GIS in Water Resources

Term Project: Flood Management in Austin

How can we prevent and control flood in the city of Austin?

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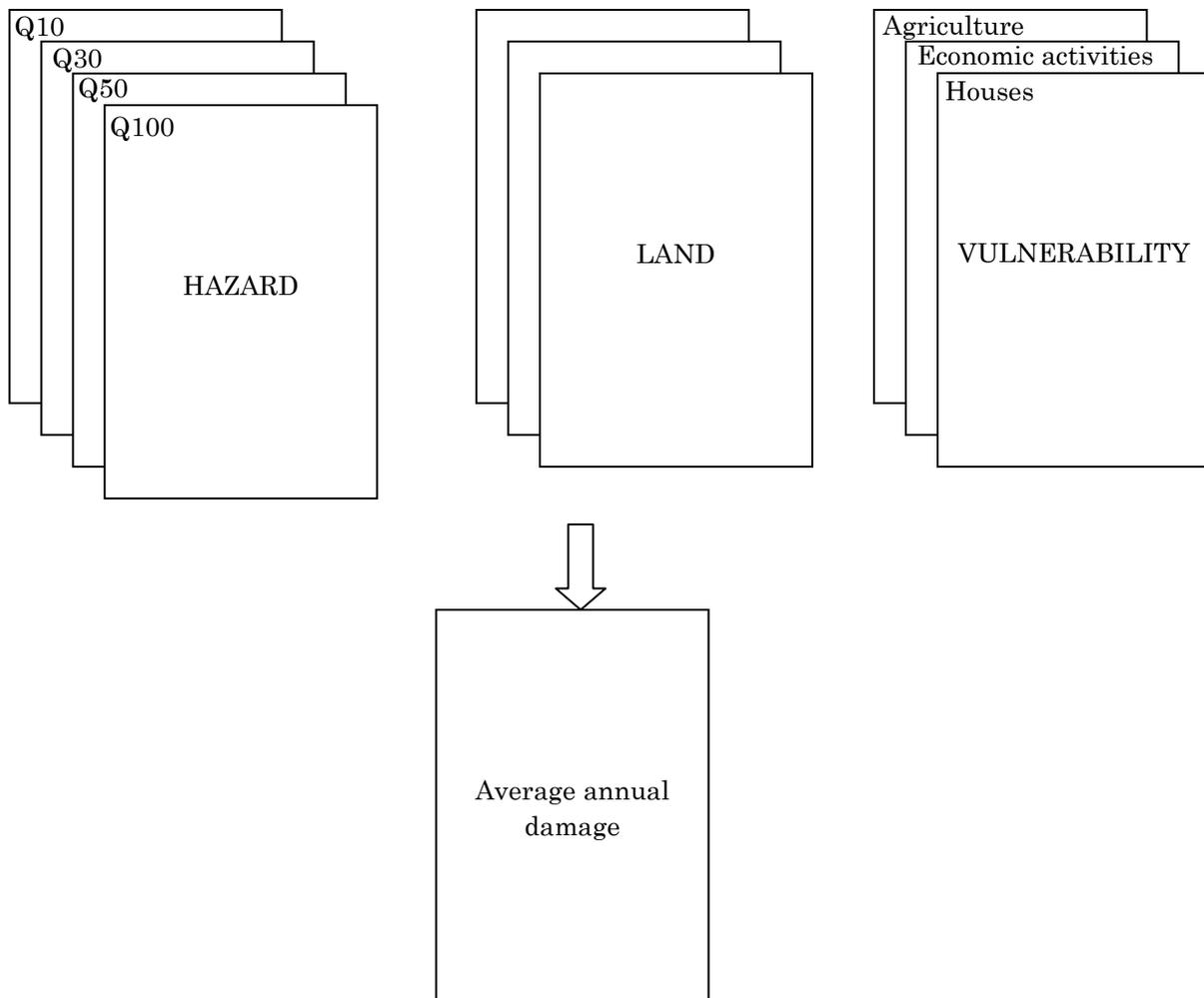27/10/2011

OBJECTIVE:

- Which parts of Austin city are threatened by flood?
- What would be the economic impacts of flood in Austin?

METHOD:

In order to evaluate the average annual damage, the idea is to cross data about the hazard, land and vulnerability as shown in Figure 1.

Figure 1 - intersection of information and synthesis in average annual damage

Concerning the hazard information, the parts of Austin threatened by flood are available online. There are several floodplains that can be used:

- Q10 : the 10 years floods
- Q30 : the 30 years floods
- Q50 : the 50 years floods
- Q100: the 100 years floods

Concerning the demographic data, the city of Austin also provides maps with demographic information as shown in next figure.
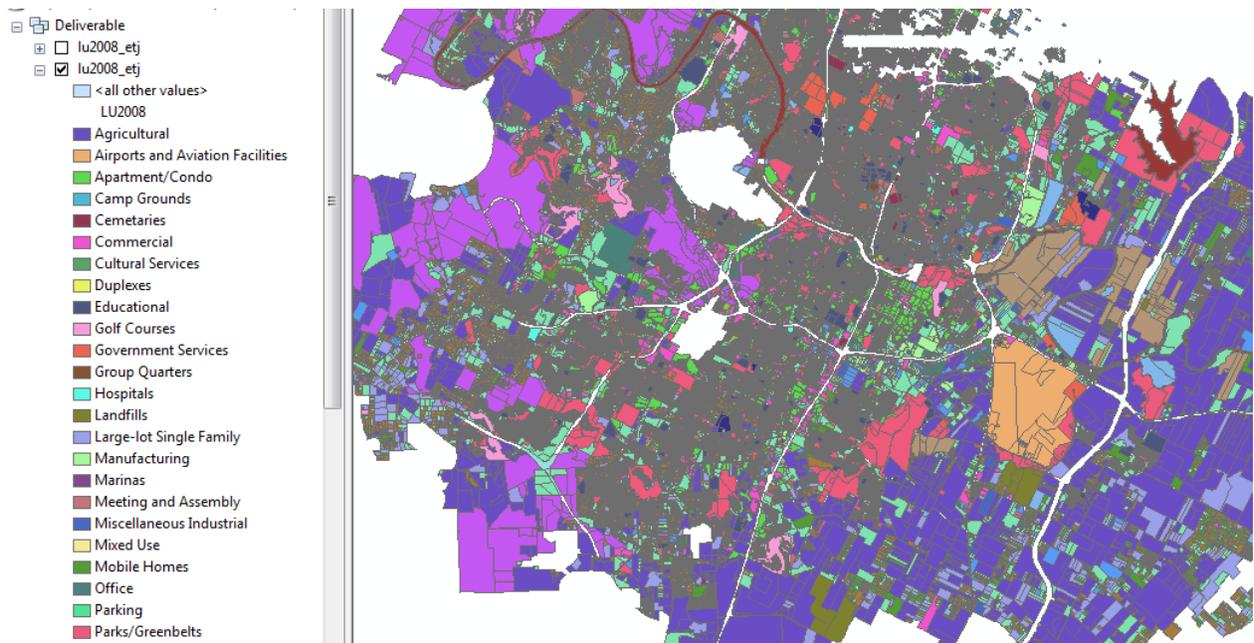
It will be so possible to evaluate the damage caused by flood in function of the type of structure, building or land. This is the third part.

It is very difficult to evaluate the damage caused by flood, but some criteria can be taking into account, for instance the flow duration, the seasonality for agriculture…

We should also consider two kinds of damages:

- The damages linked to the structure itself
- The losses linked to the cessation of activity or loss of products.

The different situation are shown in the following table:

	Vulnerability	Agriculture	Industry	Housing	Others
Factor	**Water Height**	X	X	X	X
	Overflow time	X	X	X	X
	Flow speed	X			
	Seasonality	X			
Damage considered	**Structural damage**	X	X	X	X
	Operating loss	X	X		

Depending of the success of collecting data, these criteria would be taken into account in order to evaluate the average annual damage.