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THE NATIONAL GEOSPATIAL CONFERENCE

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FIG Geospatial
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Collaboration, Innovation and Resilience: Championing a Digital Generation

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Commision 9: The Impact of Climate Risks on the Value of Real Estate Properties

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The Impact of Climate Risks on the Value of Real Estate Properties

**Climate change is no longer just a scientific discussion,
but is now also a
very real influencing factor for real estate valuations!**

The Impact of Climate Risks on the Value of Real Estate Properties

Do real estate valuers have an answer to this?

Is there an answer?

Is there *one* answer?

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But we need an answer when valuing an individual property!

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To find an answer we have to start with a

Regional risk assessment:

It is crucial to consider climate risks in a region-specific perspective. Coastal regions, river basins and cities are affected to varying degrees by flooding, heat waves or storm damage.

A location analysis is therefore essential.

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Which tools exist to measure the impact of climate risks on real estate?

Geographical Information Systems (GIS)

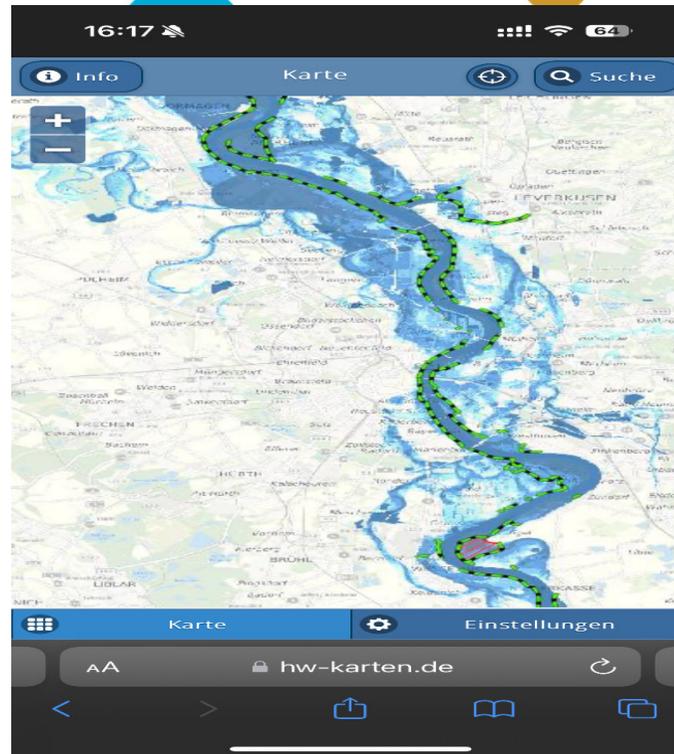
For example, elevation models to assess flood risks

Natural Risks Analyzing Systems

Used by insurance companies, banks, e.g. K.A.R.L. or VIDA

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Example of a flood risk map



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Example of a report on natural hazard and risk analysis

K.A.R.L. analyses are used exclusively for loss prevention and early detection of risks. They are based on scientific data, facts and correlations. It also takes account of the potential damage levels that may arise as a function of the specific physical sensitivity of certain goods under external impact.

Loss statistics of the insurance industry are not included in the analyzes. Therefore, risk figures calculated by K.A.R.L. are not suitable as a basis for insurance premiums.

TASK

Task No.: 0
Task-ID: StandortAnalyse
Analysis of location dated: 07.07.2020 15:50:48
by: KA Köln-Assekuranz-Agentur GmbH
Version: K.A.R.L.-08-2019.2

LOCATION UNDER SURVEY

Cologne Cathedral, Cologne, Germany

GEOGRAPHICAL SITUATION

Latitude / Longitude (decimal):	50.941260 6.956963
Estimated Elevation (m above sea level):	52.30
Elevation from Digital Elevation Model (m above sea level):	52.30
Type of Landscape:	plain
Lowest Elevation within 1 km (m above sea level):	37.00
Highest Elevation within 1 km (m above sea level):	56.00
Approximate Distance to Coast (km):	240

SUMMARY OF THE RISK ANALYSIS

Risk	unimportant	notable	very high
volcanism	2	0	0
earthquake	2	0	0
tsunami	0	0	0
surge	0	0	0
storm surge	0	0	0
storm	2	0	0
tornado	0	0	0
hail	0	2	0
heavy rainfall	0	2	0

Need for further measures:
▴ advisable ▴ necessary

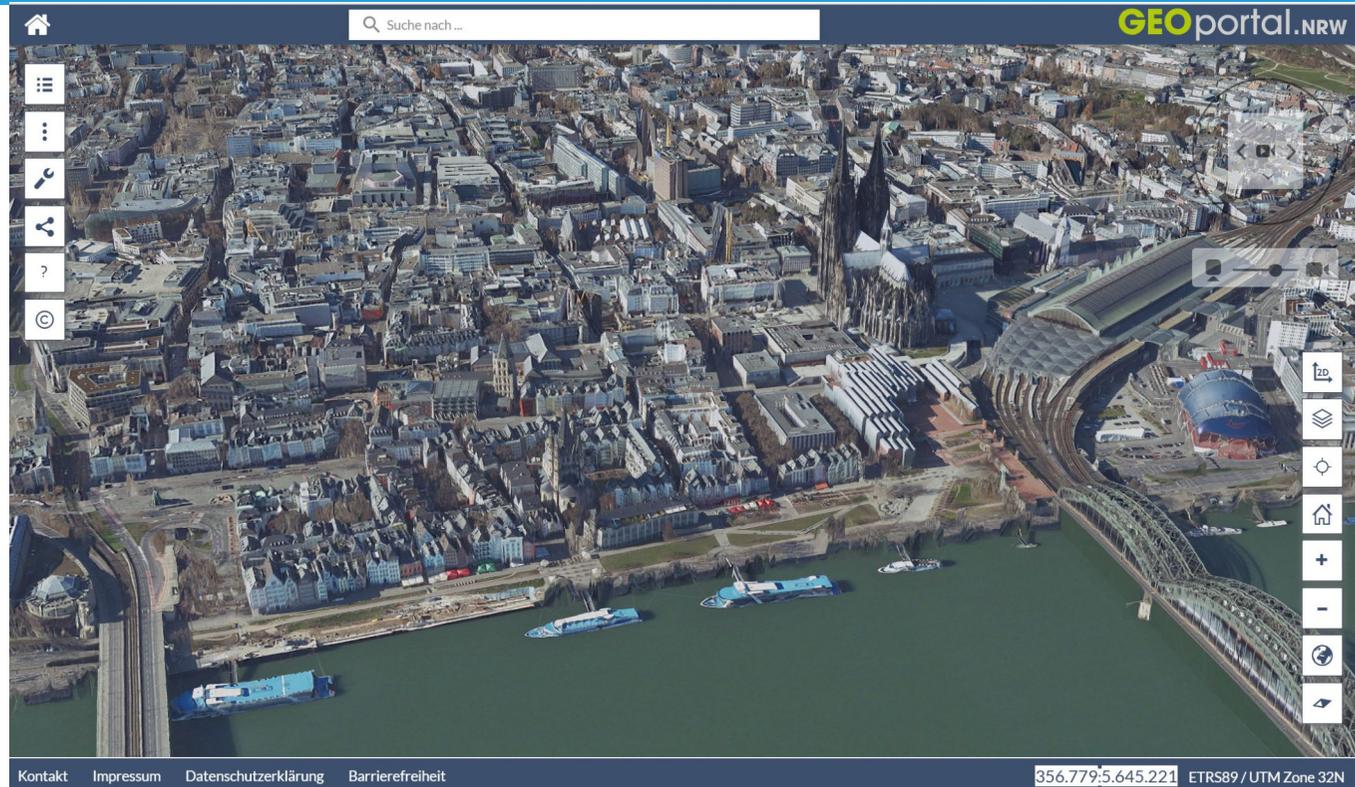
Location: Cologne Cathedral, Cologne, Germany

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Example of a report
on natural hazard
and risk analysis



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These instruments help us to proactively categorize areas as "prone" or "safe", but won't deliver an answer on the tangible impact on real estate prices and do not allow any direct conclusions regarding the market value of a particular property in the area under review.

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Is the EU Taxonomy a solution?

Within the framework of the European Union's sustainability strategy, a concept for ecologically sustainable investments is required by the EU-Taxonomy 2020/852.

Six environmental targets overall were defined which should be improved and attained by appropriate economic activity.

These are:

- 1) Climate change mitigation
- 2) *Climate change adaptation*
- 3) Sustainable use and protection of water and marine resources
- 4) Transition to a circular economy
- 5) Pollution prevention and control
- 6) Protection and restoration of biodiversity and ecosystems

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Consideration of long-term risks:

Properties in risk areas such as flood risk areas should be considered in terms of their long-term value.

Measures such as the installation of protection systems or insurance against natural hazards can play a role here.

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Construction costs and maintenance:

Future repair costs could rise as a result of climate change.

When determining the value, valuers should carefully check whether properties are adequately protected or whether higher maintenance costs due to climate damage need to be factored in.

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Insulation and energy efficiency:

Properties that do not meet the latest insulation standards or do not have adequate air conditioning could lose value in the future.

Valuers should therefore check the energy efficiency of a property, particularly with regard to future climate changes.

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Market transparency and transaction data may be the better solution, in two ways:

- 1.) to determine the change in property prices in climate (natural) risk areas compared to climate risk safe areas and / or
- 2.) to identify changes in property prices after a natural disaster compared to property prices before this

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There are studies on the influence of climate risks ...

especially on floods, which say:

“The mere existence of flood risks does not always translate into actual price changes, as markets react to such risk in various ways”

(Problem of Method 1)

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Because following factors are particularly important:

Scope of flood-damage events

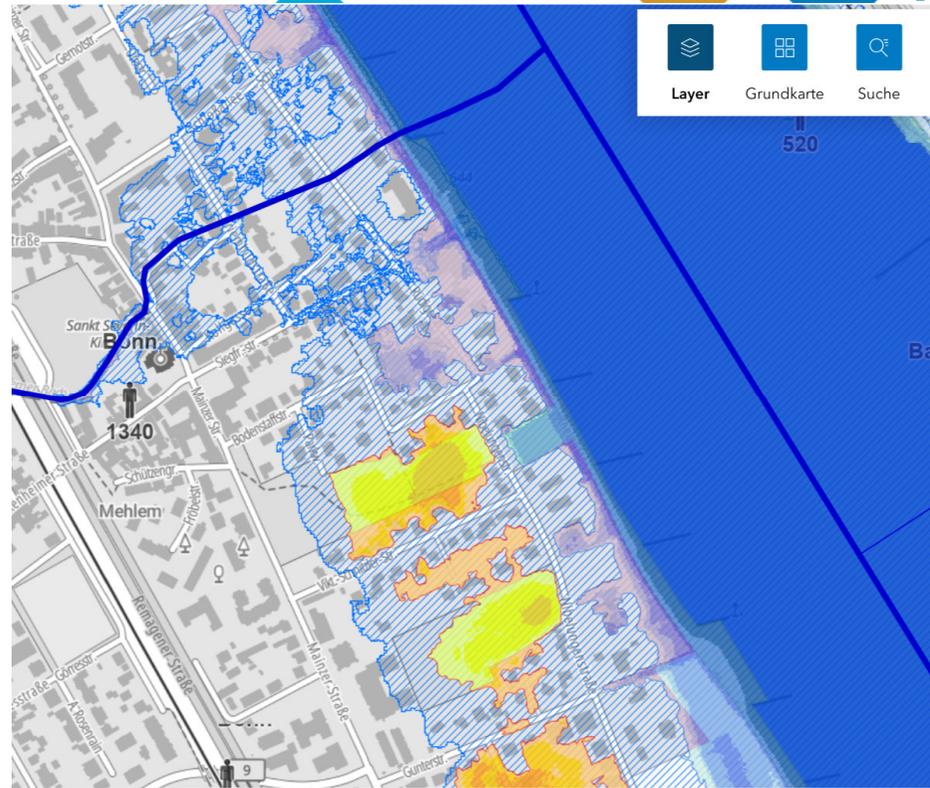
Frequency of flood-damage events

Demand for property

Investor awareness and the unpriced flood-costs

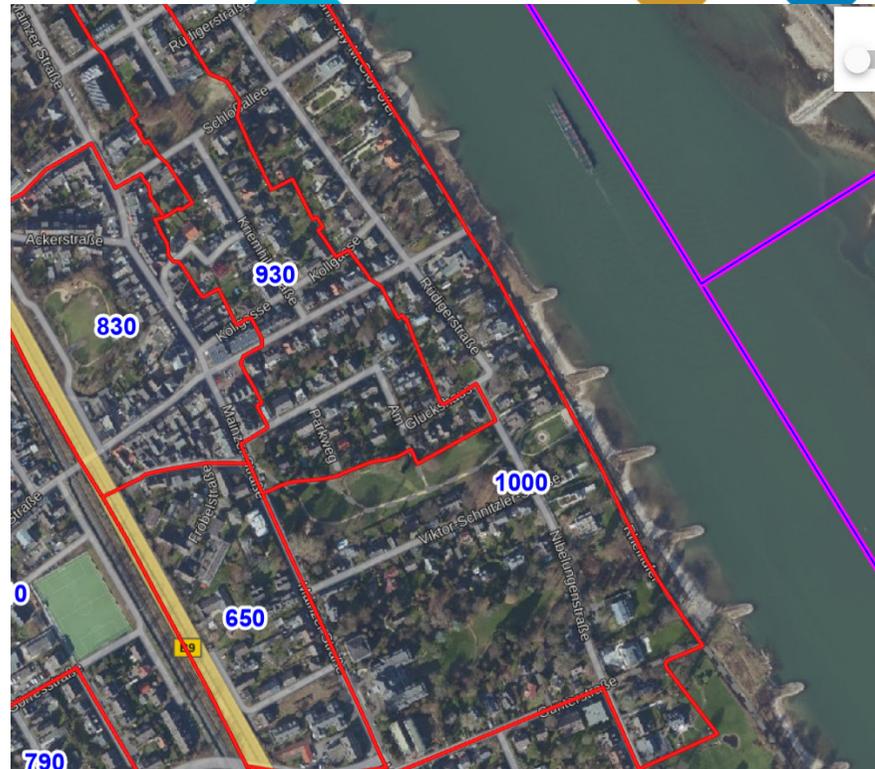
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Example
for unpriced flood cost



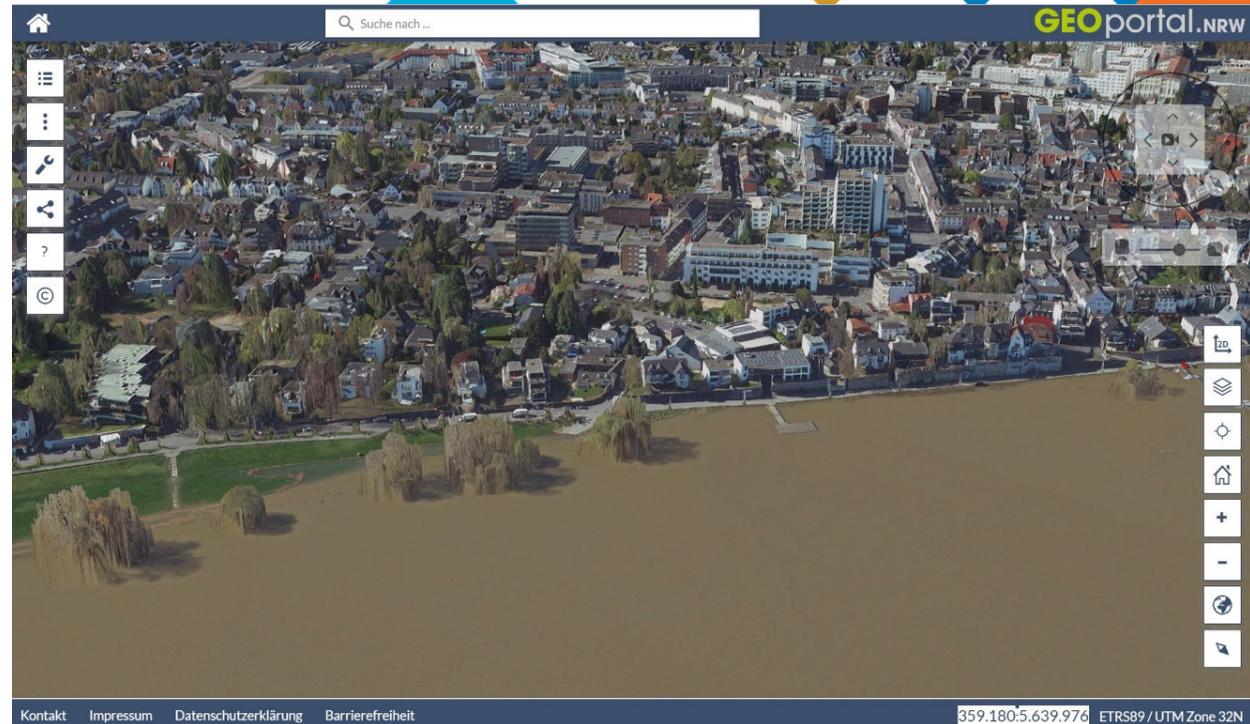
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Example for unpriced flood cost



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Example
for unpriced flood cost



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So move to method 2 (and another problem):

”local property markets often react to natural disasters as follow:

After the event, e.g. a flood, property transactions in the affected area decrease sharply or almost cease and prices tend to be much lower. Over time, markets recover and generally approach the levels seen in unaffected property markets.”

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Example:



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Several studies in Germany say, that property prices
fall by an average of 10% in previously flooded areas.

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Let's take a detailed look at the valuation of properties in flood risk areas:

- 1.) Address flood risk areas and the scope of floods
- 2.) Using Comparables
- 3.) Determining the functional obsolescence of a property



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Vice versa, this means that a property valuation based on transparent data, carried out in a transparent way can also be climate protective.

(if these valuations will be in turn integrated into the available data)

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The discussion may now begin

The most relevant SDGs related to the presentation and theme of this session

1st relevant SDG



11 SUSTAINABLE CITIES AND COMMUNITIES

2nd relevant SDG



13 CLIMATE ACTION

3rd relevant SDG



8 DECENT WORK AND ECONOMIC GROWTH

SUSTAINABLE DEVELOPMENT GOALS

International Federation of Surveyors supports the Sustainable Development Goals