Consequences of the new Groundwater Directive for Infiltration for the Purpose of the Drinking-Water Supply

H.F.M.W. van Rijswick
Senior researcher
Institute for Constitutional and Administrative Law and the Centre for Environmental Law and Policy/NILOS of Utrecht University

Email: H.vanRijswick@law.uu.nl.

Summary: Drinking water companies use dune water infiltration and bank infiltration to keep groundwater at the required level with a view to abstractions of groundwater. The infiltration also serves to improve the quality of the infiltrated water.

Infiltration has been regulated both at the European and the national level, and a special system applies which distinguishes between discharge (both direct and indirect) into the soil and groundwater and infiltration as artificial recharge of the groundwater body. Artificially recharging groundwater bodies is currently permitted, if strict requirements concerning the quality of groundwater are fulfilled.

The present article discusses the current legal regime for infiltration as based on the Groundwater Directive and the Water Framework Directive where artificial recharge and the possible exceptions in respect of achieving the good condition of groundwater are concerned. The more detailed elaboration in the new Groundwater Directive is also discussed. Finally, an answer is provided to the question of whether it is indeed possible that the new Groundwater Directive sets up impediments for infiltration for the benefit of the drinking water supply. A possible amendment of the new Groundwater Directive is proposed. The article concludes with a summary and conclusions.

I. Introduction

A new Groundwater Directive is currently being prepared.[1] This new Directive has a dual objective. In the first place, it is the elaboration of the groundwater quality requirements which follow from the Water Framework Directive.[2] In addition, and complementing the system of the Water Framework Directive, the new Groundwater Directive aims to establish continuity as a follow-up to the current Groundwater Directive. This is necessary, as the Groundwater Directive will in time be repealed as a result of the entry into force of the Water Framework Directive. The repeal of the Groundwater Directive would cause a legislative gap as regards the protection of groundwater against indirect discharge.

The question arises whether, as a result of (especially) Art. 6(1) of the new Groundwater Directive, which introduces stricter rules as compared to the Groundwater Directive, the practice of dune water infiltration and bank infiltration for the benefit of, for example, the drinking-water supply will cease to be possible or made subject to very strict requirements. If the new Groundwater Directive creates an undesirable obstacle for artificial recharge of groundwater bodies for the purpose of the drinking-water supply, one could think of amending the new Groundwater Directive as regards artificial recharge with an eye to the public interest.

Drinking water companies use dune water infiltration and bank infiltration to keep groundwater at the required level with a view to abstractions of groundwater. The infiltration also serves to improve the quality of the infiltrated water.[3]

Infiltration has been regulated at both the European and the national level,[4] and a special system applies which distinguishes between discharge (both direct and indirect) into the soil and groundwater and infiltration as artificial recharge of the groundwater body. Artificially recharging groundwater bodies is currently permitted, if strict requirements concerning the quality of groundwater are fulfilled.[5]

The present article discusses the current legal regime for infiltration as based on the Groundwater Directive and the Water Framework Directive where artificial recharge and the possible exceptions in respect of achieving the good condition of groundwater are concerned. The more detailed elaboration in the new Groundwater Directive is also discussed. Finally, an answer is provided to the question of whether it is indeed possible that the new Groundwater Directive sets up impediments for infiltration for the benefit of the drinking water supply. A possible amendment of the new Groundwater Directive is proposed. The article concludes with a summary and conclusions.

[1] Proposal for a Directive of the European Parliament and of the Council on the protection of groundwater against pollution, Brussels 19.9.2003, COM (2003) 550 final, COD (2003).

[2] Directive 2000/60/EC of the European Parliament and the Council of 23 October 2000 establishing a framework for Community action in the field of water policy, OJ 22.12.2000 L 327/1.

[3] Of course the consequence will be a certain soil pollution.

[4] As a result of the implementation of the current Groundwater Directive (Council Directive 80/68/EEC of 17 December 1979 on the protection of groundwater against pollution caused by certain dangerous substances, OJ 26.1.1980 L 20/43) in national law. In the Netherlands, for example, in the Groundwater Act and the Infiltration (Soil Protection) Decree.

[5] See hereon in more detail: H. van Rijswick, A.A. Freriks, R. Widdershoven and C. Backes, *EG-recht en de praktijk van het waterbeheer*, 2003.

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II. Current Groundwater Directive (Directive 80/68/EEC)

The Groundwater Directive aims to protect the quality of groundwater.[6] In order to achieve this objective pollution must be prevented. An essential part of the definition of pollution in Art. 1(2) is that as a result of pollution not only human health or the ecosystem could be harmed, but that the water supply could also be endangered. The Directive does not concern certain discharges of domestic effluents, discharges of radioactive substances and discharges containing List I or List II substances in a quantity and concentration so small that they pose a very low risk of pollution and because such discharges are difficult to monitor.[7] The Directive distinguishes between discharges of List I and List II substances.[8] List I discharges must be prevented.[9] To this end, an absolute prohibition of direct discharges of List I substances is introduced: these are prohibited *a priori*. Discharges of List II substances must be limited.[10] The Groundwater Directive distinguishes between direct discharges of hazardous substances into groundwater (both List I and List II substances) and actions likely to result in indirect discharges.[11]

Authorisation and authorisation requirements

Besides the absolute prohibition of direct discharges of List I substances,[12] the Directive thus also includes a system of authorisation[13] for direct discharges of List II substances,[14] indirect discharges of List I substances[15] and indirect discharges of List II substances.[16]

Authorisation may only be granted after the prior examination of the receiving environment.[17] Furthermore, compliance with the conditions of the authorisations must be monitored,[18] as must the effects of the authorised discharges on groundwater.[19] An inventory must be kept of both the discharges and the authorisations for artificial recharge of groundwater with a view to its public management.[20] Authorisation must at least fulfil the requirements of Arts 9 and 10. Authorisations can only be granted temporarily.[21]

The Directive lists several exceptions to the generally applicable system.[22] Direct discharges of List I substances are allowed into groundwater which is permanently unsuitable for any other use. Artificial recharge of groundwater intended for public water supplies must be made subject to special rules.

The regime for artificial recharge of groundwater for the purpose of public management

A separate regime for artificial recharge of groundwater for the purpose of public management has not been made conditional upon the question of whether the discharge concerned is direct or indirect. No distinction is made in accordance with the substance to be discharged either (i.e. List I or List II).[23]

An entirely separate system applies. Special authorisation is granted on a case-by-case basis. Authorisation is only granted if there is no risk of polluting the groundwater and when it is certain that the groundwater in question, and especially its quality, is being monitored. Given the wording of Art. 6, authorisation can only come under these rules if recharge is carried out for the purpose of public management. The drinking water supply most likely falls under the heading of ''public management''. Presumably, this is primarily a rule concerning quantity (necessary recharge), while quality aspects have to form part of the considerations concerning the granting of the authorisation. Now that discharge of quantities and concentrations which are so small that all risk of deterioration of groundwater quality is excluded does not fall within the scope of the Groundwater Directive, the special rules for artificial recharge do not concern such recharges which only cause minor quantities or concentrations of substances to be (potentially) discharged into the groundwater.

This leads to the conclusion that the Groundwater Directive establishes special rules for artificial recharge of groundwater for the purpose of public management. These rules apply, irrespective of the type of discharge and the type of substance that is discharged. Authorisation can only be granted if there is no danger of polluting the groundwater.

III. The Water Framework Directive

The Water Framework Directive opts for an integral approach to water management, which in time must achieve the ''good status'' of water in the European Community.

With respect to groundwater, the preamble states that measures must be taken to avoid long-term deterioration of both the quality and quantity of freshwater supplies. The supply of water is regarded as a ''service of general interest''. The Directive is primarily concerned with water quality. Control of quantity is an ancillary element in securing good water quality. In connection with this, it is noted that the quantitative status of a body of groundwater may have an impact on the ecological quality of surface waters and terrestrial ecosystems associated with that groundwater body. For the purpose of environmental protection, the Directive, in its preamble, states that there is a need for

[6] Recital 1 and Art. 1(1).
[7] Recital 6 and Art. 2.
[8] Article 1(1).
[9] Article 3(a).
[10] Recitals 7 and 9, Art. 3(b).
[11] Recital 8 and Art. 2(b) and (c).
[12] Article 4(1), first indent.
[13] Recital 9.
[14] Article 5(1), first indent.
[15] Article 4(1), first and third indent.
[16] Article 5(1), second indent and Art. 5(2).
[17] Recital 9 and Art. 5(1).
[18] Article 13.
[19] Recital 12 and Articles 8 and 13.
[20] Recital 13 and Art 15.
[21] Article 11.
[22] In addition to the restriction in scope which was already mentioned above, namely that the Directive does not concern discharges containing List I or List II substances in very small quantities and concentrations given the minor risk of pollution and because such discharges are difficult to monitor.
[23] The Directive states: contrary to Arts 4 *and* 5.

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closer integration of qualitative and quantitative aspects of ground and surface waters. Good water quality (of both ground and surface waters) will contribute to securing the drinking water supply for the population. This may call for quantity measures. The Water Framework Directive also states in its preamble that, in principle, groundwater is a renewable natural resource. In particular, the task of ensuring the good status of groundwater requires early action and stable long-term planning of protective measures, owing to the natural time lag in its formation and renewal.

The Water Framework Directive aims to contribute to the availability of sufficient surface water and groundwater of good quality for a sustainable, balanced and equitable use of water and to a significant reduction in pollution of groundwater.[24]

In time it will no longer be permitted to discharge priority hazardous substances into the water.

Good groundwater status expressly concerns both the chemical quality and the quantity.[25] This is not the case for surface water: there the issue is the chemical and ecological status, which has to be good. From this it can be concluded that achieving the good status of groundwater partly depends on the quantity of that groundwater. The starting point for the sustainable management of groundwater is that groundwater may not be abstracted in too large quantities, so that groundwater resources will in principle recharge naturally. As groundwater is used for various purposes, among which is water supply, it is not always possible to maintain acceptable groundwater levels by means of natural recharge alone. Recharge of groundwater resources with a view to abstractions[26] is therefore one measure to fulfil the requirement of good quantitative groundwater status. The quantity of groundwater is also considered a co-determining factor for achieving the good ecological status of surface water.[27]

The Water Framework Directive defines *direct discharge* into groundwater as discharge of pollutants into groundwater without percolation through the soil or subsoil. *Indirect discharge* is merely defined with the aid of the definition of *pollution*:

> ''the indirect introduction, as a result of human activity, of substances [. . .] into the air, water or land which may be harmful to human health or the quality of aquatic ecosystems or terrestrial ecosystems directly depending on aquatic ecosystems [. . .]''

The Water Framework Directive does not include a definition of the concept of indirect discharge, nor does it give a definition of artificial recharge of a groundwater body. Artificial recharge of groundwater does, however, appear in the environmental objectives of Art. 4 and in the compulsory basic measures in Art. 11(3)(f).

The environmental objectives for groundwater are made up of three components:

1. The input of pollutants into groundwater must be prevented or limited. It is important to note here that ''input of pollutants'' is understood to comprise both direct and indirect discharge.[28]
2. As part of achieving good status, groundwater bodies must be protected, enhanced and restored. This requires (among other things) a balance between abstraction and recharge of groundwater.[29] Here it again emerges that recharge of groundwater is considered an instrument or measure for achieving the good status of groundwater. Over-abstraction affects both quantity and quality.
3. The Member States must ensure the reversal of any significant and sustained upward trend in the concentration of any pollutant resulting from human activity.

From this it can be concluded that the Water Framework Directive provides for the reversal of a trend as regards the amount of pollution present: the groundwater pollution present gradually has to become less instead of more. In addition, the Water Framework Directive includes an objective which especially concerns quality: discharge of pollutants must be reduced. In addition to the general quality objectives in the Water Framework Directive, the quality objective for groundwater is elaborated in more detail in the new Groundwater Directive. Finally, the Water Framework Directive includes an objective with respect to quantity (which partly determines quality). This concerns the balance between abstractions and recharge. The starting point has to be that this quantity objective benefits groundwater quality.

Uncertainty concerning the protective regime for artificial recharge

The Water Framework Directive is not very clear concerning the regime that applies to a Water Framework Directive assumes that artificial recharge is *not* coupled with the discharge of priority substances into the groundwater. Artificial recharge is in that case not regarded as an indirect discharge and is therefore permitted (although control measures may be necessary). Support for this view may be found in the idea that under the Water Framework Directive the discharge of priority substances must be severely limited and the discharge of priority hazardous substances must in time be eliminated entirely.

On the other hand (the second option) it can be argued that the Water Framework Directive considers artificial recharge of such fundamental importance for achieving good groundwater status and an adequate water supply that artificial recharge is in principle – although subject to restrictions – permitted. Support for this view may be found in the provisions of Art. 11(3)(f), where artificial recharge of groundwater is regulated separately and made subject to strict requirements. Given these separate rules for artificial recharge using water derived from *any* surface water as Art. 11 permits, this view is the most plausible.

This leads to the following hypothesis. Artificial recharge of groundwater is in principle permitted, now that it is an instrument for fulfilling the requirements of good groundwater status. However, artificial recharge may not impede the realisation of the environmental objectives.[30] In order to

[24] Insofar as quality is affected by the effects of floods and droughts, this objective has been laid down in Art. 1(e). The regular reduction of pollution of groundwater falls under Art. 1(d).
[25] Article 2(20).
[26] As is the case with infiltration in case of the abstraction of drinking water.
[27] Article 2(27).
[28] Article 4(1)(b)(i).
[29] Article 4(1)(b)(ii).
[30] These are as yet unknown and will have to be elaborated in more detail.

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regulate the latter aspect, a separate "basic measure" was included for artificial recharge of groundwater in Art. 11.

Artificial recharge with water containing pollutants

Of crucial importance for the possibility of dune water infiltration and bank infiltration is the answer to the question of whether dune water can actually be artificially recharged with water containing some measure of pollutants. In this scenario, there are three possibilities, which will be examined in more detail below.

1. The Water Framework Directive only considers infiltration with *polluted* water possible if and to the extent that this must be regarded as artificial recharge and the possible exceptions provided by the Directive in Art. 4 can be rightfully invoked.

From this point of view, artificial recharge of groundwater containing pollutants is in principle *not* permitted insofar as the water to be infiltrated contains priority hazardous substances. To the extent that the water to be infiltrated contains other pollutants it can only be infiltrated if compulsory basic measures have been taken. Deviation from this regime is only possible when the possible exceptions provided by the Framework Directive in Art. 4 are rightfully invoked. The Water Framework Directive provides several possibilities to deviate from the Directive's strict objectives. For artificial recharge of groundwater, Art. 4(5), (6) and (7) is especially relevant. Based on Art. 4(5), less stringent environmental objectives may be set for specific bodies of water when they are so affected by human activity or their natural condition is such that the achievement of these objectives would be infeasible or disproportionately expensive. For this, all the conditions set out in this paragraph must be fulfilled. For groundwater, this means that:

a. the environmental and socio-economic needs served by such human activity cannot be achieved by other means, which are a significantly better environmental option not entailing disproportionate costs;
b. for groundwater, only the least possible changes to good groundwater status may occur; and
c. no further deterioration may occur in the status of the body of groundwater.

Article 4(6) mainly concerns *force majeure* and is only relevant to the extent that, for example, more infiltration is necessary as a result of prolonged droughts.

Under Art. 4(7), Member States are not in breach of the Directive when failure to achieve good groundwater status (including quantity) is the result of alterations to the level of bodies of groundwater.

In that case, too, all the conditions set out in this paragraph have to be met:

a. all practicable steps must be taken to mitigate the adverse impact,
b. the reasons for those modifications or alterations are set out and explained in the river basin management plan,
c. the reasons for those modifications and/or alterations are of *overriding public interest* and/or the benefits of achieving the objectives set out in paragraph 1 are outweighed by the benefits of the alterations to human health, to the maintenance of human safety or to sustainable development.
d. the beneficial objectives cannot for reasons of technical feasibility or disproportionate cost be achieved by other means, which are a significantly better environmental option.

This point of view is defensible, but includes a risk when one wishes to continue to use dune water infiltration and bank infiltration as a regular instrument for the purpose of the drinking water supply, as some lack of clarity persists.

This is caused by the fact that on the one hand, the Water Framework Directive in the compulsory basic measures mentions artificial recharge of groundwater, whereby the use of *any* surface water is permitted, on the condition that certain requirements are fulfilled (see below). It is self-evident that surface water will contain a certain amount of pollutants. On the other hand, I believe one should read the general environmental objectives with the corresponding exceptional provisions as the umbrella protective regime which the Directive aims for. Invoking exceptional provisions is not the obvious course when one wishes to continue to use infiltration as a regular instrument for the drinking water supply. However, that does not alter the fact that invoking the exceptional provisions for artificial recharge of groundwater can be extremely relevant.

It can be concluded from the above that the Water Framework Directive includes several different possibilities for exception which can accommodate infiltration with (polluted) surface water with the intention of artificially recharging groundwater resources. The wording of the exceptional provisions brings to mind the wording of the separate regime for artificial recharge of groundwater in the Groundwater Directive. For example, an overriding public interest must be at stake, status may not deteriorate further and the exception may only be used when no better environmental options are available. The artificial recharge may also be regarded as one of the measures mitigating the impact of relying on the exception under Art. 4(5).

2. The Water Framework Directive has its own regime for the artificial recharge of groundwater which is comparable to that of the old Groundwater Directive.

Pollution of groundwater must be prevented and limited with the aid of the programme of measures. Important in the framework of dune water infiltration and bank infiltration is the provision of Art. 11(3)(f): prior authorisation is required for artificial recharge or augmentation of groundwater bodies. The water used may be derived from *any* surface water or groundwater, provided that the use of the source (read: surface water) does not compromise the achievement of the environmental objectives established for the source (read: surface water) or the recharged or augmented body of groundwater.

When this provision is read as a separate regime for artificial recharge, it can be considered a more detailed elaboration for the purpose of (among other things) achieving the second "environmental objective" for good groundwater status, namely achieving a balance between abstraction and recharge.

The compulsory basic measure, which after all specifically addresses artificial recharge, strongly resembles the separate regime for artificial recharge under the Groundwater Directive.

For this option, too, it is true that in addition to this separate regime, the exceptional provisions of Art. 4 can be invoked. Which provisions can be invoked precisely depends

on the answer to the question of whether infiltration is regarded as artificial recharge or as indirect discharge. In case of artificial recharge, Art. 4(5), (6) and (7) can be invoked. In case of indirect discharge, only the exceptions under Art. 4(6) and (7) apply.

From this it can be concluded that it is quite conceivable that Art. 11(3)(f) in conjunction with Art. 4(1)(b)(ii) and the starting points of the Water Framework Directive must be considered to form their own, separate regime for artificial recharge of groundwater. The resulting system strongly resembles the one under the Groundwater Directive.

3. The Water Framework Directive *no longer* considers infiltration with *polluted* water as artificial recharge, but as indirect discharge, to which the regime for (indirect) discharge applies, which is elaborated in more detail in the new Groundwater Directive.

The Groundwater Directive has its own regime for the artificial recharge of groundwater. It abandons the division into direct and indirect discharge and the distinction in accordance with the type of substances that are discharged (List I or II). The Water Framework Directive lays down the objectives for the input of pollutants (direct or indirect) in Art. 4(1)(i) and partly in (iii).

In the event that artificial recharge of groundwater is not regulated separately, but is considered indirect discharge into groundwater, the regime of the Water Framework Directive in conjunction with the new Groundwater Directive will – in time – apply.

In that case, the exceptional provisions of Art. 4(6) and (7) are the only ones that may be invoked (see above), but then, too, certain exceptions, especially reliance on an overriding public interest, are possible.

Groundwater pollution must be prevented and limited with the aid of the programme of measures. One of the compulsory basic measures is a prohibition of the direct discharge of pollutants into groundwater.[31]

In addition, Art. 11(3)(f) applies: prior authorisation is required for the artificial recharge or augmentation of groundwater bodies. The water used may be derived from *any* surface water or groundwater, provided that the use of the source (read: surface water) does not compromise the achievement of the environmental objectives established for the source (read: surface water) or the recharged or augmented body of groundwater.

This leads to the conclusion that when recharge is regarded as an indirect discharge the regime of the new Groundwater Directive will also become applicable. Especially relevant in this is Art. 6 of the new Groundwater Directive, which must be read in conjunction with the preamble and the definitions and, of course, the Water Framework Directive.

IV. The new Groundwater Directive

The new Groundwater Directive has a dual objective. In the first place, the Directive forms the elaboration of the groundwater quality requirements which follow from the Water Framework Directive. In this context, they have been called the basic Directive and its corresponding implementing Directive. In addition to and complementing the system of the Water Framework Directive, the new Groundwater Directive aims to establish continuity as a follow-up to the current Groundwater Directive. This is necessary, as the Groundwater Directive will in time be repealed. The new Groundwater Directive establishes special protection of groundwater against indirect discharges, while these discharges are only regulated in general terms under the Water Framework Directive. Relevant for the mutual relationship between the Water Framework Directive and the new Groundwater Directive is that in EC law there is no hierarchy between Directives. They are all independent Directives.

All the same, questions may arise concerning the relationship between the different Directives. In order to be able to answer the question of how Directives interrelate, one must in the first place examine the wording of the Directives in question. In this context, the new Groundwater Directive clearly indicates that it provides a more detailed elaboration of the Water Framework Directive, as Art. 17 of the Water Framework Directive indicates.

The case law of the Court of Justice also provides some reference points for the relationship between Directives. For example, one Directive can be the detailed elaboration of provisions from another Directive.[32] In this, it has to be assumed that the implementing directive must be interpreted in the light of the basic directive. It can be concluded from case law that an implementing directive cannot create a protective regime which is *less stringent*.[33] It is unclear whether an implementing directive can establish a more stringent protective regime. In general, it might be said that the special rule prevails over the general rule[34] also referred to as "*lex specialis derogat legi generali*".[35]

What does this imply for the possibilities of infiltration within the meaning of "artificial recharge of groundwater"?

It has been suggested above that the Water Framework Directive seems to include special rules for artificial recharge of groundwater. Now that the new Groundwater Directive has no provisions on artificial recharge it can be concluded that the special rules in this case are included in the Water Framework Directive. The rules in the Water Framework Directive would then prevail over the rules concerning indirect discharge in the new Groundwater Directive.

On the other hand, it could be argued that the entire new Groundwater Directive is an elaboration of the Water

[31] Article 11(3)(j).

[32] Cf., for example, the Council Directive of 12 June 1986 on limit values and quality objectives for discharges of certain dangerous substances included in List I of the Annex to Directive 76/464/EEC, OJ 4.7.1986 L181/16, which is an implementation of the Council Directive of 4 May 1976 on pollution caused by certain dangerous substances discharged into the aquatic environment of the Community, OJ 18.5.1976 L129/23.

[33] Case C-303/94 [1996] ECR I-2943.

[34] Case C-444/00 *Corus* [2004] ECR paras 49-57. This case concerned the relationship between two waste Directives.

[35] As Att-Gen Geelhoed put it in para. 48 of his Opinion in case C-221/00 [2003] ECR I-1007.

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Framework Directive and thus the special regulation of the protection of groundwater quality. If the rules are interpreted in this way[36] in practice,[37] it may be assumed that artificial recharge with surface water containing pollutants will fall under the definition of ''indirect discharge'' in the new Groundwater Directive. After all, this is not expressly precluded either by the definitions or by the text of Art. 6.

If the regime of Art. 6 of the new Groundwater Directive applies to infiltration, the following is true.

- Infiltration with water *without* pollutants is allowed without any further requirements, provided that the authorisation of Art. 11(3)f) of the Water Framework Directive is granted. In such a case, it is not a matter of discharging, as no pollutants are introduced into the groundwater.
- Infiltration with water containing substances that are listed in points 1 to 6 of Annex VIII to the Water Framework Directive must be prevented. This could mean – especially over time – that discharges of these substances are prohibited.
- Infiltration with water containing substances that are listed in points 7 to 12 of Annex VIII to the Water Framework Directive are allowed provided that it is regulated in the measures[38] that the discharge of these substances does not endanger the good chemical condition. This means that a slightly more lenient protective regime applies than under the Water Framework Directive for the compulsory prior authorisation of artificial infiltration, given that in artificial infiltration the achievement of (all) the environmental objectives may not be jeopardised, while in indirect discharges of substances that are listed in points 7 to 12 of Annex VIII to the Water Framework Directive protection is only directed at the good chemical status.

The above leads to the following conclusion. Dune water infiltration and bank infiltration involving the presence of pollutants in the water that is to be infiltrated may fall under the definition of indirect discharge in Art. 2 of the new Groundwater Directive. For these infiltrations the new Groundwater Directive poses the risk that (in time) only water that does not include any of the substances listed in points 1 to 6 of Annex VIII to the Water Framework Directive can still be infiltrated. To other pollutants (listed in points 7 to 12 of Annex VIII to the Water Framework Directive) a slightly less stringent protective regime applies. This risk is not expressly excluded by the wording of the new Groundwater Directive, which it could be, however, if the new Groundwater Directive – in imitation of the Groundwater Directive – would have its own regime for artificial recharge of groundwater.

The only escape route left – other than amendment of the new Groundwater Directive – for continuing to make use of infiltration with surface water containing pollutants for Water Framework Directive as included in Art. 4(6) and (7).[39] Given that dune water infiltration and bank infiltration fall within the regular activities for the purpose of (in any case the Dutch) drinking water supply, it would not be advisable to depend entirely for this on reliance (by a Member State!) on the exceptional provisions of the Water Framework Directive

If pollutants would have to be completely filtered out prior to the infiltration this would be contrary to Art. 7(3) of the Water Framework Directive which provides that the level of purification treatment necessary for the production of drinking water has to be reduced. Further-reaching prior purification would also cause a considerable increase in the price of drinking water.

If it is considered desirable that these two forms of infiltration for the purpose of the drinking water supply remain possible, it is advisable to amend the new Groundwater Directive in such a way that dune water infiltration and bank infiltration for the purpose of the drinking water supply (an overriding public interest) can continue, provided that the environmental requirements laid down in Art. 11(3)(f) Water Framework Directive are fulfilled. To this end – for the purpose of legal certainty – it is necessary to amend the new Groundwater Directive. A proposal for such an amendment will be elaborated below.

V. Proposal for amending the new Groundwater Directive

Given the risk described above that artificial recharge of groundwater with surface water containing pollutants will be considered an indirect discharge under the regime of the new Groundwater Directive, it is advisable to dispel any lack of clarity on this point. Several different amendments to the Directive may be envisaged.

An amendment could be inserted into the preamble after recital 7:

> ''The good quantitative status of groundwater is an essential part of good groundwater status. In order to ensure a balance between abstraction and recharge of groundwater, Directive 2000/60/EC includes a special regime for recharge of groundwater.''

It is further recommended that Article 2 be amended as follows:

> '' 'indirect discharge into groundwater': discharge of pollutants into groundwater after percolation through the ground or subsoil, not being the result of artificial recharge of the groundwater with an eye to an overriding public interest and with the intention of establishing a balance between abstraction and recharge of groundwater as provided by Directive 2000/60/EC.'

In principle, this definition keeps the regime of Art. 6 from applying to artificial recharge for the purpose of establishing a balance in the quantity of groundwater.[40]

In order to retain the strict protective regime of the Water Framework Directive and the new Groundwater Directive it

[36] Which is not inconceivable now that Article 6 of the new Groundwater Directive expressly refers to the programme of measures from Art. 11 of the Water Framework Directive.
[37] Possibly only after a number of years.
[38] For example, the authorisation..
[39] Unless the water to be infiltrated is purified in such a way that no pollutants (especially point 1-6 pollutants) remain. This would presumably sharply increase the price of drinking water.
[40] The same is true in the Netherlands: 'infiltration for the purpose of abstraction'.

is recommended that the exception for artificial recharge must only be made when artificial recharge – in addition to achieving balance in the groundwater quantity – also serves an *"overriding public interest"*.[41]

Amending Art. 6 is more of a problem, as the regime of Art. 6(2)[42] is more lenient than the regime under Art. 11(3)(f) of the Groundwater Directive limits itself to "not putting at risk the achievement of good groundwater chemical status".

Article 11(3)(f) of the Water Framework Directive intends to provide much wider protection: this protection is directed at the environmental objectives for both surface water and groundwater. This means that both the consequences of artificial recharge for good ecological status[43] and the consequences for good quantitative status of groundwater have to be taken into account. Precisely because recharge is an instrument for achieving good (quantitative and qualitative) status, a separate regime is recommended. This separate regime can be less stringent on the one hand,[44] but on the other hand it must be guaranteed that this does not jeopardise the good status of water as a whole.

VI. Summary and Conclusion

The Groundwater Directive aims to protect the quality of groundwater. In order to achieve this objective pollution must be prevented. The Groundwater Directive establishes special rules for artificial recharge of groundwater for the purpose of public management. These rules apply, irrespective of the type of discharge and the type of substance that is discharged. Authorisation can only be granted if there is no danger of polluting the groundwater.

The Water Framework Directive does not provide an unequivocal answer to the question of whether there is a separate regime for artificial recharge of groundwater for the purpose of the drinking water supply. It can be assumed that the surface water used for artificial recharge contains certain concentrations of pollutants. It is not clear whether artificial recharge with groundwater containing pollutants falls under the regime of indirect discharge as regulated in more detail in the new Groundwater Directive.[45]

From the object and scope of the Water Framework Directive the following focal points may be derived.

Groundwater is a heritage that must be protected. The good status of groundwater and surface water are closely linked. The Water Framework Directive is in the first place directed at good quality. For this, good groundwater quantity is indispensable. Sufficient groundwater is also essential for the drinking water supply.

Because of the need for sufficient clean groundwater there must be a balance between abstraction and recharge of groundwater. For this, the Water Framework Directive provides special rules in Art. 11(3)(f). In the recharge of groundwater resources, any surface water may be used provided that this does not endanger the achievement of the environmental objectives Water Framework Directive and to guarantee the continuity of the protective regime provided by the Groundwater Directive, a new Groundwater Directive has been established, which is mainly directed at the good chemical status of groundwater and creates further protection against indirect discharges.

The Groundwater Directive provides a separate regime for artificial recharge. This recharge is also regulated in the Water Framework Directive. In that sense, there is no protection gap. As infiltration with water containing pollutants also concerns groundwater quality, it may be argued that this form of infiltration does fall under the new Groundwater Directive and is therefore an indirect discharge as regulated by Art. 6.

It is not incontestably clear what the regime for artificial recharge with surface water containing a certain amount of pollutants will be after the entry into force of the new Groundwater Directive. It could, for example, be argued that the special regime for artificial recharge is laid down in the Water Framework Directive. The wording of the new Groundwater Directive, however, also leaves room for the position that artificial recharge with water containing pollutants is regarded as indirect discharge. This may cause a problem for the drinking water supply when use is made of artificial recharge of groundwater with surface water containing pollutants. In the surface water to be infiltrated these substances – e.g. pesticides – are present quite often. For many substances, a strict protective regime will become applicable or infiltration may only take place in case the exceptional provisions of Art. 4(6) and (7) of the Water Framework Directive are successfully invoked. If these substances have to be completely filtered out prior to infiltration this would go against Art. 7(3) of the Water Framework Directive, which after all provides that the level of purification treatment required for the production of drinking water has to be reduced. Further-reaching purification would also cause a sharp increase in the price of drinking water.

In order to prevent that dune water infiltration and bank infiltration will cease to be possible after the entry into force of the Groundwater Directive – or only possible upon the fulfilment of very strict requirements – proposing an amendment is advisable. The purpose of the amendment is to clarify that for artificial recharge with an eye to overriding public interests, including the drinking water supply, the regime of the Water Framework Directive itself is applicable.

If the regime of the Water Framework Directive itself applies, use can be made of national legislation concerning infiltration, on the understanding that possible exemptions have to remain outside the scope of the exceptional provisions of the Water Framework Directive.[46]

Two possible amendments have been proposed. It was first proposed to include in the preamble of the Directive the observation that artificial recharge of groundwater resources may be necessary for balancing abstraction and recharge of groundwater. Artificial recharge is regulated

[41] Analogous to Art. 4(7).
[42] Substances 7 to 12 of Annex VIII to the Framework Directive.
[43] Which can be affected by abstraction for the purpose of recharge.
[44] Water containing point 1-6 substances may also be infiltrated.
[45] Especially the rules for indirect discharges in Art. 6.
[46] Article 4(5), (6) and (7).

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in the Water Framework Directive and is not elaborated further in the new Groundwater Directive. It is further recommended that the definition of *indirect discharge* in the new Groundwater Directive is amended in such a way that it becomes clear that artificial recharge of groundwater with an eye to an overriding public interest does not fall within the regime of indirect discharge. Finally, it may be observed that the problem described above should be of a temporary nature. After all, the Water Framework Directive ultimately aims to achieve the "good status" of all water. Until such time, however, everybody will benefit from clear rules.