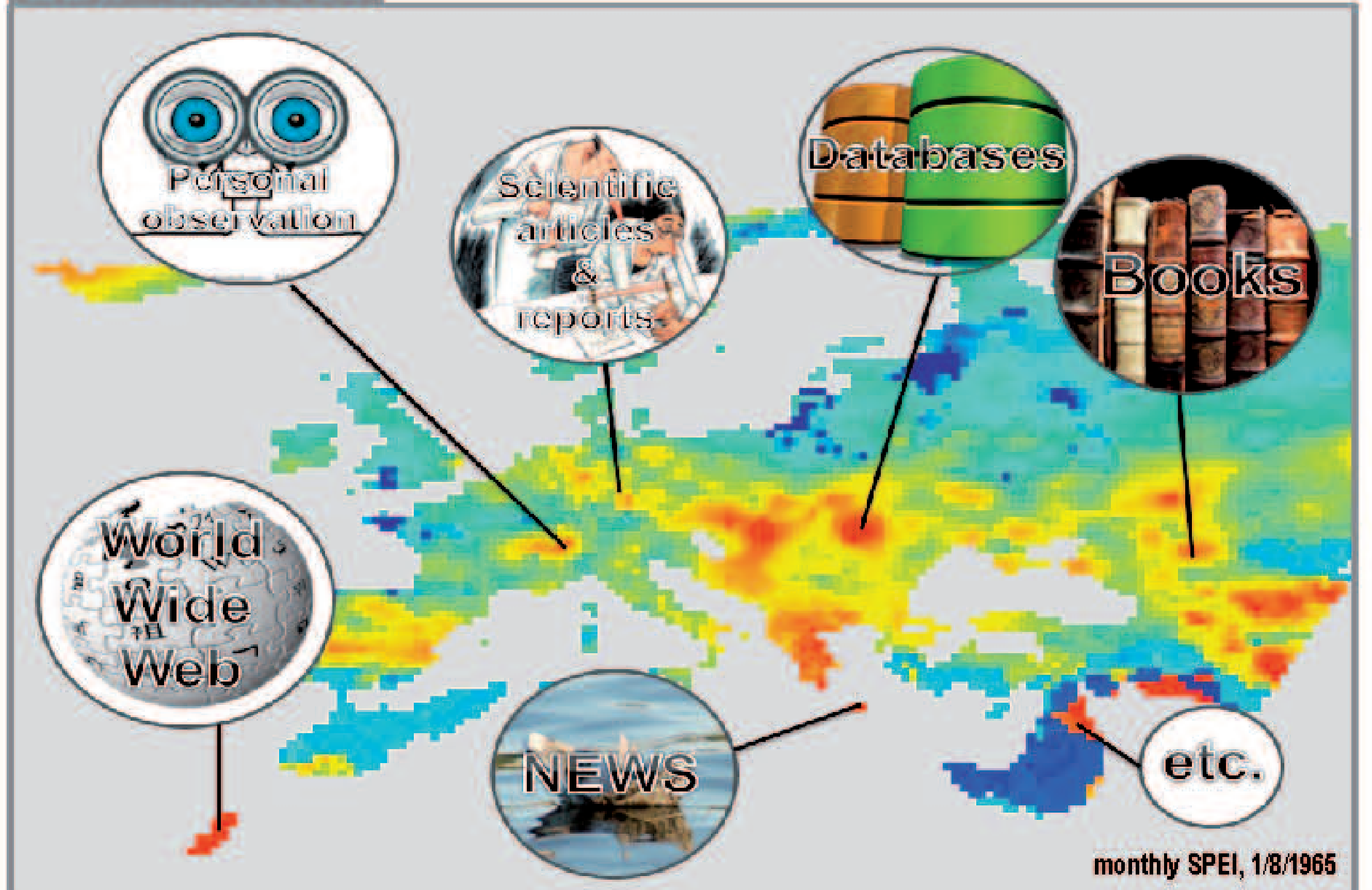


Intention

Drought is one of the most disastrous natural hazards in Europe. It cannot be prevented, but its impacts can be reduced by mitigation. In Europe, numerous drought indicators have been proposed, but few studies have tested how commonly used drought indices actually relate to drought impacts and susceptibility. Even fewer studies have linked drought impacts with large-scale meteorological and hydrological drought indicators commonly used to describe events across Europe's different geo-climatic regions. Thus, there is a need for a comprehensive pan-European investigation of historical events and their impacts built on a common data source, against which existing studies can be compared. The European Drought Impact report Inventory (EDII) developed as part of the EU FP7 project Drought R&SPI (Fostering European Drought Research and Science-Policy Interfacing) aims to collect and build a database of past drought impacts in Europe reported by various sources. Impact information is:

- (a) classified into pre-defined impact categories,
 - (b) referenced temporally and spatially, and
 - (c) complemented with additional reported impact information including drought response measures where applicable.
- The initial database is still project-internal, but the aim is to make it publicly accessible as a web-GIS supported online database in the future.

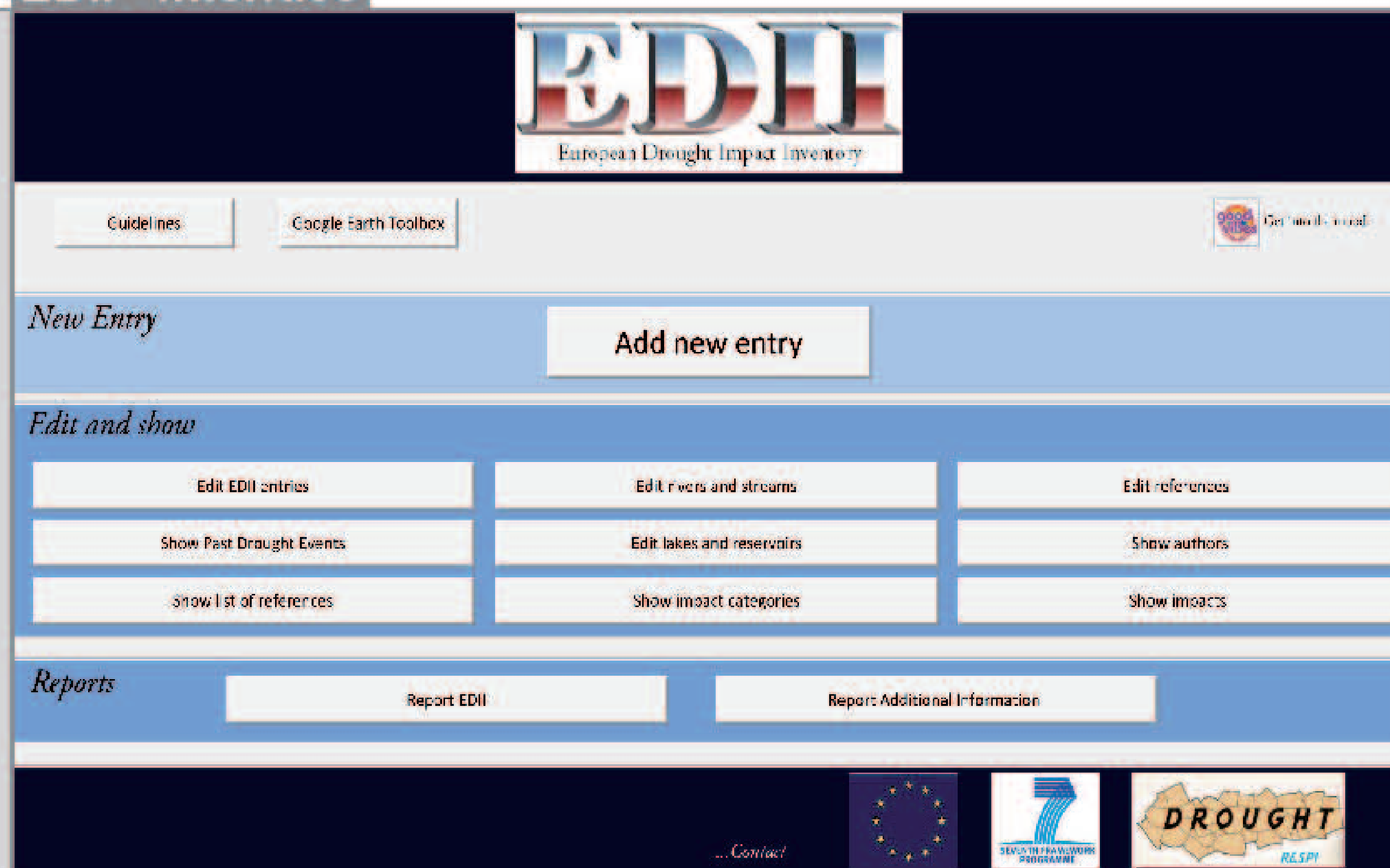
EDII - sources



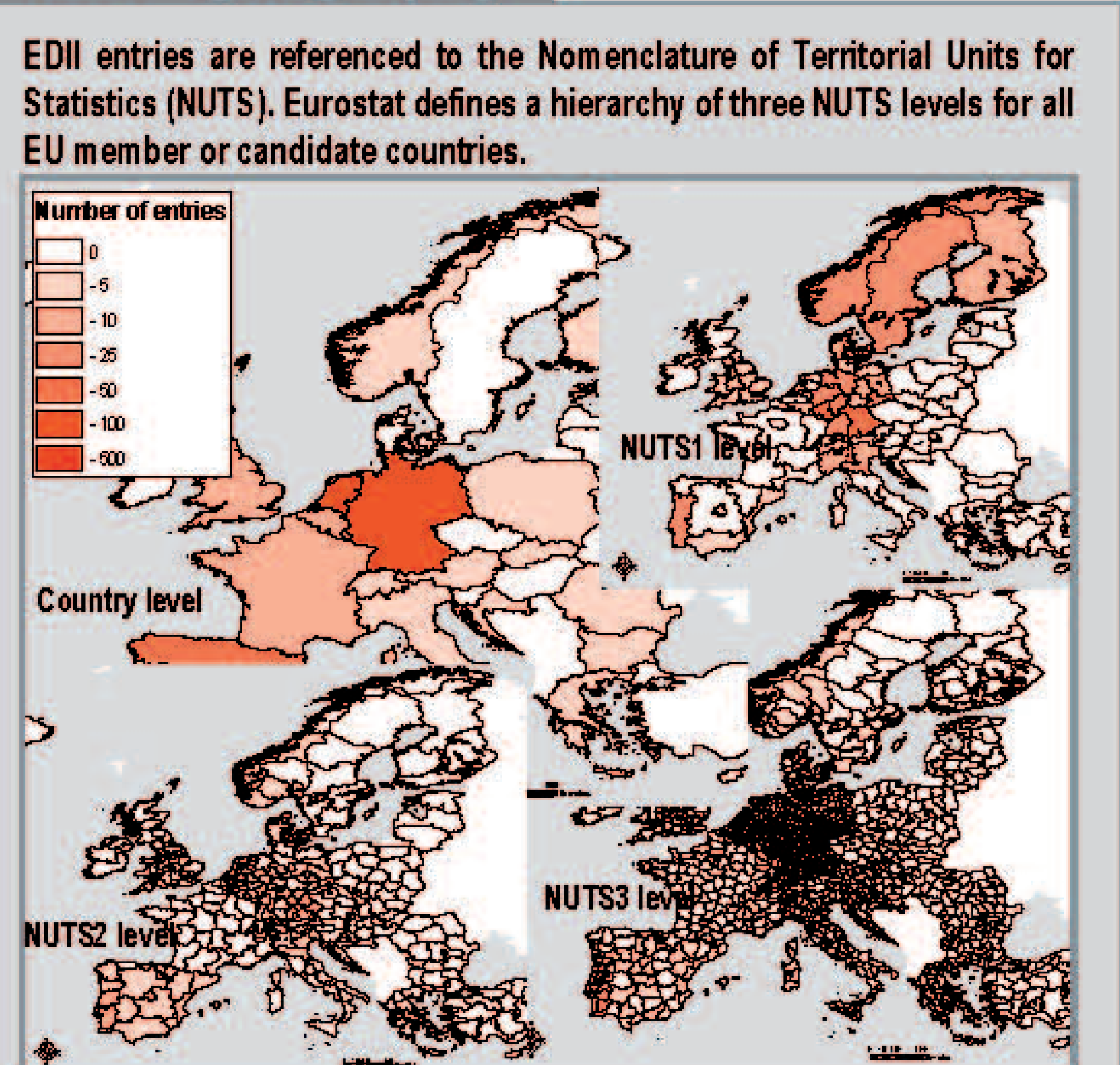
EDII - total entries

Agriculture and Livestockfarming	275
Forestry	109
Freshwater Aquaculture and Fisheries	3
Energy and Industry	82
Waterborne transportation	107
Tourism and Recreation	23
Water supply / water industries	133
Water quality	163
Freshwater ecosystems: habitats, plants and wildlife	138
Terrestrial ecosystems: habitats, plants and wildlife	24
Soil system	22
Wildfires	56
Air quality	1
Human health	48
Conflicts	7

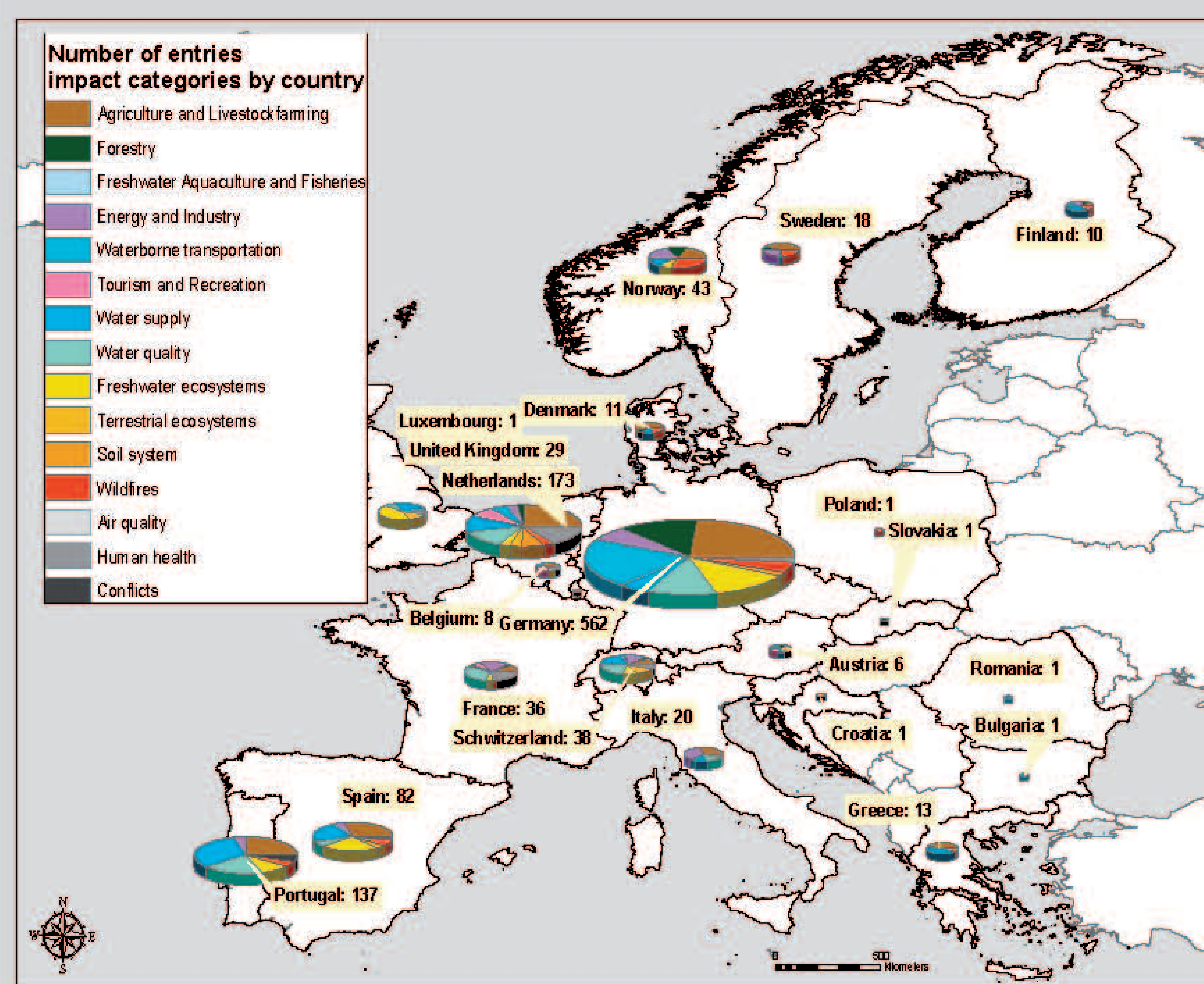
EDII - interface



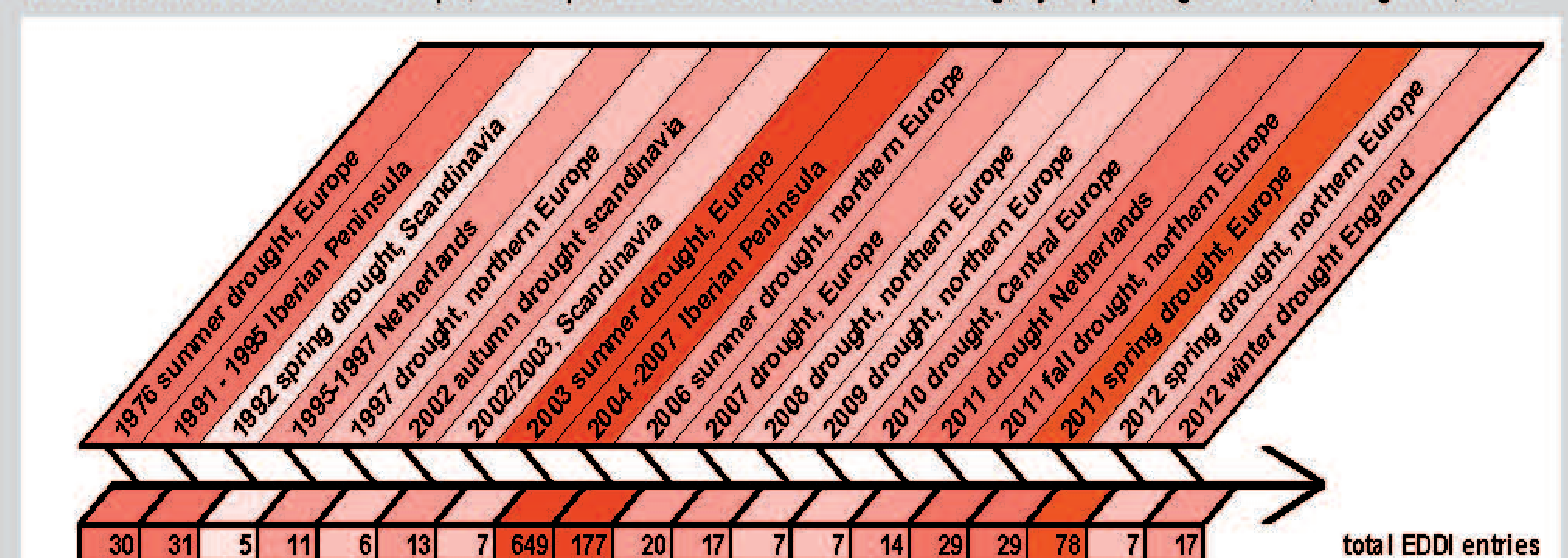
EDII - geography



State of the inventory on 1 February 2013

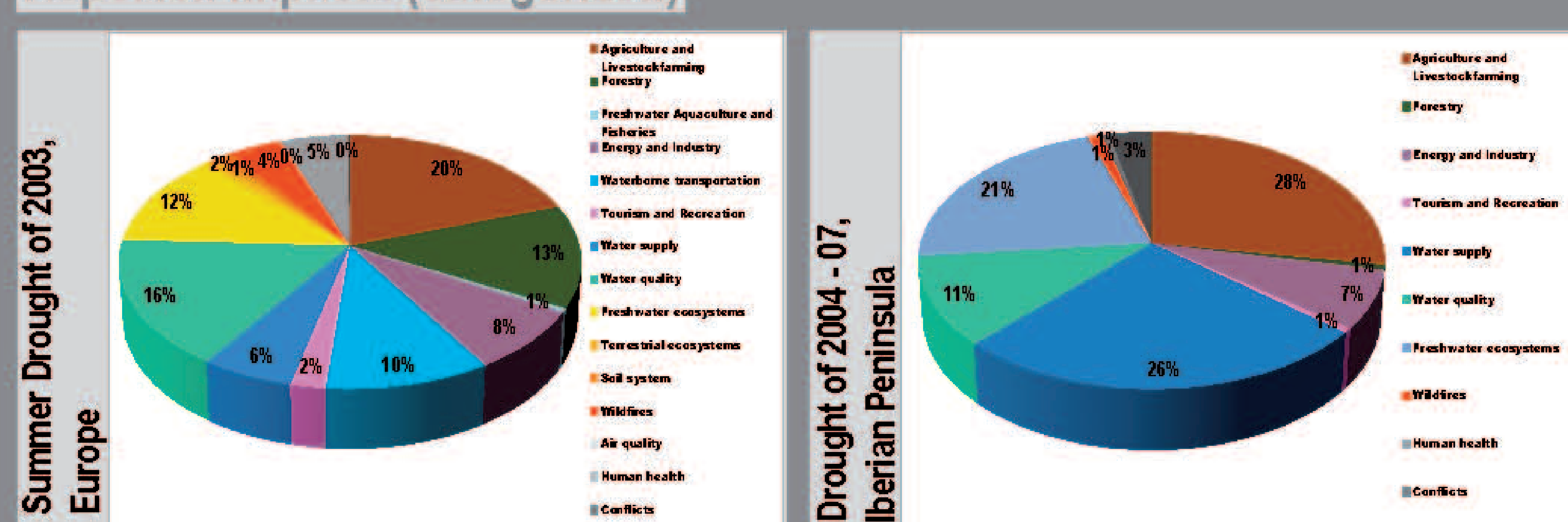


Based on geographical reference (left), the distribution of entries across impact categories can be mapped. The preliminary dataset does not yet allow to test which areas are more prone to specific impacts or which impacts are specific to different geo-climatic regions. Nevertheless, some differences already emerge, e.g. a greater proportion of water supply related impacts in Southern Europe, where water is scarce, versus a greater proportion of reported impacts on ecology and river flow in Central and Northern Europe, where perennial rivers are used for fishing, hydropower generation, navigation, etc..



Overall, 49 "drought events" have been defined. The figure (above) shows a timeline of those 19, which have more than 5 impact entries in the database. The summer drought of 1976 in Western Europe was the earliest with many reports from France, Germany and the UK. Several events in the 1990s followed with notable droughts in Spain and Portugal. The largest number of impact entries yet is recorded for the summer drought of 2003 that affected large parts of Europe, followed by the multi-year drought event of 2004-2007 on the Iberian Peninsula. These two events allow to illustrate further analysis potential on particular impact characteristics and geographical distribution (below).

Reported Impacts (categorized)

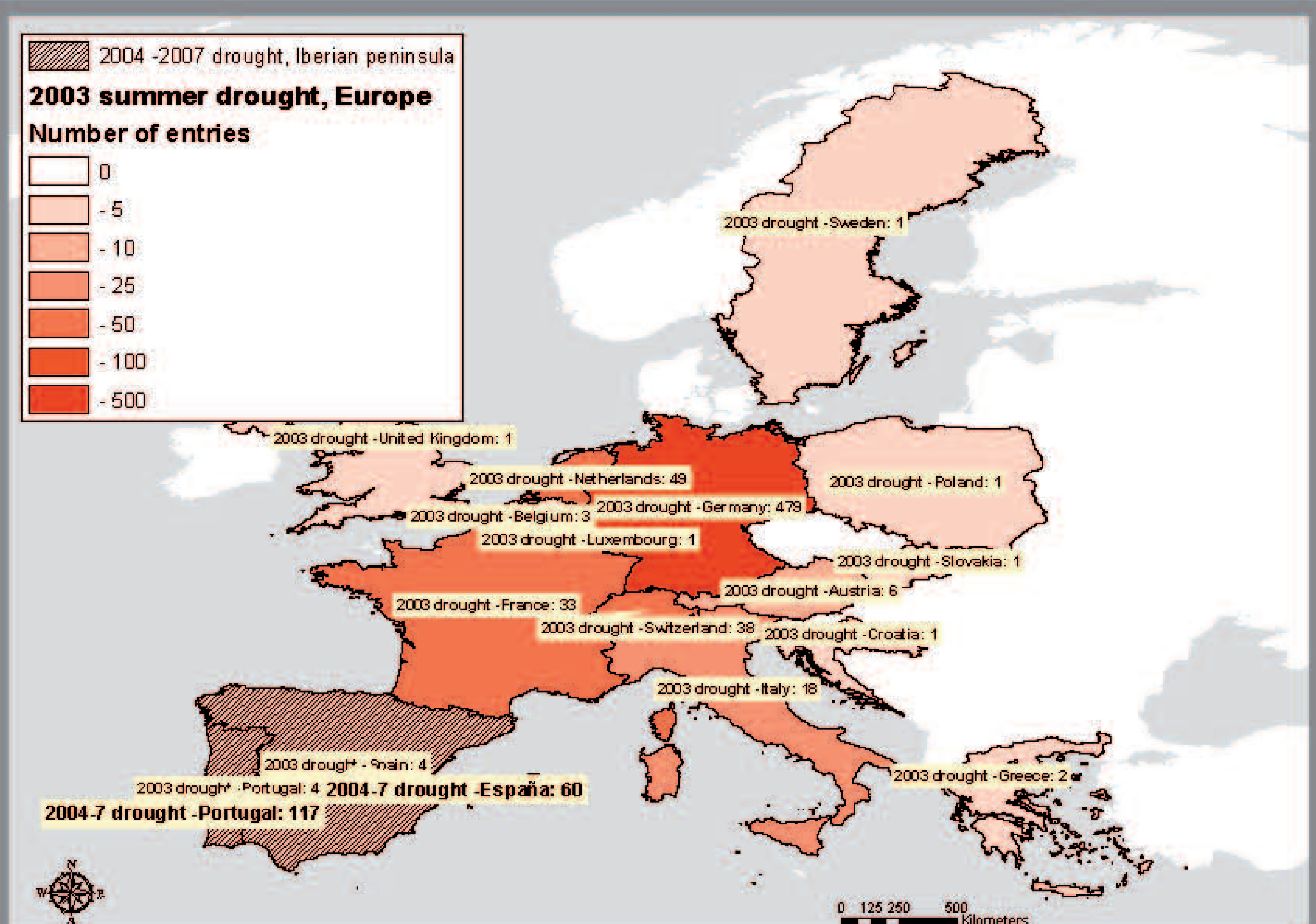


Impacts of the European summer drought of 2003 extended over Central, Western Europe and the Mediterranean while impacts of the 2004-2007 event were reported only for the Iberian Peninsula (right).

The distribution of reported impact categories resembles that of all events because these two events currently constitute ca. 2/3 of the database. "Agriculture and Livestock Farming" and "Freshwater Ecosystems" were the most frequently reported impact categories common to both events. "Water Quality" made up a larger proportion of impacts in 2003, whereas "Water Supply" constituted a larger proportion in 2004-2007. "Energy and Industry" impacts were also frequent and common to both events.

The summer drought in 2003 impacted water quality more than quantity, which may have been partly due to the accompanying heat wave, but also due to the time, which was too short to deplete larger reservoirs, aquifers, etc.. It also affected the mid-latitudes, where surface water is perennial and hence used heavily for a number of activities that require high water quality standards (e.g. fishing, recreation). The 2004-2007 event, on the contrary, was long enough to deplete all natural and artificial storage, thus causing severe water supply impacts even in Spain and Portugal, where multi-year storage in reservoirs is common.

This emerging difference may reflect typical temporal drought characteristics and disparities in water use in different European climatic regions. A larger and more representative sample of data covering more drought events is necessary to confirm these patterns.



Call for contribution

The database will support the investigation of the linkage of past drought impacts to common drought indices (SPI, SPEI, Low Flows, etc.). Therefore an extensive drought impact report collection will be necessary. If you are aware of reports on past drought impacts in your country, please do not hesitate to contact us regarding their inclusion into the dataset and opportunities to use the database for such studies. Thank you.