River Basin Management Cycle Training Series

Case Study – Elbe River Basin

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INDIA-EU WATER PARTNERSHIP

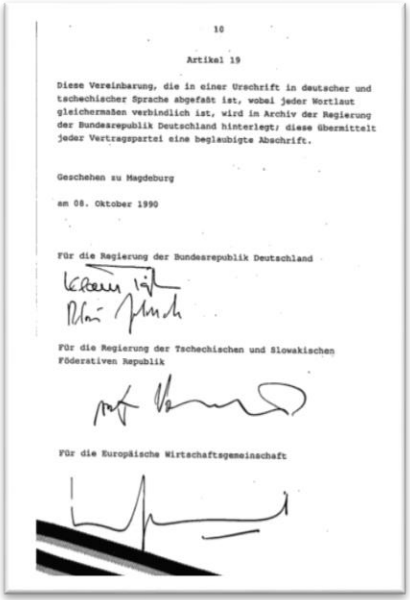
The Elbe basin

International Commission for the Protection of the Elbe River
Mezinárodní komise pro ochranu Labe

- 148,000 km²
- 4 countries (Germany, Czech Republic, Austrian and Poland).
- 99% of the area in Germany and Czech Republic.

The International Commission for the Protection of the Elbe River (ICPER) – Legal foundation

International Commission for the Protection of the Elbe River
Mezinárodní komise pro ochranu Labe



10

Artikel 19

Diese Vereinbarung, die in einer Urschrift in deutscher und tschechischer Sprache abgefaßt ist, wobei jeder Wortlaut gleichermaßen verbindlich ist, wird im Archiv der Regierung der Bundesrepublik Deutschland hinterlegt; diese übermittelt jeder Vertragspartei eine beglaubigte Abschrift.

Geschehen zu Magdeburg

am 08. Oktober 1990

Für die Regierung der Bundesrepublik Deutschland

Für die Regierung der Tschechischen und Slowakischen Föderativen Republik

Für die Europäische Wirtschaftsgemeinschaft

The overall legal instrument for co-operation and transboundary water management in the Elbe River Basin is the

Convention on the International Commission for the Protection of the Elbe

signed by the Federal Republic of Germany, the Czech and Slovak Federal Republic and the European Economic Community in the year 1990.

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The International Commission for the Protection of the Elbe River (ICPER) – Legal foundation

International Commission for the Protection of the Elbe River
Mezinárodní komise pro ochranu Labe

The main objectives of the ICPER are laid out in the articles 1 and 2 of the convention.

Article 1

a) to enable use to be made of the river, in particular the obtaining of supplies of drinking water from bank-filtered waters and the agricultural use of the waters and sediments;

b) to achieve as natural an ecosystem as possible with a healthy diversity of species;

c) to reduce substantially the pollution of the North Sea from the Elbe area.

The International Commission for the Protection of the Elbe River (ICPER) – Legal foundation

International Commission for the Protection of the Elbe River
Mezinárodní komise pro ochranu Labe

Article 2

d) propose and coordinate the implementation of joint programmes of measurements and investigations to demonstrate the quality of the waters, sediments and effluent and to describe the aquatic and coastal communities, and shall record and evaluate the findings,

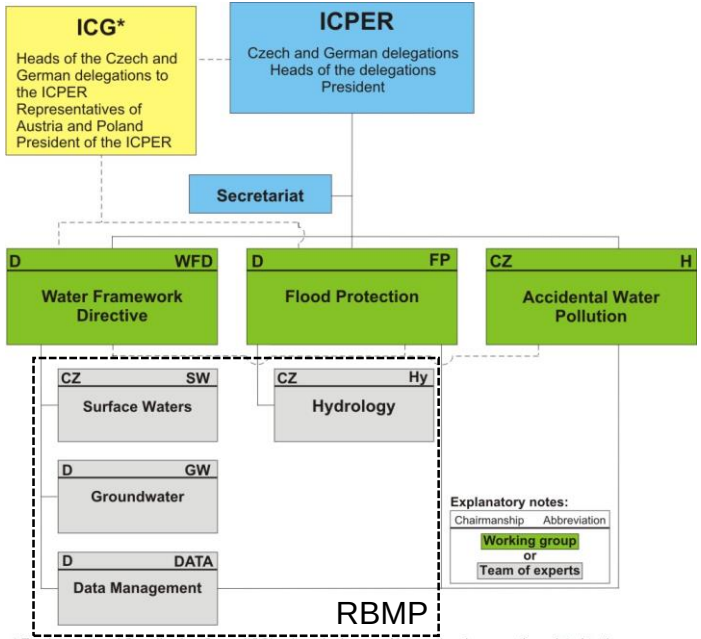
e) compile standardised methods for the classification of water quality in the Elbe,

f) propose specific action for the reduction of discharges of harmful materials from the point sources of both local authorities and industry and from diffuse sources and further measures including timetables and a cost assessment.

The International Commission for the Protection of the Elbe River (ICPER) – Coordination structures

International Commission for the Protection of the Elbe River
Mezinárodní komise pro ochranu Labe

Working structure of the ICPER



* The International Coordination Group (ICG) solves the issues of international cooperation related to the implementations of the Water Framework Directive and the EU Flood Directive in the Elbe River basin.

- **ICPER Executive decisions:** Consensus between 3-member delegation representing the contracting parties to the ICPER
- The **International Coordination Group ICG** solves issues of international cooperation related to Water Framework Directive and Flood Directive with Poland and Austria
- **Consultation/Harmonisation:** Mainly carried out by 3 Expert Groups and topic oriented sub-groups

- **The RBM Expert Group:** is divided into 4 Task Groups dealing with different aspects of RBMP
- **Day to day operation:** The permanent secretariat based in Magdeburg/Germany

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The International Commission for the Protection of the Elbe River (ICPER) – Actions carried out to reduce contamination

International Commission for the Protection of the Elbe River
Mezinárodní komise pro ochranu Labe

- 1991 First action plan (immediate action) for the reduction of contamination of the Elbe River
- 1995 Action Programme Elbe River
- 1995 Cadastre of prominent point sources of communal and industrial origin.
- 1998 First Progress Report on the Action Programme
- 2000 Second Progress Report on the Action Programme
- 2001 Cadastre of industrial direct and indirect discharge sources concerning the reduction of priority hazardous substances
- 2003 Third Progress Report on the Action Programme
- 2005 Fourth Progress Report on the Action Plan
- 2010 Final Report on the Action Programme 1996 -2010

The International Commission for the Protection of the Elbe River (ICPER) – Action and Remediation Programmes

International Commission for the Protection of the Elbe River
Mezinárodní komise pro ochranu Labe

These programmes successful addressed

- solving problems municipal wastewater,
- industrial wastewater,
- reducing the diffuse loads (nutrients and herbicides) from agriculture,
- reducing the diffuse loads from landfills and polluted sites.

The Elbe Action Programme was completed with a **final report** in 2010.

These programmes were initiated before the WFD came into force.

The International Commission for the Protection of the Elbe River (ICPER) – RBMP formulation according WFD

International Commission for the Protection of the Elbe River
Mezinárodní komise pro ochranu Labe

The four countries in the Elbe River basin – Germany, the Czech Republic, Austria and Poland – have agreed to coordinate their approach for meeting the requirements of the Water Framework Directive under the roof of ICPER.

As all countries are EC members timelines of the WFD Directive apply:

- 2005 Report to the EC Commission, River Basin Characterisation and Description according Article 5 2000/60/EC
- 2007 Report to the EC Commission, Monitoring programmes according Article 8 ,2000/60/EC
- 2009 International River Basin Management Plan for the Elbe River, Part A.
- 2015 Updated International River Basin Management Plan for the Elbe River, Part A.

The International Commission for the Protection of the Elbe River (ICPER) – River Basin Management Plan elaboration

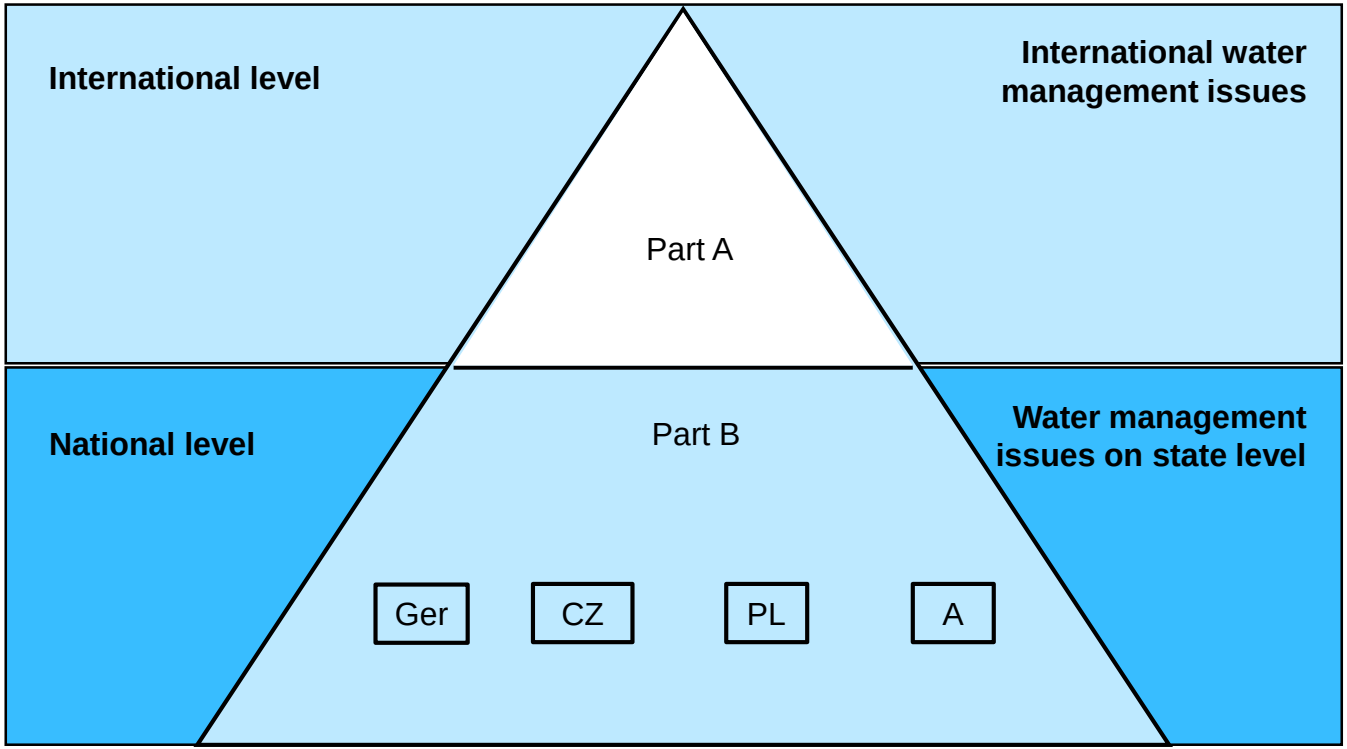
International Commission for the Protection of the Elbe River
Mezinárodní komise pro ochranu Labe

Additionally, all steps of the development of the DRBMP (basin analysis, identification of key water management issues, drafting of plan, drafting of PoM) are accompanied by public consultation. Detailed schedule is set up that allows several months for stakeholder feedback - done through meetings/workshops and online comment opportunities on documents/submission.

Timetable for latest DRBMP:

- Actualisation and continuation of programme of measures
- Consultations on significant water management issues (until 06/2019)
- Consultation on the draft DRMBP (until 10/2020)
- Finalization of plan (end 2021)

Structure of the International River Basin Management Plan



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The International Commission for the Protection of the Elbe River (ICPER) – Ensuring Stakeholder Participation

International Commission for the Protection of the Elbe River
Mezinárodní komise pro ochranu Labe

- ICPER works have been supported by the public with critical and constructive comments.
- ICPER is active in the involvement of the general public in the elaboration of the management plans as is required by the Water Framework Directive.
- Activities for informing and consulting the public such as seminars or expert talks are held under the roof of the International Elbe Forum.

MEZINÁRODNÍ LABSKÉ FÓRUM
INTERNATIONALES ELBEFORUM

The public also submits written comments on individual implementation steps of the Water Framework Directive.

The International Commission for the Protection of the Elbe River (ICPER) – Characterisation

International Commission for the Protection of the Elbe River
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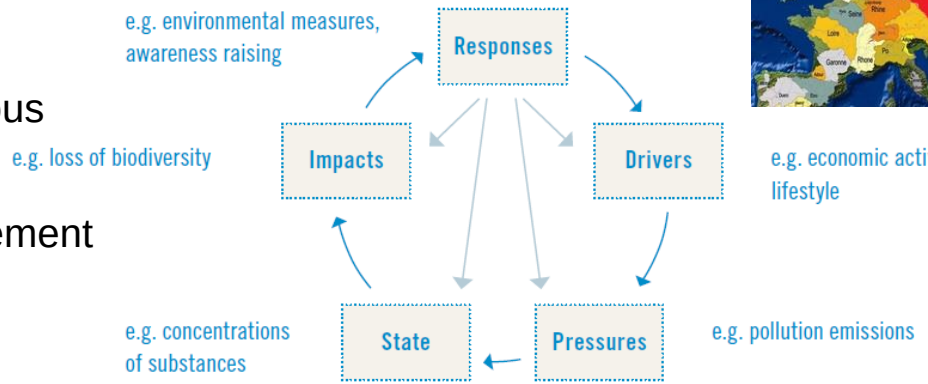
The Drivers-Pressures-State-Impact-Response (DPSIR) analysis and expert judgement to carry out the risk analysis (among others). 5 identified Significant Water Management Issues (SWMIs) in the Elbe Basin for the updating of the plan were identified:

- Enhancement of hydromorphology and river continuity
- Reduction of nutrients and hazardous substances
- Sustainable water quantity management
- Reducing impacts from mining
- Issues of Climate Change



All issues were addressed in the programme of measures formulating the „responses“ to heal the observed deficits.

The International Commission for the Protection of the Elbe River (ICPER) – Example of using flagship species to involve the public

International Commission for the Protection of the Elbe River
Mezinárodní komise pro ochranu Labe

In the Elbe River, salmon and sturgeon are flagships species at the top of the aquatic food chain. The re-introduction of these species, after having disappeared, depend on many aspects of successful RBM. An analysis for sturgeon and salmon was carried out:

- **DRIVERS:** Industrial development, transport, energy generation, agriculture, human settlements
- **PRESSURES:** Wastewater pollution, nutrient and pesticide pollutions, modification of river course, illegal fishing
- **STATE:** High nutrient load in water, straightened channels, less biodiversity in the river
- **IMPACT:** European sturgeon completely disappeared and is being introduced by artificial stocking activities.
- **RESPONSE:** Pollution reduction, restoration of habitats, improved hydropower, navigation and flood protection infrastructure to open migration routes

The International Commission for the Protection of the Elbe River (ICPER) – Monitoring across the Basin

International Commission for the Protection of the Elbe River
Mezinárodní komise pro ochranu Labe

The water quality analysis in the Elbe River basin on the basis of an international **coordinated monitoring programme** had already been initiated at the beginning of the 1990s. This was the cornerstone for the complex and coordinated monitoring of the **water quality of the Elbe** and its tributaries.

- The first international monitoring programme with 63 parameters was set up for the year 1992.
- Routine tests of suspended sediments were introduced in 1996.
- The International coordinated **Elbe Monitoring Programme** 2019 currently comprises the analysis of approximately 180 parameters in the water phase and 70 parameters in suspended sediments. Approximately 10 parameters are analysed in the biological part of the monitoring programme.

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The International Commission for the Protection of the Elbe River (ICPER) – Monitoring Networks and River Transects

International Commission for the Protection of the Elbe River
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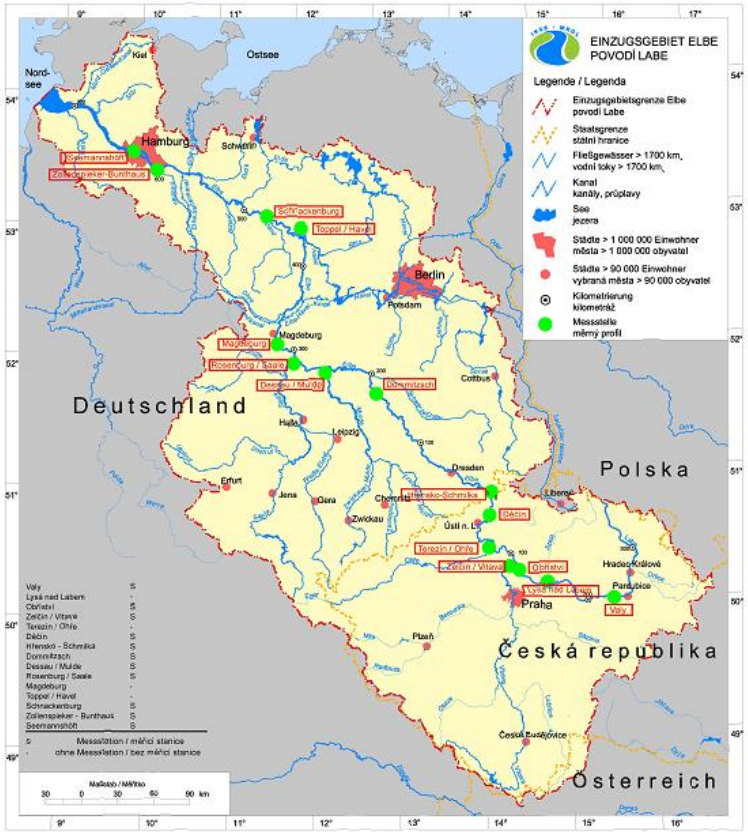
The water quality within the framework of the International **Elbe Monitoring Programme** 2019 is monitored at 9 monitoring profiles in Germany and 6 monitoring profiles in the Czech Republic (10 directly at the Elbe and 5 at tributaries).



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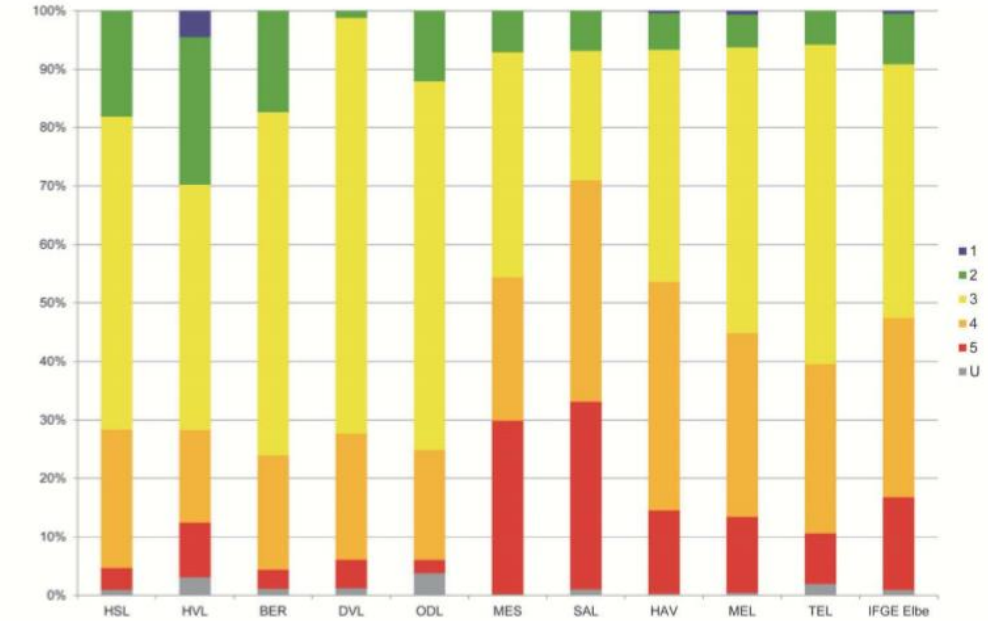
Assessment of Ecological Status of the Water Bodies in the Elbe River Catchment



Percentage of water bodies by classes of the ecological status/potential
(blue = high; green = good; yellow = moderate; orange = poor; red = bad: grey = not classified)

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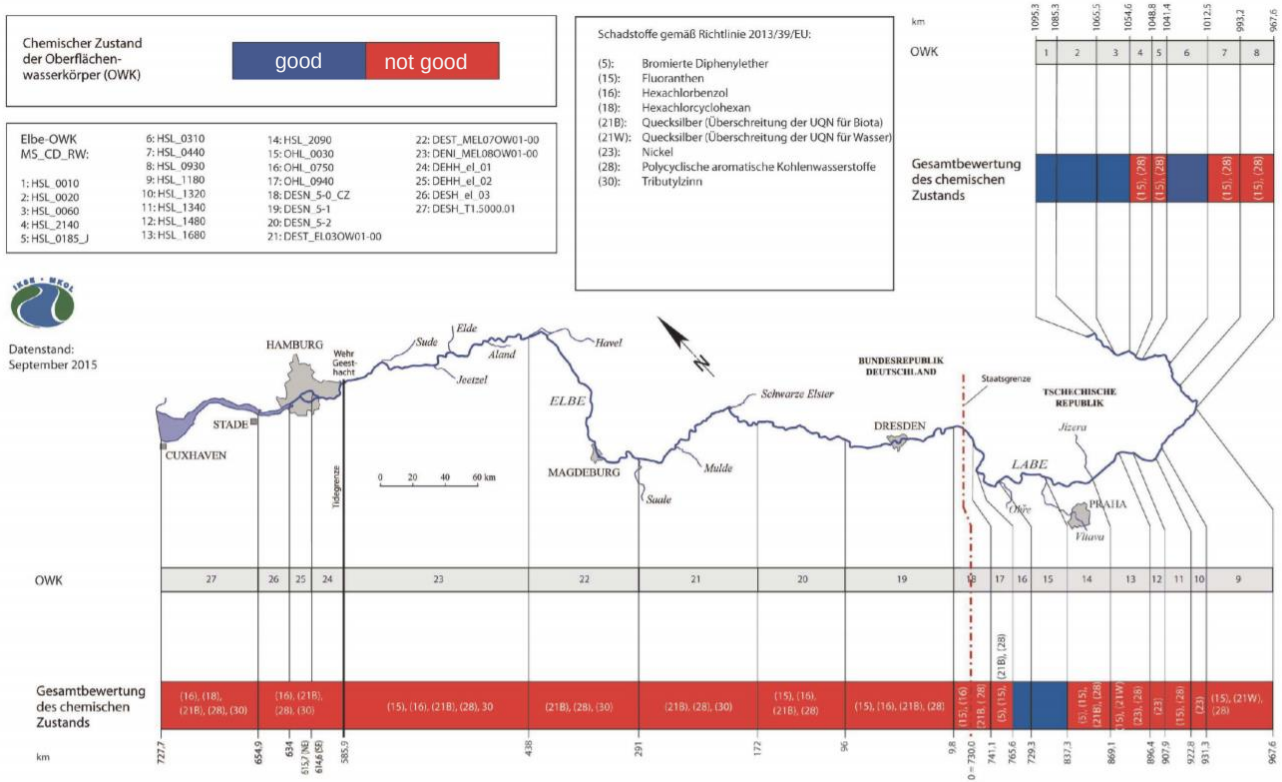
Chemical Status of Surface Water of the Elbe main stream



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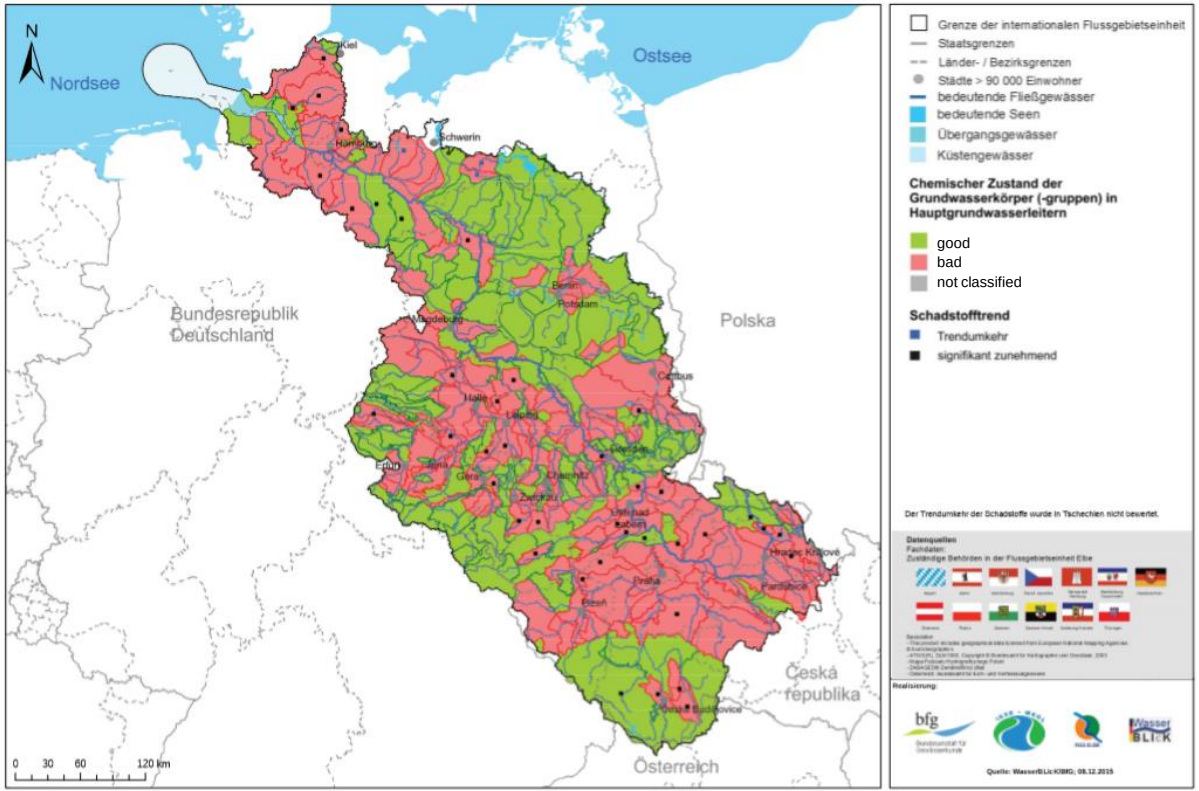
INDIA-EU WATER PARTNERSHIP

Chemical Status of the Main Groundwater Bodies



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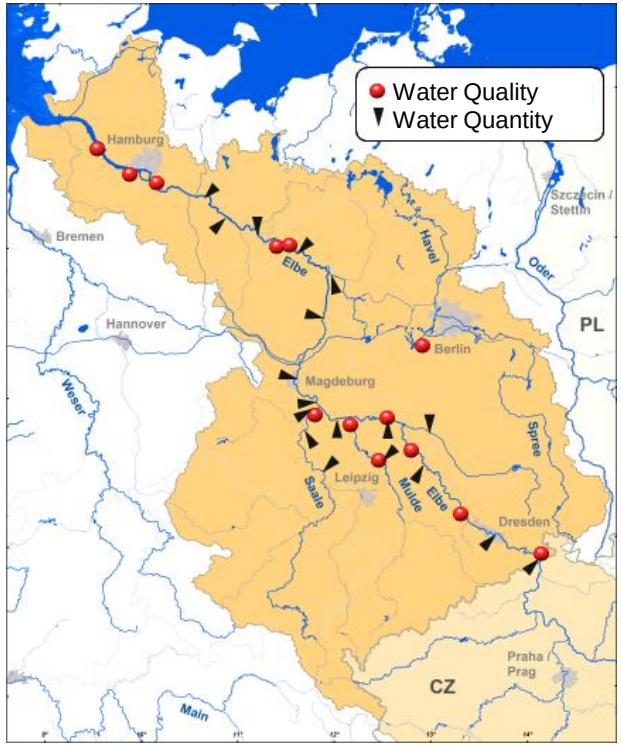
The International Commission for the Protection of the Elbe River (ICPER) – Water Quantity Assessment

International Commission for the Protection of the Elbe River
Mezinárodní komise pro ochranu Labe

The water quantity/flow within Elbe River Catchment is measured at numerous measuring stations. The data on all river basins and catchments (e.g. water levels and flow) are available any time in real time via internet access.



http://undine.bafg.de/elbe/pegel/elbe_pegel_auswahl.html

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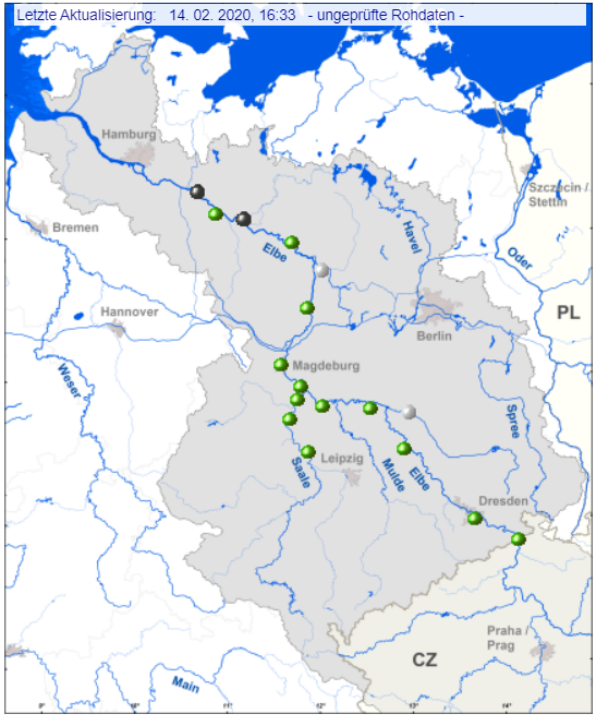
The International Commission for the Protection of the Elbe River (ICPER) – Monitoring Water Quantity



Discharge & water level

- Flood (> MHQ)
- High flow
- Mean flow
- Low flow
- Low tide (< MNQ)
- No current discharge data
- Only water level measurements

Tendenz (Wasserstand am Pegel):

- mehr als 10 cm / 4 h gestiegen
- mehr als 5 cm / 4 h gestiegen
- bis zu 5 cm / 4 h gestiegen / gefallen
- mehr als 5 cm / 4 h gefallen
- mehr als 10 cm / 4 h gefallen

Datengrundlagen: Wasserstraßen- und Schifffahrtsverwaltung des Bundes (Pegelonline) / Landesbetrieb für Hochwasserschutz und Wasserwirtschaft Sachsen-Anhalt / Bundesanstalt für Gewässerkunde. Die Zeitangabe der Wasserstände / Durchflüsse erfolgt in MEZ (Winterzeit).

http://undine.bafg.de/elbe/zustand-aktuell/elbe_akt_WQ.html
(Accessed on 14.02.2020)

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INDIA-EU WATER PARTNERSHIP

The International Commission for the Protection of the Danube River (ICPER) – Water Quantity Assessment

International Commission for the Protection of the Elbe River
Mezinárodní komise pro ochranu Labe

In the Elbe River Basin the use of water resources between users is a challenge. Thanks to the given hydro-meteorological conditions abstraction for irrigation purposes are of minor importance.

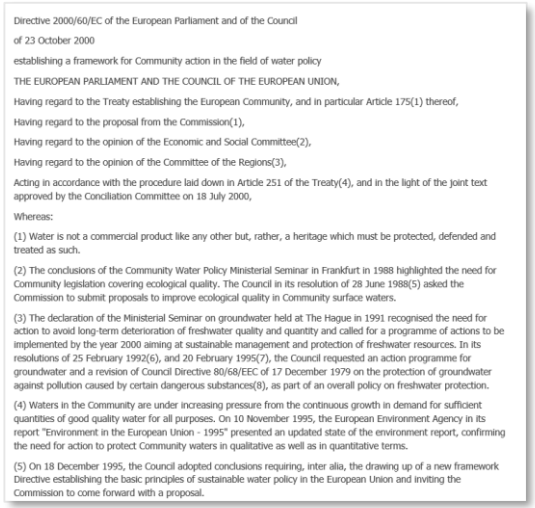
During extended dry seasons low flow rates are becoming more frequent and limit commercial shipping/transportation on the Elbe river.

The International Commission for the Protection of the Elbe River (ICPER) – Vision/Wishes to Legal Obligation

International Commission for the Protection of the Elbe River
Mezinárodní komise pro ochranu Labe

With the Water Framework Directive (European Directive 2000/60/EC) coming into force common goals were set out by the European Commission:

- Expanding the scope of water protection to all waters, surface waters and groundwater
- Achieving "good status" for all waters by a set deadline
- Water management based on river basins
- “Combined approach" of emission limit values and quality standards
- Getting the prices right
- Getting the citizen involved more closely
- Streamlining EC legislation



Directive 2000/60/EC of the European Parliament and of the Council

of 23 October 2000

establishing a framework for Community action in the field of water policy

THE EUROPEAN PARLIAMENT AND THE COUNCIL OF THE EUROPEAN UNION,

Having regard to the Treaty establishing the European Community, and in particular Article 175(1) thereof,

Having regard to the proposal from the Commission(1),

Having regard to the opinion of the Economic and Social Committee(2),

Having regard to the opinion of the Committee of the Regions(3),

Acting in accordance with the procedure laid down in Article 251 of the Treaty(4), and in the light of the joint text approved by the Conciliation Committee on 18 July 2000,

Whereas:

(1) Water is not a commercial product like any other but, rather, a heritage which must be protected, defended and treated as such.

(2) The conclusions of the Community Water Policy Ministerial Seminar in Frankfurt in 1988 highlighted the need for Community legislation covering ecological quality. The Council in its resolution of 28 June 1988(5) asked the Commission to submit proposals to improve ecological quality in Community surface waters.

(3) The declaration of the Ministerial Seminar on groundwater held at The Hague in 1991 recognised the need for action to avoid long-term deterioration of freshwater quality and quantity and called for a programme of actions to be implemented by the year 2000 aiming at sustainable management and protection of freshwater resources. In its resolutions of 25 February 1992(6), and 20 February 1995(7), the Council requested an action programme for groundwater and a revision of Council Directive 80/68/EEC of 17 December 1979 on the protection of groundwater against pollution caused by certain dangerous substances(8), as part of an overall policy on freshwater protection.

(4) Waters in the Community are under increasing pressure from the continuous growth in demand for sufficient quantities of good quality water for all purposes. On 10 November 1995, the European Environment Agency in its report "Environment in the European Union - 1995" presented an updated state of the environment report, confirming the need for action to protect Community waters in qualitative as well as in quantitative terms.

(5) On 18 December 1995, the Council adopted conclusions requiring, inter alia, the drawing up of a new framework Directive establishing the basic principles of sustainable water policy in the European Union and inviting the Commission to come forward with a proposal.

Source: Official Journal (OJ L 327) on 22.12.2000

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The International Commission for the Protection of the Elbe River (ICPER) – Management Objectives

International Commission for the Protection of the Elbe River
Mezinárodní komise pro ochranu Labe

Visions and management objectives have been developed for each of the five identified **Significant Water Management Issues (SWMI)** and groundwater.

- Hydromorphological Alterations and River Continuity
- Reduction of Hazardous substances and nutrients
- Sustainable Water Quantity Management
- Reduction of contaminations related to mining activities
- Climate Change issues
- Emissions of polluting substances do not cause any deterioration of groundwater quality. Water use is appropriately balanced and does not exceed the available resources.

The International Commission for the Protection of the Elbe River (ICPER) – Implementing Measures

International Commission for the Protection of the Elbe River
Mezinárodní komise pro ochranu Labe

Snapshot on the Management of sewage water in the Basin

- As of 2018 about approximately 25 million inhabitants and industrial, mining as and agricultural (water users) generate a considerable impact on the surface water and groundwater in the Elbe catchment.
- In Czech Republic as well as in Germany industrial facilities in the Elbe River Basin, which release significant pollutant emissions into surface waters are in line with the **best available techniques (BAT)** requirements and are continuously upgraded.
- The majority of this wastewater amount is collected by public sewers or handled by adequate local technologies (Germany > 95 %) and treated in **centralized treatment plants** (>95 %).
- Since 1990 the investments in the Elbe catchment area in Germany from public and private funds are estimated to have reached over € 20 billions of Euros.

Implementing Measures – Reduction of point source load between 1994-2004

Prioritärer Stoff der IKSE	Emission from point sources [t/year]			
	Czech Republic		Germany	
	1994	2008	1994	2008
CSB	35 400	7 780	39 200	5 278
TOC	—	2 068	4 970	1 896
Gesamt-Stickstoff	8 800	3 504	4 300	336
Gesamt-Phosphor	350	53,30	108	35,9
Quecksilber	1,85	0,095	0,53	0,005
Cadmium	1,18	0,005	0,30	0,0001
Kupfer	8,21	0,479	1,96	0,063
Zink	48	9,651	160	0,815
Blei	3,99	0,118	0,98	0,058
Arsen	—	1,417	0,08	0,007
Chrom	8,88	0,187	6,77	1,261
Nickel	0,85	0,134	7,15	0,162
$CHCl_3$	2,56	0,198	3,67	1,883
CCl_4	0,56	—	0,39	0,0024
EDC	9,03	0,134	0,61	0,115
TRI	—	—	8,44	0,029
PER	1,37	—	1,63	0,064
HCBD	—	—	—	—
γ-HCH	—	—	0,02	0,0004
TCB	0,10	0,003	0,01	0,004
HCB	—	—	0,01	0,001
AOX	302	21,92	364	26,87
Parathion-Methyl	—	—	0,52	0,001
Dimethoat	—	—	0,47	—
Organische Zinnverbindungen	—	—	2,75	0,0335
EDTA	—	—	91	12,94
NTA	—	—	10	0,072

International Commission for the Protection of the Elbe River
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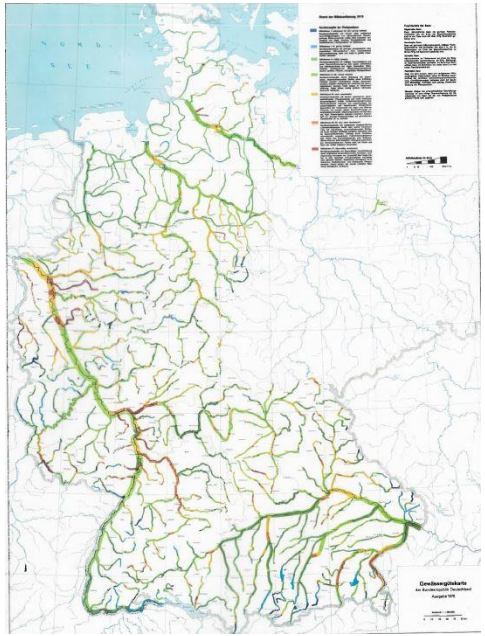
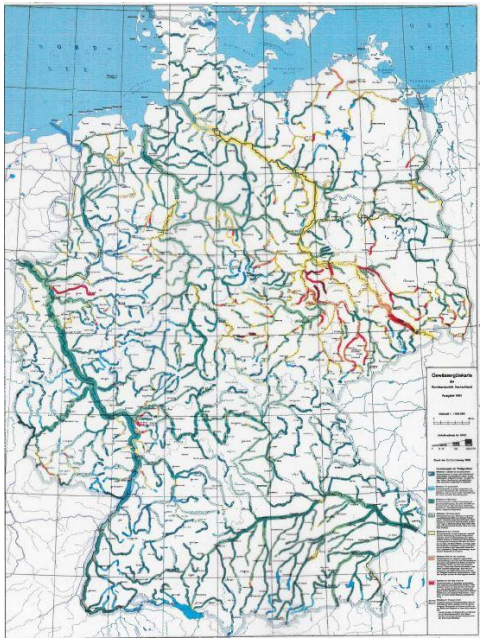
Implementing Measures – Improvement of Surface Water Quality in Germany (1975-2000)

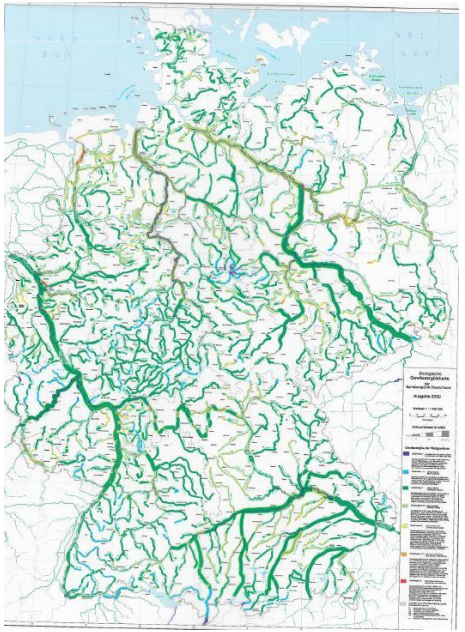
1975



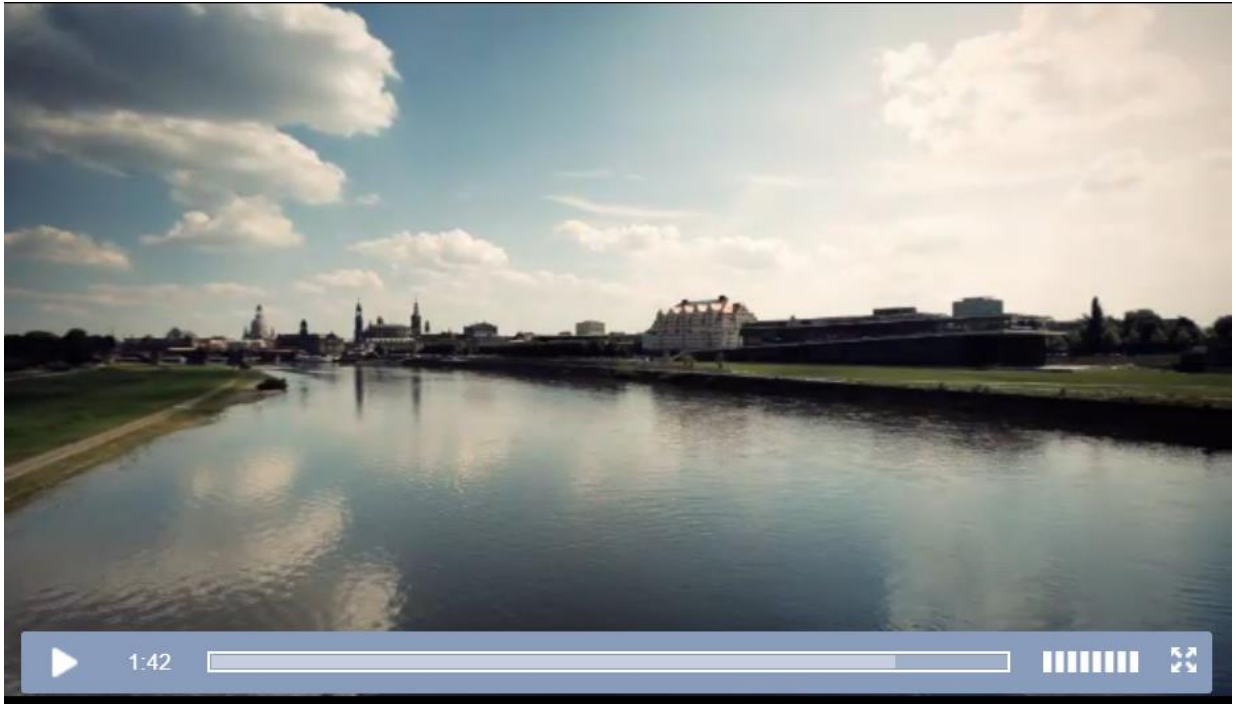
1990



2000



Video: Cross-border cooperation on flood risk management for the Elbe Basin



Link: https://ec.europa.eu/regional_policy/en/information/videos/cross-border-cooperation-flood-risk-management-in-the-elbe-river-basin (Duration 1:59 min)

References

European Commission (2011) Cross-border cooperation: Flood risk management in the Elbe river basin. URL: https://ec.europa.eu/regional_policy/en/information/videos/cross-border-cooperation-flood-risk-management-in-the-elbe-river-basin (access date: 01.02.2020)

German Federal Institute of Hydrology (2020) UNDINE - Information platform on extreme hydrological events. URL: http://undine.bafg.de/elbe/elbegebiet.html (access date 01.02.2020)

International Commission for the Protection of the Elbe River (2020) Website. URL: https://www.ikse-mkol.org/ (access date 01.02.2020)

River Basin Community Elbe (2020) Website. URL: https://www.fgg-elbe.de/home.html (access date 01.02.2020)

Continued engagement pre and post webinar

1. For queries and related engagements contact GIZ colleagues:

Delhi Office:

- **Dr. Sumit Gautam (sumit.gautam@giz.de)**
- **Ms. Chhavi Sharda (chhavi.sharda@giz.de)**

Uttarakhand (Dehradun) Office:

- **Mr. Merajuddin Ahmad (merajuddin.ahmad@giz.de)**

2. E-Learning platform - http://78.46.247.119/

(Temporarily hosted on AHT servers and will be transferred to the servers of training institutes.)

Contact: **Rania** -taha@aht-group.com/ **Rebecca -** roblick@aht-group.com

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Registered offices
Bonn and Eschborn

India office:

GIZ Office New Delhi
46 Paschimi Marg, Vasant Vihar
New Delhi 110057

Postal address:

Support to Ganga Rejuvenation
B-5/2, Safdarjung Enclave
New Delhi 110 029
India
E: martina.burkard@giz.de/
chhavi.sharda@giz.de/
sumit.gautam@giz.de

Author/Responsible/Editor, etc.:
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