



22HR06 CROATIA SUPPORT TO REDUCE WATER LOSS WITHIN THE REFORM OF THE WATER SECTOR

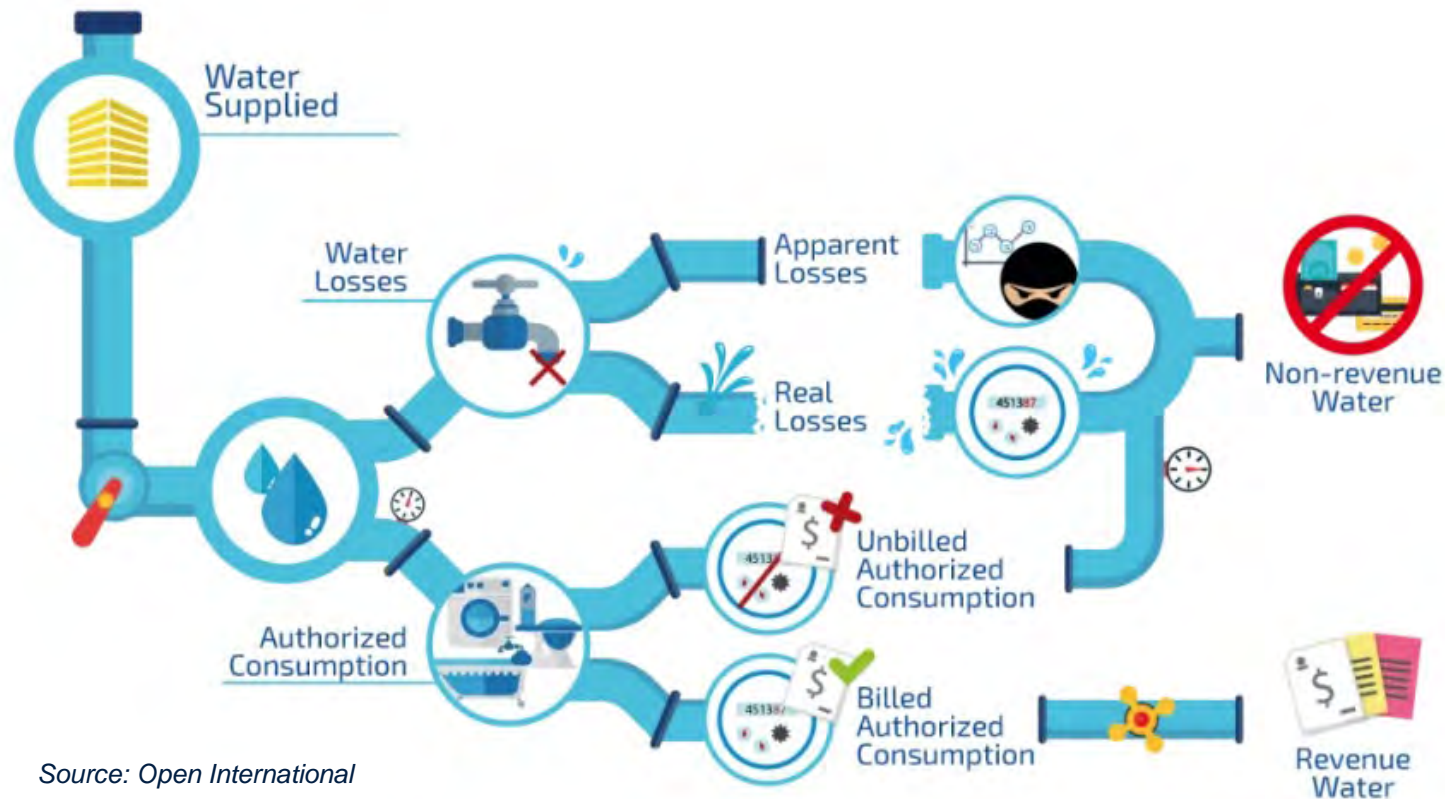
Final Project Conference
November 21, 2023, Zagreb



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Non-Revenue Water (NRW)

A global sustainability challenge



Source: Open International

Non-Revenue Water

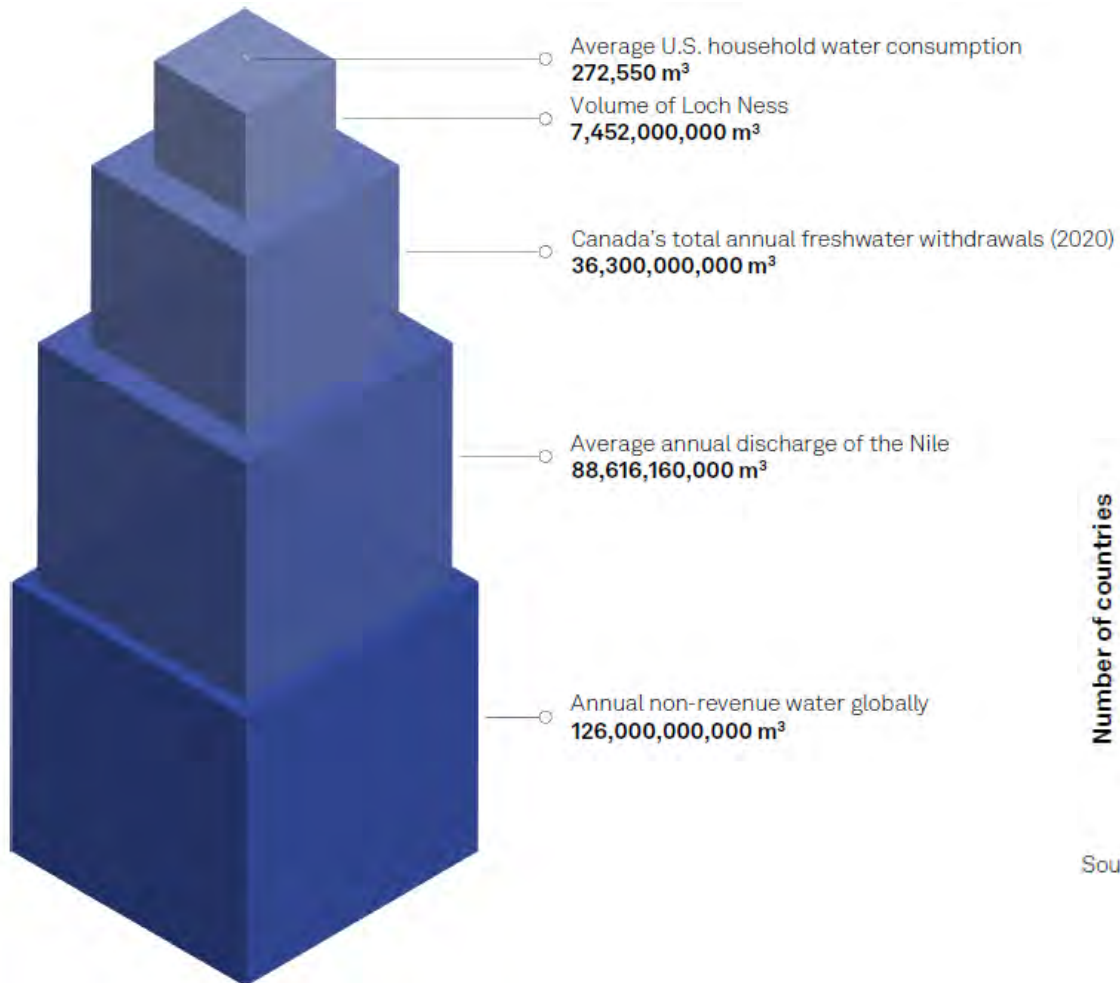
- Real losses
- Apparent losses
- Unbilled authorized consumption



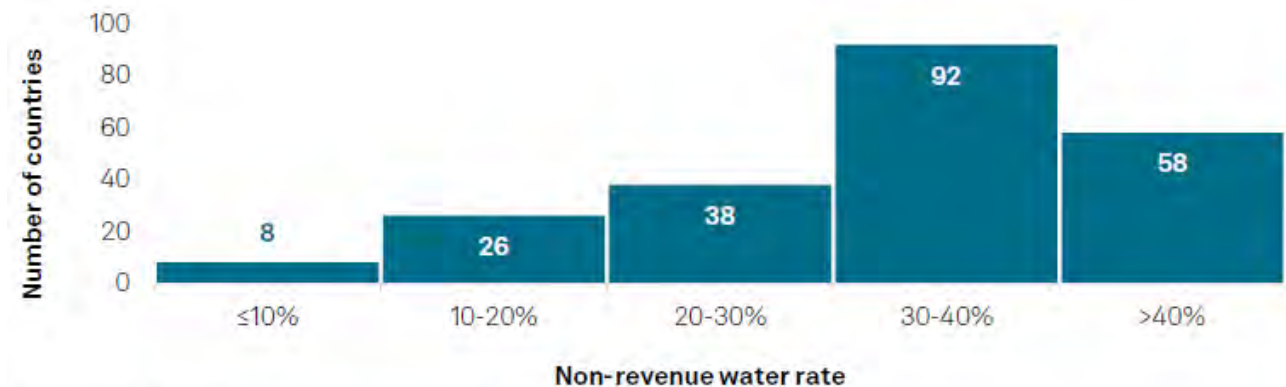
Source: Aguas de Cascais

Non-Revenue Water (NRW)

A global sustainability challenge



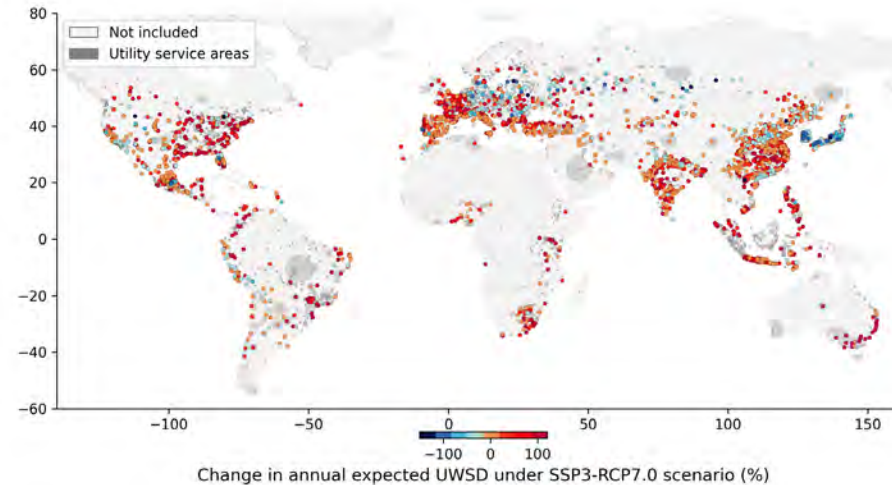
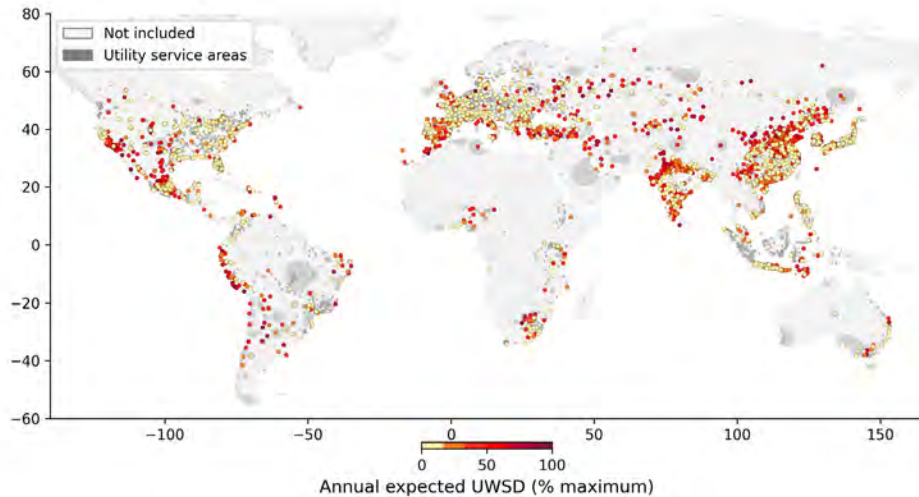
Global figures: 25% of countries have NRW rates above 40%



Source: S&P Global Ratings, Liemberger and Wyatt.

“Out of sight, out of mind” often also applies to NRW

Global impacts on water supply due to droughts and climate change



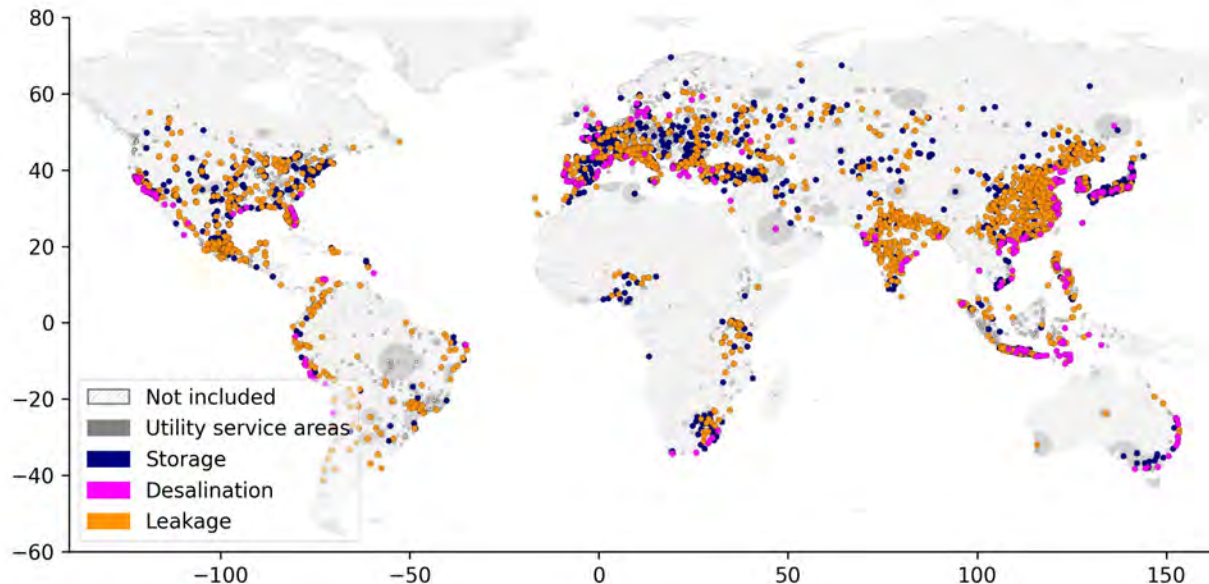
Source: Olivia Becher, Oxford University, Presentation at Danube Water Conference 2023 (unpublished)

Present day and projected future situation due to climate change and drought

- **50% of all modelled utilities** are subject to present day **drought-induced water supply disruptions**
- Median utility subject to **15 days of unsustainable or disrupted supply** under present day conditions
- Between 70-85% of at-risk utilities are subject to **increased risk in the future** due to climate change

Global impacts on water supply due to droughts and climate change

Options to reduce risks

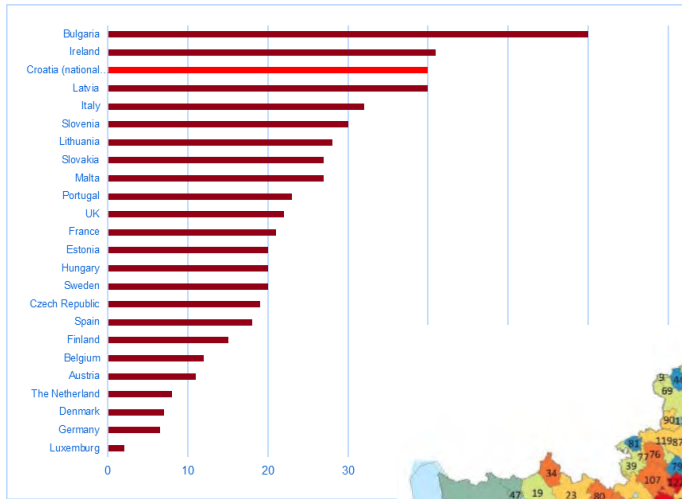


Source: Olivia Becher, Oxford University, Presentation at Danube Water Conference 2023 (unpublished)

Optimal option type to reduce risk

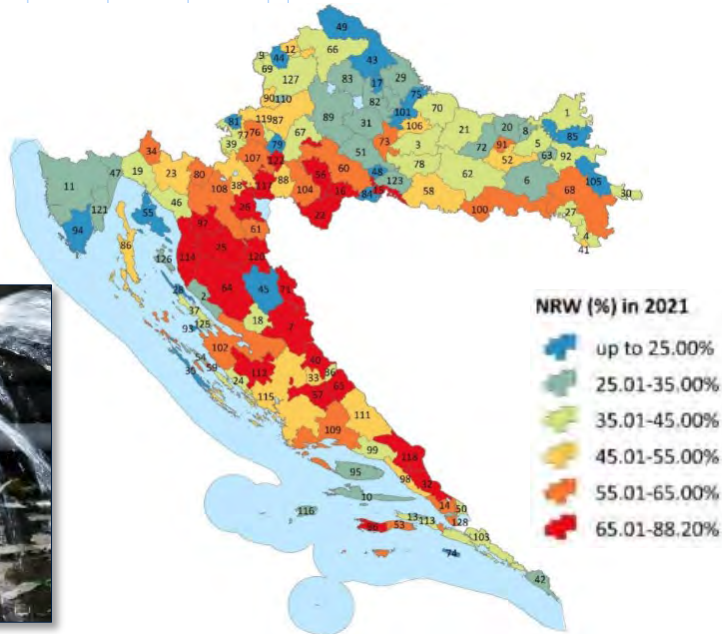
- For 60% of utilities, leakage reduction is most cost-effective measure to reduce water shortages
- Greater storage priority option for remaining 30%
- For coastal utilities, and 10% of utilities overall, desalination high priority option

Non-revenue water and risks in Croatia



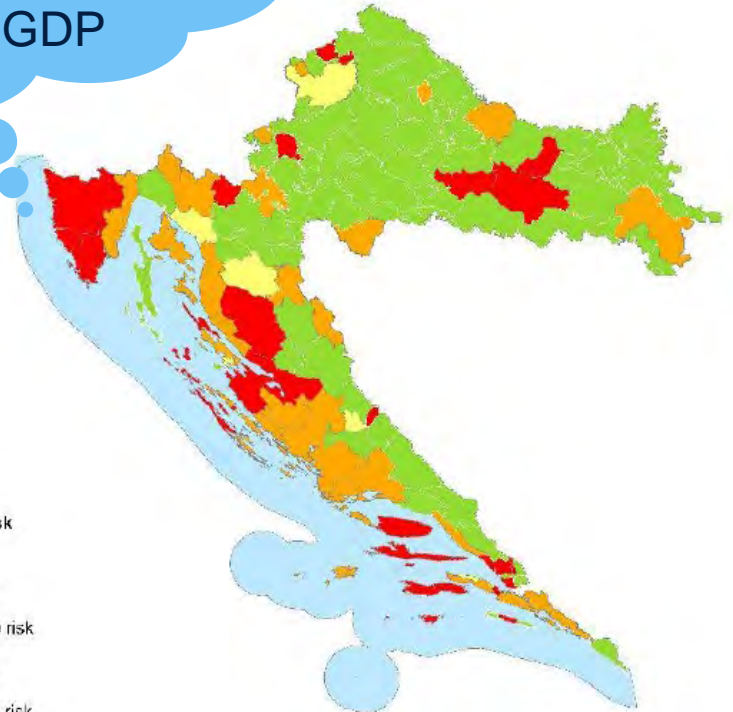
- National average **NRW approx. 50%**
- **No. 3** in terms of water losses in EU

Coastal tourism sector contributes around 20% to GDP



Criterion 4 - Risk categories

- Low risk (Green)
- Moderate risk (Yellow)
- High risk (Orange)
- Very high risk (Red)



Spatial distribution of the **Non-Revenue Water** (NRW) share in Croatia – current PWSPs level

Spatial distribution of risks according to the risk matrix, limitations in available water volumes and climate change severity

Non-Revenue Water (NRW)

Why should we care?

- **Water utilities are key agents** in the delivery of safe, reliable and affordable water supply
- **Drought-induced disruptions of supply pose risks** to the economy and society
- **Benefits** of reducing NRW
 - Improving **operational and financial performance** of water utilities and security of supply
 - **Mitigating water stress** and reducing the impacts of freshwater withdrawals on ecosystems
 - Increasing **resilience against droughts** and adapting to climate change
 - Mitigating global **greenhouse gas emissions** due to lower energy needs for pumping and distribution



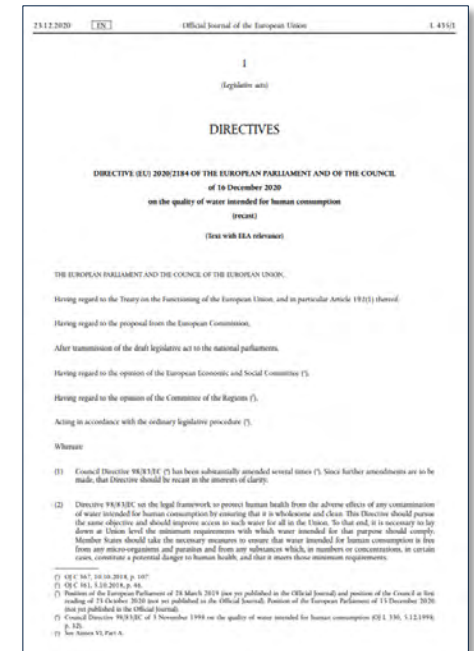
Source: Water and Sanitation Program of the World Bank

Why should we care?

New EU Drinking Water Directive

*DIRECTIVE (EU) 2020/2184 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL
of 16 December 2020 on the quality of water intended for human consumption*

- **New Drinking Water Directive** entered into force in January 2021
- Member States had to transpose by January 2023
- A number of **new requirements**, including risk-based approach and **measures to reduce water leakages**:
 - Member States need to **assess water leakage levels** and potential for improvements
 - Shall take into account relevant **public health, environmental, technical and economic aspects**
 - Assessment shall be communicated to Commission by **12 January 2026**
 - **January 2028**: Commission shall adopt delegated act setting out a threshold above which **Member States have to take action**



Why does the sector struggle with NRW reduction?

Lack of understanding magnitude, sources and cost of NRW

- Quantifying NRW and its components
- Calculating appropriate performance indicators
- Turning volumes of lost water into monetary values

Missing Management Focus

- Requires time, constant dedication, staff and funding
- More interesting engineering activities than to fix buried pipes
- No “ribbon cutting” involved
- Unpopular decisions might have to be made

Lack of Capacity

- Requires range of skilled staff
- Managers and professional engineers
- Street crews, technicians, plumbers

Enabling Environment and Incentives

- NRW must not be considered in a vacuum but within broader sectorial context
- What are incentives for managers and staff of the program

Croatia Water Loss Reduction Project

Overview project activities



- **Technical Assistance Project** to support the Croatia Water Services Sector
- Financed by European Commission (DG REFORM) and **implemented by World Bank**
- Project period: **May 2022 – November 2023**
- Overview **range of project activities**:
 - Activity 1: **Stocktaking** exercise
 - Activity 2: Preparation of a **draft National Loss Reduction Action Plan (NLRAP)**
 - Activity 3: **Building the capacity of Public Water Service Providers** for the implementation of the NLRAP
 - Activity 4: Development of a knowledge base and **indicators for utility performance evaluation**
 - Activity 5: Development of recommendations for establishment of a **national monitoring body** on water loss reduction
 - Activity 6: Preparation of a **final National Loss Reduction Action Plan (NLRAP)**

	Q2 - 22			Q3 - 22			Q4 - 22			Q1 - 23			Q2 - 23			Q3 - 23			Q4 - 23		
ACTIVITY	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Activity 1 - Stocktaking exercise																					
Activity 2 - Draft NLRAP																					
Activity 3 - Capacity building and p2p exchange																					
Activity 4 - Utility performance evaluation																					
Activity 5 - National Monitoring Body																					
Activity 6 - Final proposed NLRAP																					

Croatia Water Loss Reduction ASA

Overview project activities



- **Inter-disciplinary project team** with local and international experts
- **7 project meetings** organized between Croatian institutions, European Commission and project team
- **Comprehensive data collection** from centrally available sources and PWSPs via questionnaire
- 18 capacity building and consultation **workshops**
- Integration of **international best practice**: Global expertise from international experts and IWA Water Loss Specialist Group (Water Loss Conference, Prague 2022)
- Peer-to-peer exchange and **study tour** to Portugal

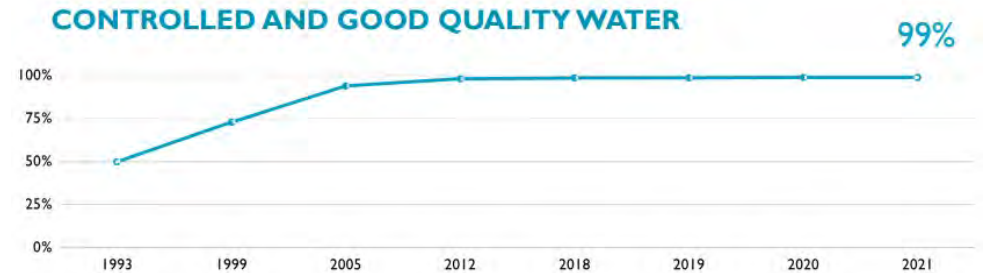


Example Portugal

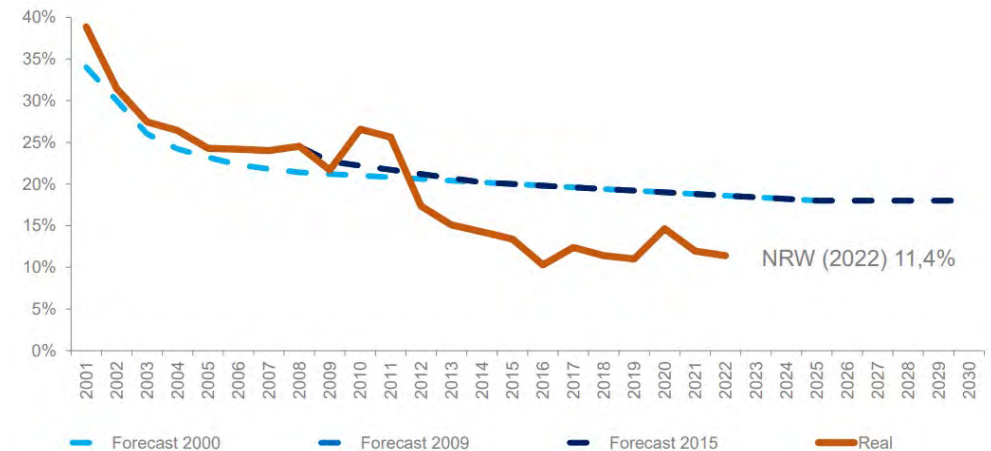
Water sector performance



- **Significant progress** in performance of WSS sector since 90's driven by EU accession
- Dedicated **reform program** for WSS sector
- **Range of measures**, including legal reforms, creation national regulator, aggregation of utilities, private sector involvement, performance-based contracting, etc.
- **Support** from European Union and IFIs
- Current national level **NRW down to 26%**



Progress in the access to safe water supply in Portugal at national level



Example for successful NRW reduction: Águas de Cascais water utility

Croatia Water Loss Reduction Project

Key project outputs



- Output 1: Stocktaking report
- Output 2: Draft National Loss Reduction Action Plan
- Output 3: Tools and training material for water loss reduction
- Output 4: Knowledge base and indicators for utility performance evaluation
- Output 5: Recommendations for National Monitoring Body
- Output 6: Final draft National Loss Reduction Action Plan



Project outputs publicly available on the website of the Ministry of Economy and Sustainable Development



REPUBLIKA HRVATSKA
Ministarstvo gospodarstva
i održivog razvoja

Thank you!



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TECHNICAL ASSISTANCE ON SUPPORT TO REDUCE WATER LOSS WITHIN THE REFORM OF THE WATER SECTOR IN CROATIA
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