
	eray intensities of Motive Power (f	inal energy per un	it of value a	dded)									lat k la		0
* Energy intensities *	sig) menomee of metre i oner (i	inar energy per an	it of function				2010/011	Sec. 1							
Industry	Item	Unit	2010	2015	2020	2025	2030	2035	2040	2045	2050	Chart			
Transport	Agriculture	1.100-0100	1 40000	1.00000	1.05000	1.00000						-			
	Others	kwh/USS	1.40000	1.30000	1.25000	1.20000		-							
Household	Consurgerun	KIII UUU										-			
Services	Buildings	kWh/US\$	0.10000	0.10000	0.10000	0.10000									
Calculate	Mining											-			
II Results	Metal ores	kWh/US\$	0.30000	0.30000	0.30000	0.30000									
	Non-metal ores	kWh/US\$	0.20000	0.20000	0.20000	0.20000									
()	Manufacturing											-			
	Basic materials	kWh/US\$	0.15000	0.15000	0.15000	0.15000									
Data	a notes														

Let us now look at the mining sector. There are 2 subsectors defined.

Es Fr	General information Name of the case study Demo MAEDD 1				
anage case studies	Definitions (name, years, description)	8	Units		8
neral information	Name of the one study		Baulain		
cial economic data	Demo MAEDD 1		Thousand  Million		
ergy intensities ~	Years 2010,2015,2020,2025,2030,2035,2040,2045,2050		GDP            Million [10"]            Billion [10"]         US Dollar		
nsport	Case description The data used in this demonstration case correspond to a hypothetical scenario for a hypothetical country.		Transport Pessenger (pkm) Million [10 <sup>4</sup> ] Billion [10 <sup>4</sup> ] Trillion [10 <sup>14</sup> ]		
vices	They are there only for illustration purposes and will need to be replaced by actual country and scenario specif the user of the model.	c data by	Transport Freight (Mm) Million [10 <sup>4</sup> ) Billion [10 <sup>4</sup> ] Trillion [10 <sup>14</sup> ]		
lculate			Energy unit		
sults			GWyr O PJ O Tcal O Mtoe O GBTU		
(+)					
	Sectors & Clients				1
	Agriculture Construction Mining Manufacturing Energy Service Household	Transport	- Startfor		
			Electricity Thermal use Powe	r	
	Metal ores			2	
	Non-metal ores		Ø Ø Ø	2	×



And we confirm this by looking at its corresponding GDP table.

Es Fr	Data notes															
Manage case studies													1.6.1			
General information	Distribution of GDP by subsectors												1.00	<u> </u>	× 18	•
Social economic data	Item	Unit	2010	2015	2020	2025	2030	2035	2040	2045	2050	Chart				
	Agriculture	D.	10.00000	100.00000	100.00000	100.00000						-				
inergy intensities	Farming	%	10.00000	100.00000	100.00000	100.00000										
ndustry	Others	70	400.00000		400.00000	100.00000						-				
Fransport	Iotal	76	100.00000	100.00000	100.00000	100.00000						-				
Jourabald	Construction		100 00000		100.00000	400.00000	400.00000		***	400.00000	400.00000	-				
riousenoiu	Buildings	%	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000					
Services	Total	%	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000					
Calculate	Mining															
Dece la	Metal ores	%	15.00000	35.00000	35.00000	35.00000										
Results	Non-metal ores	%	85.00000	40.00000	40.00000	40.00000										
	Total	%	100.00000	100.00000	100.00000	100.00000						-				
	Manufacturing															
	Basic materials	%	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000					
	Total	%	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	-				
	Energy											-				
	Energy	%	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000					
	Total	%	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000					
	Service															
	Commercial and turism	%	16.50000	18.00000	19.00000	19.50000										
	Public administration	%	33.50000	34.00000	34.50000	35.00000										
	Finance and Buss	%	7.00000	7.50000	8.10000	9.00000										
	Personal Services and others	%	43.00000	40.50000	38.40000	36.50000										
	Total	20	100.00000	100.00000	100.00000	100.00000						-				

Note that, in each sector the rows of the last subsectors are shaded. This means that those rows are results of calculations performed by the programme, and the cells are locked from user editing. MAED-D is calculating the last subsector so that the sum of the participation of all subsectors is 100.



	Distribution of GDP by subsectors												1.46	1 4 1 3	14.18	a
Manage case studies									×					1.2.1.2		
General information	Item	Unit	2010	2015	2020	2025	2030	2035	2040	2045	2050	Chart				
General mornation	Agriculture											=				
Social economic data	Farming	%	10.00000	100.00000	100.00000	100.00000	-					0				
Energy intensities 🛛 👻	Others	8										0				
dustry	Total	%	100.00000	100.00000	100.00000	100.00000										
anenort	Construction		100.00000	100 00000	100 00000	100 00000	100 00000	100 00000	100.00000	100.00000	100 00000					
ansport	Buildings	8	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	0				
ousehold		2	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	-				
ervices	Mining	D.	15 00000	25.00000	25.00000	25.00000										
Calaulata	Metal ores	20	15.00000	40,00000	40.00000	40.00000										
aiculate	Normetal ores	2	85.00000	40.00000	40.00000	40.00000	J					-				
tesults	Iotai		100.00000	100.00000	100.00000	100.00000										
0	Rasia materiala	P	100.00000	100 00000	100 00000	100.00000	100 00000	100.00000	100.00000	100 00000	100 00000	0				
	Tors		100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	0				
	Energy	20	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000					
	Energy		100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	0				
	Energy	-	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	0				
	Camilan	~	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	0				
	Commercial and turism	9.	16 50000	18.00000	19,00000	19.50000						0				
	Public administration	2	33 50000	34 00000	34 50000	35.00000						-				
	Finance and Russ	9 6	7 00000	7 50000	8 10000	9.00000										
	Personal Services and others	8	43 00000	40 50000	38,40000	36 50000						0				
	Total	10 10	100 00000	40.00000	30.40000	50.00000	)									

Let us try deleting a subsector. We can delete the same one that we added earlier. We must go to the structure of the agriculture sector in the general information page. Click the delete button (red cross next to the subsector name) on the subsector, Others. The subsector disappears from this menu. And, after clicking the Save; proceed, button, this subsector disappears from all tables in MAED.

Climate Compatible Growth
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	General information									
En Es Fr	Name of the case study Demo MAEDD 1									
Manage case studies	Definitions (name, years, description)	8	Units							
General information	Name of the case study		Population							
Social economic data	Demo MAEDD 1		Thousand  Million							
Energy intensities ~	Years 2010,2015,2020,2025,2030,2035,2040,2045,2050		00P           Million [10 <sup>4</sup> ]           Billion [10 <sup>4</sup> ]           US Dollar							
Transport	Case description The data used in this demonstration case correspond to a hypothetical scenario for a hypothetical countr	Case description Tarsport Reserver (km) Million [10"  Million [10"  Trillion [10"  Million [10"  Million [10"  Trillion [10"  Million [10"  Trillion [10"  T								
Household Services	They are there only for illustration purposes and will need to be replaced by actual country and scenario s the user of the model.	pecific data by								
Calculate			Energy unit							
Results		4	Gwyr O PJ O Ical O Mitoe O GBI U							
	Sectors & Clients			1						
	Agriculture Construction Mining Manufacturing Energy Service Househo	ld Transport								
	•		Specific Mot Electricity Thermal use Pow use	ve er						
	Farming			2						
	Others			<u>a</u> 🚫						

Let us return to the GDP table. Note that the Energy Sector appears shaded in the GDP table. This is because MAED calculates the share of this sector of the economy so that the sum of all sectors is set to 100.



MAED Model for Analysis of Ene	rgy Demand													MAED D 🗎	Abo
En Es Fr	Social economic data Name of the case study Demo MAEDD 1														
Manage case studies	Damagenetic (DD														
General information	Demography														
Social economic data	GDP												di di	≛	8 (
Energy intensities	ltem	Unit	2010	2015	2020	2025	2030	2035	2040	2045	2050	Chart			
dustry	GDP	US\$ Million	54.13092	67.78036	84.06328	103.26305									
200119	GDP Growth rate	% p.a.		4.60000	4.40000	4.20000									
nsport	GDP per capita	US\$/Cap	2229.86802	2516.56917	2840.79860	3207.55620									
usehold	Sectorial shares of GDP											-			
vices	Agriculture	%	21.50000	19.40000	17.40000	15.50000									
	Construction	%	2.30000	2.30000	2.30000	2.20000									
lculate	Mining	%	5.10000	4.80000	4.30000	3.80000									
sults	Manufacturing	%	15 20000	16 10000	16.80000	16.90000									
44	Energy	%	5.90000	5.60000	5.00000	4.30000	1								
	N Jacob Contraction	A.		51.00000	54,00000	57.00000									
	Total	96	100.00000	100.00000	100.00000	100.00000									
Results 🔹	Construction     Construction     Construction     Total     * Enter GOP data for first Year & Average     Data notes	annual growth rate fo	15,20000 5,90000 5,90000 100,00000 or each period	16 10000 5.60000 100.00000 100.00000	4,3000 16,80000 5,00000 51,00000 100,00000	16.90000 4.30000 100.00000	?								
	Distribution of GDP by subsectors												di	±	8
	Item	Unit	2010	2015	2020	2025	2030	2035	2040	2045	2050	Chart			
	Agriculture											-			
	Farming	%	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000				
	Total	%	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	-			
	Total														
	Construction											-			
	Construction Buildings	%	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000				

Also note that the transport sector does not appear in the sectoral share of GDP in this table. The GDP component of the transport sector must be added to the service sector. And the same must be done with the energy consumed in the facilities associated with transportation. For example, electricity consumed at airports.



CARD         Add 0           Add 0         Add 0         Add 0         Add 0           Add 0 <tha< th=""><th>MAED</th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th>- 0</th></tha<>	MAED																- 0
Social economic data   Manage case tarles   Conservation case   Social economic data	MAED Model for Analysis of Energy Der	mand														MAED D 🗸	About (
Manage case stated       Demograpy       CD*         General information       GD*       Image case stated       CD*       Image case stated       Im	En Es Fr	Social economic data Name of the case study Demo MAEDD 1															
Ceneral information     Cop         C	A Manage case studies	Demography GDP															
Consistence       ch       <	General information																
Industry       Industry         Transport       OCP       UIS Million       54.1002       67.780.6       64.04000       4.2000       1       1       1         Housthy       Transport       GDP per capita       UIS Million       54.1002       67.780.6       64.04000       4.2000       1 </td <td>Social economic data</td> <td>GDP</td> <td></td> <td>di.</td> <td>&lt; &gt;</td> <td>• <u>•</u></td> <td>3 0</td>	Social economic data	GDP												di.	< >	• <u>•</u>	3 0
Industry       COP       US Million       \$41302       6778036       84.06328       102.2395       Image: Construction       Image: Construction <t< td=""><td>→ Energy intensities ~</td><td>Item</td><td>Unit</td><td>2010</td><td>2015</td><td>2020</td><td>2025</td><td>2030</td><td>2035</td><td>2040</td><td>2045</td><td>2050</td><td>Chart</td><td></td><td></td><td></td><td></td></t<>	→ Energy intensities ~	Item	Unit	2010	2015	2020	2025	2030	2035	2040	2045	2050	Chart				
COP Growth rate       % p.a.       4 40000       420000       Image: Cope of Cover hate	- Industry	GDP	US\$ Million	54.13092	67.78036	84.06328	103.26305										
Image: Construction       Image: Construction<	Transat	GDP Growth rate	% p.a.		4.60000	4.40000	4.20000										
Household       Services       I	Transport	GDP per capita	US\$/Cap	2229.86802	2516.56917	2840.79860	3207.55620										
Services         Agriculture         % 21 5000         17,4000         15,5000         I         I         I           Calculate         Mining         % 23000         23000         23000         23000         I         I         I           In Results         Mining         % 510000         48000         430000         380000         I         I         I           In Results         Firet/GDP data for first Year & Average annual growth rate for each period/timestep         I         I         I         I         0.00000         100.00000         100.00000         I00.00000         I00.0000         I00.0000         I00.00000         I00.00000         I00.00000         I00.00000         I00.000	Household	Sectorial shares of GDP											-				
Calculate       iii       Construction       %       2.30000       2.30000       3.80000       iiii       iiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiii	Services	Agriculture	%	21.50000	19.40000	17.40000	15.50000										
Cl Calculate       Mining       %       510000       480000       430000       3.80000       I       I       I         It Results       Manufacturing       %       1520000       16.0000       15.80000       4.00000       I       I       I         Image: Service       %       5.90000       5.00000       4.30000       4.00000       I       I       I         Image: Service       %       5.90000       5.80000       5.00000       I       I       I       I         Image: Service       %       5.90000       51.8000       160.00000       I       I       I       I         Image: Service       %       5.90000       51.8000       160.00000       I00.00000       I       I       I       I         Image: Service       %       5.90000       100.00000       100.00000       I00.00000       I		Construction	%	2.30000	2.30000	2.30000	2.20000										
Image: Construction	Calculate	Mining	5	5.10000	4.80000	4.30000	3.80000										
Energy         %         5 90000         5.60000         5.00000         4.30000         I         I         I           Genvice         %         50.0000         51.8000         57.3000         I	I Results	Manufacturing	%	15.20000	16.10000	16.80000	16.90000										
Image: Construction         So 00000         St 80000         St 800000         St 80000         St 800000         St 8000000         St 800000         St 8000000         St 80000000         St 80000000         St 80000000         St 80000000         St 800000000	_	Energy	%	5.90000	5.60000	5.00000	4.30000										
Total       %       100.00000       100.00000       100.00000       100.00000       100.00000         * Enter GDP data for first Year & Average annual growth rate for each period/timestep         Data notes		Service	%	50.00000	51.80000	54.20000	57.30000										
		Total	<b>,</b> ,	100.00000	100.00000	100.00000	100.00000										
Item         Unit         2010         2015         2020         2020         2035         2040         2045         2050         Chart           Agriculture         Agriculture         Image: State Stat		* Enter GDP data for first Year & Average at Data notes Distribution of GDP by subsectors	nual growth rate fo	r each period	/timestep									di	<   >	<u>₹</u>	8 0
Agriculture		Item	Unit	2010	2015	2020	2025	2030	2035	2040	2045	2050	Chart				_
Farming         %         100.000000         100.000000         100.00		Agriculture											-				
Total         %         100.000000         100.00000		Farming	%	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000					
Construction         Image: Construling         Image: Construling         <		Total	%	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000					
Buildings         %         100.00000         100.00		Construction															
Total % 100.00000 100.00000 100.00000 100.00000 100.00000 100.00000 100.00000 100.00000 100.00000 100.00000 100.00000		Buildings	%	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000					
		Total	8	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000					

### Activity 3: Household Sector

We are now going to work with the structure of the residential sector; this is referred to as the **Household sector** in MAED. Let us go to the Household tab in the Sectors & Clients block on the General Information page. In this case study, a few types of households have been established for urban and rural areas. In each area, you can add or delete household types. Again, the number of different types of households to be included depends on the availability of information or the type of study to be done. For example, in this case, we wish to study the different types of urban and rural households. There are three urban and three rural types of houses, please make sure that your case looks the same as the picture below. If it doesn't, add new subsectors and/or rename them. Then click **Save**.



Sectors & Clients	3										
Agriculture C	construction	Mining	Manufactu	iring Energy	y Service	Household	Transport				
				Add new	Specific Electricity use	Lighting	Air Conditioning	Cooking	Space Heating	Water Heating	
Urban				Ð		<	<b>~</b>	<b>~</b>	<b>~</b>	<b>~</b>	
urban_house_type1			×								
urban_house_type1			×								
urban_house_type1			×								
Rural				+	<b>~</b>	<b>~</b>	✓	~	<b>~</b>	~	
rural_house_type1			×								
rural_house_type1			×								
rural_house_type1			×								

The household sector contains the following additional end-use sub-types: Lighting, Air Conditioning, Cooking, Space Heating, and Water Heating.

Sectors & Clie	ents										
Agriculture	Construction	Mining	Manufact	uring Energ	y Service	Household	Transport				
				Add new	Specific Electricity use	Lighting	Air Conditioning	Cooking	Space Heating	Water Heating	
Urban				•	<	<b>~</b>	<b>~</b>	<b>~</b>	~		
Apartment			×								
Familu house			×								
DW with SH			×								
Rural					<	<b>~</b>	<b>~</b>	<b>~</b>	<b>~</b>	~	
Ruarl1			×	Ļ							
Rural 2			×								
rural 3			×								