

MUHA STRATEGIJA I AKCIONI PLANOVI



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JAROSLAV ČERNI
WATER INSTITUTE



VODOVOD
NIKŠIĆ

PLANOVI ZA SIGURNO SNABDEVANJE VODOM ZA PIĆE PSSVP (WSP)

Zdravstveno zasnovani ciljevi
(zakoni, propisi, standardi)

Plan o bezbednoj vodi za piće
(Preduzeće ViK)

Nezavisan nadzor

Najefektivniji način da osiguramo
bezbednost snabdevanja vodom za
piće postiže se:

detaljnou procenom rizika

i pristupom upravljanja rizikom

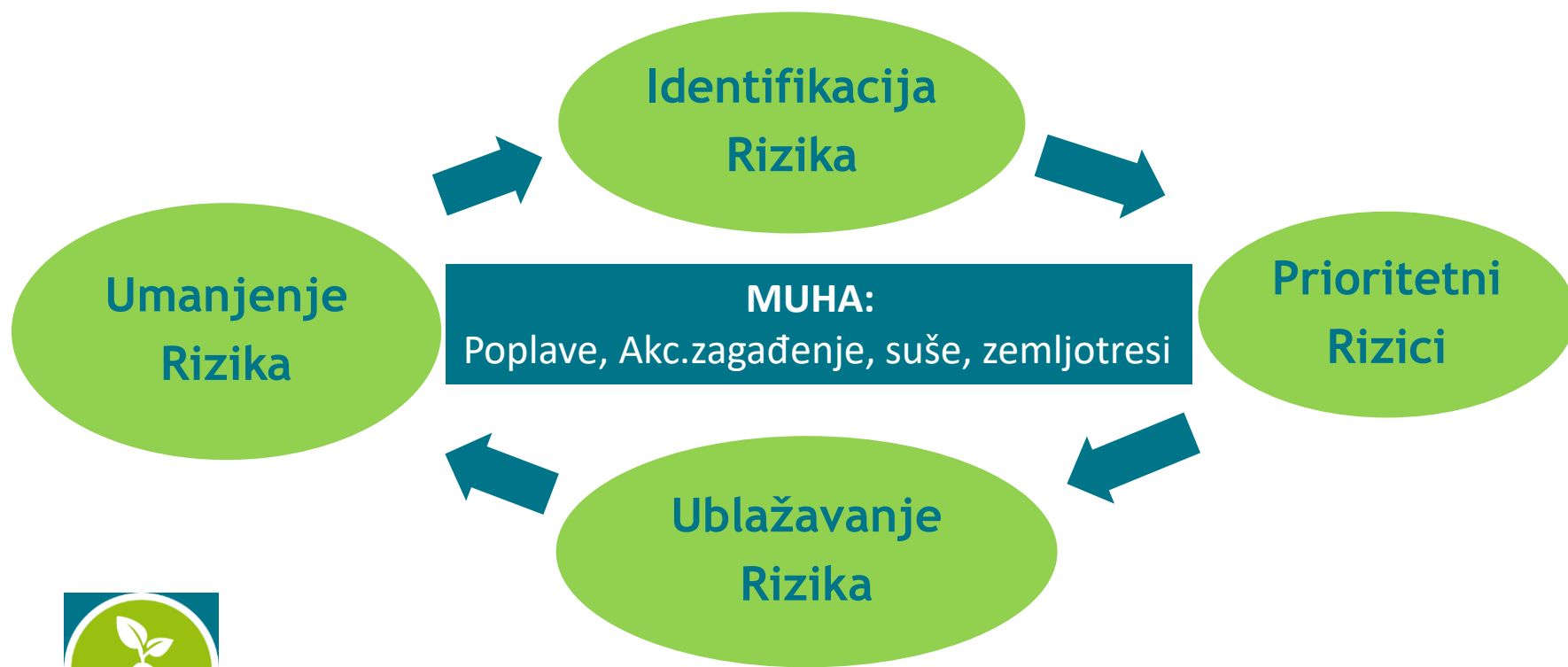
koji obuhvata sve korake snabdevanja
vodom od **vodozahvata do potrošača**.

U smernicama SZO i EU Direktivi o kvalitetu vode
namenjenoj za ljudsku upotrebu (2020/2184) ovaj
pristup se zove:
PLANOVI ZA SIGURNO SNABDEVANJE VODOM ZA PIĆE



*Prilagodila Branislava B.Matić na osnovu: Bezbednost vode i upravljanje krizama-
Osnove poslovanja za upravljanje katastrofama, radionica UTVSI 2020.*

PSSVP (WSP) JE DINAMIČKI I CIKLIČAN PLAN ZA UPRAVLJANJE RIZIKOM (RIZICIMA)

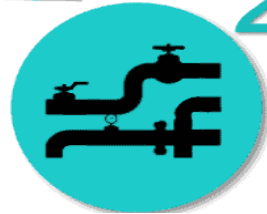


PSSVP (WSP) KONCEPT

Formiranje
Tima



2 Opis
Sistema



3 Identifikacija i
Procena Rizika



4 Unapređenje
Plana



5 Monitoring i potvrda
efikasnosti



11 modula za
sisteme (NK)

6 zadataka za
male
vodovode



Ažuriranje (6 godina)
Revizija nakon
incidenta



Procedure i
programi podrške



Prilagodila Branislava B.Matić na osnovu <https://wsportal.org/what-are-water-safety-plans/#parentHorizontalTab3>

<https://www.cmmartinho-consulting.pt/en/services/water-safety-plan/>

RIZICI - OPŠTE PRISUTNA REČ

OPASNOST

RANJIVOST

PRETNJA

NEIZVESNOST

NEŽELJENI DOGAĐAJ



NEPOUZDANOST

ŠTETA



Prilagodila Branislava B.Matić na osnovu: Bezbednost vode i upravljanje krizama-Osnove upravljanja rizikom u sistemima javnog vodosnabdevanja, radionica UTVSI 2020.

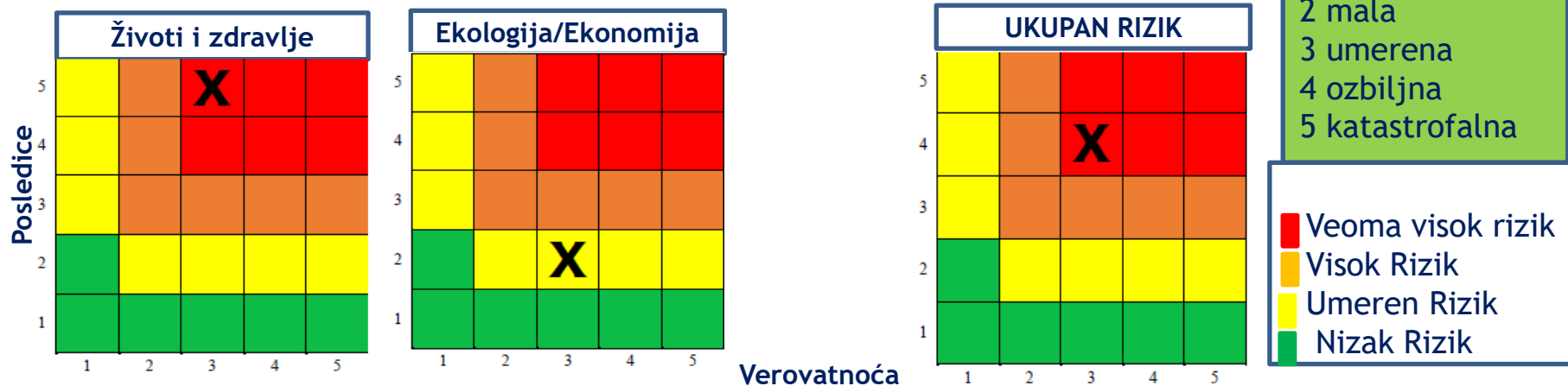
WSP / SLIČNE PROCEDURE u Srbiji

Metodologija za procenu rizika (RA) od katastrofa za Izradu Plana zaštite i spašavanja

RA - vertikalna i horizontalna saradnja i koordinacija među sektorima, institucijama i zainteresovanim subjektima

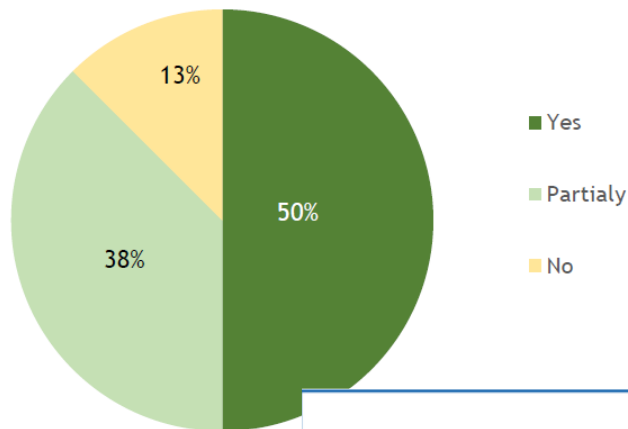
RA za svaki hazard na osnovu usvojenih scenarija, verovatnoće i posledica, istorijskih podataka, rizika po život i zdravlje, ekologiju i ekonomiju, društvenu stabilnost, zbirna matrica

RA MATRICA za NESTAŠICU VODE ZA PIĆE

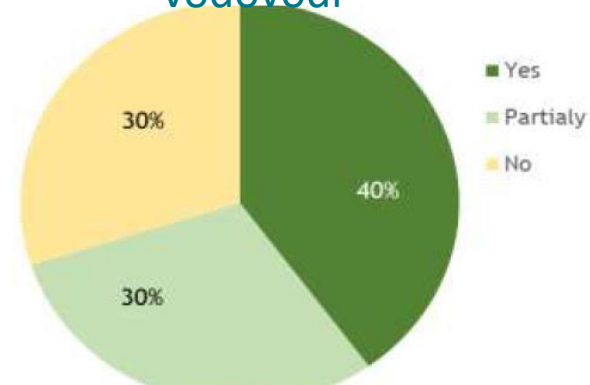


PSSVP (WSP) i Slične procedure sinteza nacionalnih konsultacija u Republici Srbiji u okviru MUHA projekta

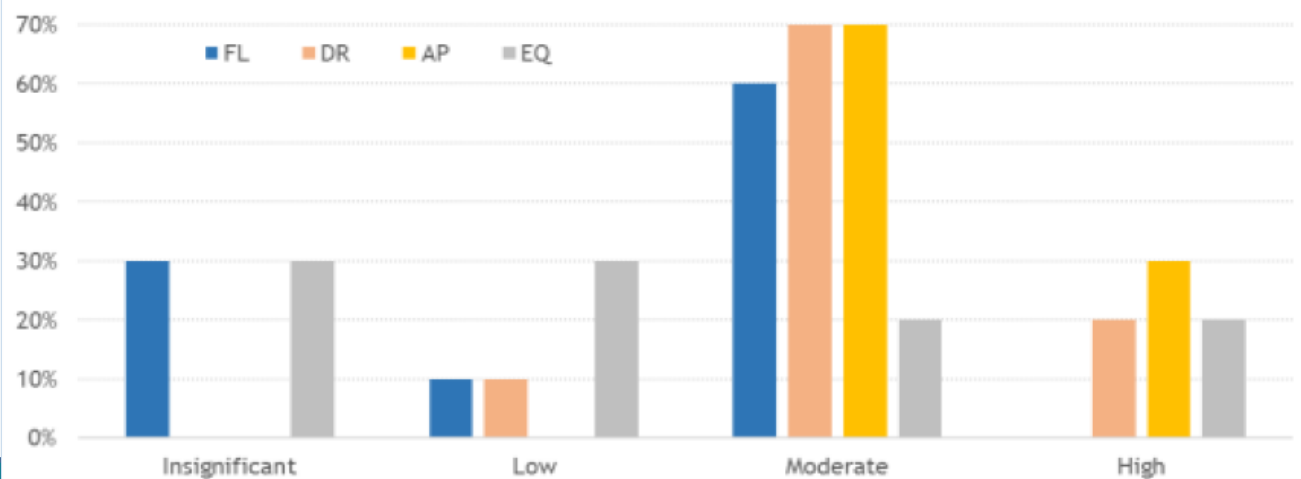
Q1-Familiarity with WHO WSP



Planovi smanjenje rizika vodovodi



Risks significance ranking



Izvor: Izveštaj o konsultacijama o sigurnosti vode za piće u Srbiji, JČI, 2020.

MERE ZA SMANJENJE RIZIKA, UMESTO ZAKLJUČKA

Na osnovu dobijenih odgovora od učesnika nacionalnih konsultacija o sigurnosti vode za piće u Srbiji, mere se primenjuju u zavisnosti od rizika za Određeni sistem vodosnabdevanja:

- 🍃 20% učesnika smatra da su mere dovoljne,
- 🍃 50 % smatra da je neophodno unaprediti postojeće mere
- 🍃 30% smatra da postojeće mere nisu dovoljne.

Metodologijom za izradu mapa rizika i planova upravljanja rizicima od poplava Identifikovana su i vodna tela na koje poplave umerenog intenziteta mogu imati Negativne efekte, zaštićena područja, potencijalni izvori zagađenja

Preporuka EU Direktive o vodi za piće da se koriste podaci (kada je moguće) iz planova upravljanja vodama o vodnim telima površinskih i podzemnih voda koja služe kao vodozahvati (monitoring i mere).

PSSVP (WSP) treba shvatiti kao nadogradnju na postojeću praksu, postojanje stručnog kadra u sistemima vodosnabdevanja i ostalim institucijama, kao i zainteresovanih subjekata je prednost koju je moguće iskoristiti. Saradnja među sektorima koja već postoji u izradi ostalih planova od značaja za sigurno snabdevanje vodom za piće i smanjenje rizika je dobra startna osnova. Neophodno obezbediti finansijska sredstva.



Upravljanje vodama na nivou sliva i vodosnabdevanje (PSSVP (WSP), Planovi - vanredne situacije horizontalna i vertikalna povezanost

Integralno upravljanje rečnim slivovima:
Plan Upravljanja vodama
Plan za smanjenje rizika od poplava



**Sektori -
Horizontalna
povezanost:
Vode, ZŽS, Zdravlje,
DRR, Prostorno
planiranje,
Šumarstvo,
poljoprivreda, drugo**

**Planovi za smanjenje
rizika od katastrofa:
Nacionalni
Regionalni
Lokalni
ADMINISTRATIVNE
GRANICE
Štabovi**

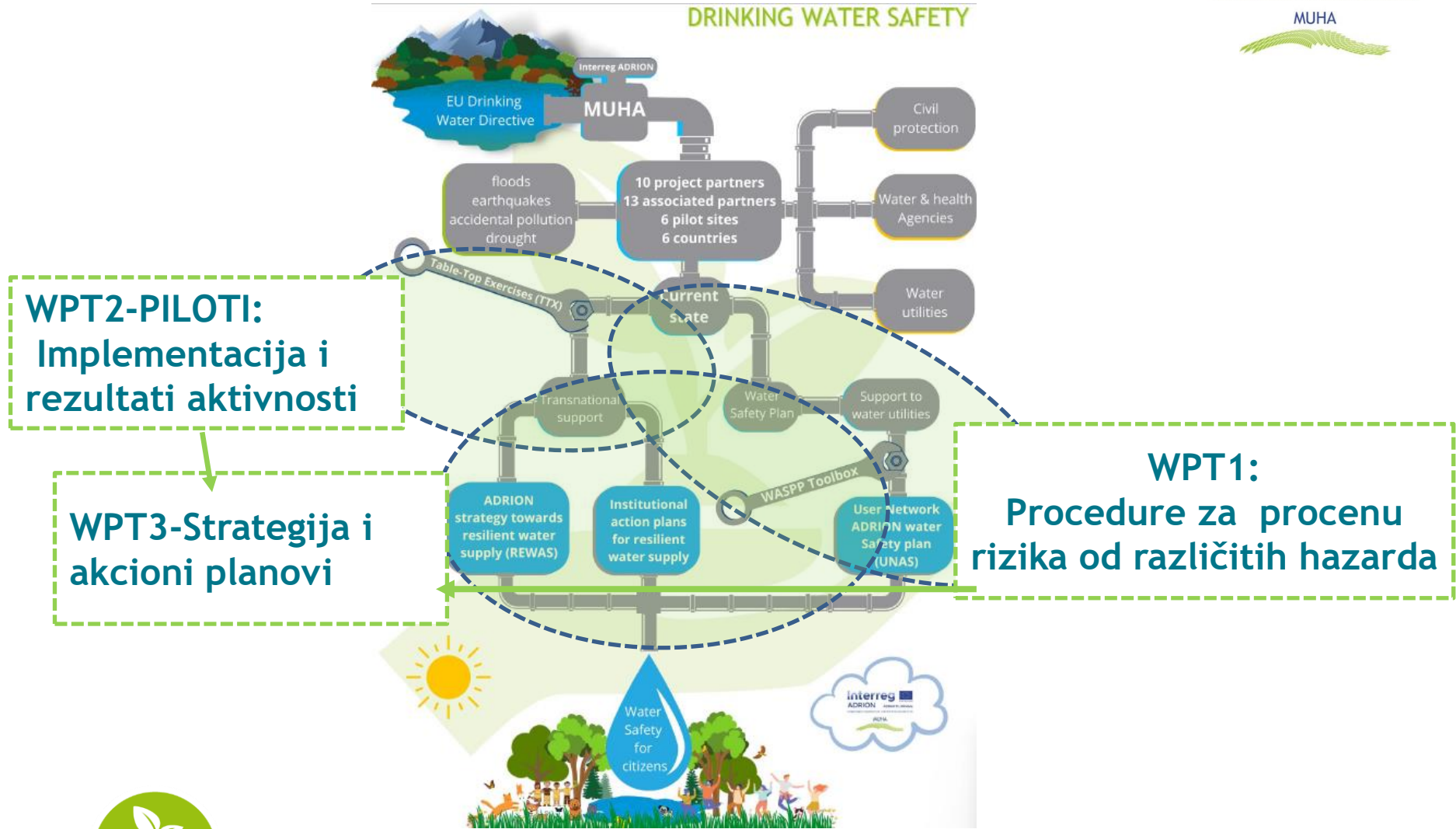
**Ažuriranje na
3 godine**

**Ažuriranje na
6 godina**

**PSSVP na 6 godina, u prostornom smislu “pod plan“ plana
upravljanja vodama, tj manja površina (npr.zona sanitarne zaštite)**



STRATEGIJA I AKCIONI PLANOVI



Izvor: MUHA project- Modifikovala B.B.Matić (2022)

STRATEGIJA I AKCIONI PLANOVI

Na osnovu nedostataka i izazova identifikovanih za procedure za procenu rizika (WPT1) & pilote (WPT1)

Alati i procedure

Koraci



Strateške smernice i akcioni planovi za različite rizike povezane sa vodama na pilot područjima uz učešće zainteresovanih subjekata na različitim nivoima

ADRION Transnational strategy for REsilient Water Supply - REWAS CHARTA



STRATEGIJA I AKCIONI PLANOVI

Logika intervencije:

“transponovanje izjava o graničenjima, nedostaci u ciljeve”

Prioritetna osa	Strateška aktiv.	Specif. cilj	Aktivnosti	Zaint. subjekti	Instrumenti	Ciljne grupe
PRIORITY AXIS	STRATEGIC ACTION	SPECIFIC OBJECTIVE	ACTIVITIES	STAKEHOLDERS	INSTRUMENTS	TARGET GROUP
PA1: Improvement of water safety planning and monitoring procedures oriented to prevention & response	SA1: Development and effective function of an emergency response mechanism at water utility level	SO1: Elimination of the gap of information and activation/mobilization bottlenecks at staff member-level (emergency response mechanism)	<ol style="list-style-type: none"> 1. Managerial initiative of the elaboration and adoption of a Memorandum of Actions at the internal level of the Water Utility – establishment of a regular cycle of information/training and exercising of staff involved in emergency response. 2. Implementation and support of a regular cycle of information/training and exercising of staff involved in emergency response. 3. Consideration and utilization of alternative recruitment procedures. 4. Establishment of a regular cycle of information/training and exercising of staff involved in emergency response. 5. Provision of incentives to ensure the engagement of the core group in this task (e.g. financial incentives). 6. Identification of the necessary to develop equipment. 7. Adoption of an organized sequence of a standardized procedures for internal cooperation (work allocation and communication flow) among the different departments and services and recording of hazardous incidents (including all relevant information with geographical mapping capabilities). 8. Identification of a set of critical partners to join water users. 9. Administration support to the result-oriented implementation of the WSP. To this end, high level management initiatives should be taken to ensure the integration of the WSP to the "Business Plan" of the water utility (including monitoring of operational objectives). 10. Incorporation of the water safety planning investment needs into the investment program as a part of projects that are eligible for funding within financial instruments in place. 	WSP experts	Top management commitment, Human resources, setting up the system, Assessment of stock of equipment and technical resources	WU
	SA2: Improvement of water safety planning and monitoring procedures oriented to prevention & response	SO2: Reduction of difficulties in the development and constant implementation of the Water Safety Plan (inter sectoral cooperation, integration of the Water Safety Plan in water utility's operation)	<ol style="list-style-type: none"> 1. Identification of a set of critical partners to join water users. 2. Administration support to the result-oriented implementation of the WSP. To this end, high level management initiatives should be taken to ensure the integration of the WSP to the "Business Plan" of the water utility (including monitoring of operational objectives). 3. Incorporation of the water safety planning investment needs into the investment program as a part of projects that are eligible for funding within financial instruments in place. 	WSP experts	Current funded activities, EU National, Regional funding schemes, Internal activities	WU
	SA3: Formulation of a national drought management policy	SO3: Assessing drought conditions, and developing response options that minimize economic stress, environmental losses, and social hardship during droughts.	<ol style="list-style-type: none"> 1. Identification of a set of critical partners to join water users. 2. Administration support to the result-oriented implementation of the WSP. To this end, high level management initiatives should be taken to ensure the integration of the WSP to the "Business Plan" of the water utility (including monitoring of operational objectives). 3. Incorporation of the water safety planning investment needs into the investment program as a part of projects that are eligible for funding within financial instruments in place. 	Water utilities, Water Agencies	Links with existing groups, Internal activities, Cross synergies with other sectors	CP
PA2: Increase of governance structures and inter-agency cooperation effectiveness, in the field of drinking water supply	SA5: Development of a Training and Exercise plan	SO4: Recognition of existent procedures and mutual knowledge of each organization	<ol style="list-style-type: none"> 1. Organization of TFEs and/or VTFEs (forums) involving all the potential actors 2. Organization of FEs involving all the potential actors 3. Organization of seminars/workshops for water utility personnel 	Civil protection services (municipal, regional), Response agencies, Voluntary associations	Synergies, Stakeholders' engagement, Synergies among currently funded projects	WU
	SA6: Improvement of inter-agency cooperation in the area of water utility's responsibility (emergency response mechanisms)	SO5: Enhancement of inter-agency cooperation among the responders in the area of water utility's responsibility (emergency response mechanisms)	<ol style="list-style-type: none"> 1. Establishment of Memoranda of Cooperation with the key response agencies in the area of water utility's responsibility targeting to building relationships and constant communication with the involved agencies. 2. Adoption of written procedures and instructions, based on the experience and lessons learnt from past incidents, ensuring access of the partners to full information related with past emergency events. 3. Adoption and implementation of a consistent inter-agency program of exercising. 4. Recording and communication of data concerning resources on hand and assessment of additional resources needed (at inter-agency level). 5. Development of a registry of available resources (on hand) and resources needed commonly shared among the emergency response agencies. 	Civil protection services (municipal, regional), Response agencies, Voluntary associations	Synergies, Stakeholders' engagement, Cross synergies with other sectors, links with existing groups, Internal activities	WU
	SA7: Improvement of inter-agency cooperation with the regional government to manage water resources and water supply on the level of government	SO6: Enhancement of inter-institutional cooperation in the field of water supply	<ol style="list-style-type: none"> 1. Set up decision on high level of government (government, parliament, other) 2. Identification of specific regulations to include water security in legislation. 3. Adoption of specific regulations on water distribution networks, and water bodies, to integrate the aspects of water security taking into account the role of different actors, the coordination of different sectors/ministries. 4. Increase awareness about the water sector as an important player in critical infrastructure protection policies, to ensure water and input to future policies. 5. Promote collaborative work to establish common framework together with other sectors (i.e. municipalities, etc.). 	Government, Municipalities, water supply department, Civil protection department and/or IAG of municipality, Water Agencies	Human resources and with the funded financial resources, political decision making process as a priority, review of existing legislative framework	CP
PA3: Development of the necessary measures facilitating effective function of the water safety planning mechanism	SA4: Development of a regular effectiveness evaluation scheme of the Water Inter-agency cooperation towards efficient review	SO7: Enhancement of the feasibility of the Water Safety Plan (evaluation/review aspects)	<ol style="list-style-type: none"> 1. Development of a system of internal inspections (standardized procedures for selection & assignments of inspectors/auditor's function, inspection schedule etc) 2. Development of a system of external auditors (including standardization of procedures, accreditation system for inspectors/auditors, development of a registry of accredited inspectors etc) 3. Development of a consumer satisfaction evaluation scheme in the water utility that will also be undergone internal & external inspections. 4. Role-level functions of WSP-teams. 5. Setting up a multi-disciplinary team involving also all the institutional data providers. 6. Setting at least for some hazards, a "modeling team" to be shared among several water utilities, is constituted to develop development of water safety plans. 	Water Directorate of decentralized Administration, Regional Administration, Regional Civil protection department and/or IAG of municipality, Regional divisions of Civil Protection	Human resources: setting up the system, Internal experts	WU
	SA5: Set up a multidisciplinary team involving also all the institutional data providers	SO8: Operational capacity building of water service providers & stakeholders, to support the effective implementation of water safety assessment procedures.	<ol style="list-style-type: none"> 1. Setting up a multi-disciplinary team involving also all the institutional data providers. 2. Setting at least for some hazards, a "modeling team" to be shared among several water utilities, is constituted to develop development of water safety plans. 3. Setting up contacts of several water utilities acting on cross border territories can foster the individualization of common strategies to increase drinking water safety. 	Civil protection services (municipal, regional and national), Water Agencies	Cross synergies with other water utilities, Human resources, setting up the system	WU
	SA6: Establishment of permanent Observatories of Water Uses (District basin level)	SO9: Identification of institutional actors and stakeholders to overcome the mismatch between Hydrological and administrative boundaries	<ol style="list-style-type: none"> 1. Establishment of a system of internal institutional coordinators tables both at national and river basin district level, or at regional level for local level. 2. Institution of permanent Observatories of Water Uses (OWUs) at each district basin Authority. 3. Set-up of a technical coordination table (regional and district basin level). 4. Establishment of a continuous dialogue with the stakeholders. 5. Strengthening the role of the district basin Authorities. 6. Establishment of early warning to weather and climate indicators and water availability (regional and district basin level). 	Civil protection services (municipal, regional and national), Water utilities, associations representing private operators, trade unions, representatives of the agricultural and industrial water, regulatory agencies	Stakeholders' engagement, Research and innovation actions, links with existing groups, Internal activities, Cross synergies with other sectors	WA
PA4: Upgrade of operation management of data bases for quantitative, qualitative data and functionality of core components and processes	SA8: Development of an integrated information system for the purpose of decision making processes during the emergency	SO10: Increase the availability of the information on water supply systems for the purpose of decision making processes during the emergency	<ol style="list-style-type: none"> 1. Establishment of a mechanism to control and coordinate the operation of water utility in terms of inter-agency and processes, especially in the case of emergency. 2. Determination of assets vulnerability to deterioration and information for rehabilitation, renewal, or replacement of assets. 3. Upgrade the management of natural assets (watersheds, aquifer systems, wetlands, and other natural features), controlling runoff and groundwater recharge. 4. Evaluate new technologies to develop for purpose solutions and minimize application risks. 5. Establishment of a multi-disciplinary team involving also all the institutional data providers. 6. Setting up a multi-disciplinary team involving also all the institutional data providers. 7. Inter-agency and processes, especially in the case of emergency. 8. Determination of assets vulnerability to deterioration and information for rehabilitation, renewal, or replacement of assets. 9. Upgrade the management of natural assets (watersheds, aquifer systems, wetlands, and other natural features), controlling runoff and groundwater recharge. 10. Evaluate new technologies to develop for purpose solutions and minimize application risks. 11. Establishment of a multi-disciplinary team involving also all the institutional data providers. 12. Setting up a multi-disciplinary team involving also all the institutional data providers. 	Water Agencies, Municipality, Provincial GIS experts), Civil protection department, Water Agency, Municipality, Ministries	Human resources: setting up the system, assessment management, stock of material and technical resources	WA
	SA9: Set up of common management by all the public and private bodies involved in the water management	SO11: Water System Information improvement	<ol style="list-style-type: none"> 1. Establishment of a mechanism to control and coordinate the operation of water utility in terms of inter-agency and processes, especially in the case of emergency. 2. Determination of assets vulnerability to deterioration and information for rehabilitation, renewal, or replacement of assets. 3. Upgrade the management of natural assets (watersheds, aquifer systems, wetlands, and other natural features), controlling runoff and groundwater recharge. 4. Evaluate new technologies to develop for purpose solutions and minimize application risks. 5. Establishment of a multi-disciplinary team involving also all the institutional data providers. 6. Setting up a multi-disciplinary team involving also all the institutional data providers. 7. Inter-agency and processes, especially in the case of emergency. 8. Determination of assets vulnerability to deterioration and information for rehabilitation, renewal, or replacement of assets. 9. Upgrade the management of natural assets (watersheds, aquifer systems, wetlands, and other natural features), controlling runoff and groundwater recharge. 10. Evaluate new technologies to develop for purpose solutions and minimize application risks. 11. Establishment of a multi-disciplinary team involving also all the institutional data providers. 12. Setting up a multi-disciplinary team involving also all the institutional data providers. 	Water utilities, Water Agencies	Cross synergies with other sectors, Research and innovation actions, Stakeholders' engagement	CP
	SA10: Set up of common management by all the public and private bodies involved in the water management	SO12: Water System Information improvement	<ol style="list-style-type: none"> 1. Establishment of a mechanism to control and coordinate the operation of water utility in terms of inter-agency and processes, especially in the case of emergency. 2. Determination of assets vulnerability to deterioration and information for rehabilitation, renewal, or replacement of assets. 3. Upgrade the management of natural assets (watersheds, aquifer systems, wetlands, and other natural features), controlling runoff and groundwater recharge. 4. Evaluate new technologies to develop for purpose solutions and minimize application risks. 5. Establishment of a multi-disciplinary team involving also all the institutional data providers. 6. Setting up a multi-disciplinary team involving also all the institutional data providers. 7. Inter-agency and processes, especially in the case of emergency. 8. Determination of assets vulnerability to deterioration and information for rehabilitation, renewal, or replacement of assets. 9. Upgrade the management of natural assets (watersheds, aquifer systems, wetlands, and other natural features), controlling runoff and groundwater recharge. 10. Evaluate new technologies to develop for purpose solutions and minimize application risks. 11. Establishment of a multi-disciplinary team involving also all the institutional data providers. 12. Setting up a multi-disciplinary team involving also all the institutional data providers. 	Voluntary associations, municipalities, civil protection services (municipal, regional and national)	Links with existing groups, Services, Stakeholders' engagement, Cross synergies with other sectors	WU

VODOVODI
VAN.Situacije

Direkcija za vode
IJP

Izvor: ADRION resilient water supply action plans for addressed organizations (water utilities, water agencies, civil protection) Modifikovala B.B.Matić (2022)



STRATEGIJA I AKCIONI PLANOVI

Sinteza Intervention Logic

5 prioritetnih osa (Priority axis):

- PA1: Unapređenje procedura planiranja i praćenja bezbednosti voda orijentisanih na spremnost i reagovanje u vanrednim situacijama;
- PA2: Jačanje kapaciteta upravljačkih struktura i efektivnosti saradnje među sektorima vezano za otpornost sistema vodosnabdevanje;
- PA3: Identifikacija i primena neophodnih mera koje omogućavaju efikasno funkcionisanje mehanizma planiranja bezbednosti sistema vodosnabdevanja;
- PA4: Unapređenje rada, upravljanje bazama podataka za kvantitativne, kvalitativne podatke i karakteristike poplava, suša, akcidentnih zagađenja i kvarova usled opasnosti od zemljotresa;
- PA4: Unapređenje ljudskih resursa u smislu poboljšanja kapaciteta, veština, iskustva, raspodele poslova, obuke, komunikacije.



Izvor: ADRION resilient water supply action plans for addressed organizations (water utilities, water agencies, civil protection) Modifikovala B.B.Matić (2022)

STRATEGIJA I AKCIONI PLANOVI

Sinteza Intervention Logic

Strateške aktivnosti:

- SA1: Razvoj i efikasna funkcija mehanizma za reagovanje u vanrednim situacijama na nivou vodovoda;
- SA2: Unapređenje interne saradnje i stalna implementacija WSP-ova
 - SA3: Formulisanje nacionalnih smernica upravljanja sušom
 - SA4: Izrada plana obuke i vežbi
 - SA5: Unapređenje kapaciteta saradnje među sektorima na terenu
 - SA6: Unapređenje saradnje među sektorima na ministarskom nivou sa prepoznatim prioritetom upravljanja vodnim resursima i vodosnabdijevanjem na nacionalnom nivou
 - SA7: Razvoj standardizovane šeme evaluacije efektivnosti saradnje u primeni WSP-a i među sektorske saradnje u cilju efikasne revizije
 - SA8: Uspostaviti multidisciplinarni tim koji uključuje i sve institucije koje su izvori neophodnih podataka
 - SA9: Promovisanje digitalizacije u sektoru voda
 - SA10: Uspostavljanje stalnog praćenja korišćenja voda (nivo sliva)
 - SA10: Razvoj integrisanog informacionog sistema sa svim osnovnim komponentama i procesima vodosnabdevanja
 - SA11: Podsticanje uspostavljanja zajedničkih baza podataka i alata verifikovanih od strane institucija uključenih u upravljanje vodama
 - SA12: Uspostaviti strategiju zajedničke komunikacije prema građanima
 - SA13: Uspostaviti strategiju komunikacije među institucijama i sektorima



Izvor: ADRION resilient water supply action plans for addressed organizations
(water utilities, water agencies, civil protection) Modifikovala B.B.Matić (2022)

STRATEGIJA I AKCIONI PLANOVI

OTVORENA PITANJA I NEDOUMIICE

Neka od otvorenih pitanja za sve nas:

- ◆ *Planovi upravljanja vodama i rizikom od poplava nivo sliva, vodnog područja...*
- ◆ *Mere i monitoring iz planova upravljanja - nivo vodnog tela*
- ◆ *Finasije*
- ◆ *Stručni kapaciteti i zainteresovanost za primenu WSP*
- ◆ *Preklapanja nadležnosti- ko je “glavni”*
- ◆ *Puko prepisivanje - slab napredak*
- ◆ *Da li se razumemo? Da li čujemo druge sektore?*
- ◆ *Procena multihazrda - metodologija (sektor/i, institucija/e)*



HVALA NA PAŽNJI

