Learning from the past
A Pan-European Drought Impact Database

Impacts of major drought events in the EDII database

Drought of 2003: Central Europe
• showed most impacts in July-Sep 2003, and was most notable in Europe’s mid-latitudes from west to east.
• caused a large variety of impacts related to low water levels and high water temperatures, as well as on crops and forests.

Drought of 2004-2007: Iberian Peninsula
• showed impacts that exacerbated over the course of several years.
• caused severe agricultural losses and difficulties to meet water supplies.

Impact categories in the database
• Pre-defined impact categories and sub-types facilitate the database entry.
• Subtype selections and a free text description allow a close specification of the nature of the reported impact.
• The classification is an adaptation of that used by the US Drought Impact Reporter1.

1droughtreporter.unl.edu.

Pictures: Henny van Lanen, Susana Dias Kollner Stadtanzeiger

Linking drought indicators with impacts

Numerous physical drought indicators are used to describe and monitor drought events based on precipitation, streamflow, soil moisture, etc. In Europe, few studies have tested how these indicators, which describe the potential hazard, relate to drought impacts. An improved knowledge on the relation between indicators and impacts in different geoclimatic regions in Europe will help a regional or sector-specific interpretation of drought vulnerability and risk.

One objective within the project is the establishment of an inventory of reports on a variety of drought impacts on environment, society and economy. The collation of reports (data) for different European geoclimatic regions is a task in Work Package 3 of the project. This data will be used to test the relevance of different measured or modelled physical drought indicators and to determine critical impact-relevant thresholds across Europe.

Impact reports from two major large-scale European drought events

Reports about impacts on “Agriculture and Livestock Farming” and “Freshwater Ecosystems” are the most frequently reported impacts in the preliminary database (status 31. Aug. 2012). Furthermore, impacts on “Water Quality” made up a large proportion during the 2003 Central European drought, whereas impacts on “Water Supply” constituted a large proportion in the 2004-2007 Iberian event. Impacts on “Energy and Industry” were also common to both events with a considerable number of database entries.

<table>
<thead>
<tr>
<th>Impact category</th>
<th>Total Entries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture &amp; Livestock farming</td>
<td>238</td>
</tr>
<tr>
<td>Water Quality</td>
<td>137</td>
</tr>
<tr>
<td>Freshwater Ecosystems</td>
<td>116</td>
</tr>
<tr>
<td>Water Supply/Industries</td>
<td>96</td>
</tr>
<tr>
<td>Energy and Industry</td>
<td>64</td>
</tr>
<tr>
<td>Forestry</td>
<td>59</td>
</tr>
<tr>
<td>Wildfires</td>
<td>40</td>
</tr>
<tr>
<td>Human Health</td>
<td>33</td>
</tr>
<tr>
<td>Waterborne Transportation</td>
<td>21</td>
</tr>
<tr>
<td>Tourism &amp; Recreation</td>
<td>19</td>
</tr>
<tr>
<td>Terrestrial Ecosystems</td>
<td>16</td>
</tr>
<tr>
<td>Conflicts</td>
<td>7</td>
</tr>
<tr>
<td>Soil System</td>
<td>4</td>
</tr>
<tr>
<td>Freshwater Aquaculture &amp; Fishery</td>
<td>3</td>
</tr>
<tr>
<td>Air Quality</td>
<td>1</td>
</tr>
</tbody>
</table>

(Status: 31. Aug. 2012, project month 11) 854
The European Drought Impact Inventory (EDII) is based on reports of drought impacts. Type of source and reference with Author, Year, Title, url (if applicable), etc. is required. Information on the impact entering the database reflects closely the content of this source.

Impact information includes a minimum of information on:

- Impact category and type according to pre-defined lists (see previous page)
- Associated secondary impacts, response and mitigation measures, and other relevant information that may be available
- Geographic location of reported impact with options to refer to different levels of the European Union NUTS (The Nomenclature of Territorial Units for Statistics) regions standard, river or reservoir names, and other landmarks.
- Time of reported impact (at least the year) and its link to a major known drought event.

Design and structure of the report-based impact database

The European Drought Impact Inventory (EDII) is based on reports of drought impacts. Information on the impact entering the database reflects closely the content of this source.

Sources
- Report (government/non-government/private sector)
- Journal Article (scientific/professional)
- Newspaper Article/Press Release
- Pamphlet (e.g. information/water conservation notices)
- Personal Observation
- Thesis/Book/etc.
- WWW Page
- Map
- Other

Challenges & Potential

Despite the preliminary content of the database, differences have emerged, such as a stronger relevance of reports on water quality and freshwater ecology impacts during the short, central European 2003 event versus reports on severe water supply problems in Spain and Portugal during the multi-year 2004-2007 drought. This difference may reflect the different temporal characteristics (one summer versus multiple years) as well as the inherent differences in water availability, water use, and preparedness in the different climatic regions in Europe. Further collection of reports and future analysis will elucidate such patterns and determine suitable indicators in different geo-climatic regions across Europe.

Everyone is encouraged to contribute!