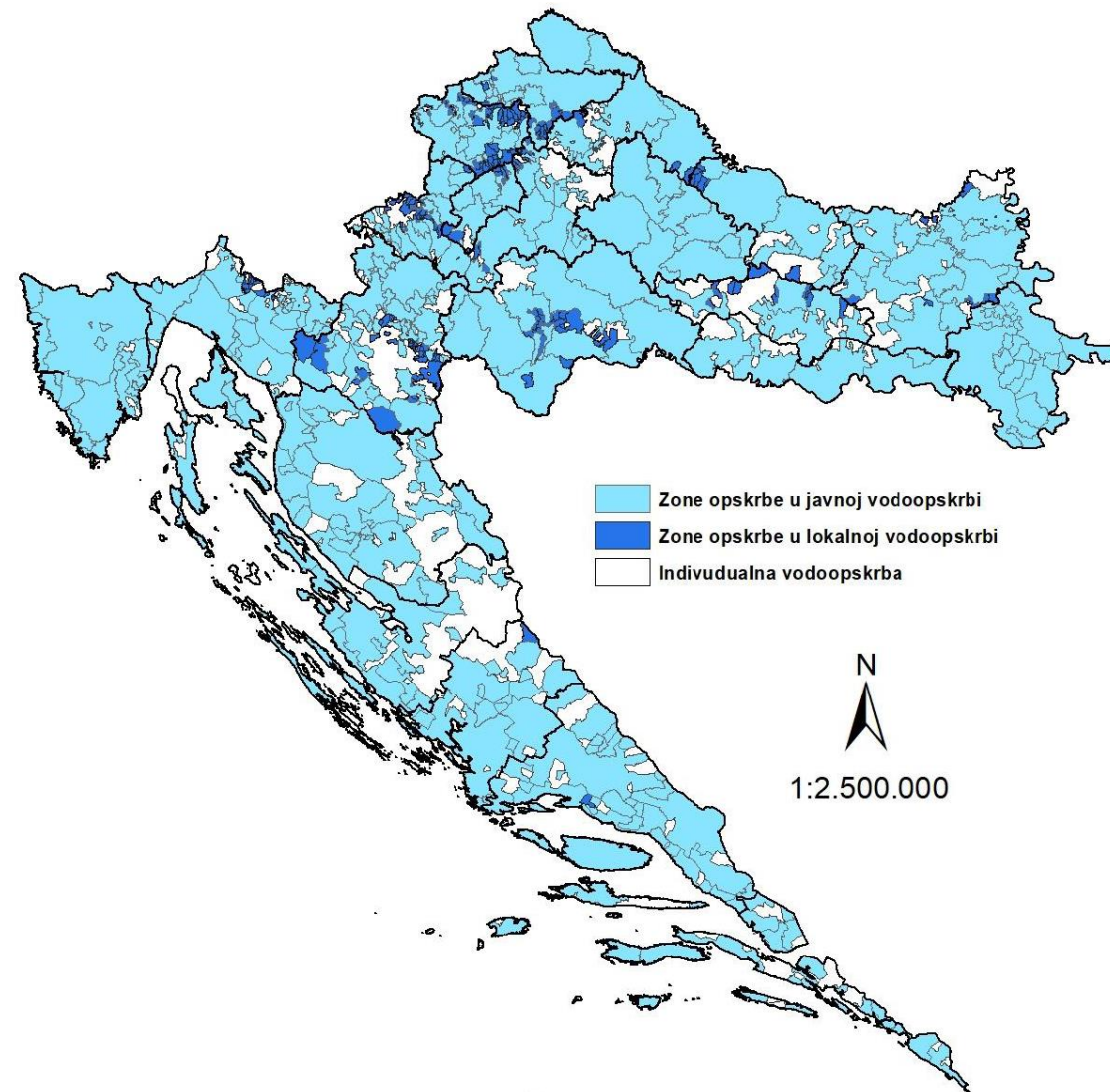




# Preparation and implementation of WSPs: examples from Croatia

Magdalena Ujević Bošnjak, PhD  
Croatian Institute of Public Health  
magdalena.ujevic@hzjz.hr





# GOVERNANCE OF DRINKING WATER IN CROATIA

## Drinking water quality

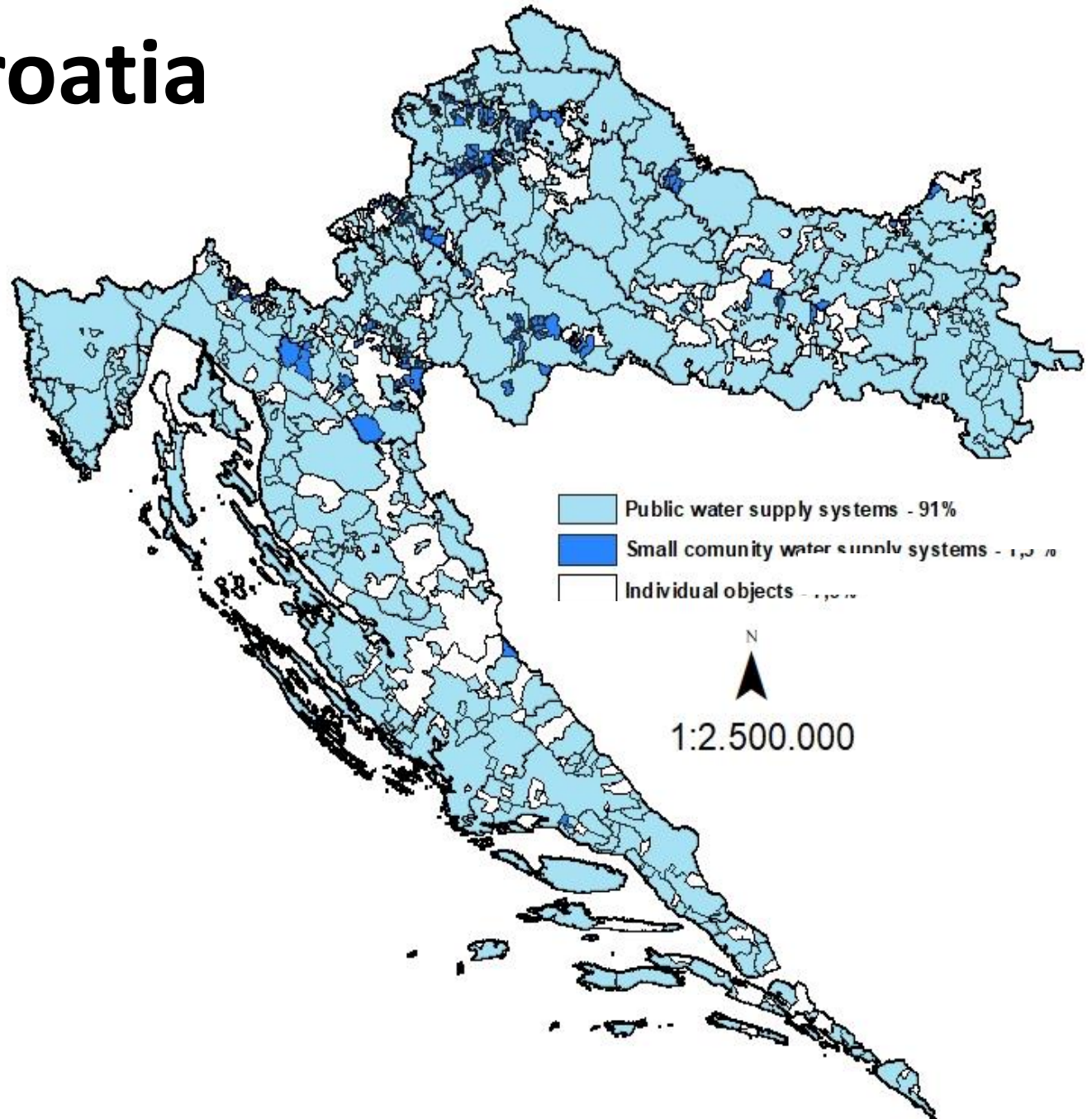
- **Ministry of Health**, *responsible for the drinking water quality, approve WSP, approve derogations*
- **Croatian Institute of Public Health**, *protects and improves health and security of the population, coordinates monitoring of drinking water quality, prepare national reports, audit WSP, professional support to the MoH*

## Drinking water quantity and infrastructure

- **Ministry of Economy and Sustainable Development, Directorate for Water Management**; *responsible for the implementation of water infrastructure projects*
- **Croatian Waters**, *legal person with public authority for water management*

- **Republic of Croatia State Inspectorate**
  - **Sanitary inspection**
  - **Water inspection**

# Water supply in Croatia



**Inhabitants supplied by:**

**Public water supply systems 92,7 %**

**Local water supply systems 1,4 %**

**Individual supply 5,9%**

# Differences in water availability

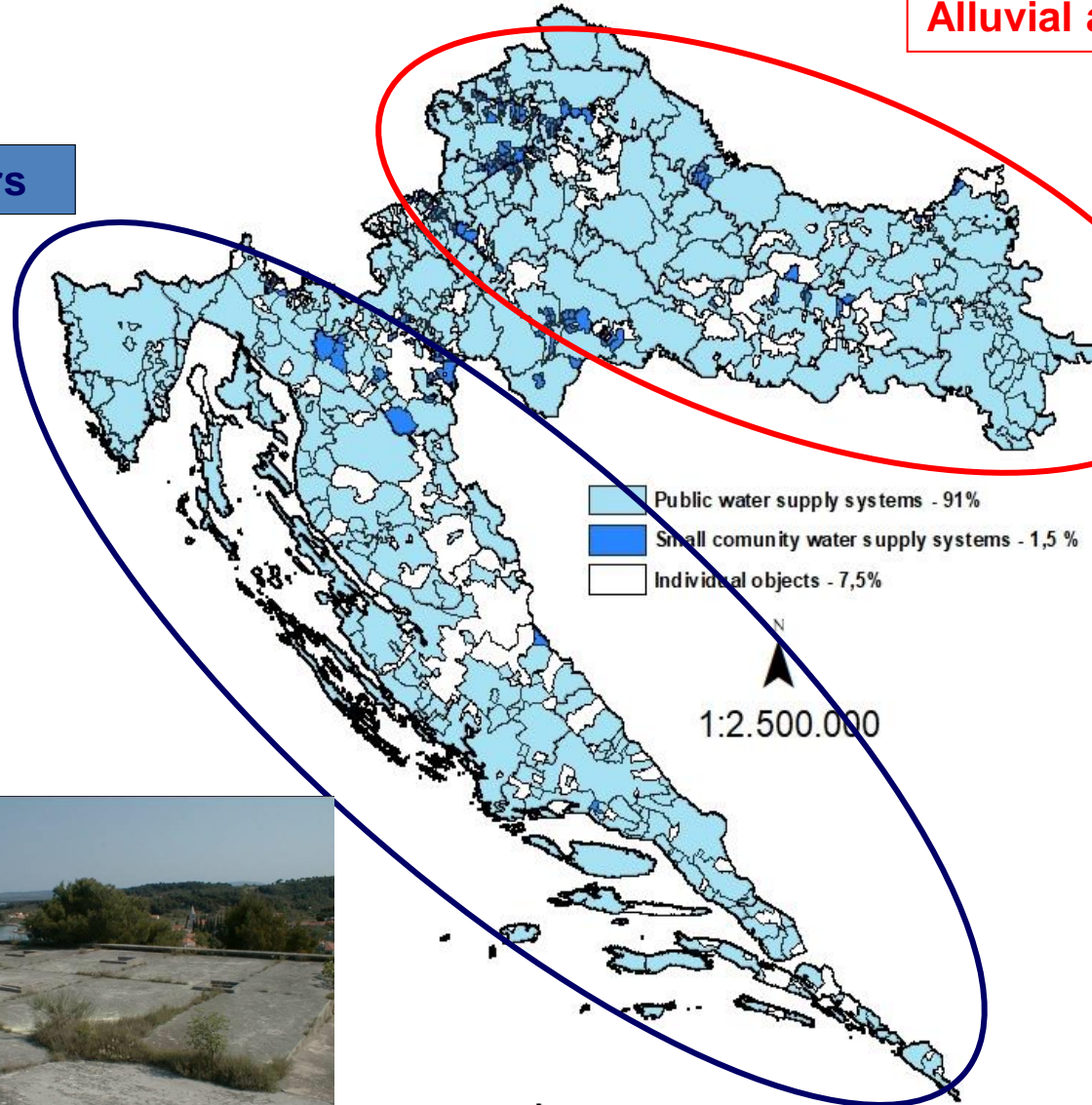


Karst aquifers

Alluvial aquifers

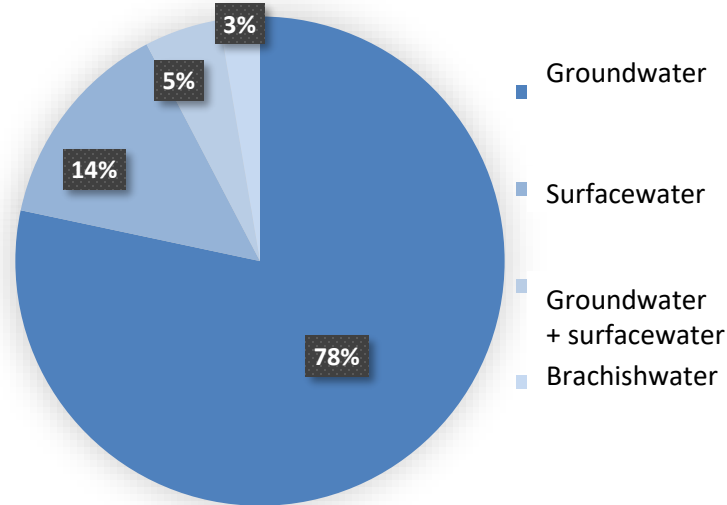
Local water supply systems and individual wells

Individual cisterns, public cisterns and springs



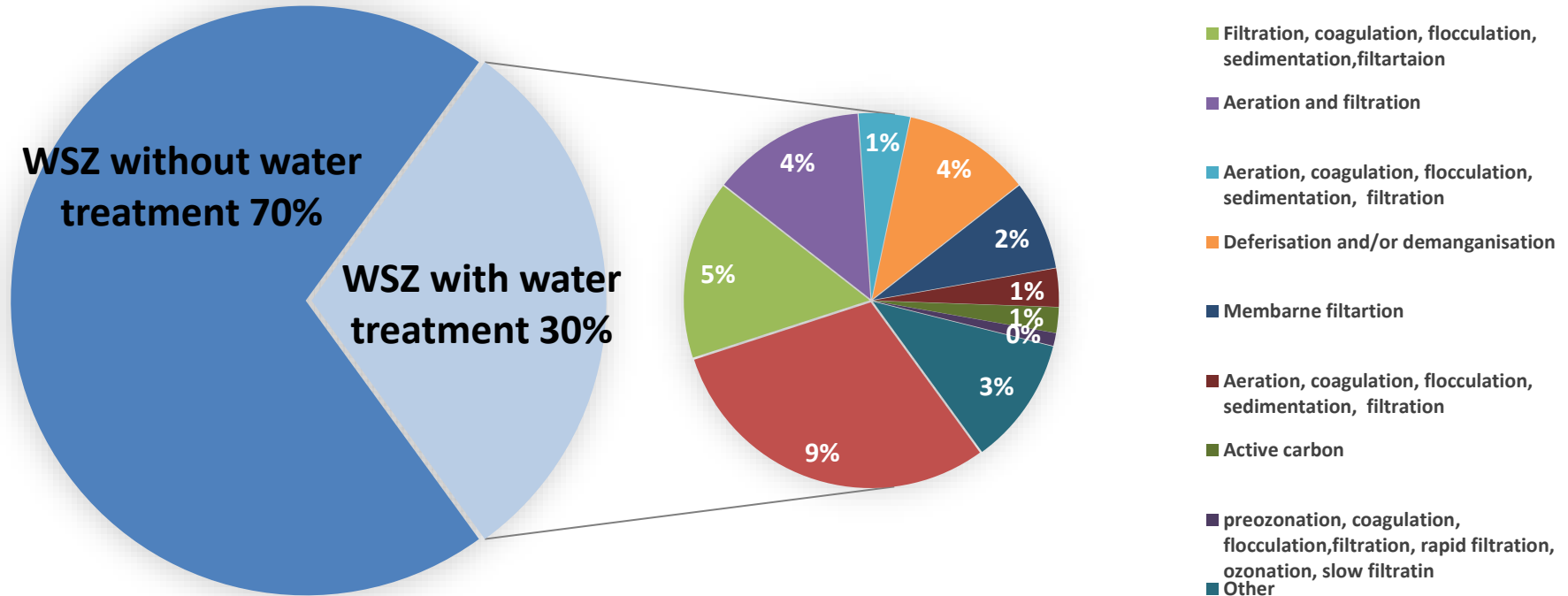
# Water type and amount of water supplied by the public suppliers

Type of water per water supply zones (WSZ) in Croatia



Water delivered m <sup>3</sup> /day	Number of water suppliers (public)
≤ 100	12
> 100 ≤ 1.000	54
> 1.000 ≤ 10 000	57
> 10.000 ≤ 100000	9
> 100.000 – 200.000	1

# Water treatment- public water suppliers





# RISK ASSESSMENT AND MANAGEMENT IN DRINKING WATER SUPPLY SYSTEMS

## WORLD HEALTH ORGANISATION

- The application of **HACCP** in public water supply systems was proposed by scientists gathered at the World Health Organization (WHO) **in 1994**
- **Water safety plans (WSP)** presented in the third edition of the "Guidelines for drinking water quality" of WHO **in 2004**
  - described as "a way of adapting HACCP principles to water supply systems";
  - does not use the term "critical control point";
  - emphasizes the concept of multiple barriers.

## CROATIA AND EU

- **CROATIA**: The application of HACCP in public water supply systems in Croatia requested by the Ordinance on sanitary quality of drinking water (**Official Gazette 182/2004**)
- **EUROPEAN UNION**: Commission Directive (EU) 2015/1787 **of 6 October 2015** amending Annexes II and III to Council Directive 98/83/EC on quality of water intended for human consumption
  - but still not obligation – on voluntary basis

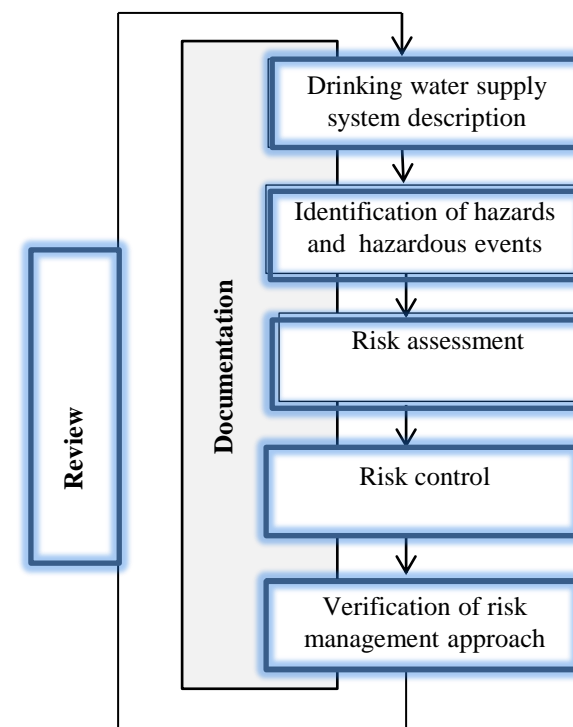
# HACCP vs WSP



## HRN EN 15975-2:2013, Security of drinking water – Guidelines for risk and crisis management Part 2: Risk management

- There were no guidelines for HACCP implementation in water supply systems in Croatia
- HACCP plans were checked by sanitary inspection (sanitary inspection covers food, water, object of common goods etc.)
- HACCP is easily applicable in the process of water treatment, but it is more difficult to apply it on the catchment area and distribution system

- Incorporates fundamental elements of the WHO Water Safety Plan approach



*Overview of risk management approach. Source HRN EN 15975-2:2013*



# HACCP vs WSP in Croatia

1. Questionnaire on EN 15975-2:2013 (WSP) and HACCP sent to drinking water suppliers in 2016
2. Evaluation of HACCP drinking water suppliers' documentation regarding:
  - Hazard and hazardous events identification
  - Risk assessment methodology applied
  - Risk prioritization

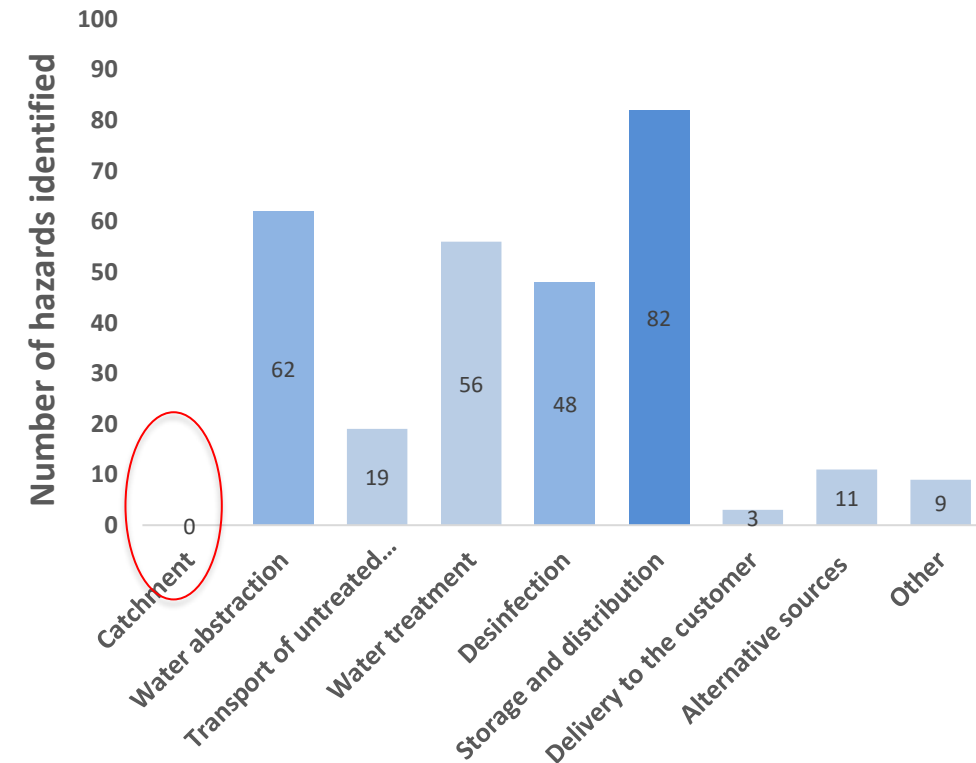
		IVU		Napomena
		Obuhvaćeno HACCP sustavom (staviti x u kolonu da ili ne)		
Koraci iz plana sigurnosti vode (WSP)		DA	NE	
1	Formiranje WSP tima	x		
	Izbor članova tima s obzirom na prikladno iskustvo, stručnu spremu i ostalo			
	Aktiviranje iskusnih stručnjaka, osiguravanje financijske i tehničke podrške			
	Postavljen zahtje za određenim stručnim zvanjima i veličinom tima			
	Definirane uloge i odgovornosti članova tima			
2	Opis vodoopskrbnog sustava			
	Procjena kvalitete vode na izvoru			
	Podatci o aktivnostima u slivnom području, povezanost izvora			
	Opis obrade, distribucije i spremanja vode			
	Postavljeni zahtjevi za kvalitetom vode			
	Opis materijala u kontaktu s vodom			
	Identificiranje potrošača i načina upotrebe vode			
	Dokumentiranost postojećih procedura			
3 i 4	Identifikacija opasnosti, opasnih događaja, procjena rizika, Identifikacija opasnosti i opasnih događaja			Molim na drugom listu dati popis opasnih događaja i učinjenu procjenu rizika u okviru HACCP plana, a na trećem listu dati popis kritičnih kontrolnih točaka
	Analiza rizika			
	Evaluacija rizika			
	Prioritizacija rizika			
5	Kontrola rizika			
	Identifikacija kontrolnih mjera			
	Validacija kontrolnih mjera			
	Revizija prioritizacije rizika			
	Implementacija kontrolnih mjera			
	Revizija prioritizacije rizika			
	Operativni monitoring kontrolnih mjera (što se mjeri i kako)			

PROCESNI KORAK	OPASNOST B – biološka K – kemijska F - fizička	IZVOR/UZROK	VJEROJATNOST POJAVE				OZBILJNOST POSLJEDICA			ZNAČAJNOST N –kritična NP1 –značajna NP2 – manje značajna P - prihvatljiva
			velika	srednja	mala	zanemariva	visoka	srednja	niska	
	B – biološka	prisutnost mikroorganizama u sirovoj vodi		X			X			NP1 –značajna

- 17 drinking water suppliers responded to the questionnaire and send their HACCP documentation
- 5 suppliers sent uncomplete documentation and could not be evaluated

# Evaluation of the questionnaire on WSP and HACCP

- All major elements required by WSP described in **HRN EN 15975-2:2013** are recognized in HACCP systems implemented by the drinking water suppliers in Croatia
- However, some requirements are recognized as missing or not processed e.g.:
  - Materials in contact with water are usually not covered by HACCP system
  - Risk analysis done by the different matrices
  - Risk evaluation?
  - **Disinfection is in the most cases the only** critical control points (CCP)
  - Only two drinking water suppliers identified some CCP other than disinfection.





# Next steps

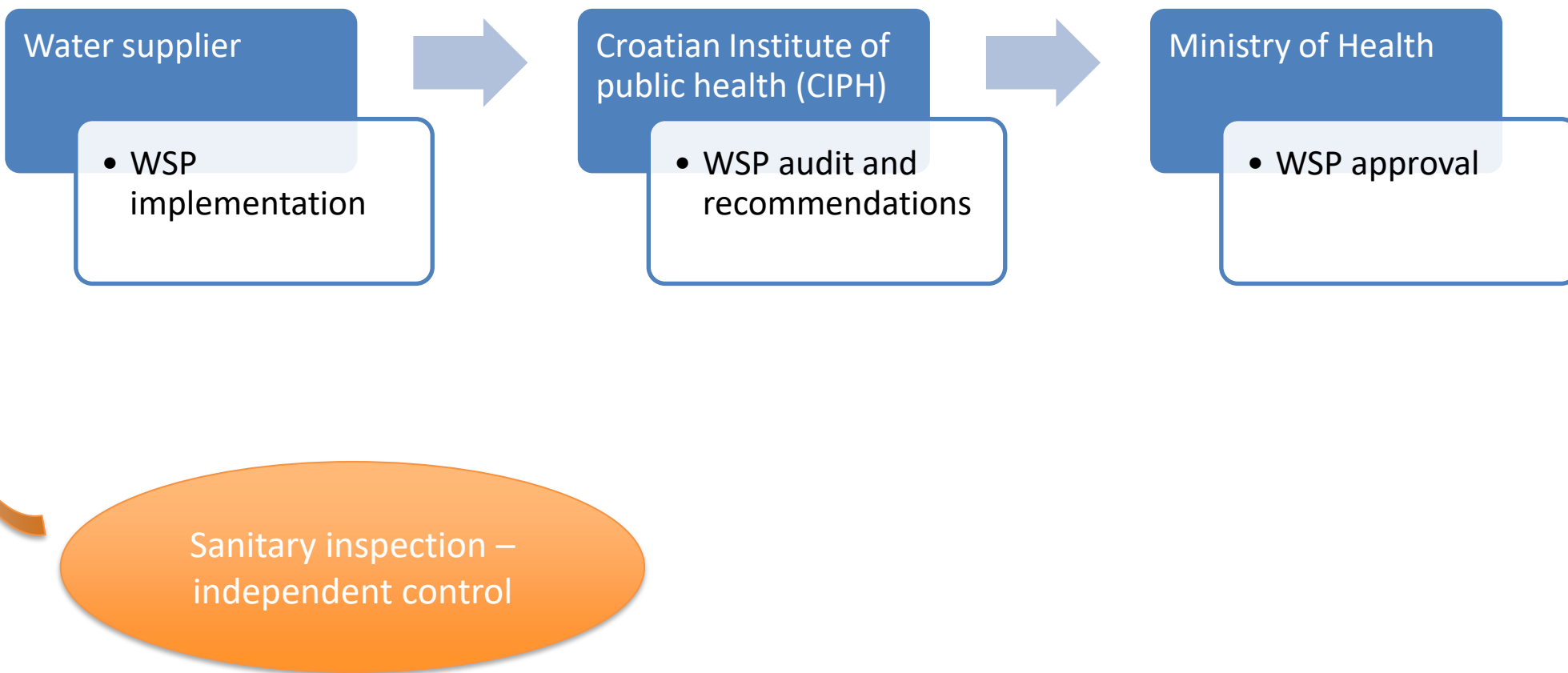
## UNECE - WHO/Europe Protocol on Water and Health

- Organised training to trainers workshop in Zagreb in September 2018
  - Trainers: WHO and UK experts
  - Trainee: representatives of Croatian Institute of public health, Sanitary Inspection, representative of water Suppliers
- Prepared guidelines for WSP implementation in Croatian
- Organised 4 regional workshops for water suppliers in 2019

## Legislation

- Amending of the Ordinance on sanitary quality of drinking water in 2017
  - Implementation of the Commission Directive (EU) 2015/1787 of 6 October 2015 amending Annexes II and III to Council Directive 98/83/EC on quality of water intended for human consumption
- Deadlines for implementation of WSP:
  - until the end of 2023 for suppliers supplying >1000 m<sup>3</sup> of water /day
  - The end of 2029 for suppliers supplying <1000 m<sup>3</sup> of water/day

# WSP implementation process in Croatia





# First WSP implementation in 2020.

Water supplier adopted HACCP and prepared WSP

Sent documentation to the CIPH-Croatian Institute of Public Health (31.12. 2019)

On site evaluation by CIPH on 27 and 28 February 2020

CIPH prepared report with recommendations

Supplier made corrective actions and send back evidences to CIPH

CIPH approved and prepared FINAL POSITIVE CONCLUSION

Supplier sent CIPH positive conclusion and WSP summary at the Ministry of Health

Ministry of Health accepted and approved WSP

Supplier need to announce to CIPH all important changes

Every 3 years CIPH audit WSP



# Status of WSP implementation in Croatia

- 67 water suppliers need to adopt WSP by the end of 2025
- At the moment
  - 7 suppliers got WSP approval
  - 5 suppliers in process
  - 3 suppliers announced

Water delivered m <sup>3</sup> /day	Number of water suppliers (public)
≤ 100	12
> 100 ≤ 1.000	54
> 1.000 ≤ 10 000	57
> 10.000 ≤ 100 000	9
> 100.000 – 200.000	1



# WSP audit report done by CIPH

## IZVJEŠTAJ S POČETNE OCJENE SUKLADNOSTI PLANA SIGURNOSTI VODE

### Zapažanje i ocjene po elementima plana sigurnosti vode (PSV)

1.	Uspostavljen tim stručnjaka (Tim plana sigurnosti vode)
----	---

#### Zapažanja

UMLL je uspostavio tim stručnjaka koji se bavi uspostavljanjem i implementacijom plana sigurnosti vode (PSV).

4.	Procjena rizika
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#### Zapažanja

Sustav procjene razine rizika je dokumentiran u Način (metoda) izrade analize opasnosti, evaluacije kontrolni



## Final opinion of CIPH together with WSP summary sent to the Ministry of Health for the approval

Zagreb, 19.07.2023. godine

Stručno mišljenje Hrvatskog zavoda za javno zdravstvo o početnoj ocjeni sukladnosti plana sigurnosti vode za ljudsku potrošnju

### SAŽETAK PLANA SIGURNOSTI VODE

#### OPĆI PODACI O JAVNOM ISPORUČITELJU VODNIH USLUGA:

(Potrebno ispuniti opće podatke o JIVU-u u priloženoj tablici)

Opći podatci o javnom isporučitelju, vodocrpilištima i pripadajućim vodoopskrbnim sustavima			
Naziv javnog isporučitelja vodnih usluga	Županija	Adresa	OIB

### 2. OPIS VODOOPSKRBNOG SUSTAVA

Priložiti ažuriranu skicu cijelog vodoopskrbnog sustava. Po potrebi priložiti manje skice pojedinih dijelova sustava.





# Challenges

## Water suppliers

- HACCP was the obligation mainly of „water quality people”
- In WSP all sectors in the company need to be involved
- WSP is not pieces of paper obtained by the consultant

## Legislation changes and reform

- New DWD and new Croatian Law on drinking water imposed new deadlines
  - End of 2025 for big suppliers
  - End of 2029 for small ones
- On going reform to reduce the number of water suppliers in Croatia
  - Very demanding and slow task



# Conclusions

- The experience of Croatian water suppliers in HACCP and ISO 22000 helped in WSP process
- All major elements required by WSP described in HRN EN 15975-2:2013 are recognized in HACCP systems implemented by Croatian water suppliers
  - HACCP and WSP steps were aligned in the areas of describing the water supply system and defining monitoring and controls
  - The gaps existed in the areas of hazard identification, risk assessment and prioritization
  - In those areas further improvements are needed
    - New round of workshops will probably be done soon



# Conclusions

- Huge amounts of information need to be digitalized
- Already existing data bases at national level on monitoring of drinking water quality, water produced etc but
  - WSP data collected at CIPH but not at any platform/application
- WATER Q project platform will be further used to digitalize data from water suppliers

**THANK YOU FOR YOUR ATTENTION!**