**Residential exposure model:**

The exposure model (**Exposure\_Res\_Serbia.csv**) was built mainly based on the file from census 2011 that contains the year of construction of the residential dwellings combined with the number of dwellings in the buildings. The **processed\_Serbia.xlsx** contains the initial census file. The information is separated in the census for urban and rural municipalities.

We developed two mapping schemes – one for urban and one for rural municipalities (see attached **mapping\_Res\_Serbia.xlsx**). The number of dwellings in the building was used as a proxy for the number of storeys. For example, if there is one dwelling in the building it was assumed that the building has 1 or 2 number of storeys.

Since we did not have information on the material of construction and lateral load resisting system from the census, a literature review was conducted to first identify the main building classes likely to be found in Serbia and neighbouring countries, which are expected to have similar building typologies. In that step, the publications attached were quite useful to start building the mapping schemes. For example, Cukovic\_etal.pdf mention that prefabricated buildings started to be constructed mainly between 1966-1980; ademovic2013 and Ademovic&Nyarko (studies for Bosnia\_and\_Herzegovina) mention that the typical construction till 1960s was unreinforced masonry and confined masonry started after 1963. Thus, the percentages in the mapping scheme are assumptions that incorporate, however, as much as possible the information found in various publications.

It was assumed that dwellings constructed <1960 are with no seismic code (CDN), between 1961-1980 are low code (CDL) and after 1981 with medium code (CDM). Also, all the unreinforced masonry are assumed to be CDN.

It was assumed that the area per dwelling is changing based on the number of storeys of the building. More details in the **‘Summaries.xlsx’.**

In order to convert the number of dwellings to number of buildings we divided the total number of dwellings in each region and each building typology with the total number of floors of each building class and the number of dwellings per floor. The assumptions taken for this conversion are shown in ‘**dwlngs\_to\_bldngs\_Serbia.csv’.** The TABULA project indicates 2.246.000 residential buildings in Serbia.

Regarding the cost per sq.m of a dwelling, the values mentioned in the file **G20121068\_cost.doc** for the respective areas were adopted (converted to EUR – column ‘price of construction works’), while for the municipalities not mentioned in the file it was assumed a value of 600 Euros per square meter for the urban areas and 300 Euros per square meter for the rural areas in each municipality. You can find the values adopted in each municipality in the **processed\_Serbia.xlsx.** The COST\_PER\_AREA\_EUR in the exposure file indicates the structural and non-structural cost per square meter. The TOTAL\_REPL\_COST\_EUR contains also the value of the contents. It was assumed that for the residential buildings 30% of the total replacement cost accounts for structural components, 50% for non-structural and 20% for the contents.

**Industrial exposure model:**

Some general information on the methodology (more information in the **‘Summaries.xlsx’** attached:

* The area of the industrial buildings was provided by Sousa et al and the methodology is described in **Sousa2017.pdf**, which is attached. The area that it was provided is spatially distributed across Serbia at a 30 arc sec resolution.
* The total industrial buildings in Serbia were distributed at the 30 arc-sec resolution proportionally to the area given by Sousa et al.
* One mapping scheme was developed - the mapping scheme is similar to Croatia, which comes from the feedback of the local experts during the exposure workshop in Pavia.
* It was assumed that for the industrial buildings 15% of the total replacement cost accounts for the structural components, 25% for the non-structural and 60% for the contents.

**Commercial exposure model:**

Maybe **Daniela** could give some more details in this part? I have the final exposure model, which I have attached.

It was assumed that for the commercial buildings 20% of the total replacement cost accounts for the structural components, 30% for the non-structural and 50% for the contents.