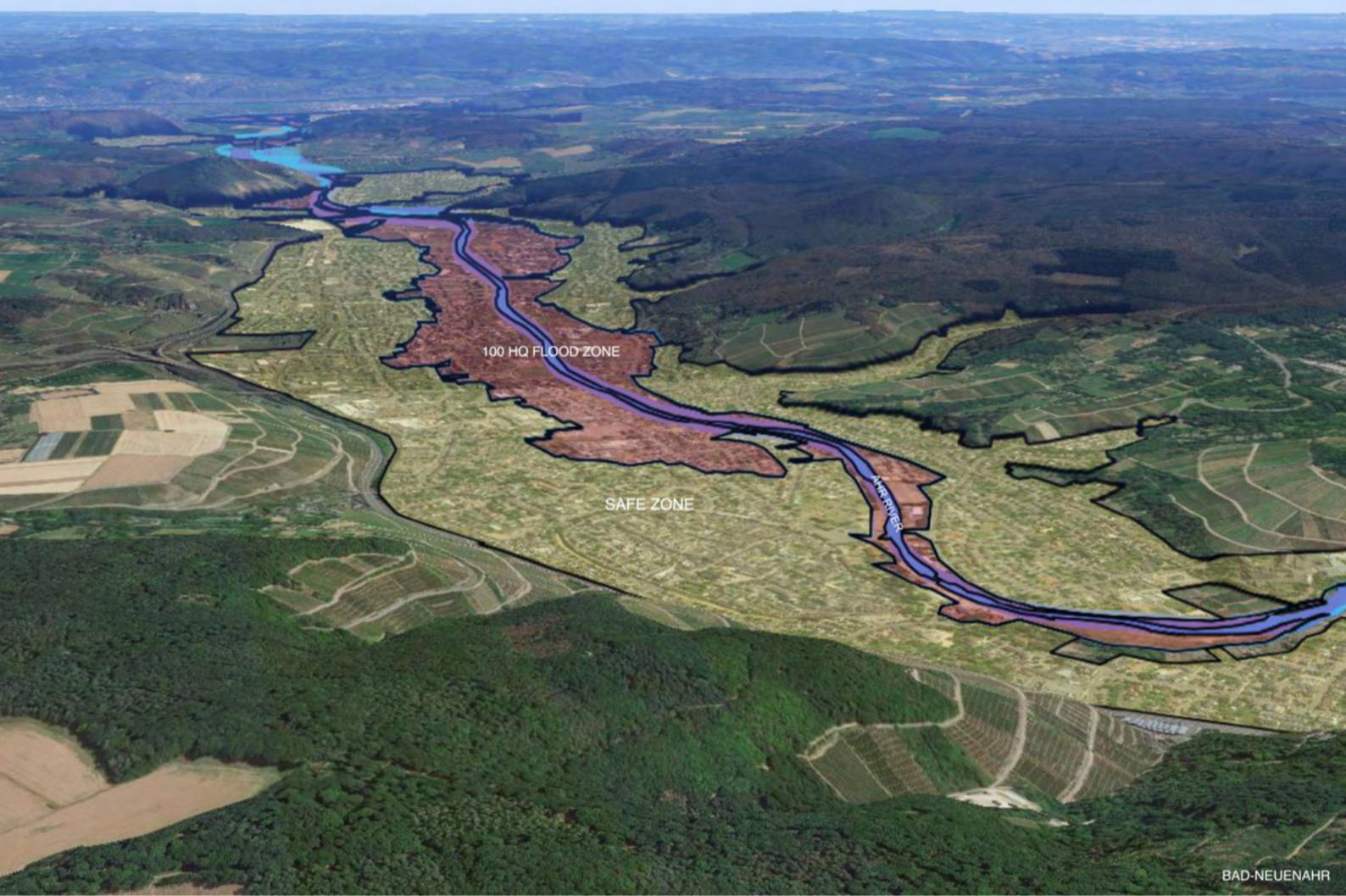




Image: Semming Graff



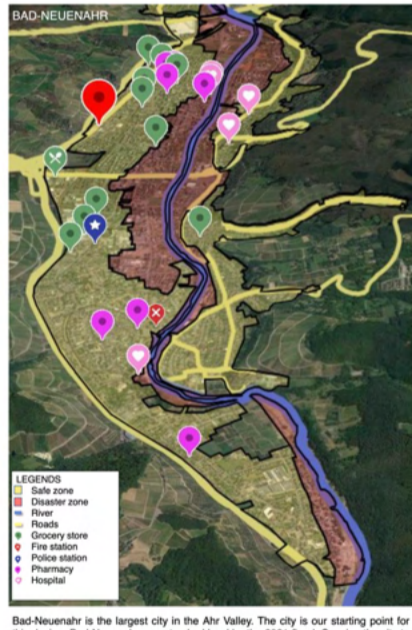
BAD-NEUENAHR

Divided city services into two categories. Section 1 is the most important services for a city to be redundant.

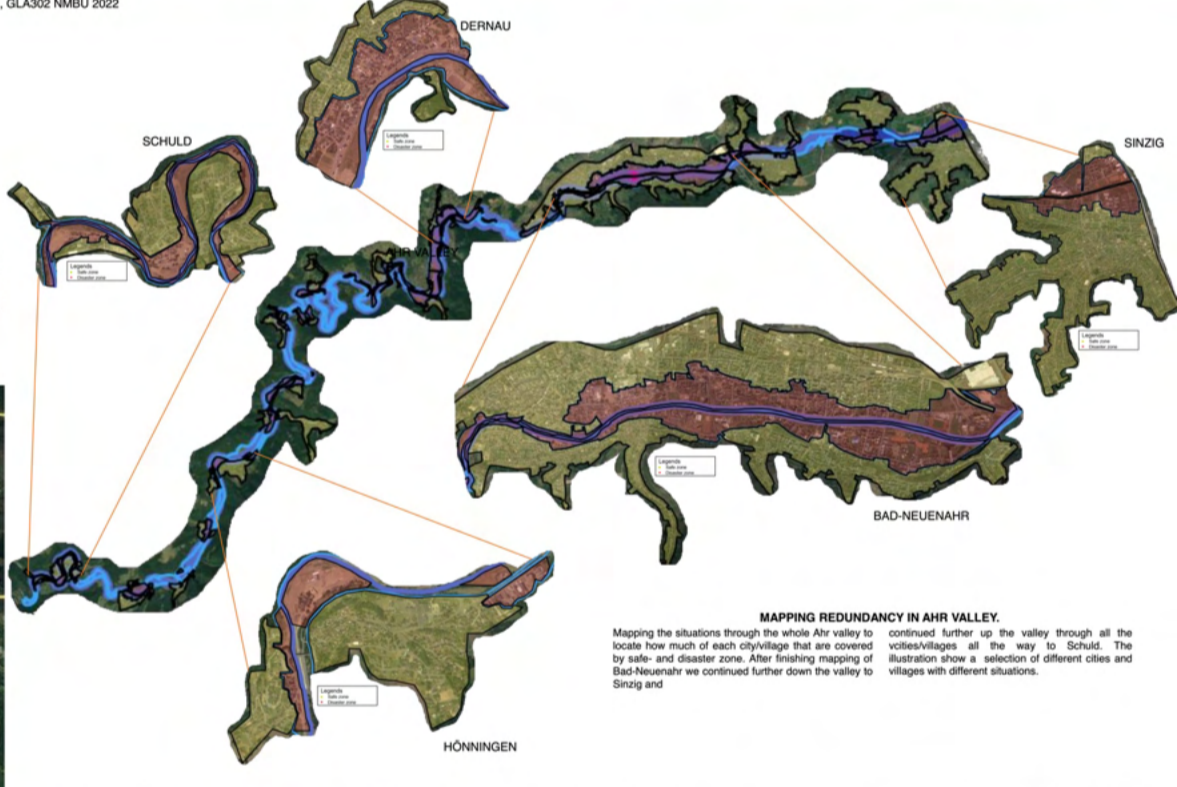
**Section 1 services**  
During and right after disaster  
Emergency services  
Grocery stores  
Hospitals  
Pharmacies  
Fire stations  
Police stations

**Section 2 services**  
The following days and weeks  
Schools  
Universities  
Public institutions  
Libraries  
Cultural centers  
Gyms

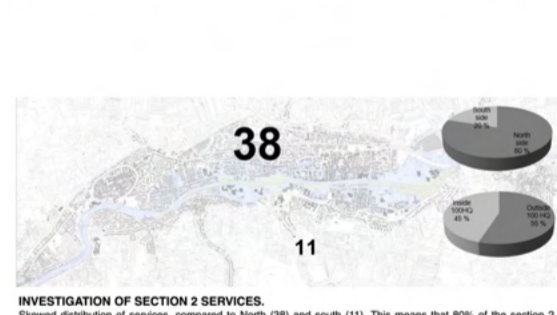
For a city to be redundant, we need to decide what kind of services a city needs on both sides of the river to continue operate during floods. We made this triangle of services and divided it into two sections. The section 1 services are the most important for a city half to be redundant. This services need to be available during and right after the flood. The section 2 services are services that needs to be available the following days and weeks after the flood.



Bad-Neuenahr is the largest city in the Ahr Valley. The city is our starting point for this design. Bad-Neuenahr was situated hard by the 2021 flood. Causing the city to be split in half by the flood. While the north side of the river manage to function as normal as possible, the south side were completely isolated from important services such as grocery stores and fire stations. Bad-Neuenahr has great areas inside the disaster zone, this needs to be handled in the future to prevent coming floods.

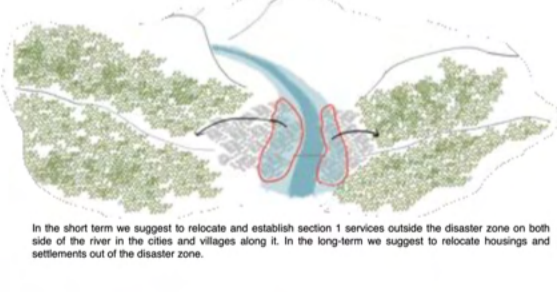


**MAPPING REDUNDANCY IN AHR VALLEY.**  
Mapping the situations through the whole Ahr valley to locate how much of each city/village that are covered by safe- and disaster zone. After finishing mapping of Bad-Neuenahr we continued further down the valley to Sinzig and



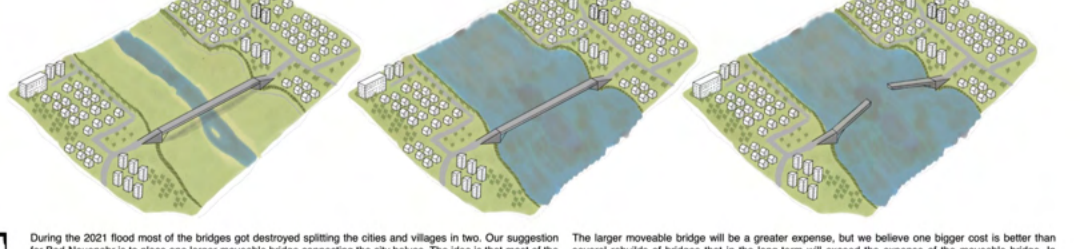
By this long-term idea of city planning of relocating the housings and settlements, the development will recede from the riverbed. This will give more space for the river during floods. Supplies can also be delivered to the grocery stores and pharmacies.

A good connection of roads throughout the Ahr Valley will ensure that emergency services can help all the people in the valley during floods. Supplies can also be delivered to the grocery stores and pharmacies.



# REDUNDANCY

Our idea revolves around the Principle of Redundancy. Redundancy is often used in military context. Meaning that in case of disasters, there is a plan B.



During the 2021 flood most of the bridges got destroyed splitting the cities and villages in two. Our suggestion for Bad-Neuenahr is to place one larger moveable bridge connecting the city halves. The idea is that most of the time the river are dry and small, therefor a bridge will connect the city halves. During larger floods, the bridge can open, prevents building of a dam, and separates the two city halves that can now operate independent of each other.

The larger moveable bridge will be a greater expense, but we believe one bigger cost is better than several rebuilds of bridges that in the long-term will exceed the expense of the moveable bridge. In some of the villages the question will be if you want to build bridges sustainable to floods, or if you establishing section 1 services on both sides. Contributing so the settlements on both sides of the river is redundant.

