Model for Analysis of Energy Demand (MAED)

Hands-on 3: Setting Up the Structure Part II

Learning outcomes

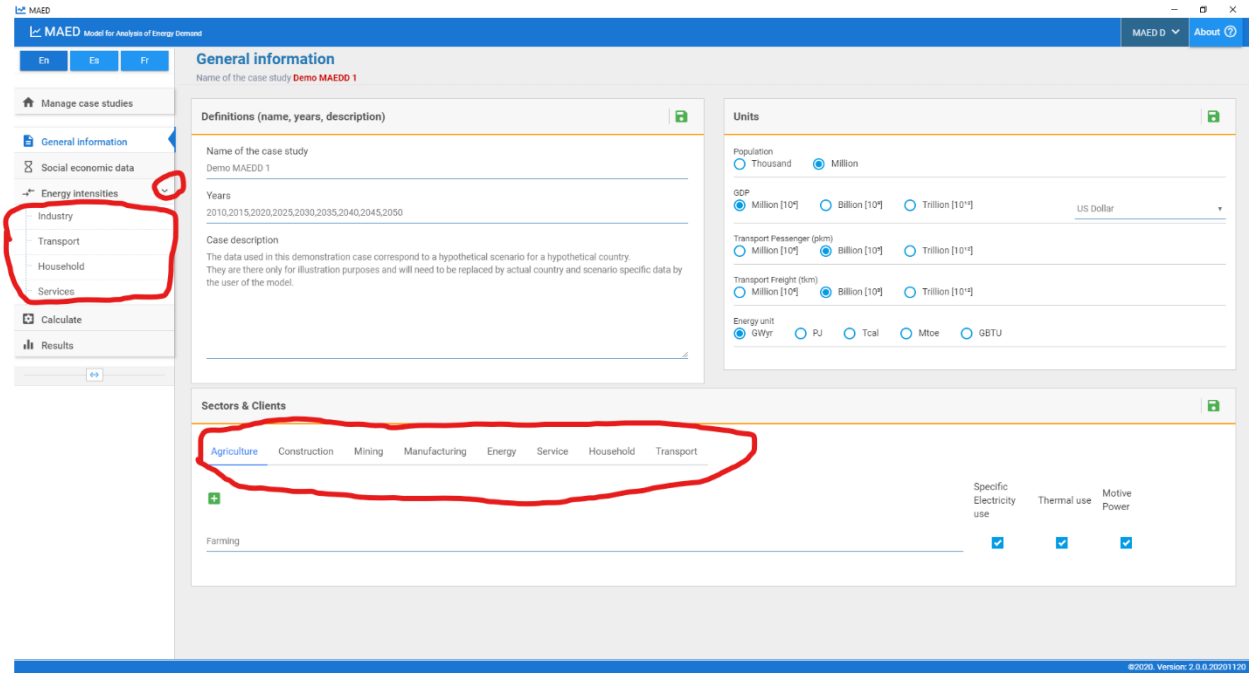
By the end of this exercise, you will be able to:

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

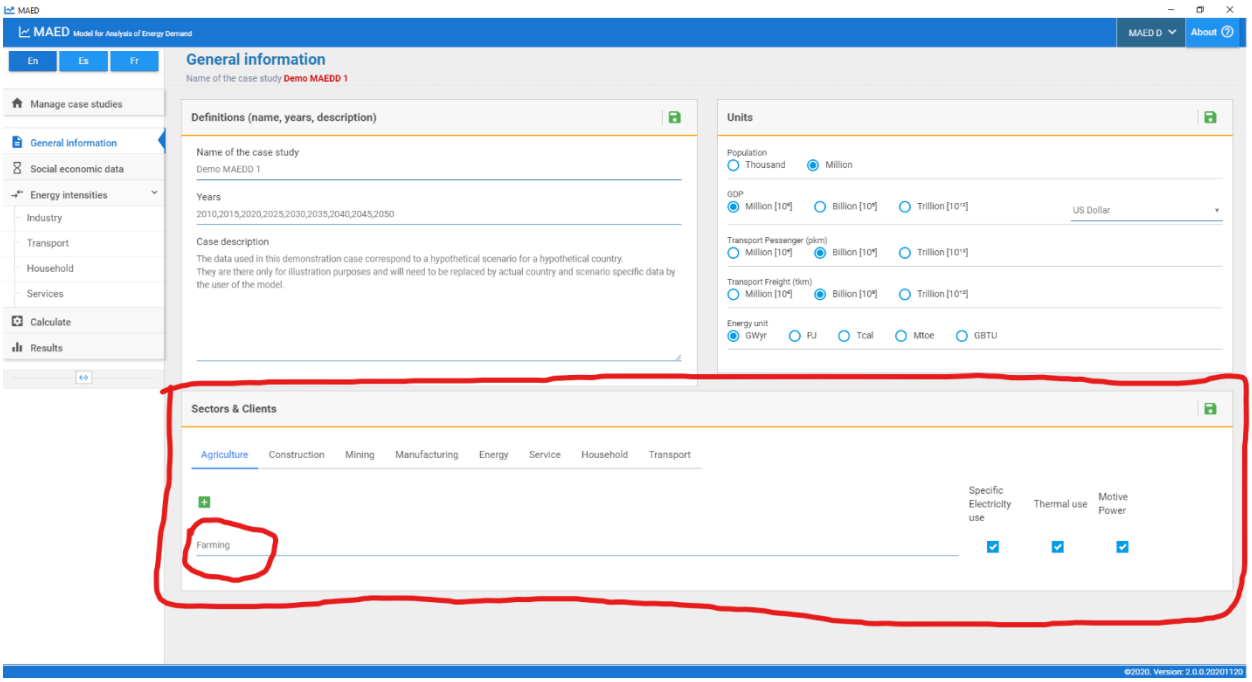
In the previous hands-on we learnt how to manage case studies and declare the case definitions. The next step in establishing the model structure is the defining of the subsectors of the economy.

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.

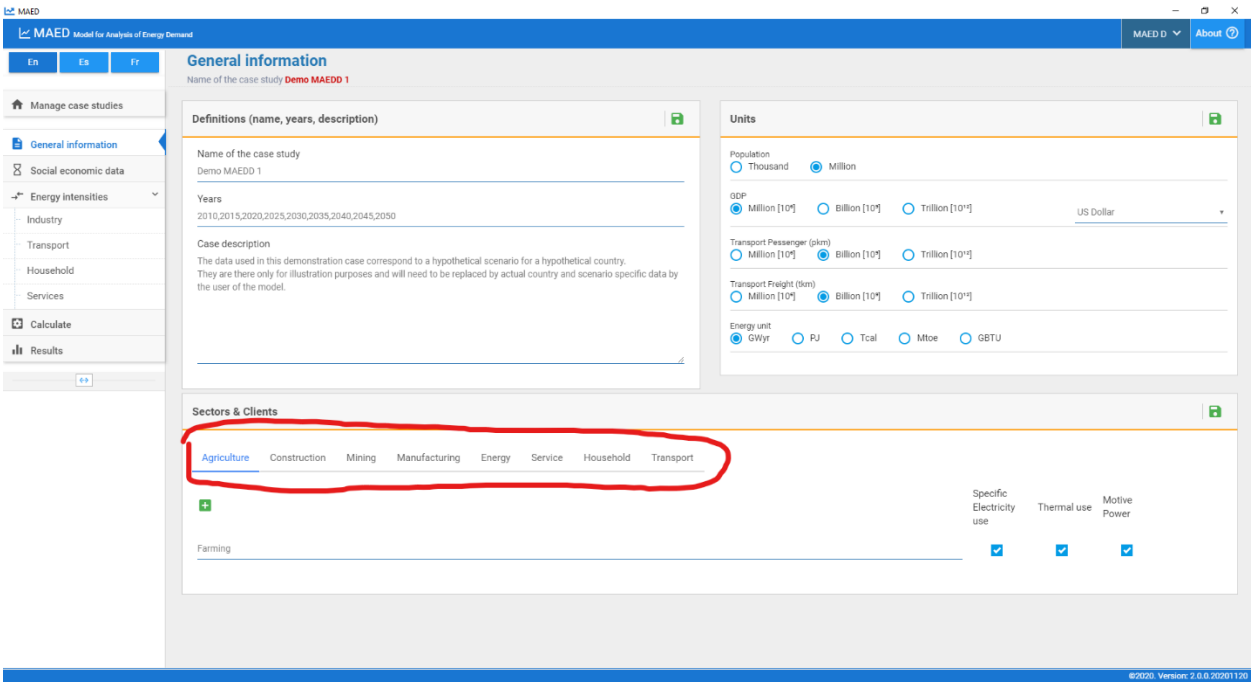


However, even though sectors are predefined and fixed in MAED-D, users can define the subsectors that they want to study. The number of subsectors to be defined by the user depends on the information available regarding both the economy and the energy consumption, which will be discussed in upcoming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

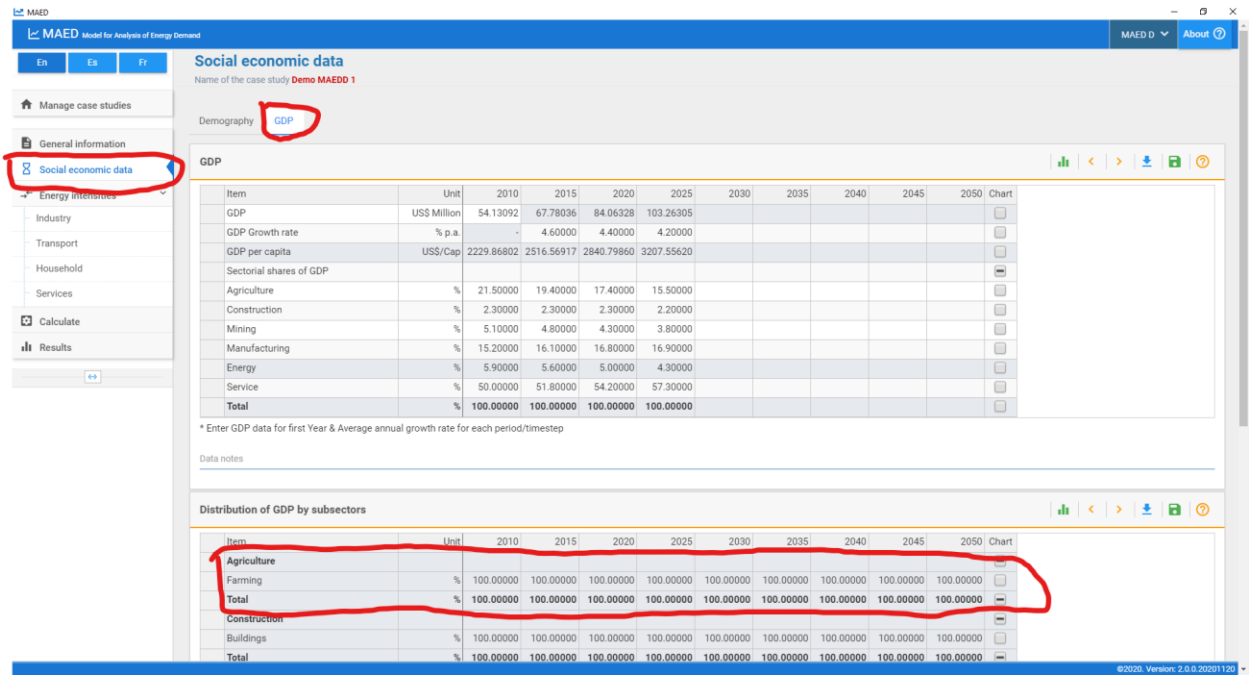
For now, let us see how the model was structured for the Demo MAEDD 1 case study. This can be seen in the bottom half of the general information page in the Sectors & Clients block. The agriculture sector only has one subsector defined: Farming. Each sector needs to have at least one subsector, that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



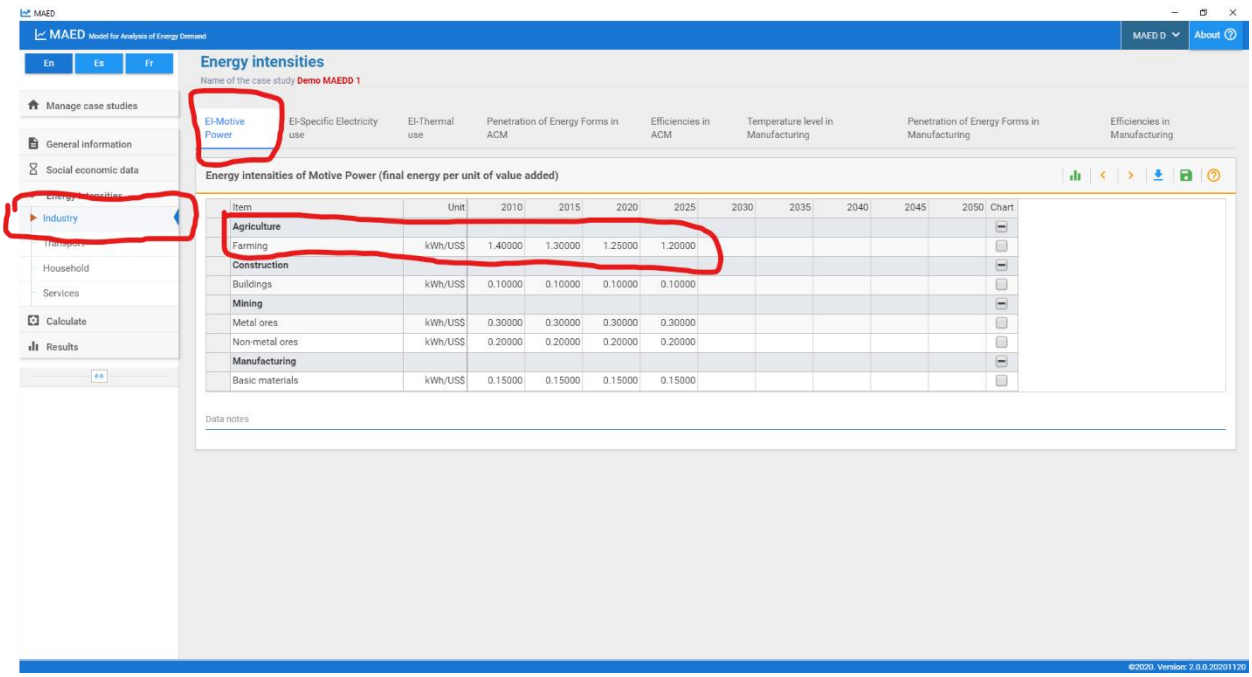
The subsectors for other sectors can be accessed by clicking on their names. Please pause and explore the subsectors defined in other sectors of Demo MAEDD 1 case study.



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

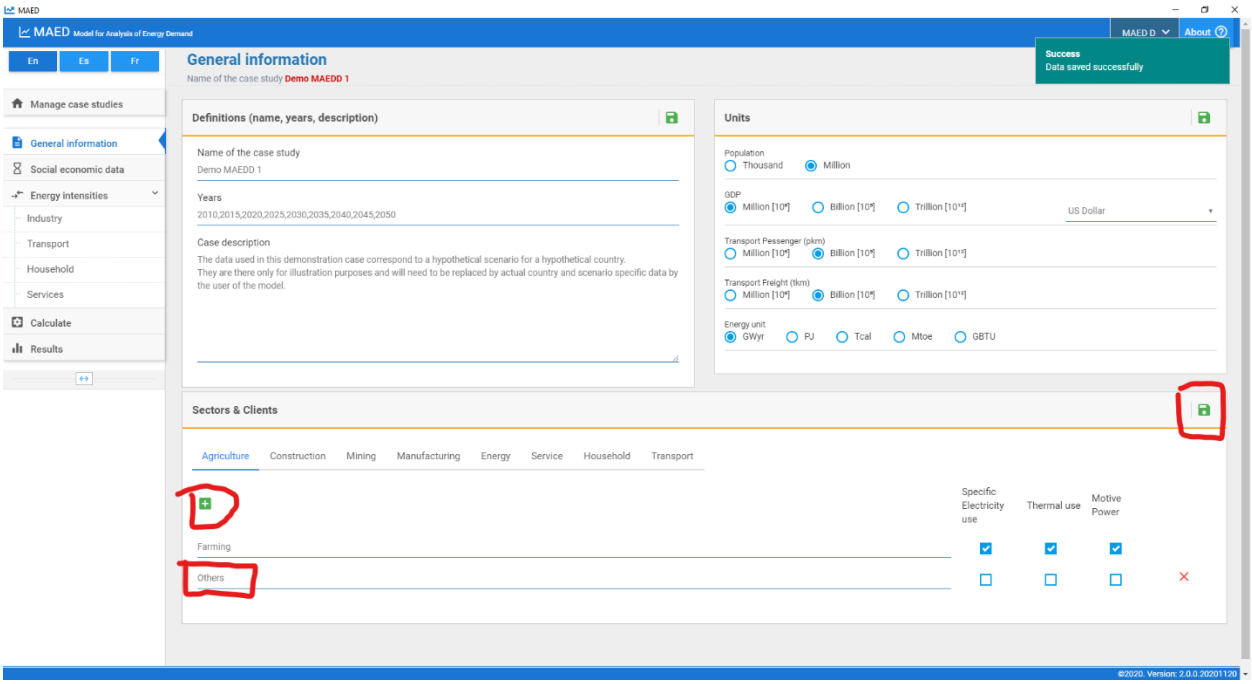


Let us also check the energy intensity of motive power.

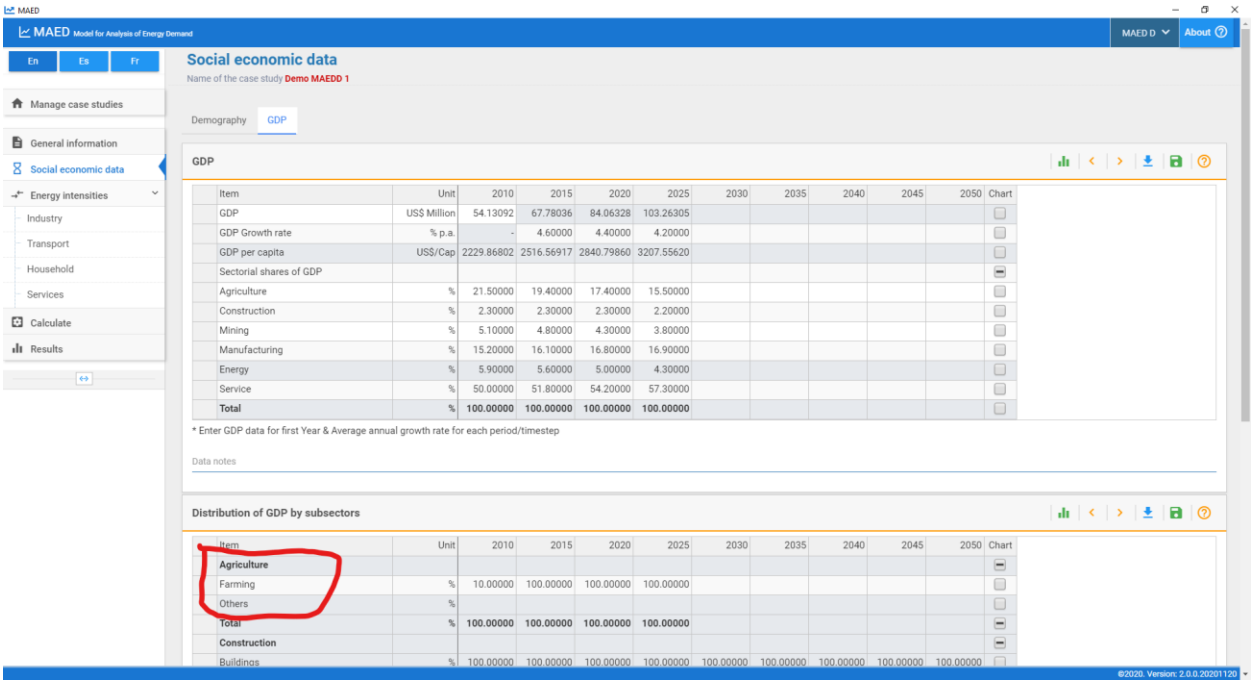


Activity 2: Adding and Deleting Subsectors

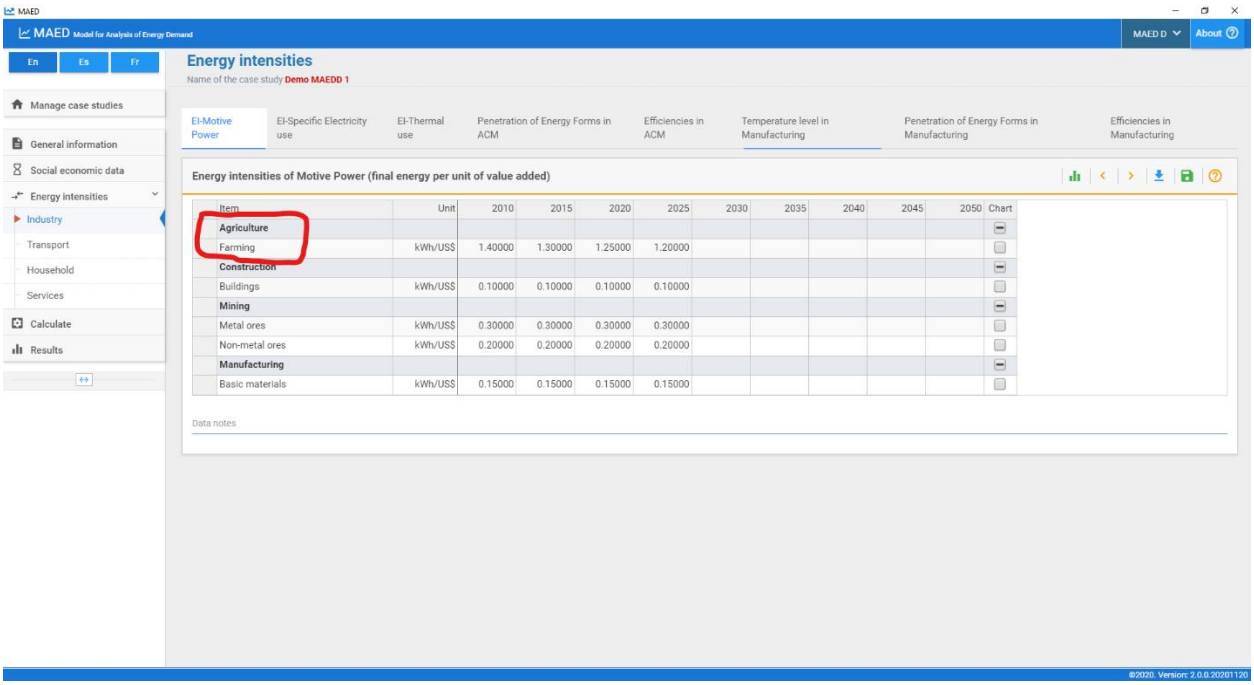
Let us now see how to add and delete subsectors in a sector. Return to the general information page and select the agriculture tab in the Sectors & Clients block. We can add a subsector to the agriculture sector by clicking the plus button. This should create a new subsector called Agr_2. To change the name simply type it in the field. Change the name of the new subsector to Others. Remember to click save to save the changes.



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.

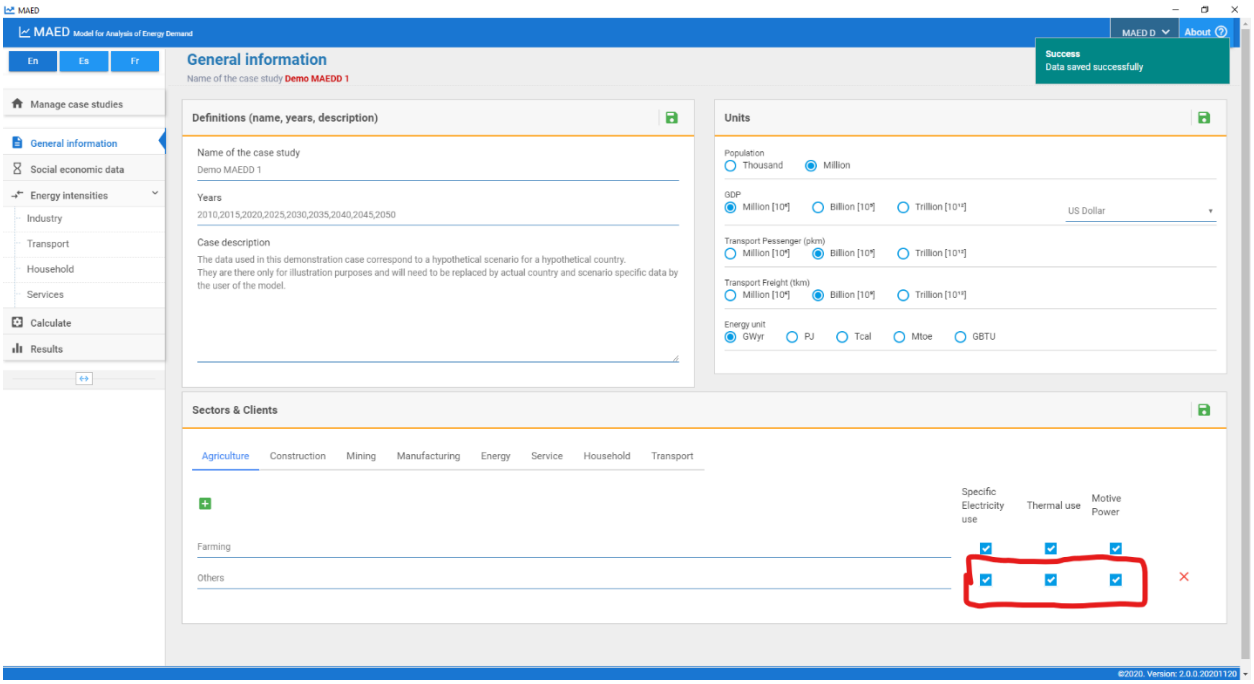


Let us now go to the Energy Intensities of Motive Power. We note that the Others subsector does not appear under the Agriculture Sector.

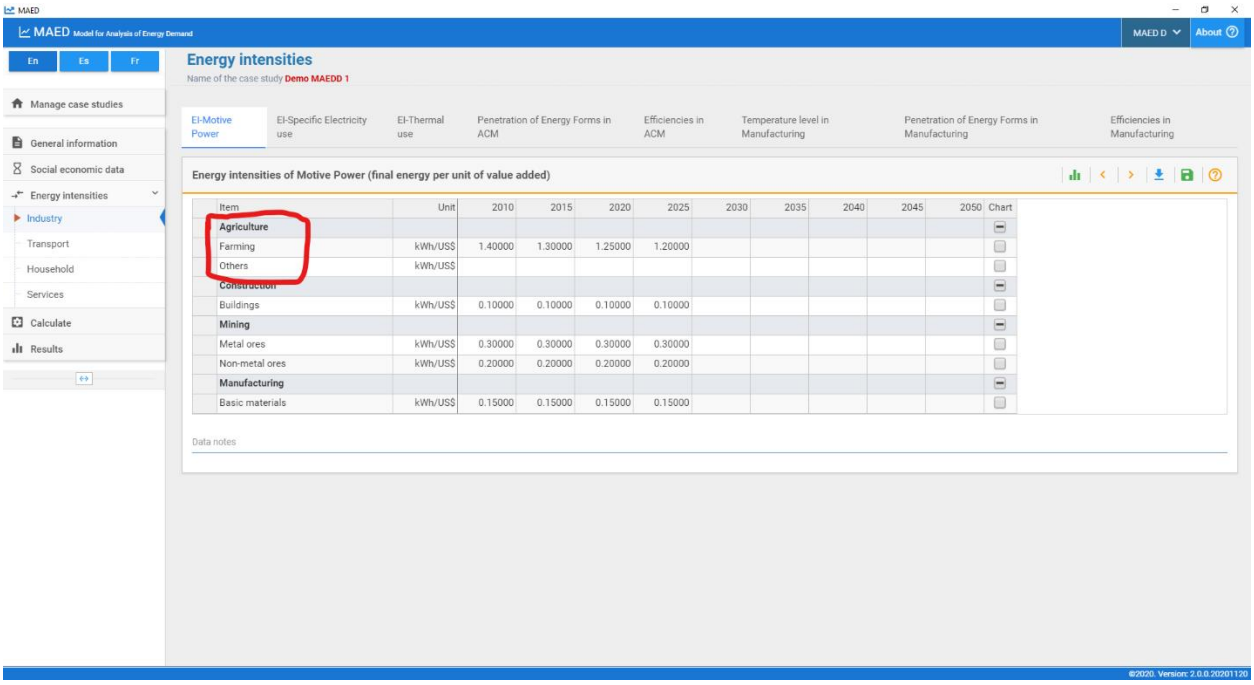


This is because the programme has not been informed about the end-use categories to be studied in the Others subsector. We must go to the general information page and select the

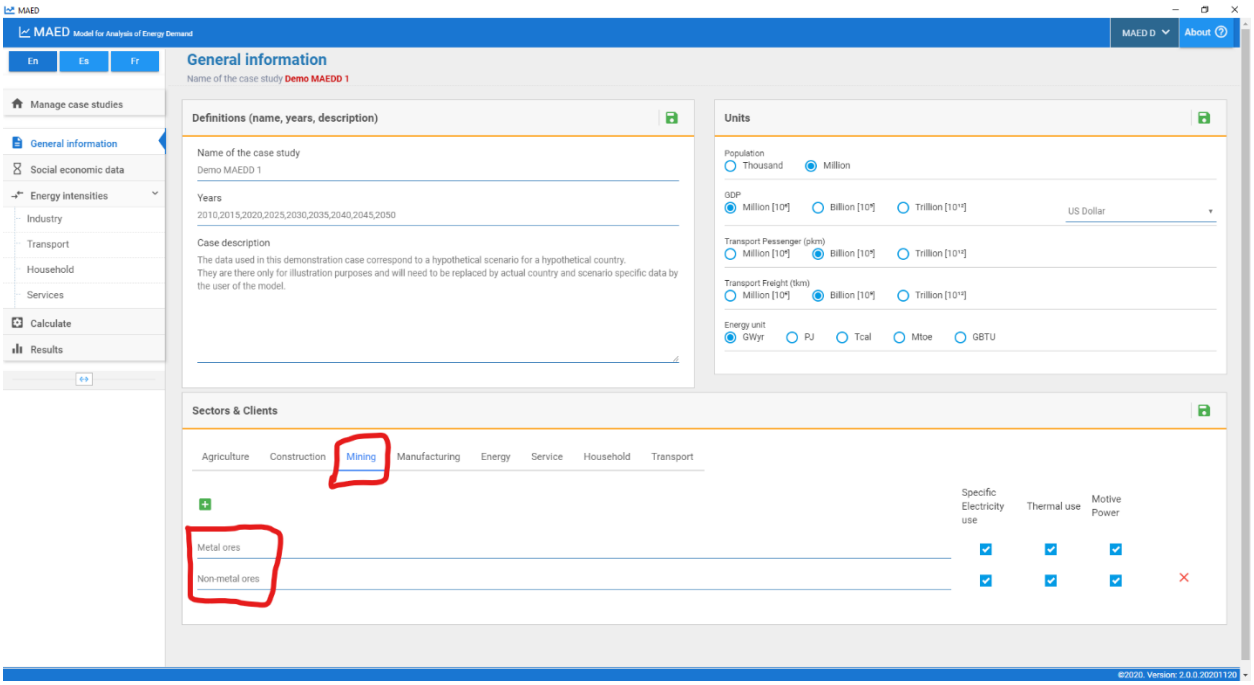
End-Use categories for the Others subsector. Check all three end-use categories for the Others Subsector to include them as end-uses. Remember to save the changes.



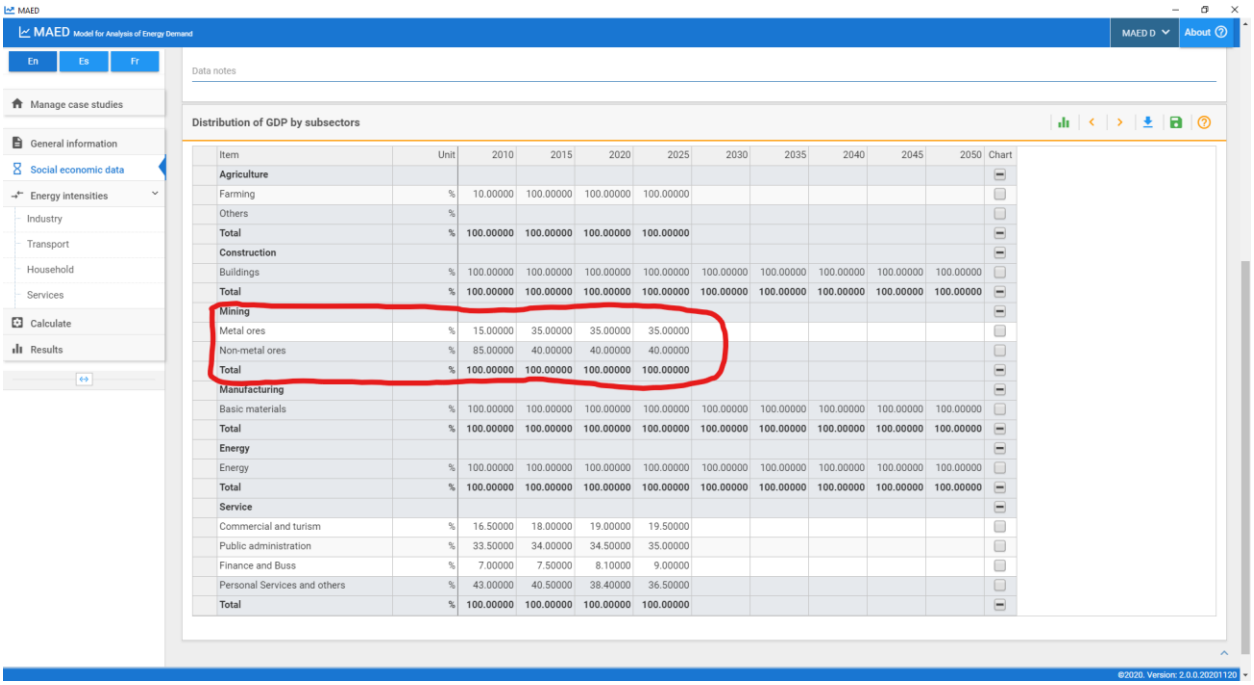
The programme will now build tables for input data in the energy intensities of Specific Electricity use, Thermal use, and Motive Power. Let us look at the energy intensities of motive power to confirm this.



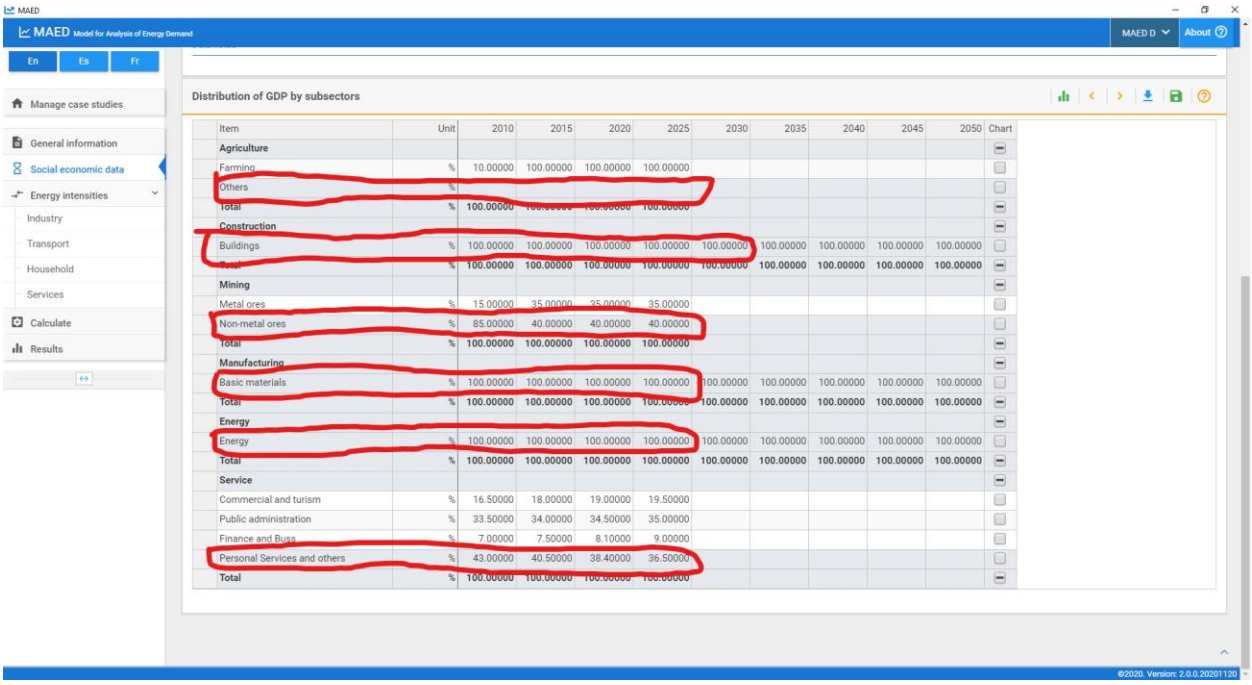
Let us now look at the mining sector. There are 2 subsectors defined.



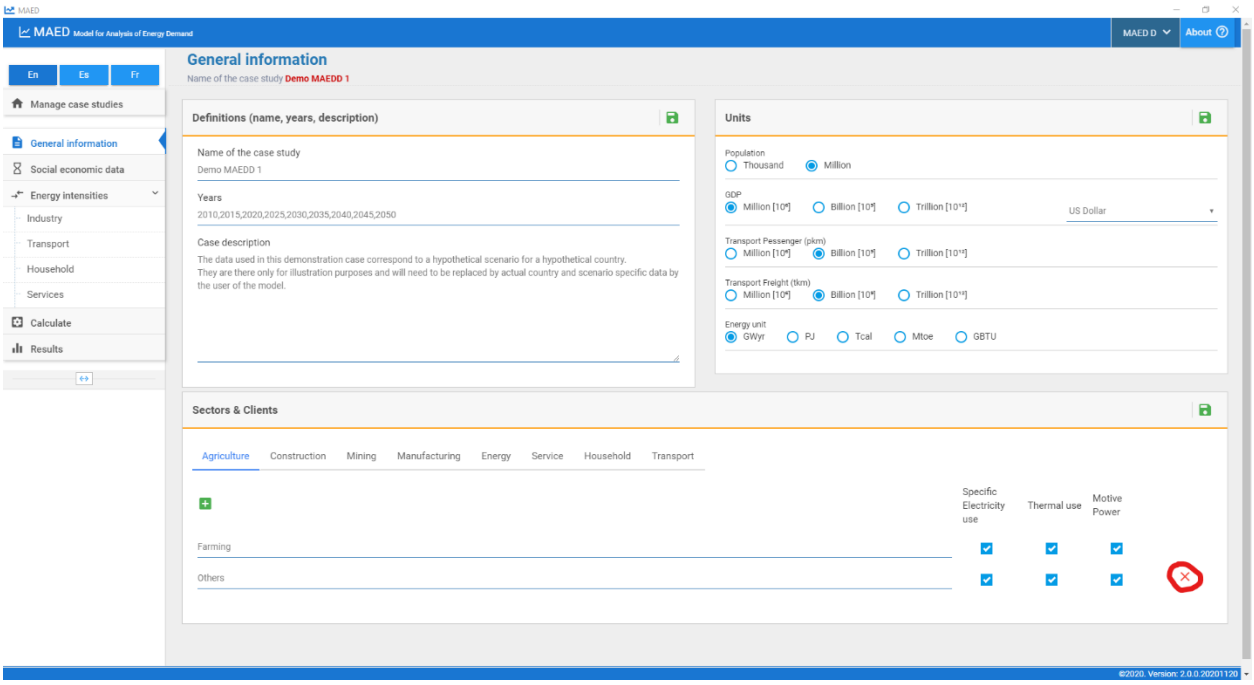
And we confirm this by looking at its corresponding GDP table.



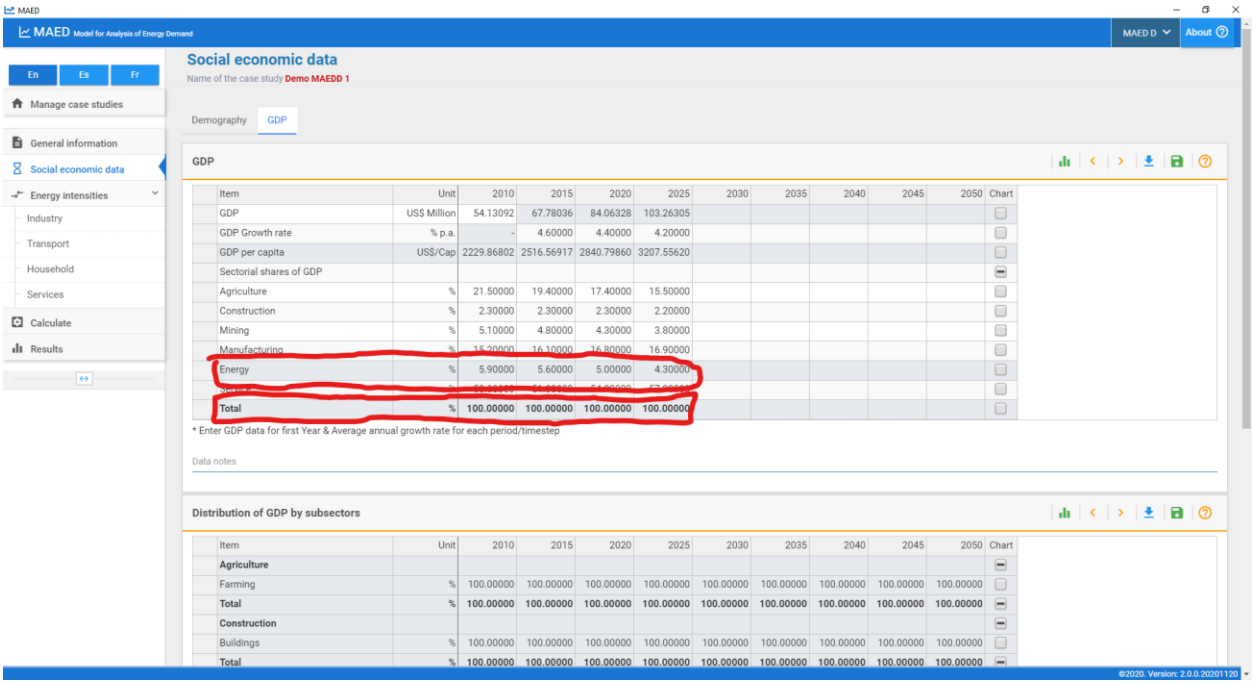
Note that, in each sector the rows of the last subsectors are shaded. This means that those rows are results of calculations performed by the programme, and the cells are locked from user editing. MAED-D is calculating the last subsector so that the sum of the participation of all subsectors is 100.



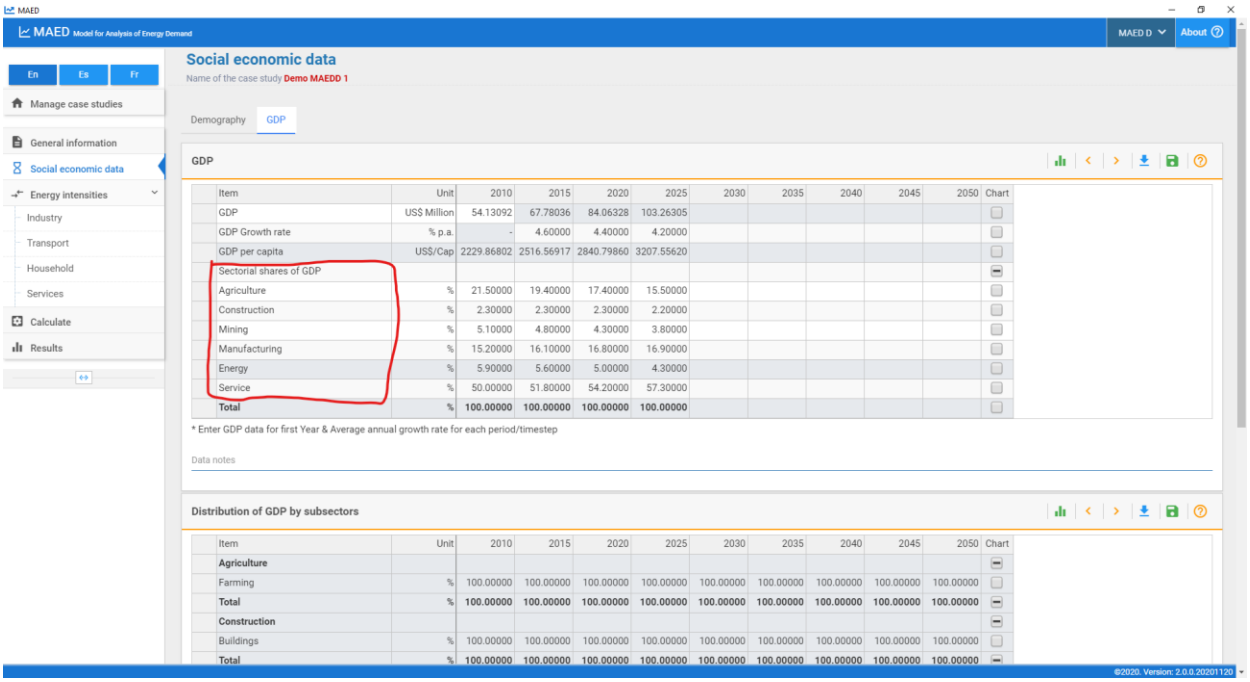
Let us try deleting a subsector. We can delete the same one that we added earlier. We must go to the structure of the agriculture sector in the general information page. Click the delete button (red cross next to the subsector name) on the subsector, Others. The subsector disappears from this menu. And,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



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.

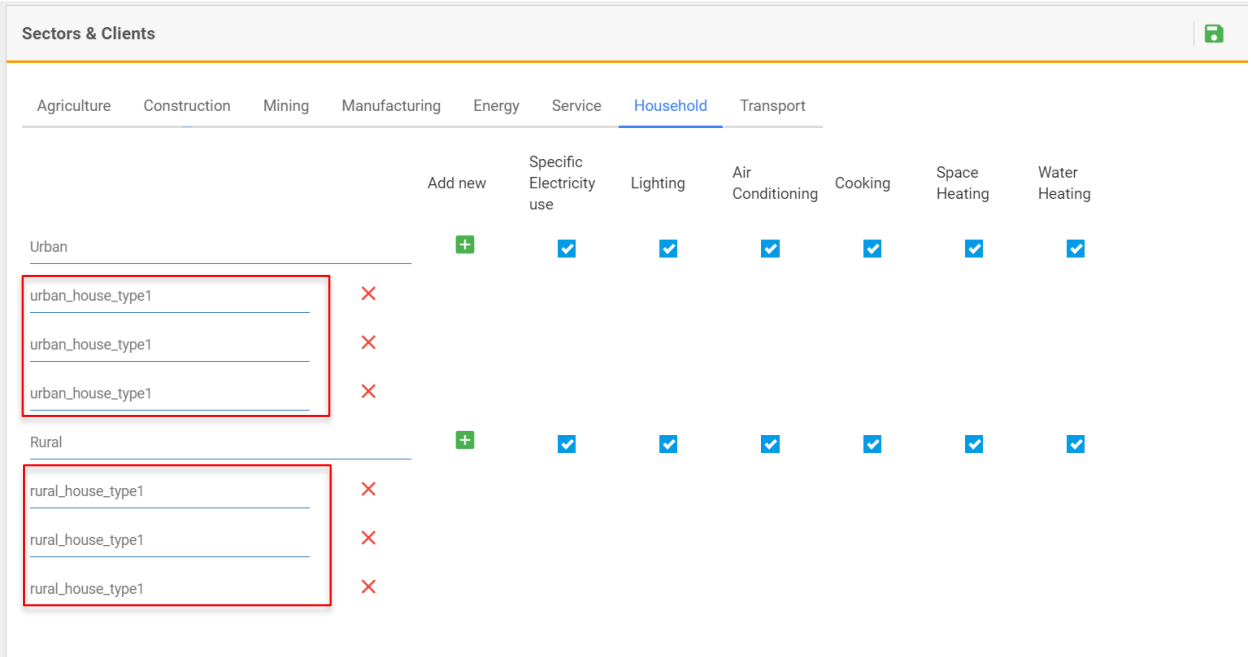


Also note that the transport sector does not appear in the sectoral share of GDP in this table. The GDP component of the transport sector must be added to the service sector. And the same must be done with the energy consumed in the facilities associated with transportation. For example, electricity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

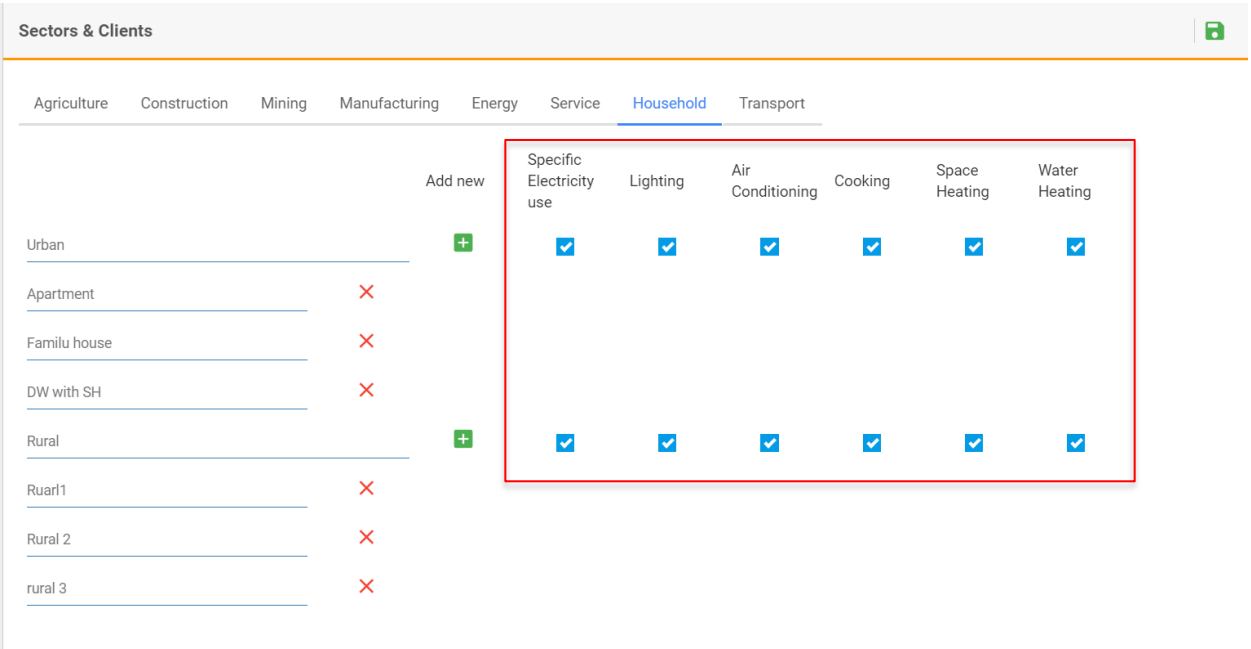


Activity 3: Household Sector

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**.



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



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