



areas at risk by water shortage

**IKSE – group of experts – watermanagement
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Austria, Ischgl (Paznauntal) Silvretta Stausee

reference: [http://inzumi.com/de/travel/point-of-interest/d_id/Ischgl-\(Paznauntal\)/c_id/Sehensw%C3%BCrdigkeiten/p_id/Silvretta-Stausee](http://inzumi.com/de/travel/point-of-interest/d_id/Ischgl-(Paznauntal)/c_id/Sehensw%C3%BCrdigkeiten/p_id/Silvretta-Stausee)

„Water as a resource is essential for every area of life: food, energy production, transport, manufacture of products of daily use, leisure and culture - no area of life and no business activity can live without water.

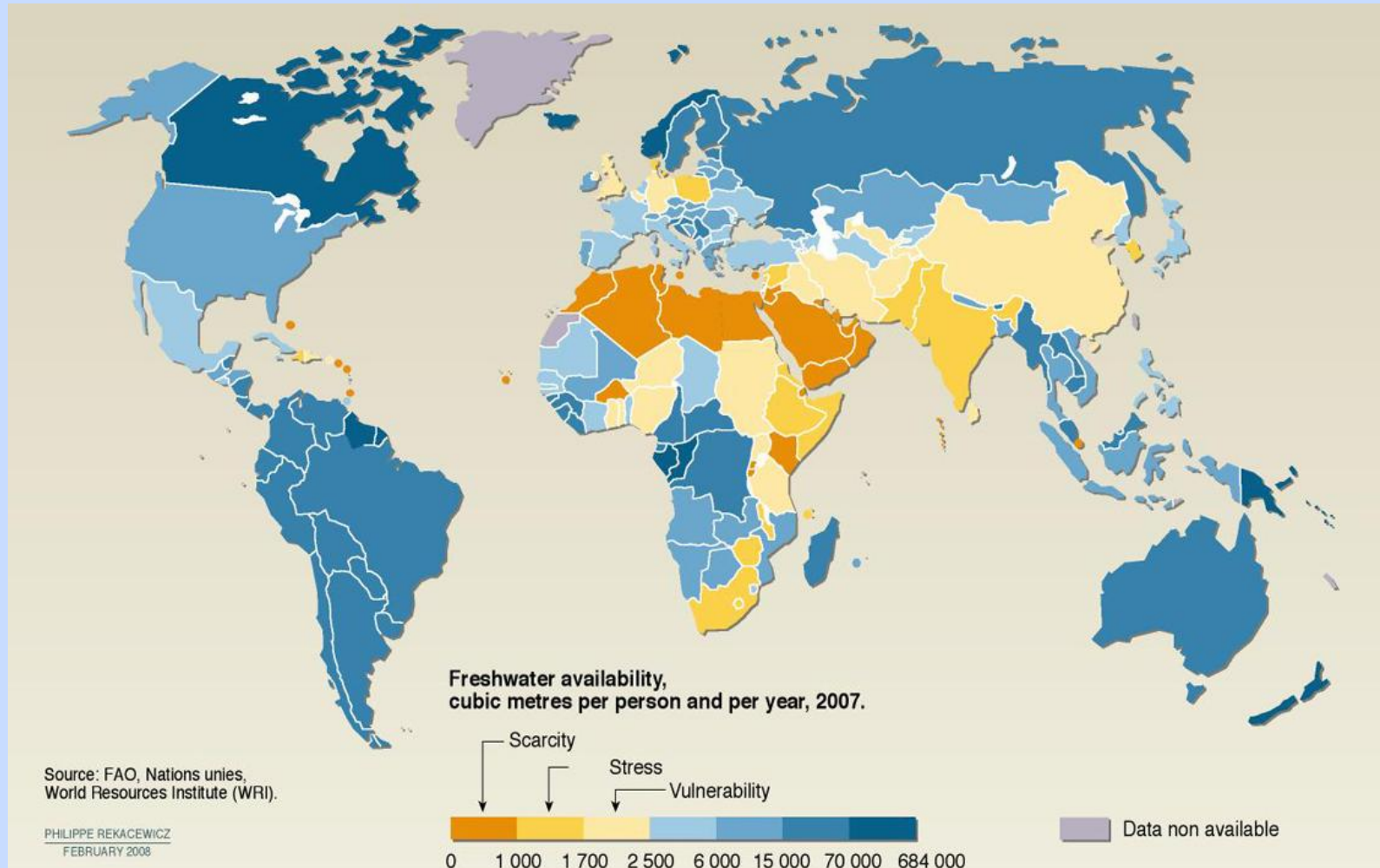
German Global Compact Network: Background Paper Human Rights and Water (2009)



- ⇒ The term "water availability" means the amount of freshwater that is available for one person per year (according to UNESCO: Available freshwater resources)
- ⇒ Depending on the availability of water are used subordinate terms such as
 - enough water > 1,700 qm per person per year
 - water scarcity 1,000-1,700 qm per person per year
 - water shortage and 500-1,000 qm per person per year
 - water emergency or extreme water shortage < 500 qm per person per year
- ⇒ The World Water Report of the UNESCO (2003) reported that we are facing a serious water crisis

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Global overview of the availability of freshwater (cubic meters per person per year, 2007)



reference: <http://www.un.org/waterforlifedecade/scarcity.shtml>

- ⇒ In the Federal Republic of Germany, each inhabitant has enough drinking water available
- ⇒ Therefore, per se it can't be talked about "water shortage"
- ⇒ As one approaches the problem by means of parameters such as precipitation supply, climatic water balance, or surface texture, soil characteristics and land use, reveals a more nuanced picture especially for Northeast and East Germany
- ⇒ Above all, the federal states of Germany Berlin, Brandenburg, Saxony, Saxony-Anhalt, Thuringia and parts of Mecklenburg-Vorpommern are characterized by low precipitation supply

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federal state of
Germany
Brandenburg:

one hand, "rich in
water"

> 32,000 km of river
and streams and
10,000 lakes

other hand, "low
water" by relatively
low water supply

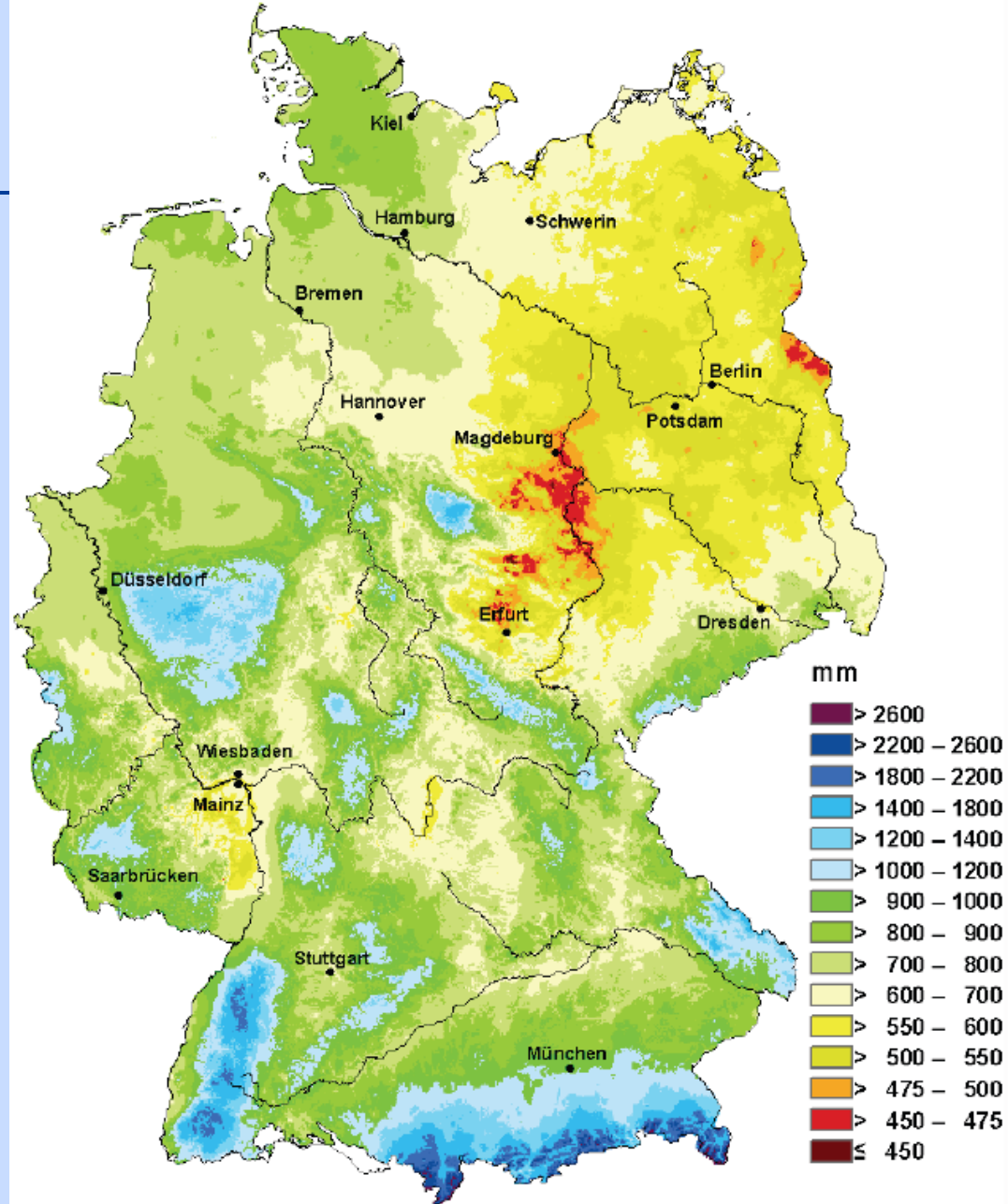


Figure 1: Precipitation distribution in the Federal Republic of Germany in mm (range 1961-1990) (Reference: DWD, 2011)

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The core zone of the Thuringian basin (Erfurt) and the area of Magdeburg-Halle (lee effect of the resin) are relatively dry
→ "Central German dry region", with lowest rainfall station in Germany Oberröblingen 434 mm per year

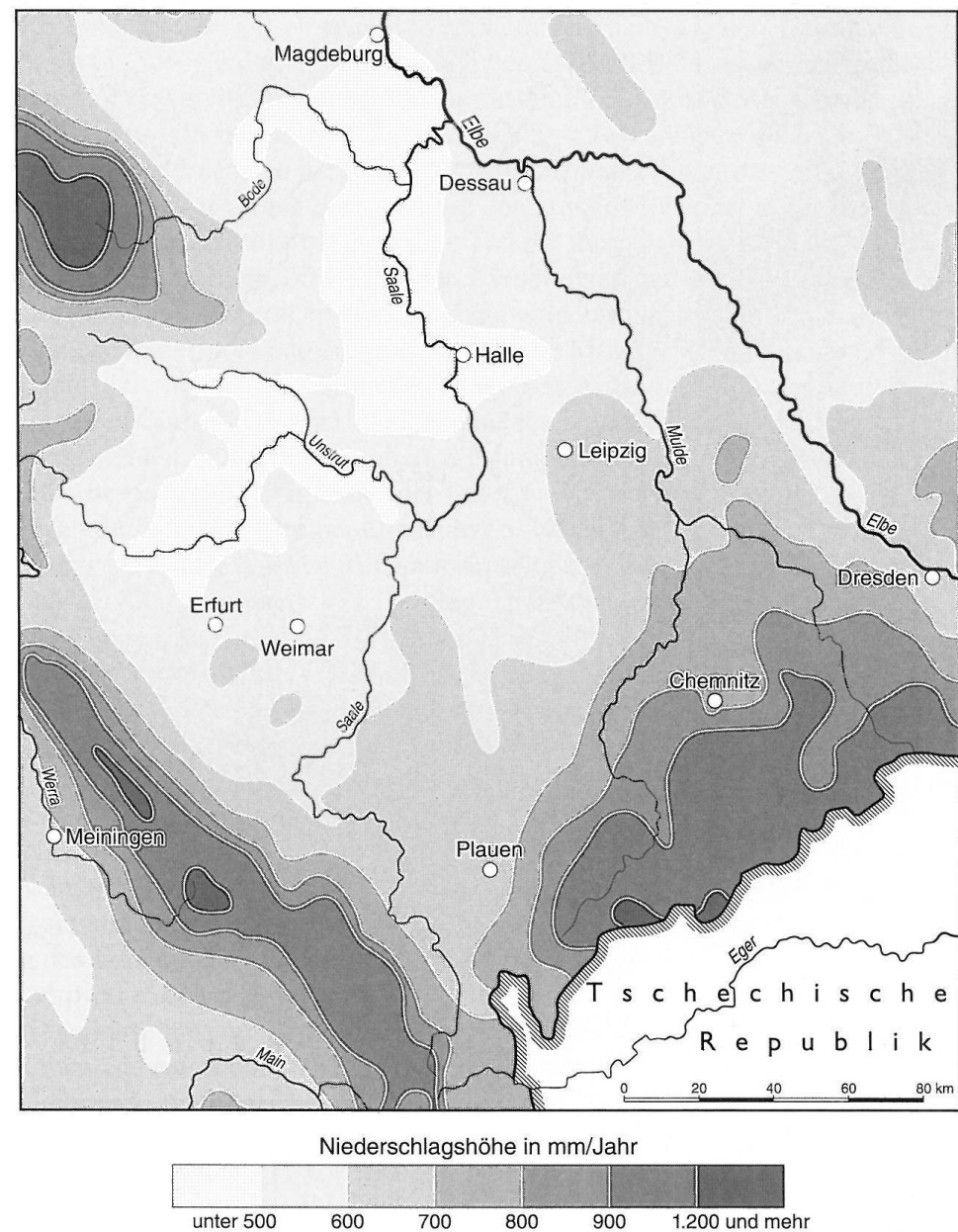


Figure 2: Distribution of precipitation (by atlas of the middle Elbe and Saale region, 3) (reference: Rother, 1997)

- ⇒ the average climatic water balance in the region Berlin-Brandenburg is almost invariably negative
- ⇒ internal distribution of the annual climatic water balance: the entire lowland area of Mecklenburg-Vorpommern, Brandenburg, Saxony-Anhalt and Saxony has negative balances at the summer half-year
- ⇒ partly significant below the average value of climatic water balance of minus 100 mm, the largest deficits in the summer half-year → values less than minus 300 mm

- ⇒ during precipitation-free and low-rainfall periods, the low-water runoff is fed primarily by groundwater
- ⇒ the groundwater is fed by percolating water
- ⇒ there are similar structures of the loose rock in the new states of Germany as in the north German lowlands
- ⇒ but limited by precipitation supply, in eastern Germany there are large areas of percolating water rates below 100 mm per year
- ⇒ Vast landscapes with these conditions are in Saxony-Anhalt and Brandenburg

- ⇒ Low-water phases are natural processes
- ⇒ Due to the varied pressure of use as
 - abstraction of utility water and drinking water,
 - discharging of nutrient-loaded waste water,
 - return of heated cooling water, etc.

can occur especially low-water periods in
significant impairment of the aquatic
communities

- ⇒ the relative shortage of water is increased, for example in the Berlin area by problems of water quality
- ⇒ low-water periods are a problem there for decades
- ⇒ current demand of the water authorities:
Minimum outflow of 8 square meters per second at the gauge “Leibsch” to secure the water supply of Berlin
- This claim could not yet be fulfilled

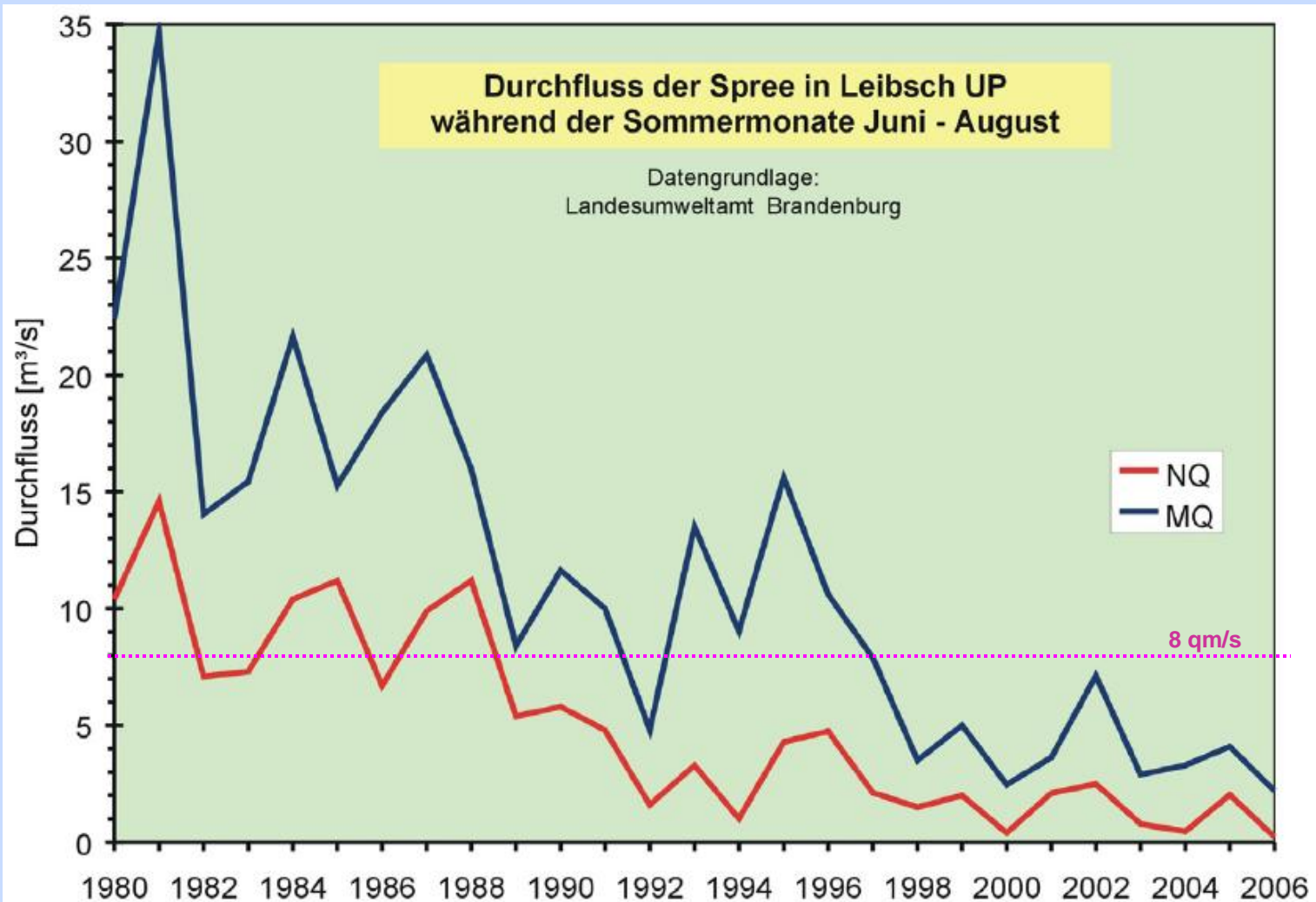


Figure 3: Drastic decline in mean water discharge (MQ) and low water flows (NQ) in the summer months in the Spree Forest at the gauge Leibsch (Reference: Grünewald, 2009)

- ⇒ “water shortage” or “water scarcity” play no real role in the extraction of drinking water in Germany → main basis of the central water supply are the groundwater resources
- ⇒ in the new federal states of Germany will be supplied 63% of the drinking water from groundwater resources and 73% in western Germany
- ⇒ in eastern Germany, the proportion of drinking water is higher, which is extracted from bank-filtered water and surface water
- ⇒ on average, 12% of drinking water is extracted from dams, regionally up to 32% (Thuringia and Saxony)

- ⇒ The dam system in the “Harz” for example, covers a large part of the drinking water needs in central and southern Saxony-Anhalt
- ⇒ A large part of supplied regions located in or at the edge of the "Central German dry region" and can be viewed as "beneficiaries“
- ⇒ the drinking water is extracted in surplus areas and is transported in "shortage areas“

conclusion:

- ⇒ in Germany, it is possible to counteract regional deficits in the water supply, for example by transport

Thank you for your attention!

Aralsee



1973



2000



2009