GEOLOŠKI ZAVOD SLOVENIJE
Dimičeva ulica 14, 1001 Ljubljana

Priprava strokovnih podlag in strokovna podpora pri izvajanju vodne direktive za področje podzemnih voda (Direktiva 2000/60/EC)

Sodelovanje v delovnih skupinah na ravni EU

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GEOLOŠKI ZAVOD SLOVENIJE
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Podnaloga	Končno poročilo
Naročnik	Ministrstvo za kmetijstvo in okolje Dunajska cesta 22 1000 Ljubljana
Naloga	Priprava strokovnih podlag in strokovna podpora pri izvajanju vodne direktive za področje podzemnih voda (Direktiva 2000/60/EC)
Pogodba	2330-13-830474 (MKO) 1160-98/13 (GeoZS)
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Ključne besede:

Vodna direktiva, podzemna voda, hidrogeologija, termalna voda, reinjekcija

KAZALO

1 Poročilo z udeležbe na delavnici ”Izboljšanje vključevanja spoznanj s področja zaščite virov pitne vode v Načrte upravljanja z vodami”, Rim, 1. 10. – 2. 10. 2014

Poročilo z udeležbe na delavnici

”Izboljšanje vključevanja spoznanj s področja zaščite virov pitne vode v Načrte upravljanja z vodami”

“Better Integration of Drinking Water Resources Protection Considerations into River Basin Management Planning”

Rim, 1-2 oktober 2014

Na delavnici v Rimu 1 do 2. oktobra smo se zbrali strokovnjaki, ki spremljamo delo delovnih skupin za vpeljavo Direktive o pitni void in Vodne direktive. Namen je delavnice je bil, da bi na skupnem sestanku prepoznali sinergijo obeh področij in s tem dosegli napredek v naporih za izboljašnje stanja vod in seveda tudi večjo izkoriščenost stroškov, ki jih predstavljajo monitoring in sami zaščitni ukrepi. Skupno delovanje gotovo prispeva k boljšemu razumevanju skupne problematike in tudi dejavnemu vključevanju širšega kroga deležnikov.

Obravnavali smo 4 glavna področja:

1) Načrtovanje varnosti pri celovitem upravljanju celotnega vira pitne vode
2) Ocena tveganja in monitoring
3) Vodovarstvena območja
4) Ukrepi v napajalnem zaledju

Pomembni poudarki iz predstavitev in skupne razprave:

1) Pravica do vode ni zajeta v Direktivi o pitni void
2) Upravljalec vodnega vira ima v njegovem zaledju pristojnosti le na svojem ozemlju, oceno tveganja pa izvaja za celotno prispevno zaledje
3) Varnostni načrti (VN) olajšujejo komunikacijo z uporabniki prostora, niso pa še dejansko načrti, temveč podlaga za razvoj načrtov
4) VN analizirajo konkretne nevarnosti, ki ogrožajo vodo (kaj lahko gre kje narobe). Če monitoring zazna anomalije se spremeni VN.
5) Podzemna voda naj bi ustrezala normativom za pitno vodo. WFD in GWD morata biti bolj striktno upoštevana.
6) Nujen je dialog med upravljalci vodnega vira in kmetovalci.
7) Priporočljiv je poseben fond za ukrepanje.
8) Potreben je pregled nad snovmi, ki se uporabljajo v zaledju.
9) Načrti oskrbe so lahko, npr. štiri letni, in naj bi obravnavali tudi tveganja.
10) Potrebno je prednostno obravnavanje glede na ranljivost.
11) Pomembno je, kako občine izvajajo zaščito v občinskih prostorskih načrtih.
12) Vodovodi morajo vzorčiti tudi surovo vodo.

13) Najožje območje je smiselno deliti (kot npr. v Flandriji) na IA (čas dospetja manjši ali enak od 24 ur) in IB (čas dospetja manjši ali enak od 50 dni. Celotno napajalno območje (širše vodovarstveno območje) se varuje opcijsko, če je potrebno.
14) pri dolačanju mej vodovarstvenih območij ni toliko pomemben kriterij določitve meje, kot je važna analiza tveganj, ki je pripeta na ta kriterij.
15) V splošnem se vodovarstvena območja razlikujejo po tem, ali gre za vpetje mej na naravne meje ali pa na kriterije, ki temeljijo na analizi tveganja.
16) Kritične meje za nitrat je smiselno postavljati tudi nižje, npr. 35/20 mg/l.
17) Možno je uvesti (kot v nekaterih primerih prakse) "pogodbo za napajlno zaledje". V pogodbi je določeno: zakaj, kaj, kako in kako dolgo. (Pogodba nima dodatnih obveznosti za kmeta. Namenjena je predvsem informiranju in osveščanju.) V Angliji se to ne imenuje pogodba pač pa partnerstvo za napajlno zaledje vodnega vira. Eden od glavnih namenov je tudi približati monitoring uporabnikom.
18) Važna je strategija zgodnjega odkrivanja!
19) Pomembna je koordinacija s pristopom reševanja skupnih uporabnih nalog za vzpostavljanje medsebojnega zaupanja.
20) Ukrepanje ob izrednih dogodkih mora biti načrtovano na podlagi analize tevganja.
21) Odprtost varnostnih načrtov javnosti bi bila koristna, a je problematična zaradi varovanja podatkov.
22) Po Vodni direktivi so možni posebni cilji tudi glede mikrobiologije.
23) Ranljivost mora biti del ocene tveganja (za razpršene in točkovne vire).
24) Ukrepi v vodovarstvenih območjih morajo biti dolgoročni in se ne smejo prilagajati trenutni politiki. Lahko se jih usmeri v konkretne probleme. Pogodba se lahko obnavlja letno, ampak če so uspehi, to ni problematično.
25) Kmetje lahko brez dvoma uporabljajo boljšo prakso, tehniko brez subvencij. Vključi se le tiste ukrepe, ki imajo soglasje in so dogovorjeni.
26) Za zaščito VVO z manj od 50 uporabniki se lahko naredi pogodba z lastniki zemljišč. Lahko pa je območje sicer omejeno, vendar brez obveznosti. S tem je postavljena shema, v kateri lahko vsi sodelujejo.
27) V Angliji se je v podzemnih vodah že pojavil metaldehid, ki se uporablja kot sredstvo proti polžem.
28) Na Danskem najdejo v pitni void še vedno bentazon iz 90-tih let.
29) Ukrepi v vodvarstvenih območjih morajo biti obvezni, vendar opredeljeni glede na posebnosti območja.
30) V Baden Wurtenbergu iamjo možnost uvedbe "remediation zone". Upravljalec lahko to zahteva in ima nato dostop do fondov. Ob tem se vključijo tudi obvezni ukrepi. Vsake 3 do 4 leta se preveri, če je to še potrebno.
31) Na Švedskem so v najožjem območju pesticide prepovedani. Možno pa je zaprositi za posebno dovoljenje.
32) Upravljalci ponekod kupujejo zemljo, da imajo nadzor nad VVO.
33) Na Danskem imajo v občinskih prostorskih načrtih območje razdeljeno na: 1) brez zanimanja za pitno vodo, 2) z zanimanjem za pitno vodo in 3) s posebnim zanimanjem za pitno vodo. Podatki o kakovosti vode so razpoložljivi z dostopom do vseh analiz. Tudi manjši upravljalci morajo dati na razpolago analize. Te se znajdejo v bazi praktično še preden, pride do upravljalca. Pri tem se sklicujejo na politično razlago Arhuške konvencije, ki pravi, da je kakovost vode javna.
34) V več državah se zelo ukvarjajo z vprašanjem dvojnega financiranja kmetov za posebne ukrepe. Potrebno je tesno sodelovanje z ministrstvom za finance. Velika oskrbna podjetja morajo pomagati manjšim. program razvoja podeželja bi lahko bolje vključil podzemno vodo. Potrebno je zelo dobro določiti, kaj je temeljni in kaj dopolnilni ukrep.
35) **Pri pripravi NUV je zelo pomembno imeti v mislih, kako lahko opis telesa podzemne vode pomaga varnostnim načrtom po Direktivi o pitni vodi in obratno! Važno je pripraviti ustrezne informacije upravljalcem za pripravo VN (tudi za kmetijstvo), naravna ozadja, obremenitve in vpliv, trendi, stratifikacija podzemne vode, konceptualni model za monitoring, podnebne spremembe!!**

36) Če je veliko posameznih uporabnikov pitne vode je lahko smiselno imeti posebno Vodno telo podzemne vode.
37) Koristna bi bila navodila, kako poročati o VVO v NUV.
38) Koristen bi bil pregled praks, kako razmejiti vodovarstvena območja za površinske vode.
39) Koristne bi bile raziskave, kakšni so dejanski vplivi geotermalnih toplotnih črpalk.
40) Pristop "Partnerstvo za prispevno zaledje" bi lahko podprla tudi EU in bi bili lahko vključeni v NUV.
41) Za financiranje ukrepov v kmetijstvu bi bila potrebna analiza primerov dobre prakse. Problem je ne odpreti *pandorine skrinjice* načela "onesnaževalec plača".
42) V razpravo o zaščiti virov pitne vode bi se morali bolje vključiti še strokovnjaki za površinske vode, ki jih je bilo na delavnici zelo premalo.

Sestavil:

Joerg Prestor

PRILOGA 1

Background paper of the workshop

"Better Integration of Drinking Water Resources Protection Considerations into River Basin Management Planning"

Rome, 1-2 October 2014

1. Introduction

1.1. This workshop will bring together the water experts working on the implementation of the European water legislation at the tap under the Drinking Water Directive (98/83/EC; DWD) and at catchment level under the Water Framework Directive 2000/60/EC (WFD).

They will aim at identifying synergies of the implementation of those Directives that might lead to benefits like improvement of the status of waters or cost reductions (monitoring, treatment etc.).

A better mutual understanding and a broader involvement of the stakeholders will hopefully lead to an improved and more uniform integration of drinking water aspects in the River Basin Management Plans (RBMPs).

1.2. The objective of the Drinking Water Directive (98/83/EC) (DWD) is to protect human health from the adverse effects of any contamination of water intended for human consumption by making sure it is wholesome and clean. The DWD sets standards for drinking water quality (consumers' taps) which apply in all EU Member States. Some Member States also follow the WHO guidelines on water safety planning, a holistic approach to assessing and mitigating all risks to drinking water quality from catchment to consumer.

1.3. The Water Framework Directive 2000/60/EC (WFD) aims to protect and restore to good status

- surface freshwater (including lakes, streams and rivers);
- groundwater and groundwater dependent terrestrial ecosystems;
- estuaries and coastal waters.

All these waters should achieve good status by 2015 and protected areas e.g. for drinking water production, may need more stringent standards to comply with the requirements.

1.4. The WFD promotes sustainable water use based on the long-term protection of water resources, thereby contributing to the provision of sufficient supplies of good-quality drinking water intended for human consumption. Requirements for the monitoring and protection of water abstracted for drinking-water purposes are set out in several sections of the WFD and within the Groundwater Directive 2006/118/EC (GWDD) but in particular, in WFD Article 7. The WFD Environmental Quality Standard (EQS) or Priority Substances Directive 2008/105/EC, is also relevant to achieve the objectives of the DWD.

1.5. In implementing the WFD and DWD Directives and the Water Safety Planning (WSP) approach, Member States need to undertake similar activities such as characterisation of water quality, risk assessment, monitoring and, if necessary, to implement protective measures. The workshop will aim at identifying the differences in those similar activities

and make proposals for streamlining potential overlapping procedures and for cost effective measures.

1.6. Considering the points above, the aims of the workshop are to:

i. develop a common understanding of the respective requirements of the Directives;

ii. identify synergies and differences between the DWD/WSP and WFD regimes, via discussion around 4 themes (water safety and river basin planning; risk assessment/monitoring; delineation of protection zones; and catchment protection measures) and make proposals for streamlining potential overlapping procedures and for cost effective measures;

iii. identify what is good practice in terms of integration when implementing the Directives; underpinned by examples where possible.

iv. identify and agree next steps including outputs, potential need for additional/updated guidance, opportunities for sharing experiences etc.

This paper will focus on providing background material in support of (i) and (ii) above.

2. Legislative requirements

1.1.1.1.1 WFD (including Daughter Directives)

2.1. Many elements of the WFD contribute to the protection of water for human consumption, such as :

- the setting of environmental objectives for surface waters, groundwater and protected areas (Art 4);
- characterisation (risk assessment) of pressures and impacts (Art 5);
- monitoring of surface water status, groundwater status and protected areas (Art 8);
- the implementation of programmes of measures (Art 11); and
- strategies to reduce pollution of surface waters and groundwater (Art 16 and 17 respectively, the details of which are given in the Priority Substances and Groundwater Directives).

2.2. Article 4 (1) c) requires Member States to comply with any standards and objectives for protected areas including Drinking Water Protected Areas (DWPAs). These are additional standards and objectives compared to Article 4 (1) a) and b) that are needed in water bodies which are used for drinking water production in order to meet Article 7 requirements.

2.3. Article 7 of the WFD deals specifically with "water used for the abstraction of drinking water", as follows:

Article 7.1 : Member States must identify all water bodies (both surface water and groundwater) from which water is abstracted or intended to be abstracted in the future for human consumption in excess of 10 m^3/day as an average or which serve more than 50 persons. These are the DWPAs mentioned above.

Article 7.2 (Summary): Member States must ensure that, for each water body identified under Article 7.1, taking into consideration the water treatment applied, the resulting water at the tap complies with the Drinking Water Directive.

Article 7.3 : Member States are required to implement measures in DWPAs with the aim of avoiding deterioration in water quality due to anthropogenic

sources of pollution, to reduce the level of water treatment over time thus meeting drinking water standards.

Safeguard Zones, can, at the discretion of the Member States, be drawn up to assist with achieving the aims of Article 7.3. A safeguard zone can be a catchment or any other area defined at the discretion of the Member States within which measures are implemented in order to protect water abstracted for drinking water purposes, specifically to prevent deterioration and minimise the need for treatment.

Note: further details to the interpretation of Article 7.3 are provided in the Common Implementation Strategy (CIS) Guidance No 16 [1], which was written specifically to deal with the groundwater aspects of protected areas, though many of the issues raised are equally applicable to surface waters.

2.4. WFD Article 8 requires Member States to ensure that a monitoring programme is established that provides a comprehensive overview of water status within each river basin district (RBD). Such monitoring should be in accordance with Annex V of the WFD. The monitoring network is initially required to classify water bodies. Subsequent monitoring is required to re-assess classification, improve risk assessments and assess the effectiveness of programmes of measures. The monitoring programme covers all surface waters, groundwater and protected areas and should cover a range of parameters, including:

for surface waters:

- physico-chemical (including specific pollutants);
- priority substances and priority hazardous substances.

for groundwater:

- hazardous and non-hazardous substances.

Annex V 1.3.5 specifies monitoring requirements for DWPAs. They should be subject to additional monitoring necessary to meet the requirements of Article 7 that monitors all priority substances discharged and all other substances discharged in significant quantities including the substances of the DWD.

2.5. Groundwater monitoring can be used to determine natural background concentrations which are taken into account during risk assessments and the setting of standards (in case of surface water (EQSD) background levels are only considered in status assessment), but the need for preventive measures under the WFD is driven by anthropogenic influences only. Measures included in River Basin Management Plans are directed towards risks from human activity to the environment and specifically to meet the WFD objectives.

1.1.1.1.2 ***DWD/Water Safety Plan requirements***

2.6. In meeting the objective to protect human health, the DWD's description of wholesome and clean water intended for human consumption is:

(a) free from any micro-organisms and parasites and from any substances which, in numbers or concentrations, constitute a potential danger to human health, and

[1] CIS Guidance Document No.16: Groundwater in Drinking Water Protected Areas. European Commission,2007.

(b) to meet the minimum requirements set out in DWD Annex I, Parts A and B.

2.7. Member States must set standards for all the parameters noted in Annex I (parts A, B and C) and at the minimum levels indicated in this Annex. Currently 50 parameters must be monitored and tested regularly. These include microbiological and chemical parameters such as nitrates, pesticides and metals but also odour and taste. MS must set values for additional parameters where necessary to protect human health. Compliance with all these standards is at the point of water use by the consumer (Art 6), thus taking into account any water treatment and other water quality issues arising from the transmission through any distribution and storage facilities. There is no differentiation between natural and anthropogenically induced contamination.

2.8. Under Article 7 of the DWD, Member States must set monitoring programmes with regular monitoring representative of the water consumed, at sampling points determined by the competent authorities in accordance with Annex II. The DWD also specifies additional monitoring (sampling and analysis) requirements and actions that are required when a standard is failed, including investigations, improvements and the setting of temporary departures from the standards for certain of the chemical parameters.

2.9. The DWD does not apply to designated natural mineral waters (under Directive 80/777/EEC) or medicinal products defined under Directive 65/65/EEC. Member States can also exempt, subject to conditions, waters which are assessed as having no influence on the health of consumers and water intended for human consumption from an individual private (non-commercial) supply providing less than 10 m^3 a day as an average or serving fewer than 50 persons.

2.10. The WSP approach is not specifically noted in the current DWD but is recommended by WHO to enable the management of drinking water quality in a holistic and systematic fashion which assesses and mitigates all risks from catchment to consumer. In some countries the use of WSPs is already applied.

2.11. The WSP approach requires water supply operators to carry out a comprehensive risk assessment for each treatment works and its connected supply system [from source to tap] covering all hazards and hazardous events. The intention of the risk assessment is to establish whether there is a significant risk of supplying water from those works and associated supply system that would constitute a potential danger to human health. The risk assessment approach used could be based on the approach published by WHO in the Drinking Water Guidelines [2], taking account of any updates and associated guidance published by the WHO.

2.12. The risk assessment should identify individual substances or parameters (e.g. nitrate and phosphate) in addition to the identification of generic risks (e.g. agricultural pollution, septic tanks). It should also identify any parameter or substance that may represent new or emerging future risks to the supply system of clean drinking water i.e. the quality of the raw water in the catchment, the treatment process, the distribution and supply at consumers' taps.

2.13. As part of the risk assessment required under the WSP process, water supply operators should identify any actual or potential risks to human health within the catchments of raw water sources and establish a raw water monitoring programme. However, this raw water monitoring only needs to address substances, properties and organisms at levels, either currently or in the future, that may pose a risk to human health or where they may have an impact on treatment. For each current and future risk identified, water supply operators should formulate an Action Plan of short, medium and long term measures required to mitigate the risk.

[2] Guidelines for Drinking Water Quality Volume 1: Recommendations – 2004 and Guidelines for Drinking-water Quality, 4th Edition, 2011.

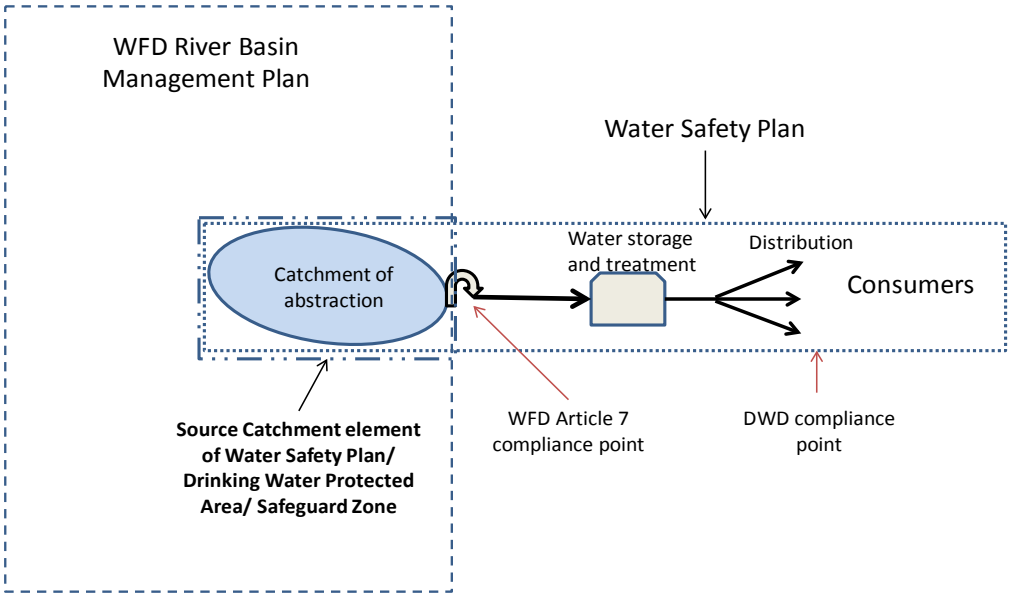
3. Synergies and differences between the WFD and the DWD

Overview

3.1. There is a significant alignment of objectives between the WFD, and especially its Article 5, and the DWD/Water Safety Plan regimes in terms of the protection of raw water quality for human consumption, but some differences can be noted in the scope of the component activities. Figure 1 illustrates the conceptual relationships and potential interfaces between the regimes.

3.2. Figure 1 highlights that, in terms of areal extent, the WSP process extends from the catchment of the raw water source, through storage and water treatment to the drinking water distribution system and final delivery to the consumer. In contrast the RBMP system covers the water abstraction source, its catchment and the wider environment within the river basin district. The common elements to these two regimes are the raw water source and its catchment and this will be the main focus of the discussion in the Workshop under the four themes noted below.

Figure 1 : Relative scope of WFD and DWD/Water Safety plans



3.3. For each theme potential synergies and key differences are summarised at the end and topics are suggested for discussion, in part from feedback already received from different stakeholders during the preparation for the Workshop.

Some “horizontal” issues have been raised for consideration during the Theme discussions, such as:

- differences in approach between surface water and groundwater;
- how to deal with small sources/private water supplies;
- transboundary consistency;
- stakeholder engagement (implication of the different stakeholders, improvement of the transparency);
- integration with nitrate action programmes and other mandatory land management measures;
- possibilities for and limits to increased consistency between regimes;
- potential future steps: identification of examples of good practice; potential need for additional / updated guidance; opportunities for sharing experiences; sharing of data/monitoring results

In order to guarantee a successful outcome of the workshop, discussions should be focused on these points as well as on the topics highlighted under the points 3.7, 3.14, 3.18 and 3.22.

Theme 1: Safety planning in Drinking Water Management and integration of resource

3.4. The WFD requires Member States to establish a river basin planning approach and to update RBMPs every 6 years. The RBMPs should contain measures that will address identified pressures that are preventing the achievement of good status (or more stringent objectives in protected areas). These measures can be applied to a variety of scales, from whole river basin down to targeted only at individual receptors and will include specific actions within DWPAs where there is considered to be, as an outcome from a site-specific risk assessment, a significant risk that the WFD Article 7.3 objective will not be met. In such cases a Member States may create a Safeguard Zone in the catchment of a raw water source within which a specific set of measures or action plan, supplementary to the wider or basic measures included within the RBMP, are needed to address the identified risk. In principle, this action plan is likely to cover very similar issues as those identified in the source catchment element of the Water Safety Plan, subject to the quality considerations discussed below under monitoring.

3.5. In contrast, there is currently no fixed periodic cycle for WSPs but WHO recommends that they are reviewed regularly. Given the imperative to meet DWD requirements and protect human health, WSPs are potentially more dynamic and reactive to the identification of quality issues.

3.6. In many Member States the organisations responsible for drawing up and implementing RBMPs and WSPs will be different (potentially with different bodies reviewing and agreeing the plans). Proactive consultation and co-ordination will be needed to develop synergies and to reduce overlap between the regimes.

Potential synergies: planning cycles; action plans in source catchments.

Key differences: responsible bodies; scope of quality issues (see also below).

3.7. Topics to be discussed in addition of the topics mentioned under point 3.3:

- Possibilities of integration of WSP in the WFD planning cycles and implication of stakeholders;
- Integration of other aspects (flood hazard and risk maps, sanitation etc.)

Theme 2: Risk Assessment and Monitoring

3.8. In terms of areal extent, the risk assessments under the WFD and the source catchment element of the WSP will be very similar. However, in terms of the end objective the focus is slightly different. WSP must address all risks to meet DWD standards at the point of use, including those risks derived from the natural presence of substances in the raw water which are not desirable from the point of view of the DWD. The WFD risk assessment focuses on risks from anthropogenic activities.

3.9. Under the DWD the point of compliance for quality standards is at the point of use, whereas the assessment for meeting the WFD Article 4 (1) c) standards and objectives is undertaken at the point of abstraction. This could lead to different conclusions regarding the key risks and the

need and priorities for protective measures but agreement on this at the outset could lead to efficiencies downstream.

3.10. In terms of the location of monitoring points, WFD Article 7 and 8 requires monitoring of the abstracted water before it is subject to any treatment or other process that may interfere with the identification of contaminants and the assessment of deterioration in raw water quality. Such monitoring is also implicit in the WHO guidelines but not necessarily fixed to the point of abstraction. Monitoring to assess compliance with the DWD requirements must be at the point of use, after any treatment and use of the distribution system etc.

3.11. The sharing of monitoring data between regimes has obvious benefits but consideration of whether the data are comparable and what they represent is essential. For example, whilst DWD compliance monitoring data are one starting point for identifying potential quality issues, they may not be representative of the abstracted raw water and some quality issues may be associated with storage, treatment and distribution processes rather than raw water quality.

3.12. Some abstractions may be complex, with multiple sources mixed together before entering the treatment and distribution systems. In assessing monitoring requirements and monitoring results, it is essential to know whether there is mixing of waters of similar quality or blending of water of different quality.

3.13. In order to minimise monitoring effort, ideally common monitoring points that are representative of the raw water sources need to be agreed between the WSP and WFD regimes. However, monitoring frequencies required by the two regimes are not consistent. Monitoring suites will be driven by a combination of factors such as DWD requirements and the risk assessments noted above, but consistency may be achievable.

Potential synergies: source catchment risk assessments, monitoring of raw water.

Key differences: ranges of parameters for risk assessment and monitoring, monitoring frequencies.

3.14. Topics to be discussed in addition of the topics mentioned under point 3.3.

- Extent to which monitoring approaches can be rationalised and made more cost-efficient;
- Consideration of the parameters of Annex I of DWD (e. g. Microbial water quality), substances without drinking water limits and emerging contaminants;
- Measurement of deterioration and avoided treatment measured (Art 7.3 WFD, point 2.3 of the present document);
- Effectiveness of treatment for different substances (are the surface water and the groundwater standards equally effective in relation to achieve the DWD standards?) Assessment of compliance with WFD Art 7.3;
- Consideration of different compliance points DWD/WFD (see figure 1);
- Need for transparency - data exchange and barriers to exchange – role of stakeholders;

Theme 3: Safeguard Zones

3.15. Many Member States already have protection zones around or upstream of abstractions of water intended for human consumption. Planned or existing activities within these zones are often subject to restrictions to prevent or reduce existing pollution or the risk of pollution to the water supply source.

3.16. Safeguard Zones may be employed by Member States to deal with observed deterioration in quality or identified significant risks of such deterioration. Some existing protection zones may be suitable for the purposes of WFD Article 7, but the rationale used in delineating zones needs to be compared with what is

needed to implement the "necessary measures" under Article 7, to determine whether the zones are fit for achievement of the WFD and the DWD. The selection and delineation of Safeguard Zones is entirely at the discretion of Member States.

3.17. Delineated DWPAs and Safeguard Zones for groundwater and surface water may look very different, as illustrated in Figure 2, being influenced in part by the method of delineation of the water body in the first instance. Some surface water supply systems can be particularly complex, leading to multiple Safeguard Zones for the same abstraction source.

Potential synergies: existing protection zones and safeguard zones.

Key differences: objective to be achieved within each zone may be different.

3.18. Topics to be discussed in addition of the topics mentioned under point 3.3:

- Strategies for delineation and uses (e.g. in land use planning, Nitrate action programmes, raising awareness);
- Common drinking water protection files;
- Ability to understand the effectiveness of existing protection zones;
- Ability to amend existing protection zones to ensure they protect drinking water

Theme 4: Catchment Measures

3.19 . The measures implemented under both regimes should focus on the specific risks identified in their respective risk assessment processes. They may be precautionary to avoid deterioration or reactive to deal with existing quality issues. The closer the alignment of risk assessments is, the more likely the required measures will be consistent.

3.20 . For the WFD, DWPA/Safeguard Zone measures should supplement the basic measures required in all RBMPs (Art 11(3) and Annex VI part A), which include measures required under other directives such as the Nitrates and Drinking Water Directives, as well as "hard" measures such as permits or other controls on emissions or activities (WFD Art 11.3.h is especially relevant in this context).

3.21 . Supplementary measures may take a variety of forms, from further legislative controls to soft measures such as voluntary agreements, codes of practice and awareness raising. Many WFD measures will directly contribute to the protection needed under WSPs and ideally should address all the quality issues raised within these plans. Where there are common issues to address, there are opportunities for combining the measures appraisal, cost allocation and effectiveness monitoring processes.

Potential synergies: WSP catchment management plans and safeguard zone action plans, measures appraisal and monitoring; WFD basic and supplementary measures – e.g. controls on land application of fertilisers, pesticides, buffer strips; targeted agri-environment land management options.

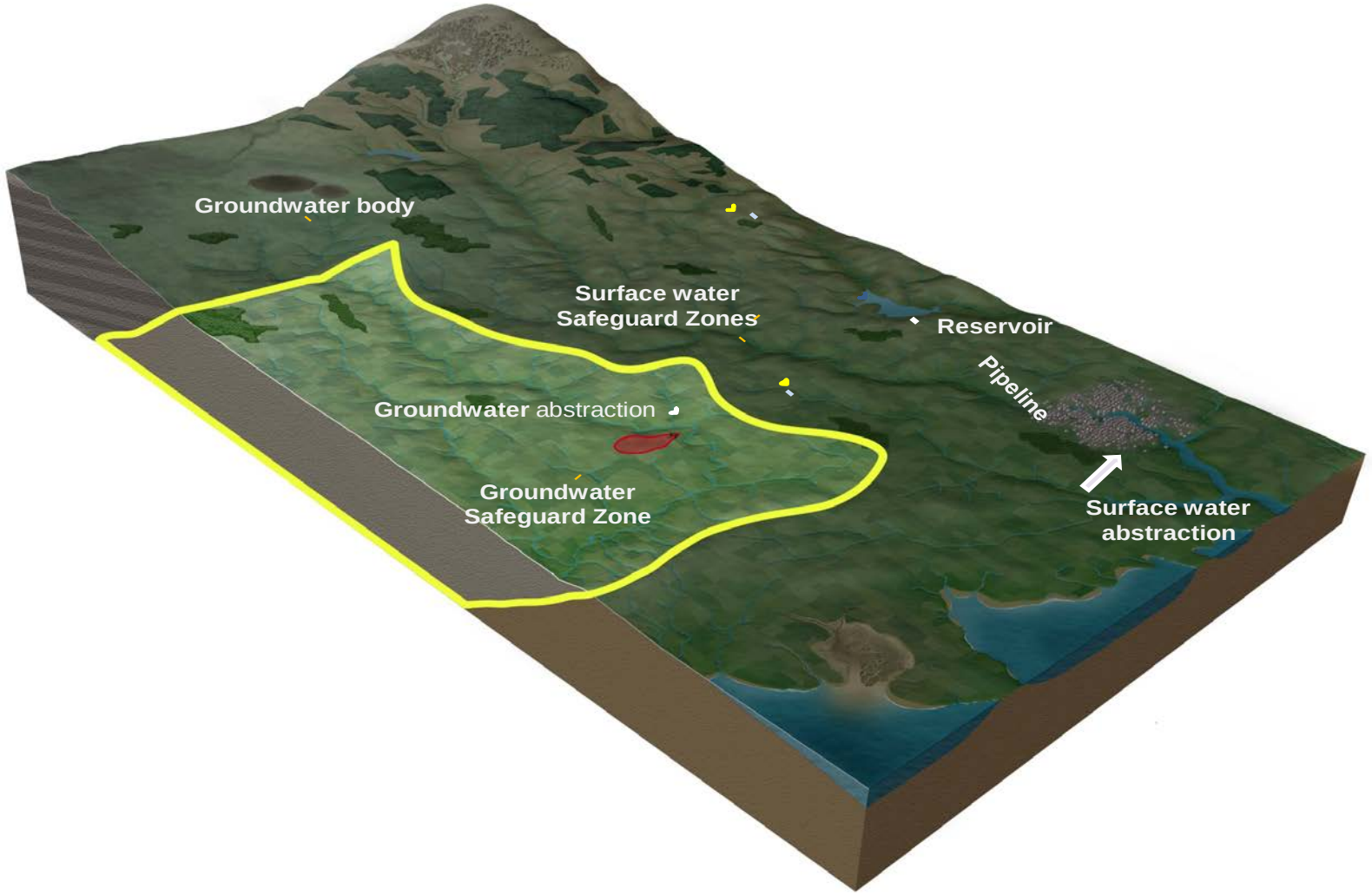
Key differences: range of issues addressed; potentially different priorities.

3.22 . Topics to be discussed in addition of the topics mentioned under point 3.3.

- Measures appraisal and monitoring of effectiveness;
- Identification of most appropriate measures (e.g. "hard measures" such as regulations, restrictions etc., "soft measures" such as sensibilisation, voluntary measures);
- Stakeholders responsible for the implementation;
- Financing of measures/sharing of costs;

- DWPA measures around small catchments(<10m^3/d);
- Assessing whether the DWPA objective has been met.

Figure 2: Example Safeguard Zones



2 Sodelovanje na sestanku meddržavne komisije za reko Muro, Stainz, 10. 9. – 11. 9. 2014

Uskladitev vsebin Načrtov upravljanja voda – površinske vode

Stanje podzemnih voda - Slovenija

Vodonosni sistemi (v.s.) znotraj vodnega telesa 4016 - Murska kotlina, ki mejijo na R Avstrijo so (slika 1):

42811 Apaško polje (48,87 km^2),

42813 Dolinsko Ravensko (448,96 km^2) in

42814 Gornje Radgonsko polje (28,02 km^2).

Vodonosni sistem znotraj vodnega telesa 4018 - Goričko, ki meji na R Avstrijo je

42815 Goričko (493,51 km^2).

Potencialno prekomejni plitvi vodonosniki, ki potekajo preko državne meje so:

- med Gornjimi Petanjci in Cankovo (v.s. 42813 Dolinsko Ravensko),
- med Gornjo Radgono in Gornjimi Petanjci (v.s. 42814 Gornje Radgonsko polje),
- vzdolž reke Kučnice vzvodno od Cankove (v.s. 42815 Goričko).

Vodno telo podzemne vode 4016 - Murska kotlina

1. Vodonosnik - Prodno peščeni zasip Mure (plitva podzemna voda)

1. Reka Mura predstavlja hidrodinamično bariero, saj drenira vodonosnik na obeh straneh meje (/).
2. Reka Kučnica ni izrazita hidravlična meja. Pod njo najverjetneje priteka podzemna voda na ozemlje Slovenije (+). Količina dotoka ni natančno določena. Debelina prodno-peščenega zasipa oziroma zasičene cone na prekomejnem delu ni velika. Na tem območju le eno merilno mesto državnega monitoringa kakovosti podzemne vode, ki je potencialno reprezentativno za prekomejni tok podzemne vode. To je merilno mesto Rankovci v v.s. 42813 Dolinsko Ravensko. Rezultati meritev ne kažejo povišanih koncentracij onesnaževal, ki izhajajo iz obremenitev vzvodno od merskega mesta (npr. nitrati).

2. Vodonosnik - Vodonosniki v terciarnih sedimentih

V sedimentih zgornjemiocenske in pliocenske starosti je razvit II. vodonosnik iz katerega se pretežno izkorišča mineralna voda v Radencih in Žetincih / Sicheldorfu. V globljih delih je ta podzemna voda ogreta. Predvidevamo, da je Slovenija v tem vodonosniku na dolvodni strani (+).

3. vodonosnik - Termalni vodonosniki v globljih terciarnih sedimentih in predterciarni podlagi.

Vodonosnik v podlagi sedimentacijskega bazena, ki se izkorišča v Radgoni / Bad Radkersburg se razteza preko meje v ozkem klinu na slovensko stran v Slovenskih Goricah in proti NE preko Goričkega na madžarsko stran pri Hodošu (Radgonsko – Vaški tektonski poljarek). Na slovensko avstrijski meji je torej Slovenija na vzvodni strani (-).

Vpliv črpanja v vrtini v Korovcih na vrtine v Radgoni / Bad Radkersburgu s črpalnim poskusom ni bil dokazan. Podobne so ugotovitve hidravličnega in geotemalnega modeliranja v okviru projekta Transenergy.

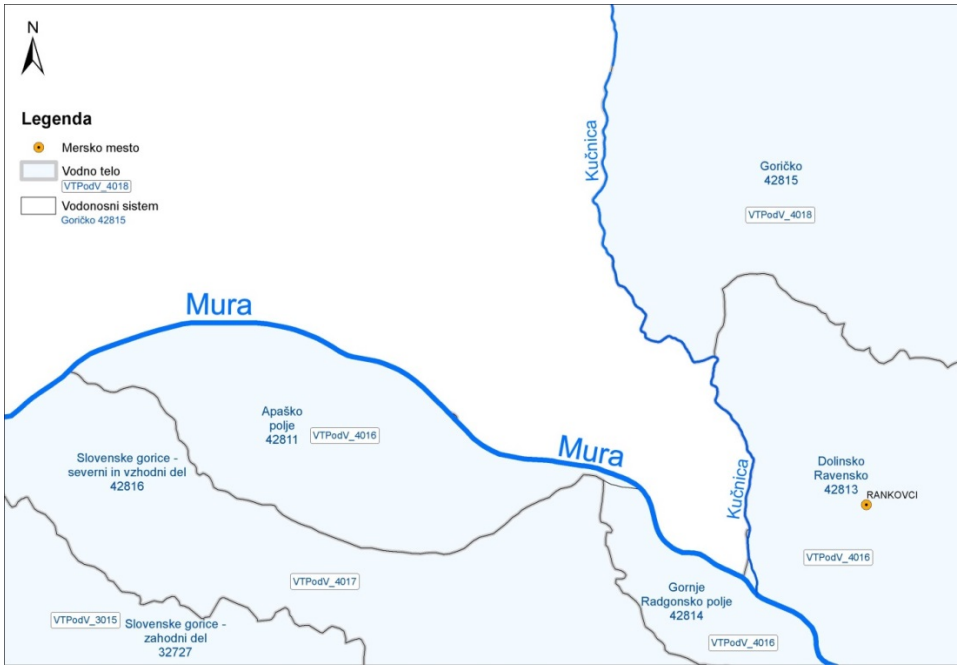
Vodno telo podzemne vode 4018 - Goričko

1. Vodonosnik

Potencialni prekomejni plitvi vodonosnik na območju v.s. **42815 Goričko** je na območju med Cankovo in tromejo. Prekomejni tok podzemne vode je v pomembnih količinah možen le v okolici reke Kučnice, vendar ni dobro poznan. Smer toka je verjetno lokalno spremenljiva (+/-).

2. Vodonosnik

O smeri toka v termalnem vodonosniku v globljih terciarnih sedimentih in predterciarni podlagi danes težko govorimo. Dejanski gradienti piezometrične gladine niso znani in so odvisni od izkoriščanja ter razvoja depresijskih lijakov.



Slika 1: Prikaz Vodnih teles podzemnih voda in vodonosnih sistemov na obravnavanem obmejnem območju

Sestavil:

Mitja Janža