

# Concept of protection against drought effects for the territory of the Czech Republic

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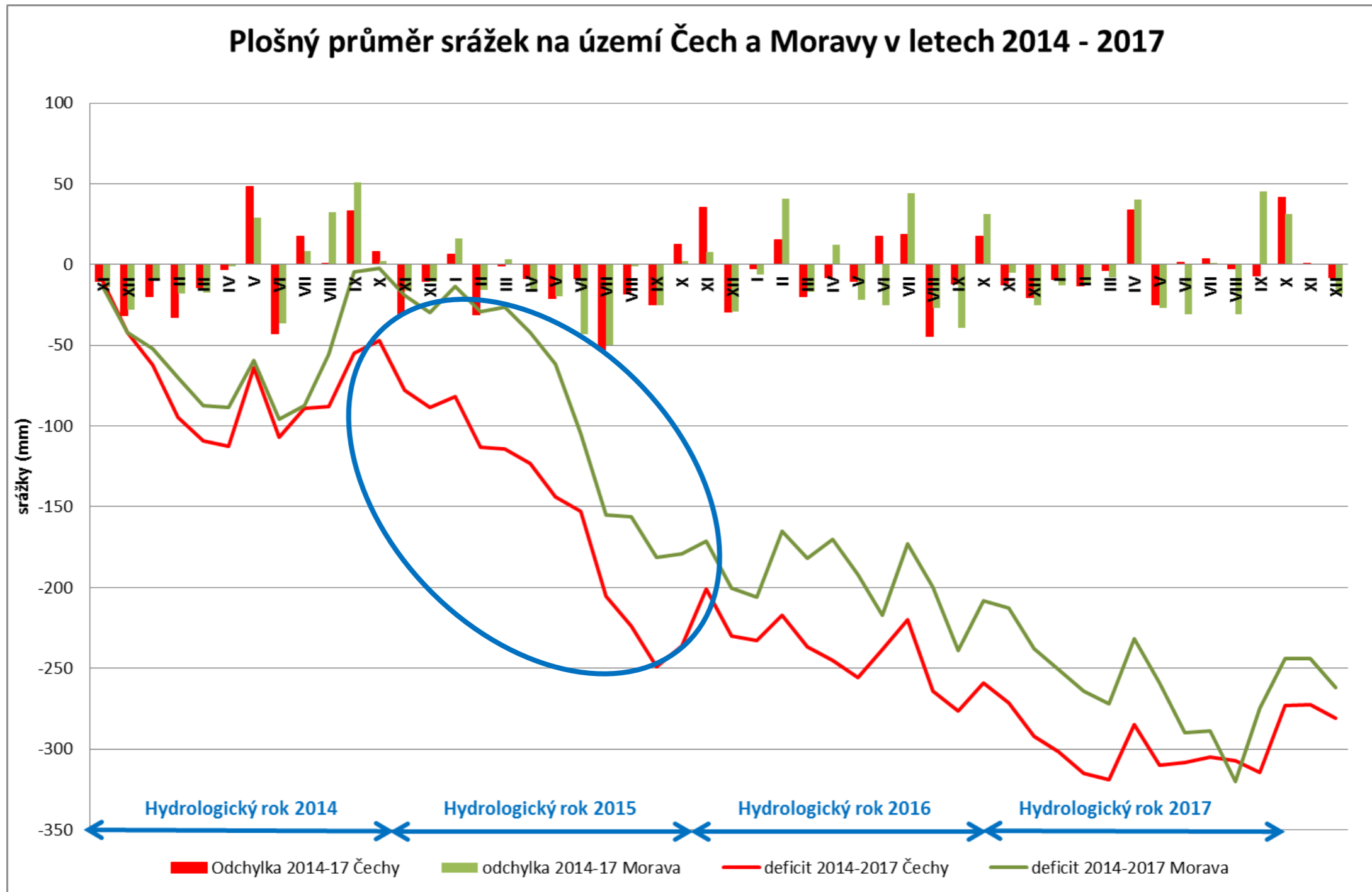
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# Dry episode 2014-2017



Zdroj ČHMÚ



# Interdepartmental commission WATER - DRY

- Formation of the VODA-SUCHO (2014) interdepartmental commission
- The Commission is made up of an executive and an advisory body
- Material to combat drought - approved by the Government of the Czech Republic on 29 July 2015 as Regulation No. 620:

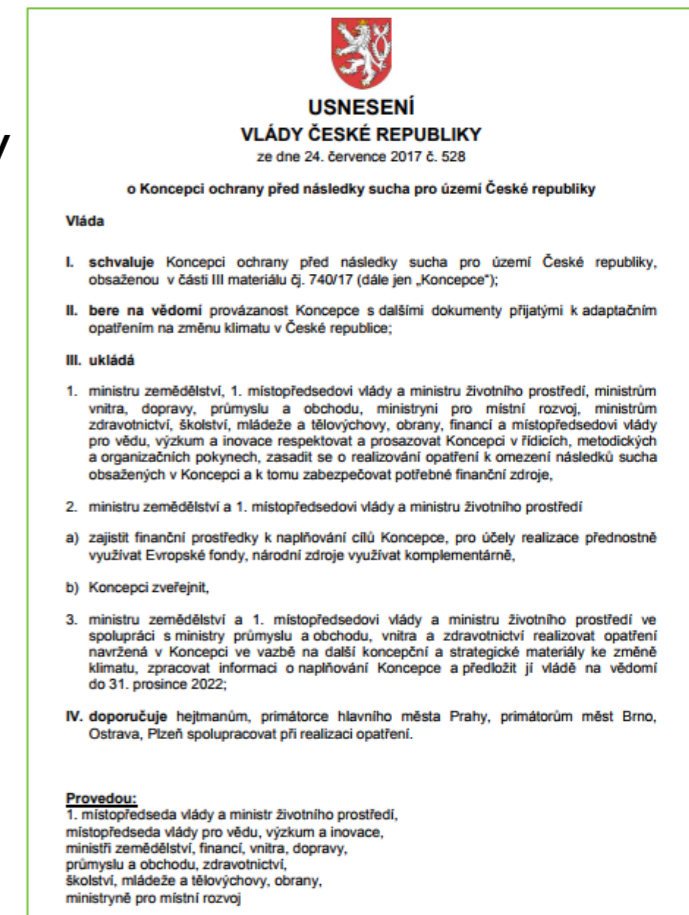
50 specific tasks with deadlines in 2015-2017

## ➔ Draft concept of protection against drought effects for the Czech Republic

Approved by the Government of the Czech Republic by Regulation No. 528 of 24 July 2017

➔ Process information on the implementation of the Concept and report it to the Government by December 31, 2022

➔ By the end of each calendar year, **Prepare a progress report.**



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# Content of the Concept

## Analytical part

- Detailed analysis of currently the biggest problems in water management in the Czech Republic

## Strategic goals

- Defining the vision of the Concept and the three basic strategic objectives that can be fulfilled.

## Design part

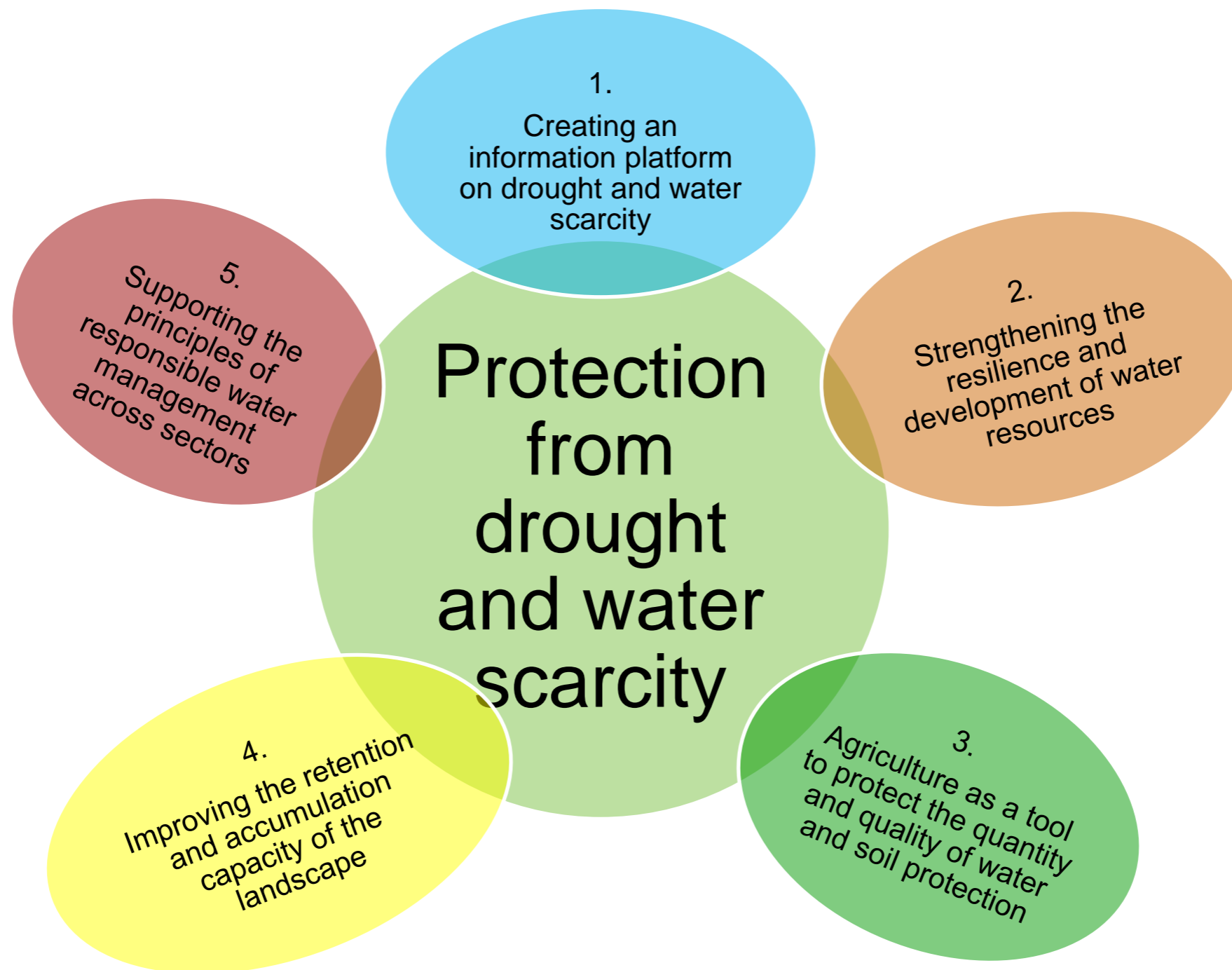
- Five thematic groups of measures

## Implementation of measures

- Legislative
- Economic
- Education and public education



# Design part of the Concept



# 1. Creating an information platform on drought and water scarcity

Revision and completion of the existing monitoring network with regard to drought tracking	MŽP, ČHMÚ
Developing and linking drought monitoring, creating a drought warning system	MŽP, ČHMÚ, VÚV
Program for the management of limited water resources	MŽP, MZe
Forecast of water resources development	MŽP, VÚV, ČHMÚ



# 1.1 Repairs and completion of the monitoring network - over 15.5 million in 2017

- Since 2017, the CHMI monitoring network - mainly underground water – is being replenished and repaired
  - ground facilities for 40 shallow monitoring boreholes and 10 depth monitoring wells were upgraded
  - 12 facilities for measuring spring flow and 3 facilities for sampling groundwater quality have been repaired
  - A total of 52 shallow monitoring wells were cleaned
  - For 12 deep boreholes complex geophysical measurements were carried out
  - 127 automatic measuring instruments were purchased to measure groundwater level.
  - Estimated 65 new springs - 5 selected for casting and testing.





Spring PP0365 Suchá before and after repair

Reconstructed spring PB0150 Tři studně

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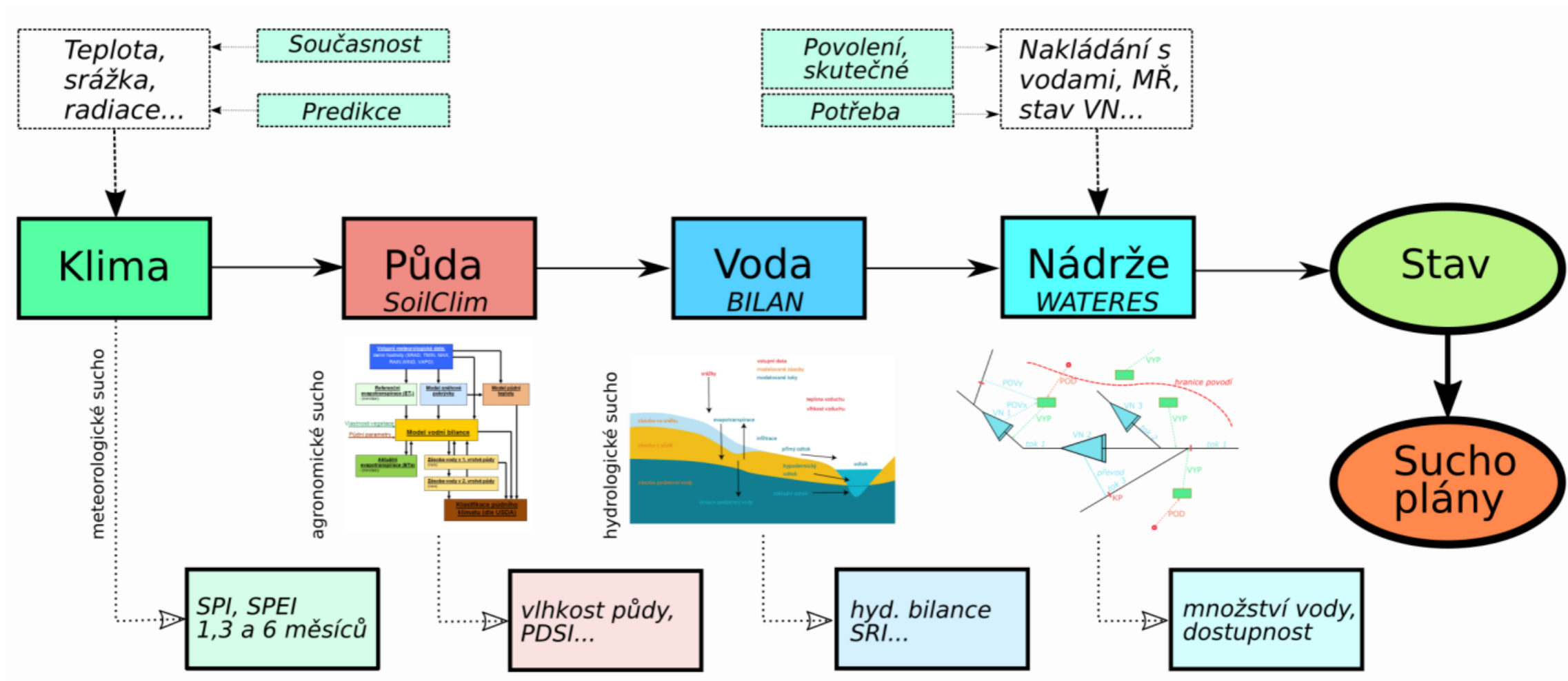
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# 1.2, 1.3, 1.4 System tool for predicting the hydrological situation - HAMR



Scheme of system for prediction of hydrological situation



# What is the purpose of the HAMR tool?

- Shows the current status of surface and ground water, status of water level in the water reservoirs and soil moisture.
- Using drought indicators to present its intensity.
- HAMR contains drought data since 1981 - a possible comparison of actual values with past episodes of drought
- Predict the development of the hydrological situation up to 8 weeks in advance
- Generate a list of water permits for a defined territory
- Analyze water management and simulate impacts of planned measures
- Creating a web platform for sharing information on current water requirements from customers to optimize operation of water bodies



## 2. Strengthening the resilience and development of water resources

Supporting the development of water infrastructure	MZe, SOVAK
Protection zones of surface and ground water sources for supply of drinking water to the public	MŽP, MZe, s.p. Povodí, SOVAK
Promoting the use of modern technologies in water supply	MZe, MŽP, SOVAK
Interconnecting of water supply systems on regional level	MZe, SOVAK
Application of artificial infiltration and bank infiltration technologies to increase groundwater resources	MŽP, MZe
New multipurpose reservoirs	MZe, s.p. Povodí
Water transfers between river basins and increased integration of water management systems	MZe, s.p. Povodí
Supporting the modernization and development of agricultural irrigation	MZe, SPÚ, VÚMOP
Restoration of existing and construction of new water reservoirs for irrigation	MZe, SPÚ, VÚMOP, s.p. Povodí
Support for the restoration and construction of new sources of fire water retention tanks in forest ecosystems	MV, GŘ HZS ČR, MZe



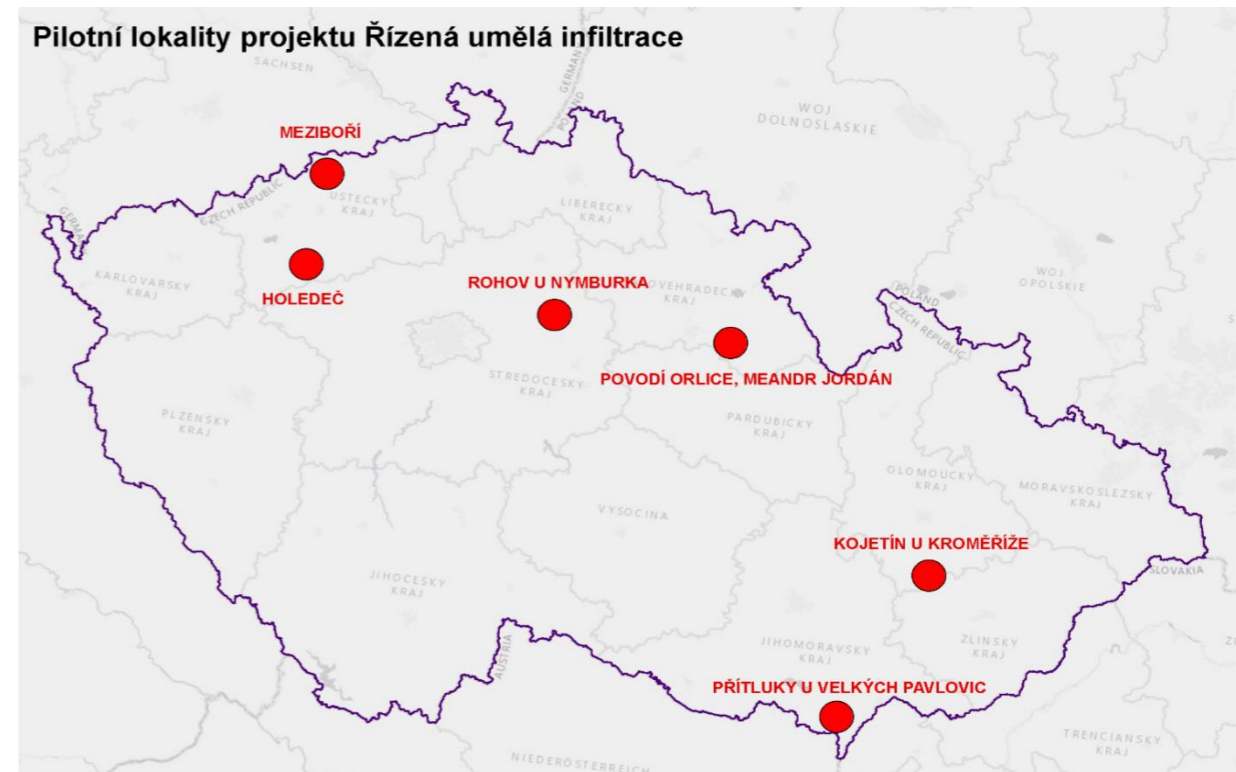
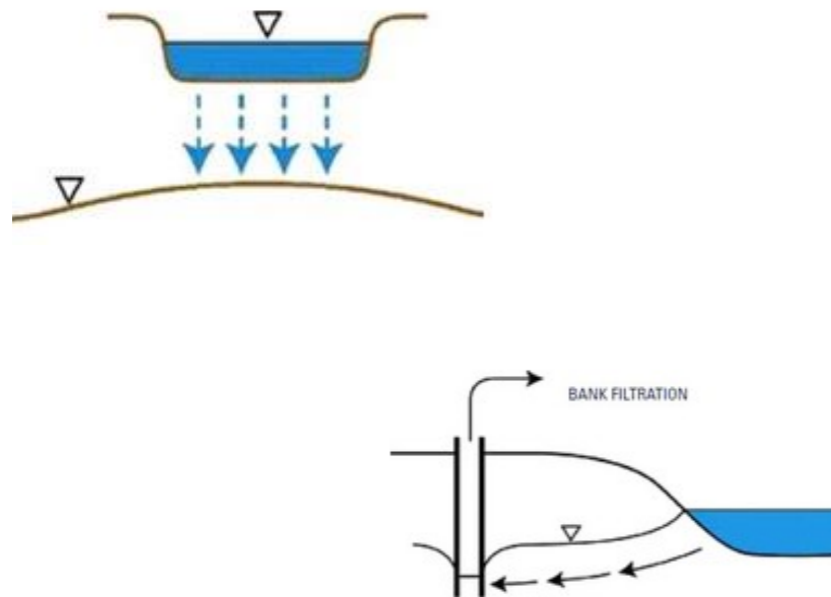
## 2.1 Protection zones of sources of surface and ground water for supply of drinking water to the public

- By the amendment to the Water Act extended the range of possible range of recipients of compensation in case of introduction of measures limiting land use was extended also for tenants,
  - + the possibility of reimbursing of the compensation from the state budget, if the measures are in the public interest,
- The national database of „Protection zones of sources of surface and ground water“ is being set up - The aim of the ongoing project is to create a layer of valid water resource protection zones with attached water permit.
- Complex analyzes were carried out on 4 pilot sites (Vodní nádrž Švihov na Želivce, Vodní zdroj Ústí nad Orlicí, Vodní zdroj Ostrožská Nová Ves, Vodní zdroj Bzenec) - the results are listed on the web [www.suchovkrajine.cz](http://www.suchovkrajine.cz)



## 2.2 Application of artificial infiltration and bank infiltration technologies to increase groundwater resources

- A research project assessing the functionality of individual artificial infiltration technologies is prepared and gradually implemented in 6 pilot locations



- The expected source of funding is the National Environment Program - Eco-innovation projects



### 3. Agriculture as a tool for taking care of the quantity and quality of water and soil condition

Optimization of agricultural land monitoring and updating soil quality grading to improve soil protection	MZe, VÚMOP, SPÚ, ÚKZÚZ
Improving soil protection against erosion effects	MZe, MŽP, SPÚ, VÚMOP
Organic matter in soil and measures to preserve and increase it	MZe, VÚMOP, ÚKZÚZ
Monitoring the quality of groundwater and surface water in connection with the use of fertilizers and pesticides	MŽP, MZe, ČHMÚ, s.p. Povodí, VÚMOP, ÚKZÚZ
Changing agricultural policy in support of growing energy crops	MZe
Supporting the development of organic farming	MZe
Promoting the principles of precision farming	MZe
Support for the implementation of complex land consolidation	MZe, SPÚ



## 3.1 Monitoring the quality of groundwater and surface water in connection with the use of fertilizers and pesticides

- The Ministry of the Environment and the Ministry of Agriculture carry out regular monitoring of the state of water bodies
- Regulation of the use of pesticides falls under the responsibility of the Ministry of Agriculture
- From the point of view of the Ministry of the Environment, it is necessary to introduce effective regulation and control of the use of pesticides



## 4. Improving the retention and accumulation capacity of the landscape

Restoration of natural functions of watercourses and floodplains	MZe, MŽP, s.p. Povodí
Control of drainage from agricultural drainage systems	MZe, VÚMOP, SPÚ
Restoration of natural water elements in the landscape	MŽP, MZe, SPÚ
Forestry measures	MZe, MŽP, Lesy ČR, VLS





# 4.1 Restoration of natural water elements in the landscape

## Natural water elements in the landscape

- **They increase the ecological stability of the landscape and resistance to climate change**
- **They provide ecosystem services that are beneficial to human society:**
  - slow down the surface flow from the river basin => promote natural retention and accumulation of water in the landscape,
  - support small water cycles => allow for local atmospheric precipitation (fog, dew, rain),
  - favorably affect the local climate => limit extreme temperatures - high and low,
  - support the natural infiltration of surface water into underground water in the countryside (uptake => support of water resources and dry weather flow in watercourses),
  - promote self-cleaning of surface water and groundwater,
  - provide recreational and aesthetic features
- **Their recovery is supported in the long term by the Ministry of the Environment:**
  - The Operational Program Environment (OPE),
  - The Natural Landscape Recovery Support Program (POPFK),
  - Landscape Care Program (PPP)



## 5. Supporting the principles of responsible water management across sectors

Support measures to reduce water consumption in the energy and industrial sectors	MPO, MZe, MŽP, MMR
Support for rainwater management	MŽP, MZe, SOVAK
Support for the reuse of cleaned wastewater	MŽP, MZe, SOVAK
Support for modern wastewater treatment technologies	MŽP, MZe, MPO, SOVAK
Spatial Planning	MMR, MZe, MŽP



# 5.1, 5.2 Grant heading „Rainwater“

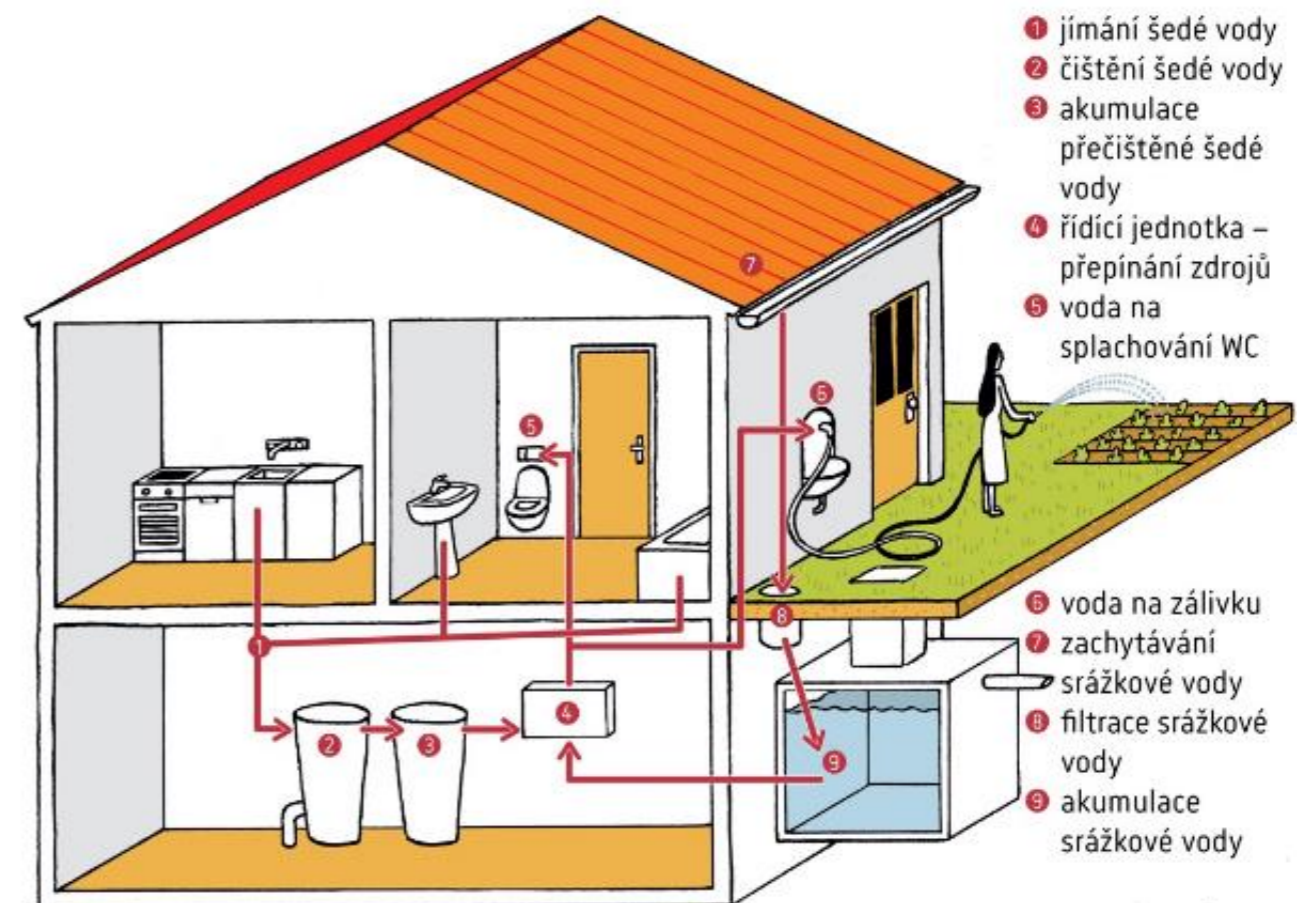
- 1st call exhausted within 24 hours - allocation of CZK 100
- 2nd call is in progress (receipt of requests from 7 September 2017 until the allocation is reached)
- 3rd call is in preparation

## Supported measures:

Accumulation of water for gardening

Rain water accumulation for flushing toilet and gardening

Utilization of purified waste water alternatively in combination with rainwater



# Legislative measures

- Major amendment to the Water Act is being prepared - new Section **X - Controlling drought and water scarcity in consideration:**
  - Reduction of unattended water consumption
  - the broader option of the VPU to interfere with water based decisions when changing ratios
  - clear preference of rainwater management (1) use of rainwater at source (households, gardens), (2) infiltration (3) retention and outflow
- **Plan for drought and water scarcity**
  - Basis for decision-making by the Commission on drought and water scarcity
  - The main objective is to prevent the crisis situation
  - Contains identification and description of water resources, drought and water scarcity assessments, design of procedures and measures to mitigate the negative impacts of drought



# Legislative measures

- Preparations of the Government **Regulation on the method and criteria for determining the minimum residual flow in watercourses**
  - Basis for establishing the minimum residual flow in the water management permit.
  - The main objective is the unification and binding definition of the method and criteria for establishing the minimum residual flow.
  - The settlement of inter-ministerial commentary process is currently under way.
- **Type plan for dealing with the crisis situation "Long-term drought,"**
  - The type plan was created at the Ministry of Environment and handed over to the Ministry of Interior at the end of 2017.



# Legislative measures

## Preparation of so-called Counter-erosion Decree

- Implementing Act on the Act No. 334/1992, On the Protection of Agricultural Lands, as amended.
- It sets out the assessment of the erosion threat to the land, the acceptable level of erosion threats and measures to reduce erosion threats.
- Currently, the settlement of comments originating from inter-ministerial commentary process is ongoing.



# Economic measures

## Operational Program Environment

- Construction and modernization of water treatment plants and improvement of drinking water quality
- Construction of drinking water supply systems and distribution networks
- Increasing the retention potential of watercourses and adjacent floodplains
- Rainwater management in urban areas and rainwater utilization
- Revitalization and support of spontaneous renaturation of watercourses and floodplains
- Improving the species, age and spatial structure of forests
- Revitalization of functional areas and elements of residential green



# Economic measures

## National Environment Program

- **„Rainwater“** - rainwater management in households,
- **„Survey, Enhancement and Construction of Drinking Water Resources“**
- **"Support for Residential Greening"**
- **"Landscape care program"** - restoration and creation of landscape features (ponds, wetlands etc.)
- **"Support for Restoration of Natural Landscape Functions"** - adaptation measures for climate change for forest, non-forest and aquatic ecosystems (e.g. planting of native trees, erosion measures, restoration of small water reservoirs) for smaller scale measures up to 250 thousand. CZK







**Thanks for your attention**

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