

Für Mensch & Umwelt

Umwelt 
Bundesamt

International Conference - GROUNDWATER, KEY TO THE SUSTAINABLE DEVELOPMENT GOALS

Implementation of the SDGs in groundwater management in Germany

Achievements and challenges

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Section 2.1 General Water and Soil Aspects
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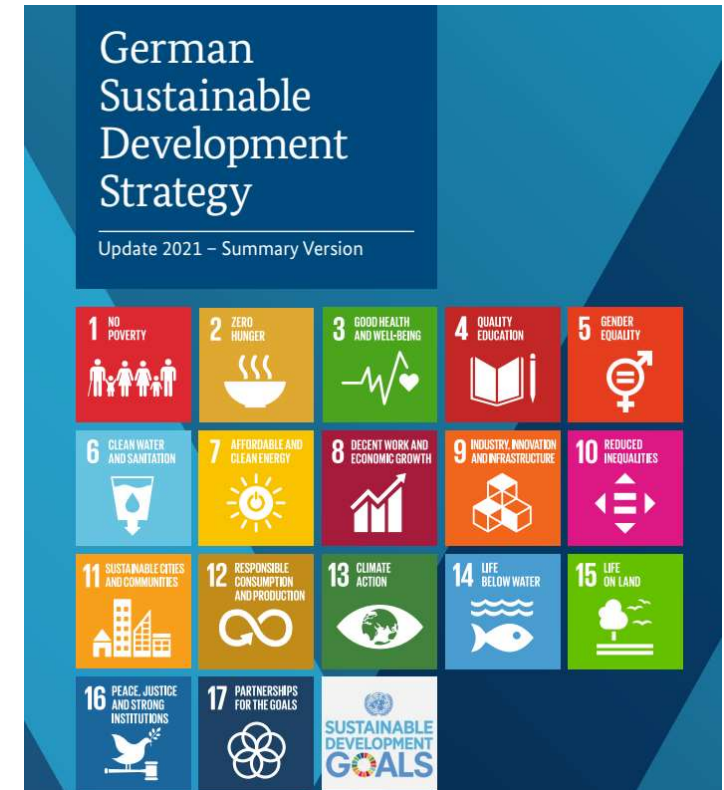
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1 German Sustainable Development Strategy

- German Sustainable Development Strategy (GSDS) translates the SDGs of the UN, the so-called "Agenda 2030", into a national strategy
 - GSDS has been drawn up in Germany since 2002 → updated in a four-year cycle since 2004
 - Since 2016, GSDS has been aligned with the 17 SDG - GSDS became more international.
- The German government looks not only at Germany, but at the world as a whole with respect to achieve these goals by 2030.



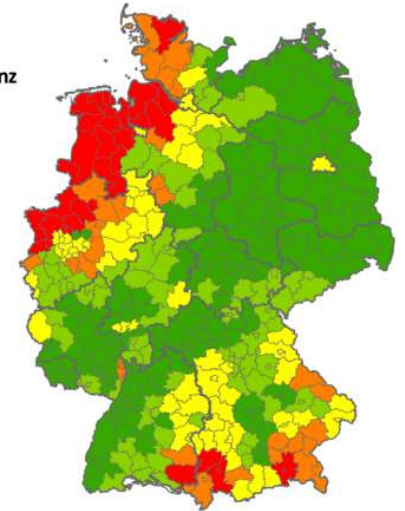
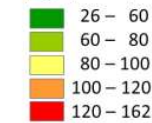
Quelle: BPA, 2022

2 Groundwater related indicators

Indicator 2.1.a: Nitrogen surplus in agriculture

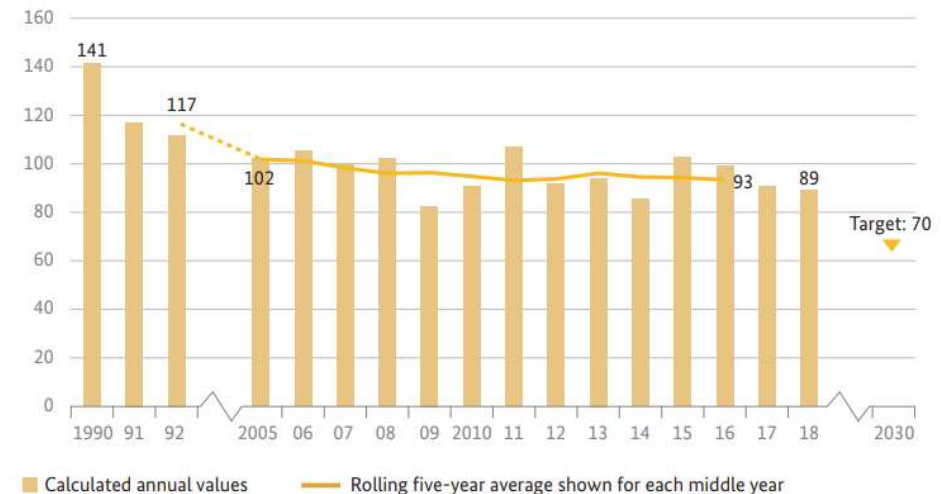
- SDG 2 „End hunger, achieve food security and improved nutrition”
- Trend: overall stagnation, different regional distribution of surpluses
- Further measurements necessary
- For example: new requirements for fertilisation in the German Fertiliser Ordinance, advice for farmers, reduction of livestock in high pressure areas

Überschuss der N-Flächenbilanz der Kreise (Mittel 2015-2017)
(kg N/ha LF)



Nitrogen surplus in agriculture
In kilograms per hectare

Quelle: Umweltbundesamt,
Häußermann et al. 2019



2 Groundwater related indicators

Indicator 6.1.b: Nitrate in groundwater

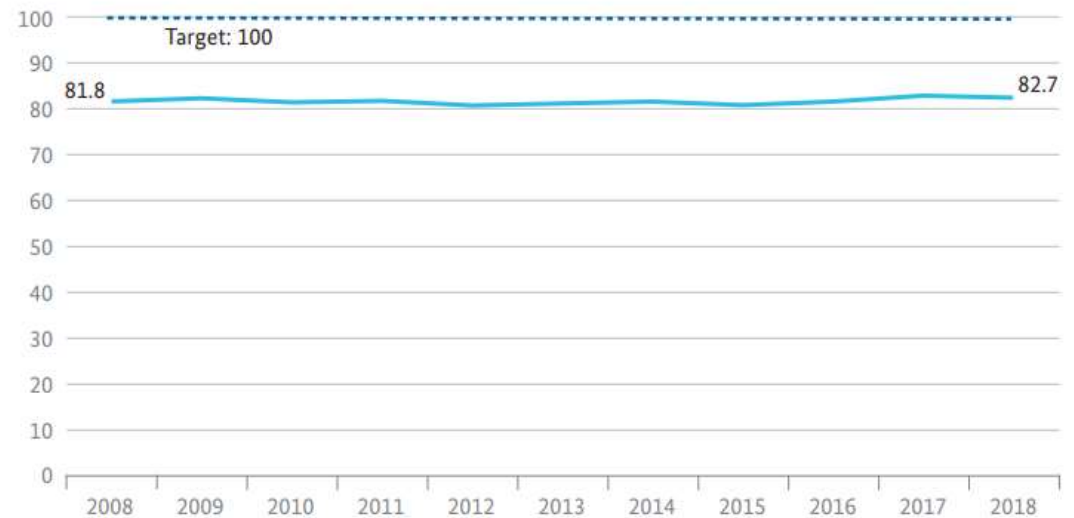
- SDG 6 (Ensure availability and sustainable management of water and sanitation for all)
- Monitoring sites used for this purpose: representative EEA groundwater network (1200 sites)
- Trend: overall stagnation
- But: positive trends in the last years (2019/2020) – more than 84 % with no exceedances
- But also: slow improvement, more work on monitoring system



Quelle: Landwirtschaftskammer NRW

Nitrate in groundwater

Percentage of monitoring points at which the threshold¹ is not exceeded



2 Groundwater related indicators

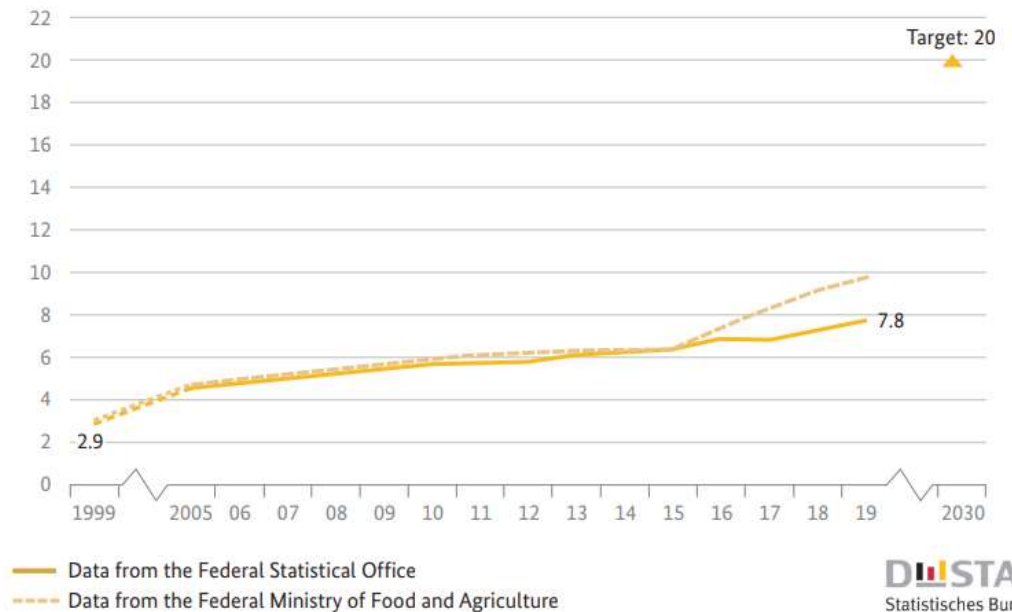
Indicator 2.1.b: Organic farming

- SDG 2 „End hunger, achieve food security and improved nutrition“
- Trend: slow increase over the last 20 years
- **But:** The new federal government has committed itself to increase the share of organic farming to **30 %** by 2030.
- Political will to even exceed the SDG target!



Quelle: Julius-Kühn Institut 2022

Organically farmed agricultural land
Percentage of total utilised agricultural land



Sources: Federal Statistical Office, Federal Ministry of Food and Agriculture

3 Further fields of action – critical substances

Pesticides and their metabolites:

- Pesticide active substances and relevant metabolites – regulated in GWD
- non-relevant metabolites → high detection rates in Germany (59 %), no legal regulation for groundwater

Pharmaceuticals and PFAS:

- currently also no legal regulation for groundwater
 - Family of PFAS compounds is very large and includes > 6000 compounds, in Germany 5 PFAS (PFBA, PFH_xA, PFPeA, PFHpA, PFOA) with detection rates > 50 %
 - Pharmaceuticals most findings of Paracetamol, Carbamazepine and Sulfamethoxazole
- Regulation is needed in Europe (Groundwater Watchlist)
- Substance groups mentioned will be regulated in the EU Groundwater Directive in the future



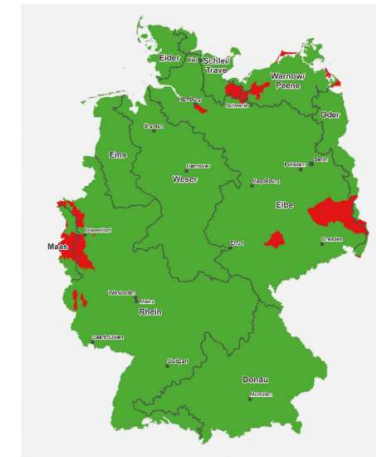
Quelle: oticki / Thinkstock



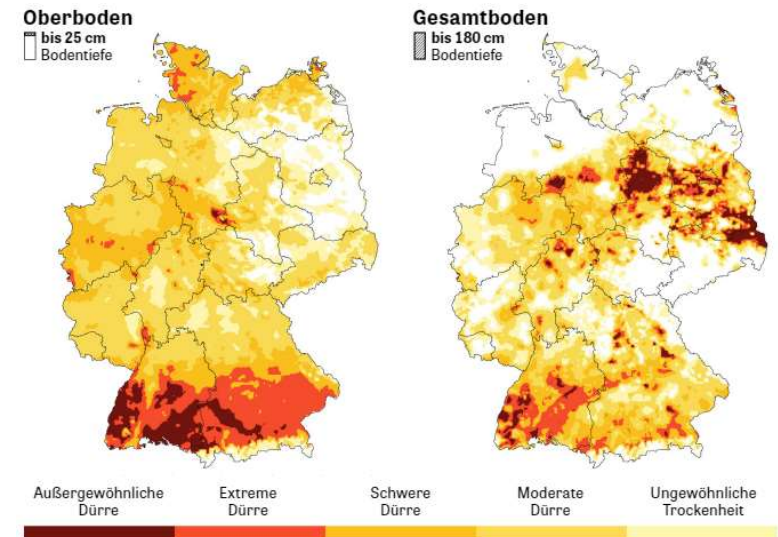
Quelle: bymandesigns · Birgit Reitz-Hofmann · economica20 · ringlow · jakkapan · fotomek · manla · Sly · stock.adobe.com

4 Future challenges

- Aspects of climate-induced drought and the impact on groundwater levels
- Overall assessment of the quantitative groundwater status (WFD) seems to be uncritical – 96 % in good quantitative status
- BUT: after the dry years 2018 and 2019, groundwater levels have not yet returned to the previous level in many regions
- Drought trend continues this year as well
- Fatal ecological effects
- Effects on drinking water supply in some regions; rationing of the dispensing water volume



Quelle: BKG / LAWA / UBA



Quelle: Helmholtz Zentrum für Umweltforschung (UFZ) Stand: 27.03.2022

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5 Conclusions

- For the groundwater-relevant indicators, the targets set have not yet been achieved
- Further intensified measures necessary for implementation, political framework conditions are partly set
- Other groups of substances that pollute groundwater have been identified, but are monitored via other directives
- New challenge of drought in the context of climate change
- Main problems are addressed - more forceful implementation required

Thanks for your attention!

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