

Policy coherence for the protection of water resources against agricultural pollution in the EU and Norway

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Abstract

Throughout the European Union (EU), agricultural practices contribute significantly to the pollution of water resources by nitrates, phosphorus and pesticides. This article sheds light on the degree of horizontal legal coherence between the main EU legal and policy instruments applicable to the protection of water resources from agricultural pollution. After identifying key coherence challenges at the EU level, the article thoroughly assesses the regulatory and governance approach in Norway. The key question is how certain EU-level coherence challenges could be mitigated at a national level through mechanisms aimed at facilitating cross-sectoral coordination and policy coherence. Three types of mechanisms have been selected for this purpose: (i) legal mechanisms, including cross-referencing and joint institutional responsibility for implementation; (ii) the establishment of platforms for cross-sectoral policy coordination or actor participation; and (iii) the establishment of monitoring and reporting processes that ensure access to information and data sharing.

1 | INTRODUCTION

In Europe, the productivity of agriculture has increased greatly over the last decades. This increase has been enabled in part through the expanded availability of fertilizers, manure and pesticides. Increased agricultural productivity has, however, also resulted in increased pollution of groundwaters and surface waters from nitrates, phosphorus and (residues of) pesticides, posing a major pressure on water bodies throughout the European Union (EU).¹ The European Environment Agency stresses that nitrogen surpluses from the fertilization of grassland and crops have remained very high in northern and central Europe. Meanwhile, the unsustainably high nitrate concentration in groundwater has not decreased for 30 years, with no improvement in total EU pesticide use since 2011.² Excessive pesticide and fertilizer use affect water quality, quantity and ecology. Moreover, biodiversity

impacts are felt across Europe in groundwater dependent ecosystems, rivers, lakes, transitional and coastal water bodies as well as the marine environment.³

Because of this situation, the European Commission emphasizes that more needs to be done to prevent water pollution from nutrients, in particular nitrates and phosphorus.⁴ Recently, the European Commission has set rather ambitious targets in its Farm to Fork Strategy.⁵ This strategy is a central part of the 2020 European Green Deal to make EU's climate, energy, transport and taxation policies fit for reducing net greenhouse gas emissions by at least 55% by 2030,

³M Sud, 'Managing the Biodiversity Impacts of Fertiliser and Pesticide Use: Overview and Insights from Trends and Policies across Selected OECD countries (Organisation for Economic Co-operation and Development (OECD) Environment Directorate 2020) 8–14.

⁴Commission (EU) 'Report from the Commission to the Council and the European Parliament on the Implementation of Council Directive 91/676/EEC Concerning the Protection of Waters against Pollution Caused by Nitrates from Agricultural Sources Based on Member State Reports for the Period 2012–2015' (Communication) COM(2018) 257 final, 4 May 2018.

⁵Commission (EU) 'A Farm to Fork Strategy for a Fair, Healthy and Environmentally-Friendly Food System' (Communication) COM (2020) 381 final, 20 May 2020.

¹European Environment Agency, 'Water and Agriculture: Towards Sustainable Solutions' (Publications Office of the European Union 2021) 6–7.

²ibid.

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compared with 1990 levels.⁶ The Strategy requires EU Member States to reduce the use and risk of chemicals and more hazardous pesticides by 50%; the use of fertilizers by at least 20%; and nutrient losses by at least 50% by 2030.⁷

Over the last few decades, the EU has gradually developed an extensive set of directives, guidelines and policies regulating the protection of water resources against agricultural pollution. The EU Drinking Water Directive, for example, sets an overall minimum quality for drinking water within the EU.⁸ The Water Framework Directive (WFD),⁹ Nitrates Directive¹⁰ and Groundwater Directive¹¹ aim at decreasing the losses of nutrients and pesticides to the environment and the leaching of nitrogen to groundwater and surface waters. Moreover, the Directive on the Sustainable Use of Pesticides promotes the use of integrated pest management and alternative approaches or techniques.¹² Other policies address the efficient and clean use of resources, wider agriculture–environment issues and nature conservation. The Common Agricultural Policy (CAP),¹³ the Rural Development Programme¹⁴ and the Habitats Directive¹⁵ also have significant implications for the use and losses of nutrients and pesticides from agriculture.

Given the number of policies that directly or indirectly apply to the protection of water resources against agricultural pollution, a high level of policy coherence across the policies is important. Regulatory gaps, overlaps, inconsistencies and contradictory aims and requirements will likely weaken the effectiveness of any legal framework.¹⁶ Policy coherence is particularly important where implementation of EU laws and policies takes place at the national and subnational governance levels. This often entails complex layering and multi-governance approaches that may render effective implementation and the achievement of EU policy goals difficult.¹⁷

This article examines the degree of horizontal coherence between the main EU directives and their measures applicable to the reduction of agricultural pollution on water resources and sheds light on how certain EU policy incoherencies are tackled (or not) at the national level. Policy coherence is understood in this article as ‘the extent to which laws and policies systematically reduce conflicts and promote synergies between different policy areas to achieve jointly agreed objectives’.¹⁸ The overarching research question is: How can EU-level coherence challenges be mitigated at a national level through mechanisms aimed at facilitating cross-sectoral coordination and policy coherence, particularly in Norway.

As a European Economic Area (EEA) country, Norway is obliged to transpose and comply with parts of EU law as specified in the EEA Treaty.¹⁹ In the context of the policy focus of this article, applicable directives and policies in Norway are to a large extent comparable with EU Member States. A major difference is the fact that Norway does not implement the CAP. Interestingly, in Norway, several mechanisms for coordination and policy coherence exist, with a potential to improve compliance with the EU objectives and requirements. This article explores implementation practice of EU policy in Norway and thereby fills an important gap in the scientific literature that to a major extent focuses on implementation practices in EU Member States.²⁰

Three types of mechanisms will be explored: (i) legal mechanisms, including cross-referencing and joint institutional responsibility for implementation; (ii) the establishment of platforms²¹ for cross-sectoral policy coordination or actor participation; and (iii) the establishment of monitoring and reporting processes that ensure access to information and data sharing. These mechanisms have been selected based on a quick scoping of relevant literature that has identified these mechanisms as potentially contributing positively to increased cross-sectoral coordination and policy coherence.²²

⁶Commission (EU) ‘The European Green Deal’ (Communication) COM(2019) 640 final, 11 December 2019.

⁷Commission (EU) (n 5).

⁸Council Directive 98/83/EC of 3 November 1998 on the quality of water intended for human consumption [1998] OJ L330/32.

⁹Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy [2000] OJ L327/1 (WFD).

¹⁰Council Directive 91/676/EEC of 12 December 1991 concerning the protection of waters against pollution caused by nitrates from agricultural sources [1991] OJ L375/1.

¹¹Directive 2006/118/EC of the European Parliament and of the Council of 12 December 2006 on the protection of groundwater against pollution and deterioration [2006] OJ L372/19.

¹²Directive 2009/128/EC of the European Parliament and of the Council of 21 October 2009 establishing a framework for Community action to achieve the sustainable use of pesticides [2009] OJ L309/71. For pesticides, the fitness check ‘REFIT – Evaluation of the EU legislation on plant protection products and pesticides residues’ is currently in progress. See <https://ec.europa.eu/food/plant/pesticides/refit_en>.

¹³Commission (EU), ‘Common Agricultural Policy’ <https://agriculture.ec.europa.eu/common-agricultural-policy_en>.

¹⁴Regulation 1305/2013/EU of the European Parliament and of the Council of 17 December 2013 on support for rural development by the European Agricultural Fund for Rural Development (EAFRD) and repealing Council Regulation (EC) No 1698/2005 [2013] OJ L347/487.

¹⁵Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora [1992] OJ L206/7.

¹⁶Commission (EU) ‘Better Regulation Guidelines’ (Staff Working Document) SWD(2021) 305 final, 3 November 2021.

¹⁷Commission (EU) ‘The Fitness Check of EU Freshwater Policy’ (Staff Working Document) SWD(2012) 393 final, 15 November 2012; M Howlett and J Rayner, ‘Design Principles for Policy Mixes: Cohesion and Coherence in “New Governance Arrangements”’ (2007)

26 Policy and Society 1; G Pe'er et al, ‘Is the CAP Fit for Purpose? An Evidence Based Fitness-Check Assessment’ (BirdLife et al 2017); S Hovik, ‘Integrated Water Quality Governance and Sectoral Responsibility: The EU Water Framework Directive’s Impact on Agricultural Sector Policies in Norway’ (2019) 11 Water 2215; M Indset and KB Stokke, ‘Layering, Administrative Change and National Paths to Europeanization: The Case of the Water Framework Directive’ (2015) 23 European Planning Studies 979.

¹⁸M Nilsson et al, ‘Understanding Policy Coherence: Analytical Framework and Examples of Sector–Environment Policy Interactions in the EU’ (2012) 22 Environmental Policy and Governance 395.

¹⁹Agreement on the European Economic Area [1994] OJ L1/3.

²⁰See, e.g., M Graversgaard et al, ‘Opportunities and Barriers for Water Co-Governance—A Critical Analysis of Seven Cases of Diffuse Water Pollution from Agriculture in Europe, Australia and North America’ (2018) 10 Sustainability 1634; JE Rowbottom et al, ‘Water Governance Diversity across Europe: Does Legacy Generate Sticking Points in Implementing Multi-level Governance?’ (2022) 319 Journal of Environmental Management 115598; S Wujijs et al, ‘Protection of Drinking Water Resources from Agricultural Pressures: Effectiveness of EU Regulations in the Context of Local Realities’ (2021) 287 Journal of Environmental Management 112270.

²¹A platform for multi-actor engagement can be described as ‘a more-or-less ongoing mechanism in which actors meet regularly to foster exchange and promote joint decision making and collaboration in a continuously evolving way’. NA Acquaye-Baddoo et al, ‘Multi-actor Systems as Entry points to Capacity Development’ (2010) 41 Capacity.org 4–7.

²²GS Hanssen et al, ‘Implementing EUs Water Framework Directive in Norway: Can the New River Basin Districts Ensure Environmental Policy Integration?’ (2016) 4 International Journal of Water Governance 1; F Metz et al, ‘Policy Integration: Do Laws or Actors Integrate Issues Relevant to Flood Risk Management in Switzerland?’ (2020) 61 Global Environmental Change 101945; S Neto et al, ‘OECD Principles on Water Governance in Practice: An Assessment of Existing Frameworks in Europe, Asia-Pacific, Africa and South America’ (2017) 43 Water International 60.

The article first explains the methodological approach to the research (Section 2). This is followed by an overview of the relevant EU directives and policies and the degree of their horizontal coherence (Sections 3 and 4). It then dives into the Norwegian governance approach to the protection of water resources against agricultural pollution and explores how certain policy coherence and coordination mechanisms at the national level help mitigate the identified EU coherence challenges (Section 5). The article concludes with several recommendations and reflections (Sections 6 and 7).

2 | METHODOLOGICAL APPROACH

This article partly builds upon research carried out under the EU-funded FAIRWAY project.²³ The project aimed to review approaches for the protection of drinking water resources from pollution by nitrogen and pesticides and to identify and further develop cost-effective and innovative measures and governance approaches that will protect drinking water supplies while increasing agricultural sustainability. As part of the project, an analysis of the coherence and consistency of EU and national policies was conducted²⁴; a comparative assessment of governance arrangements in 13 European case studies to identify the barriers and success factors associated with achieving water quality targets was made²⁵; examples of lack of coherence and possible legal spill-over effects were identified²⁶; and cost-efficient and coherent management models to develop legitimate governance arrangements were developed.²⁷

To study the coherence and consistency of EU-level laws and policies, we followed four steps. First, the key requirements and objectives of the various laws and policies were identified. The purpose of this step was to get a comprehensive overview of the requirements and objectives of all relevant directives and policies. In a second step, screening matrices were created that displayed all the different requirements and objectives in Excel spreadsheets. These matrices displayed the requirements of individual laws and policies on the vertical axis against the requirements and objectives of other directives on the horizontal axis for the purpose of a horizontal coherence assessment.

In the third step, the degree of horizontal coherence was evaluated and scored by using online surveys. All surveys included two types of items: quantitative Likert scale items and qualitative open-ended items. The quantitative items asked respondents to give a numeric score representing their perception of the interaction of a directive with the other directives. The scale was based on the typol-

ogy and 7-point scale presented by Nilsson and colleagues²⁸ to assess the degree of coherence. Pursuant to the 7-point scale, interactions may be scored as either positive (*indivisible* [+3], *reinforcing* [+2] or *enabling* [+1]) or negative (*cancelling* [-3], *counteracting* [-2] or *constraining* [-1]) or the respective legal requirements may be entirely *neutral* (0), incurring no significant positive or negative interactions whatsoever, perhaps no interaction at all.

Each survey also contained open-ended survey items to help interpret the quantitative data. These items asked respondents to provide their opinion on the scorings and to describe potential positive or negative interactions. When relevant, the partners provided explanations and examples for the given scores. In a fourth step, we analysed the data, including a quantitative and qualitative analysis. The key findings with regard to the EU policy coherence challenges are discussed in Section 4.²⁹

For the assessment of possible spill-over effects and implementation in Norway, a study of the governance arrangements on water and agriculture was undertaken through document review, interviews with environmental and agriculture actors and authorities, and observation at meetings during 2019–2021. Observation provides information about key stakeholder's statements and arguments on topics in real-world interactions and adds an understanding of the situation that might otherwise be lost.³⁰ In total, physical or virtual observation was undertaken in 15 meetings at the sub-basin district level in Norway.

Moreover, interviews about policy coherence and mechanisms for cross-sectoral coordination were undertaken with six actors at the national level, four at the regional level and four at the local level. The national-level informants were selected based upon their responsibilities regarding key EU directives in the Norwegian Environment Agency, the Norwegian Agriculture Agency and the Food Safety Authority. At the county and municipality level, interviews were undertaken with members of the sub-basin district water-agriculture working group. This group includes municipal advisors as well as regional authorities and advisors. The interviews focused on implementation of the WFD, Groundwater Directive, Drinking Water Directive, Nitrates Directive and Pesticides Directive. The interview questions addressed policy coherence and mechanisms for cross-sectoral coordination. These were guided by a template of survey questions based upon the Organisation of Economic Cooperation and Development (OECD) principles of good governance.³¹

²⁸M Nilsson et al. 'Map the Interactions between Sustainable Development Goals' (2016) 534 *Nature* 320.

²⁹All data, scorings and other material can be found in Platjouw et al (n 24).

³⁰PA Adler and P Adler, 'Observational Techniques' in NK Denzin and YS Lincoln (eds), *Handbook of Qualitative Research* (Sage 1994) 377.

³¹OECD, 'OECD Principles on Water Governance' <<https://www.oecd.org/governance/oecd-principles-on-water-governance.htm>>. The OECD Principles are based on the general principles of good governance: legitimacy, transparency, accountability, human rights, rule of law and inclusiveness. The framework contains three mutual reinforcing dimensions: effectiveness, efficiency, and trust and engagement. See also Wuijts et al (n 20) and Rowbottom et al (n 20).

²³See <<https://www.fairway-project.eu/>>.

²⁴FM Platjouw et al, 'Coherence in EU Law for the Protection of Drinking Water Resources', FAIRWAY Project Deliverable 6.1R (2021).

²⁵JE Rowbottom et al, 'Comparative Assessment of Governance Arrangements in the Case Studies', FAIRWAY Project Deliverable 6.2 (2019); Rowbottom et al (n 20).

²⁶Wuijts et al (n 20); S Boekhold et al, 'From Farm to Drinking Water: Governance Fit for the Future?' FAIRWAY Project Deliverable 6.5 (2021).

²⁷B Hasler et al, 'Identification of Cost-effective and Coherent Management Models for Drinking Water Protection in Agriculture', FAIRWAY Project Deliverable 6.4R (2021).

3 | EU LAWS AND POLICIES

Various laws and policies are important to reduce pollution of water bodies and drinking water resources by pesticides and nitrates from agricultural practices, including the WFD, Groundwater Directive, Drinking Water Directive and Revised Drinking Water Directive,³² Pesticides Directive, Nitrates Directive, Environmental Impact Assessment Directive,³³ Industrial Emissions Directive,³⁴ Habitats Directive, CAP and Rural Development Regulation. The assessment presented here is narrowed down to the six most relevant directives and policies, which are the WFD, Groundwater Directive, Drinking Water Directive, Pesticides Directive, Nitrates Directive and the CAP. Research carried out in the FAIRWAY project that assessed the vertical coherence of the individual directives and policies towards the overarching aim of protecting water resources against agricultural pollution clearly indicated that these six are of significant importance, while the others also could contribute positively to the overarching goal but to a lower extent.³⁵ All five selected directives also apply in Norway. Only the CAP is not binding on Norway. A national alternative is in place, as will be shown in Section 5. In this section, we provide an overview of each of these EU policies. In Section 4, we assess the degree of horizontal coherence of these policies to identify challenges and weaknesses.

3.1 | WFD

The WFD is the most comprehensive instrument of EU water policy. Its main objective is to protect and enhance freshwater resources with the aim of achieving good ecological status of EU water bodies by 2015 or, failing that, by 2021 (or 2027 at the latest).³⁶ Simultaneously, all the waters are regulated by the non-deterioration clause, which requires EU Member States to implement all necessary measures to prevent further deterioration of water bodies and improve towards good ecological and chemical status.³⁷ The WFD classification scheme for water quality uses biological, physical-chemical³⁸ and hydromorphological³⁹ data for determining ecological status levels.⁴⁰ The directive's substantive goal of good ecological status is implemented via several procedural requirements.

³²Directive (EU) 2020/2184 of the European Parliament and of the Council of 16 December 2020 on the quality of water intended for human consumption (Recast) [2020] OJ L435/1.

³³Directive 2014/52/EU of the European Parliament and of the Council of 16 April 2014 amending Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment [2011] OJ L124/1.

³⁴Directive 2010/75/EU of the European Parliament and of the Council of 24 November 2010 on industrial emissions (integrated pollution prevention and control) (Recast) [2010] OJ L334/17.

³⁵Platjouw et al (n 24).

³⁶WFD (n 9) art 4(1)(a)(ii) and (b)(ii).

³⁷*ibid*.

³⁸Physical-chemical quality parameters include such as water temperature, pH, conductivity, oxygenation and nutrients.

³⁹Hydromorphological quality elements encompass status of riverbanks, riverbank structures, river training works, river continuity and substrate of the riverbed.

⁴⁰WFD (n 9) annex V.

3.2 | Groundwater Directive

The Groundwater Directive contains an elaboration of the goals for groundwater specified in the WFD. The Groundwater Directive establishes specific measures to prevent and control groundwater pollution by setting criteria for (i) the assessment of good groundwater chemical status and (ii) the identification and reversal of significant and sustained upward trends in groundwater pollution and for the definition of starting points for trend reversals.⁴¹

Another goal of the Groundwater Directive is the establishment of measures to prevent and limit indirect discharges of pollutants into groundwater.⁴² Groundwater is considered to have a good chemical status when measured or predicted nitrates levels do not exceed 50 mg/L. Furthermore, the levels of several specified high-risk substances should be below the national threshold values set by EU Member States, taking into account local circumstances. These threshold values must be included in the River Basin District Management Plans required pursuant to the WFD. The Groundwater Directive is closely connected to the WFD, also in the context of preventing and limiting discharges of pollutants.⁴³

3.3 | Drinking Water Directive

The newly revised Drinking Water Directive concerns the quality of water intended for human consumption. Its objective is to protect human health from adverse effects of any contamination of drinking water. Member States are required to take all necessary measures to ensure this and to prevent any deterioration of the present quality of water at the tap.⁴⁴ Furthermore, Member States should set the limit values applicable to water intended for human consumption for the parameters set out in Annex I of the Drinking Water Directive.⁴⁵ The limits should not be less stringent than those set in Annex I. Moreover, Member States need to set values for additional parameters not included in Annex I, where the protection of human health so requires.⁴⁶

Member States are required to regularly monitor the drinking water quality and to ensure that any failure to meet the parametric values is investigated and corrected through remedial action as soon as possible.⁴⁷

3.4 | Nitrates Directive

The Nitrates Directive deals with the relationship between agriculture and water quality. The directive aims to reduce water pollution caused

⁴¹Groundwater Directive (n 11) art 1.

⁴²*ibid* art 6.

⁴³To illustrate, the programme of measures drawn up for each river basin district under the WFD must include preventing indirect discharges of all pollutants, in particular those hazardous substances mentioned in Points 1 to 6 of Annex VIII to the WFD, as well as the substances mentioned in Points 7 to 9 of the Annex, when deemed to be hazardous.

⁴⁴Drinking Water Directive (n 32) art 4(2).

⁴⁵*ibid* art 5(1).

⁴⁶*ibid* art 5(3).

⁴⁷*ibid* arts 14 and 18.

by nitrates from agricultural sources and to prevent such pollution. Member States must monitor waters, designate so-called nitrates vulnerable zones and then adopt and implement action programmes and codes of good agricultural practices with the aim of improving fertilizer management and preventing nitrates leaching to waters.⁴⁸

Member States are required to designate nitrates vulnerable zones, which are areas that drain into waters that are polluted or at risk of pollution. When establishing the nitrates vulnerable zones, Member States may, instead of designating specific zones, opt to apply an action programme throughout the entire agricultural land.⁴⁹ The mandatory action programme specifies measures, such as limiting the period when the land application of fertilizers is allowed; balanced nitrogen fertilization; a limit to the application of manure nitrogen; and limitations to application of nitrogen fertilizers on sloping soils, during wet conditions, and near watercourses. To assess the effectiveness of these action programmes, monitoring programmes must be put in place.⁵⁰ Full implementation of the directive should achieve waters that do not exceed 50 mg/L of nitrates and are not eutrophic as a result of agricultural nutrient losses.⁵¹ If there is a risk of eutrophication, additional measures need to be taken if that is considered necessary to achieve the overall objective of the Nitrates Directive.⁵² Direct references to the ecological status of water resources or other directives have not been made, even though additional measures may simultaneously be supportive to other directives' objectives.⁵³

3.5 | Common Agricultural Policy

The CAP is a common policy for all Member States to provide financial support to farmers in Member States, specified in Article 39 of the Treaty on European Union. The main objectives of the CAP are to provide income support for farmers; improve agricultural productivity; ensure stable food supply; mitigate climate change; sustainably manage natural resources; and maintain rural areas, landscapes and the rural economy across the EU.

CAP Pillar I mechanisms to promote sustainable agriculture encompass EU standards on good agricultural and environmental condition of land (GAEC), and incentives for 'greening' by means of direct payment to farmers if they comply with mandatory practices that benefit the environment (soil and biodiversity in particular). Furthermore, through the cross-compliance mechanism, farmers can receive income support if they respect the GAEC standards and the statutory management requirements as laid down in the EU rules on public, animal and plant health and animal welfare, as well as the environment. The rules are linked to the Nitrates Directive, the Birds Directive and the Habitats Directive. Following the adoption of the agreement on

reform of the CAP in December 2021 and the entering into force of new legislation in January 2023, the CAP seems to pave the way for a fairer, greener and more performance-based policy with possibly some stricter environmental requirements.⁵⁴ Due to the timing of the FAIRWAY project, these revisions, however, have not been part of the analysis in this article.

Given the number of policies applicable to the specific problem of the pollution of water resources through agricultural practices, an important question is to what extent the policy landscape is coherent. As will be explained, coherence challenges or weaknesses could reduce the effectiveness of the overall policy landscape in addressing the problem.

4 | POLICY COHERENCE IN EU LAWS AND POLICIES

In the context of the EU, the concept of policy coherence was formally introduced in the 1992 Treaty of Maastricht and further reinforced in the 2009 Treaty of Lisbon.⁵⁵ Internationally, the concept has received increased attention in the context of sustainable development.⁵⁶ Policy coherence for (sustainable) development can be understood as involving 'the systematic promotion of mutually reinforcing policy actions across government departments and agencies creating synergies towards achieving the defined objective'.⁵⁷ Due to the interconnectedness of the various dimensions of sustainable development, scholars argue that an integrated and coherent approach is needed to effectively tackle the complex issues at hand.⁵⁸

A recent systematic literature review by Righettini and Lizzi⁵⁹ demonstrates that most of the policy coherence studies address the policy implementation phase and that future research and theoretical efforts should consider neglected dimensions of the policy process, such as the effective alignment of goals, instruments and policy

⁵⁴The CAP was reformed in 2021. The new legislation will be in force from 2023, aiming at a CAP that is more fair, green and performance-based. European Union, 'A Fairer, Greener and More Performance Based EU Agricultural Policy (2022) <<https://www.consilium.europa.eu/en/infographics/cap-reform/>>.

⁵⁵N Keijzer, 'EU Policy Coherence for Development: From Moving the Goalposts to Result-based Management?' (European Centre for Development Policy Management 2010). In line with the Single European Act [1987] OJ L169/1 art 30(2)(d), which called on the EU to act as 'a cohesive force in international relations', the Treaty on European Union [1992] OJ C191/1 art C established that the 'The Union shall in particular ensure the consistency of its external activities as a whole in the context of its external relations, security, economic, and development policies'.

⁵⁶B Derckx and P Glasbergen, 'Elaborating Global Private Meta-governance: An Inventory in the Realm of Voluntary Sustainability Standards' (2014) 27 *Global Environmental Change*, 41; J Meadowcroft, 'Who Is in Charge Here? Governance for Sustainable Development in a Complex World' (2007) 9 *Journal of Environmental Policy and Planning* 299; L Meuleman and I Niestroy, 'Common But Differentiated Governance: A Metagovernance Approach to Make the SDGs Work' (2015) 7 *Sustainability* 12295.

⁵⁷OECD, 'Better Policies for Sustainable Development. A New Framework for Policy Coherence' (OECD 2016).

⁵⁸H Enroth, 'Policy Network Theory' in M Bevir (ed), *The SAGE Handbook of Governance* (Sage 2011) 19; A Jordan, 'The Governance of Sustainable Development: Taking Stock and Looking Forwards' (2008) 26 *Environment and Planning C: Government and Policy* 17; M Stafford-Smith et al, 'Integration: The Key to Implementing the Sustainable Development Goals' (2017) 12 *Sustainability Science* 911.

⁵⁹MS Righettini and R Lizzi, 'How Scholars Break Down "Policy Coherence": The Impact of Sustainable Development Global Agendas on Academic Literature' (2022) 32 *Environmental Policy and Governance* 98.

⁴⁸Nitrates Directive (n 10) arts 3(2) and 5(1)-(4).

⁴⁹ibid art 3(5) and 4.

⁵⁰Commission (EU) (n 17) 5.

⁵¹European Court of Auditors, 'Sustainable Water Use in Agriculture: CAP Funds More Likely to Promote Greater rather than more Efficient Water Use. Special Report' (European Court of Auditors 2021).

⁵²Nitrates Directive (n 10) art 5(5).

⁵³Commission (EU) (n 4) 11.

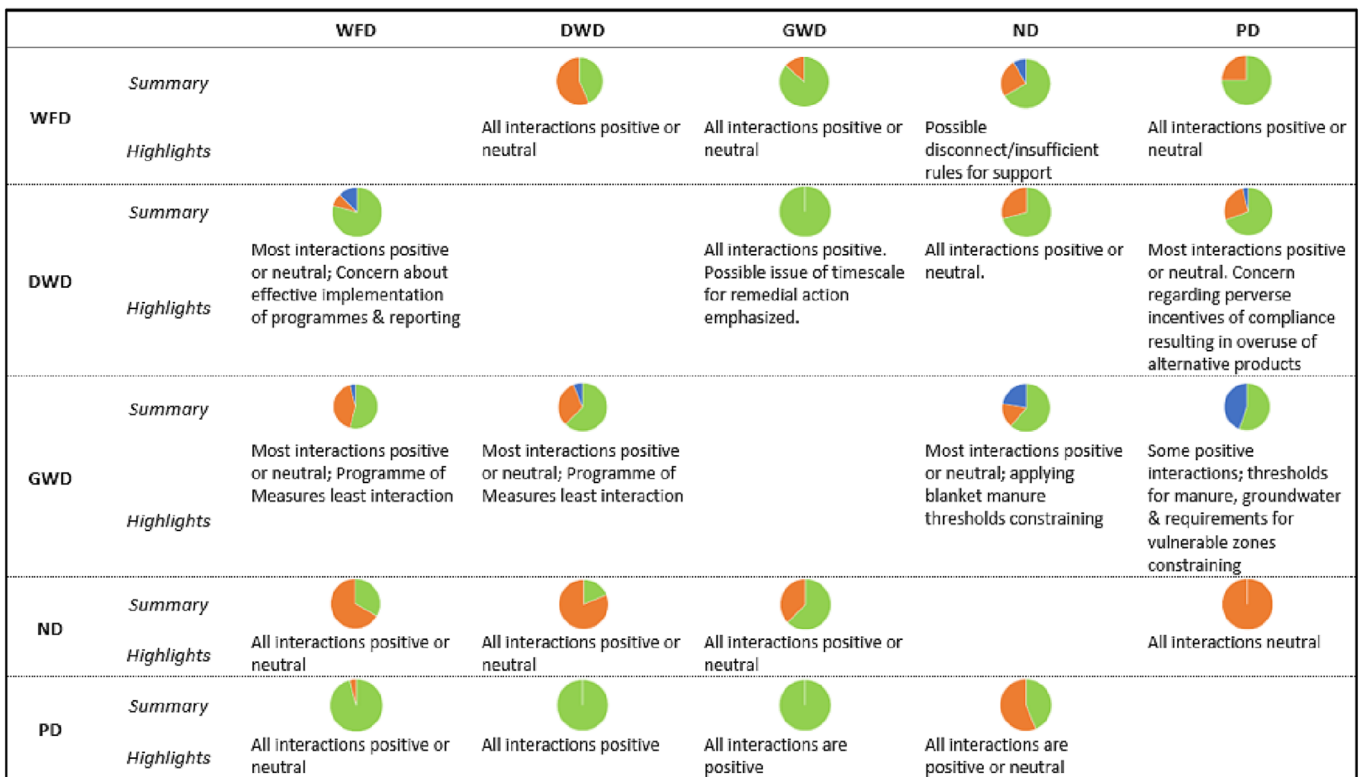


FIGURE 1 A synthesis of findings from the analysis of horizontal coherence between the five key directives. Visual summaries (pie charts) demonstrate the proportion of interactions between the requirements of each Directive that respondents judged to be positive (green), neutral (orange) and negative (blue). Adjusted from FM Platjouw et al, 'Coherence in EU Law for the Protection of Drinking Water Resources', FAIRWAY Project Deliverable 6.1R (2021). DWD, Drinking Water Directive; GWD, Groundwater Directive; ND, Nitrates Directive; PD, Pesticides Directive; WFD, Water Framework Directive.

outcomes or impact evaluation within or across policy areas. It is desirable to study policy coherence not only between water-related policies but also between water and biodiversity or agricultural policies. To address these gaps in the policy coherence literature, this section aims to examine coherence challenges in the legal framework applying to agricultural pollution of drinking water in the EU.

4.1 | Key policy coherence challenges and opportunities among the EU directives

The legal complex described in Section 3 highlights a framework that is both comprehensive and fragmented. Many directives apply directly and/or indirectly to the protection of drinking water resources against pollution and many of these impose different types of legal requirements on EU Member States. Applying the 7-point scale, Figure 1 demonstrates that, across the five most relevant EU directives, the degree of horizontal policy coherence is generally considered to be positive (scores ranging from +1 to +3, in green) or neutral (score 0, in orange). There are, however, several (potential) incoherencies between the directives (that were scored from -1 to -3, in blue).

Based on the analysis, several inferences can be made. The Nitrates Directive contributes positively to the WFD's aim to prevent

deterioration of water bodies. In particular, the Nitrates Directive's requirement to identify vulnerable zones draining into waters which are or could be affected by pollution within a 2-year period is important.⁶⁰ Another important provision in the Nitrates Directive is the application of the common criterion that groundwaters should not contain more than 50 mg/L nitrates, and surface waters should not be eutrophic.⁶¹ However, there are also coherence challenges between the Nitrates Directive and the Water Framework Directive. To illustrate, water bodies can contain less than 50 mg/L nitrates, and yet as species' vulnerability may differ, the ecological status of water bodies can still be at risk. In other words, the objectives of the Nitrates Directive do not target the WFD's objective to achieve good ecological status of water bodies. Although additional measures are required under the Nitrates Directive if waters are eutrophic, there are no direct cross-references to other EU directives and environmental objectives. The requirements of the Nitrates Directive should ideally apply to or make reference to both drinking water quality as well as the ecological status of water bodies. Existing requirements related to the use of fertilizers and manures may not be comprehensive enough to support WFD's ambitions.

⁶⁰Nitrates Directive (n 10) art 3(2); Platjouw et al (n 24).

⁶¹Nitrates Directive (n 10) Annex I.

Likewise, for the Groundwater Directive, the specific requirements of the Nitrates Directive such as the fixed thresholds, including the limits to the amount of livestock manures applied on land (170 kg/ha each year), the requirement to apply common criteria for water pollution (not more than 50 mg/L nitrates), and the requirement to identify vulnerable zones⁶² may not necessarily be supportive enough to positively reinforce the Groundwater Directive's aims and objectives. The obligation to adopt additional measures pursuant to Article 5 of the Nitrates Directive to achieve its overall objective of reducing water pollution by nitrates, does not explicitly refer to any broader ecological objectives related to water resources. Respondents to the surveys argued that fixed emission threshold values do not take into account the biophysical situation of the aquifer. Indeed, a fixed threshold may be appropriate in some contexts, but insufficient in others. Thus, one potential area for improving coherence may be including the possibility to enact stricter thresholds under certain environmental conditions. It may be possible to identify biophysical conditions that pose a greater risk to groundwater quality than others, and thus determine that stricter thresholds should be adopted.

Other areas where policy coherence could be strengthened is in the relationship between the WFD and the Drinking Water Directive. The WFD focuses on the ecological status achieved in the number of water bodies, without taking into account their size. Thus, a Member State could have a very small water body with 'good status' while also having a very large water body with 'poor status' requiring additional measures. A mere focus on the number of water bodies results, however, in 50% compliance with the WFD, while the actual ecological status could be poorer. In addition, before the revision of the Drinking Water Directive in 2021, a potential gap between the risk-based approach to improve drinking water quality at the tap as adopted in the earlier Drinking Water Directive and the wider goal to protect drinking water resources under the WFD was identified as problematic.⁶³ This is because there are many pollutants in river catchments that are not monitored at the tap. The revised Drinking Water Directive introduces a risk-based approach from source to tap, including risk identification, risk assessment and risk management, to strengthen the links between the Drinking Water Directive, WFD and Groundwater Directive. This enables authorities to focus on potential risks to water quality at the source and its catchment.⁶⁴ It remains to be seen though whether this revision has improved policy coherence between the WFD and Drinking Water Directive when a first set of data on Drinking Water Directive is submitted to the European Commission in 2027.

Finally, respondents to the surveys identified several possible weaknesses related to the compensation mechanisms of the CAP. These are particularly related to its cross-compliance mechanisms. Farmers can receive EU income support if they comply with EU standards for public, plant and animal health and welfare. The idea behind cross-compliance is to make European farming more sustainable.⁶⁵ The cross-compliance mechanism could increase policy coherence

between the CAP and the WFD, Nitrates Directive and Pesticides Directive. However, the CAP's funding mechanisms have some drawbacks that could weaken compliance with the overall ambitions of the WFD and Nitrates Directive. Generally, the CAP funding scheme is a driver for large agricultural units. Such large units, however, could degrade soil (composition and erosion) and challenge biodiversity and surface water quality objectives.⁶⁶ Moreover, several specific drawbacks can be pointed to. First, the Basic Payment Scheme under the CAP is provided to farmers for the area of land in cultivation. This disincentivizes farmers to maintain buffer zones alongside streams and waterways. Second, the Basic Payment Scheme may encourage intensification of agricultural activity. The areas declared for the Basic Payment Scheme are also used to calculate the farm's organic nitrogen loading (run-off of nutrients from agricultural fields) for the Nitrates Directive. For that reason, a farmer can be encouraged to increase his/her stocking density up to 170 kg/ha organic nitrogen to receive increased compensation, even though the land may not be able to support this agricultural intensity. It could be assumed that the financial incentives contribute to this agricultural intensification. The intensification may cause an increase in pesticide run-off to the river. Third, farmers may be encouraged to deliberately plough their grasslands within 5 years, to avoid that their grasslands will be considered as permanent grasslands in the CAP, with more strict regulation. Ploughing of grasslands will increase nitrate leaching, and excessive ploughing to avoid that stricter legal requirements are imposed upon them is undesirable.⁶⁷ A comprehensive report assessing whether the CAP is fit for purpose underlined that the cross-compliance criteria seem to contribute to mitigating water pollution and slowing down soil erosion. However, the positive effects may be too limited to reverse the large-scale impacts of certain CAP instruments (such as the Basic Payment Scheme) that support ongoing agricultural intensification, abandonment and environmental degradation.⁶⁸

5 | MECHANISMS TO FOSTER POLICY COHERENCE IN NORWAY

Having considered coherence in the broader EU context, this section examines Norway's governance approach to protect water bodies and drinking water resources against agricultural pollution. In particular, the section sheds light on existing mechanisms that can strengthen cross-sector coordination and policy coherence. First, an overview of the regulatory framework and governance approach to agricultural pollution will be given (Figure 2). Section 6 then assesses how the EU policy coherence challenges have been tackled at the national level, and what mitigating role the mechanisms for policy coherence are playing in this.

⁶²European Commission, 'Cross-compliance' <https://agriculture.ec.europa.eu/common-agricultural-policy/income-support/cross-compliance_en>.

⁶³European Court of Auditors (n 20).

⁶⁴Ibid.

⁶⁵Pe'er et al (n 17).

⁶²Requirements from *ibid* Annexes I and III.

⁶³Platjouw et al (n 24); Rowbottom et al (n 20); Wuijts et al (n 20).

⁶⁴Drinking Water Directive (n 32) art 8.

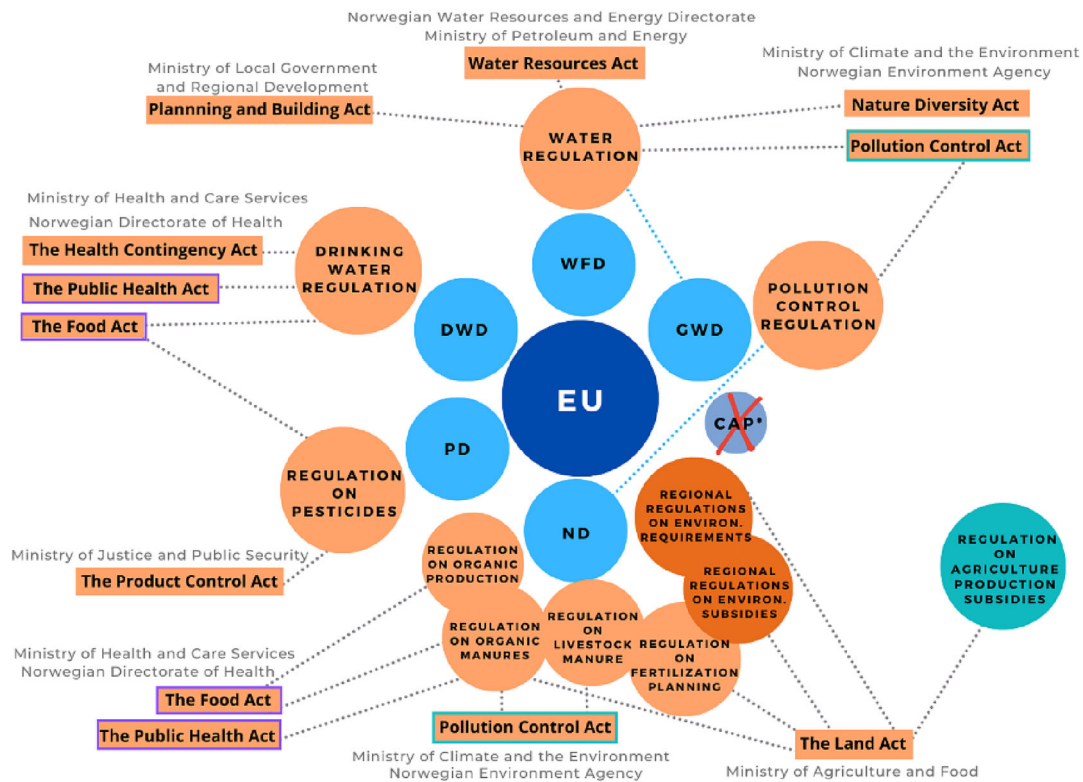


FIGURE 2 Overview of national legislation transposing relevant European Union (EU) Directives in Norway. Blue circles represent EU legislation; orange circles represent national legislation transposing the EU directives, with connections to their legal basis in national Norwegian law (square boxes). Subnational regulations are indicated in a darker colour. Note that the CAP is not implemented in Norway. The figure shows the main Norwegian regulations; for a comprehensive overview, see also Appendix A. DWD, Drinking Water Directive; GWD, Groundwater Directive; ND, Nitrates Directive; PD, Pesticides Directive; WFD, Water Framework Directive.

5.1 | The legal framework and governance approach

EU directives need to be transposed into national law. While not an EU Member State, Norway, as an EEA country, is obliged to transpose and comply with parts of EU law as specified in the EEA Treaty.⁶⁹ The EU directives regulating nutrient discharge (Nitrates Directive, Pesticides Directive), water protection (WFD, Ground Water Directive) and securing safe supply of drinking water (Drinking Water Directive) are transposed into Norwegian legislation. The EU CAP is not included in the EEA agreement and hence not implemented in Norway. A complete overview of the relevant directives and the corresponding Norwegian legislation is provided in Appendix A.

Certain transposition processes have triggered the development of new national regulations, while for other directives, transposition has occurred mainly through reference to or amendment of pre-existing national and regional legislation. This section provides an overview of the legal frameworks, responsible authorities and possible mechanisms to enhance policy coherence and cross-sectoral coordination. The focus is on three categories of mechanisms: (i) legal mechanisms, including cross-referencing and joint legal responsibility for implementation of the acts; (ii) the establishment of platforms for

cross-sectoral policy coordination or actor participation; and (iii) the establishment of monitoring and reporting processes that ensure access to information and data sharing.

5.1.1 | Water policy: Mechanisms for policy coherence and coordination

The WFD is transposed into Norwegian legislation through the 2006 Norwegian Water Regulation. Comparable to the WFD, the national regulation aims ‘to provide a framework for setting environmental goals that will ensure the most comprehensive protection and sustainable use of water bodies’.⁷⁰ To some extent, the Norwegian Water Regulation can be considered a cross-sectoral act, as the regulation has been drafted pursuant to the Norwegian Water Resources Act, Pollution Control Act, Nature Diversity Act and Planning and Building Act. Multiple authorities are therefore involved in its implementation. The Ministry of Climate and the Environment and its directorate the Norwegian Environment Agency are the main responsible authorities for implementation of the WFD in Norway and for reporting to the EU.

⁶⁹Agreement on the European Economic Area (n 19).

⁷⁰Regulations on Frameworks for Water Management / Forskrift om rammer for vannforvaltningen (Vannforskriften) [2006] FOR-2006-12-15-1446.

In addition, the Ministry of Climate and the Environment is also responsible for the Pollution Control Act and the Nature Diversity Act. The Ministry of Petroleum and Energy and its directorate, the Norwegian Water Resources and Energy Directorate, are responsible for the Water Resources Act regulating activities that might impact the flow of watercourses. The Norwegian Water Resources and Energy Directorate is responsible for the licensing framework and process regarding hydropower developments, and water abstraction including groundwater abstraction. To support implementation of the Groundwater Directive, the Norwegian Water Resources and Energy Directorate collaborates with the Geological Survey of Norway on monitoring activities. This is an agency under the Ministry of Trade, Industry and Fisheries for well-drilling and groundwater surveys. The Ministry of Local Government and District is responsible for the implementation of the Norwegian Planning and Building Act. Together, these authorities share responsibility for the implementation of different aspects of the Norwegian Water Regulation.

Several mechanisms for policy coherence and coordination exist in the Norwegian Water Regulation. The involvement of various authorities and joint responsibility for the implementation of the Water Regulation by the Ministry of Climate and Environment and the Ministry of Petroleum and Energy provides a possibility for policy coherence and cross-sectoral policy coordination. Moreover, the use of cross-references to the Norwegian Drinking Water Regulation strengthens policy coherence. To illustrate, the Water Regulation requires drinking water authorities to identify the water bodies that are used as a source for drinking water. In addition, specific requirements to monitor both surface and groundwater used for drinking water purposes can be found in the Drinking Water Regulation.⁷¹ The Programmes of Measures, as developed in the context of the Water Regulation, include measures for the protection of drinking water sources. The Water Regulation does not contain any references to the Norwegian Land Act, the act that ensures the use and protection of agricultural farmland and its impact on the environment in Norway, nor to any of the associated regulations. The Land Act is under the exclusive responsibility of agricultural sector authorities.

The Norwegian Water Regulation not only requires cross-sectoral coordination, but it also requires a considerable degree of vertical, multilayer cooperation across authorities. At the river basin level, a designated county municipality is the competent river basin authority pursuant to the Water Regulation. A county municipality in the river basin is responsible for coordinating the river basin committee, and for the development of River Basin Management Plans. At the regional level, the County Governor⁷² representing the state representative on the regional level is responsible for updating the knowledge base,⁷³ for coordinating monitoring activities,⁷⁴ and for registering monitoring data in the database 'Vann-Nett'. At a sub-

basin district level, municipalities are encouraged to collaborate horizontally with other municipalities, including for the development of the Programmes of Measures.

To facilitate policy coherence and coordination at each level of governance, various platforms for collaboration have been established. Nationally, two groups exist. One group consisting of ministers led by the Ministry of Climate and the Environment and another group including various directorates led by the Norwegian Environment Agency have been established to coordinate the implementation of the Norwegian Water Regulation at the various governance levels.⁷⁵ At the river basin level, river basin district committees, consisting of authorities from the county municipalities, municipalities and state regional agencies are responsible for developing River Basin Management Plans. In some sub-basin districts, coordination and collaboration activities are facilitated through a committee consisting of majors from the sub-basin municipalities, representatives from the county municipality, the County Governor, and selected State regional directorates. Representatives from farmer unions, the water company and nature conservation organizations are invited to meetings with status as observers. A secretary employed by the respective municipalities is important for coordinating activities of the committee and of associated topic related working groups. The existence of such committees strengthens coordination related to planning and management between sector authorities and nongovernmental stakeholders.⁷⁶

In addition to the legal mechanisms and the established platforms for coordination, two important Geographic Information System (GIS)-based databases have been established by the authorities. The databases are coordinated and represent important coordination tools for the authorities and actors involved. 'Vann-nett' provides openly accessible information about uses, ecological status, different pressures and water quality parameters in Norway's water bodies. All water bodies should be registered in this database.⁷⁷ 'Vannmiljø' is the environmental administration's professional system for storage and analysis of data on the environmental condition of water.⁷⁸

Finally, the Water Portal website is maintained through a collaboration between the 13 directorates and organizations.⁷⁹ The website is an important tool ensuring access to information and transparency.

⁷⁵Representatives from the group of directorates meet two days annually to discuss WFD national guidelines and implementation.

⁷⁶As an illustration, see the organization and committee established in the Morsa basin area in Norway: <<https://morsa.org/om-morsa/hvordan-vi-er-organisert/>>. See also I Nesheim et al., 'Multi-Actor Platforms in the Water-Agriculture Nexus: Synergies and Long-Term Meaningful Engagement' (2021) 13 *Water* 3204.

⁷⁷Vann-Nett, 'Vannforvaltning i Norge' <<https://www.vannportalen.no/organisering2/vannforvaltning-i-norge/>>.

⁷⁸See Miljødirektoratet, 'Vannmiljø' <<https://vannmiljo.miljodirektoratet.no/>> and Miljødirektoratet, 'Kartkatalog' <<https://kartkatalog.miljodirektoratet.no/MapService/Details/vannmiljo?lang=en-us>>.

⁷⁹The Norwegian Directorate of Mining, the Norwegian Directorate of Fisheries, the Institute of Marine Research, the Norwegian Railway Directorate, The Norwegian Association of Local and Regional Authorities, the Norwegian Coastal Administration, the Norwegian Agriculture Agency, the Norwegian Food Safety Authority, the Norwegian Environment Agency, the Geological Survey of Norway, the Norwegian Water Resources and Energy Directorate, the Norwegian Public Roads Administration and the river basin authorities (Vannregionmyndighetene) <<https://www.vannportalen.no/>>.

⁷¹Drinking Water Regulation / Forskrift om vannforsyning og drikkevann (Drikkevannsforskriften) [2016] FOR-2016-12-22-1868, para 20.

⁷²The County Governor is the national State's coordination authority on county level. It has different sections, including a section on agriculture that performs administrative tasks on behalf of the ministries.

⁷³Regulations on Frameworks for Water Management (n 70) para 15.

⁷⁴ibid para 18.

It provides access to relevant legislation, guidelines, tools, water management plans and other relevant reports.

5.1.2 | Drinking water policy: Mechanisms for policy coherence and coordination

The EU Drinking Water Directive is transposed into Norwegian legislation by the Norwegian Drinking Water Regulation. This regulation has been drafted pursuant to the Norwegian Food Act, the Public Health Law and the Health Preparedness Act. The purpose of the Norwegian Drinking Water Regulation is to protect human health by ensuring delivery of sufficient quantity of safe drinking water.

The Ministry of Health and Care Services is the main responsible authority, alongside the Norwegian Food Safety Authority. The Food Safety Authority is an agency under the Ministry of Health and Care Services, the Ministry of Agriculture and Food and the Ministry of Ministry of Trade, Industry and Fisheries. The Food Safety Authority develops specific regulations, approves and supervises drinking water companies in Norway, and is responsible for reporting to the Secretariat of United Nations Economic Commission for Europe/World Health Organization-Europe. In addition to these institutions, other national-level institutions having an advisory role for drinking water policy development and management include the Norwegian Directorate of Health, the Norwegian Board of Health Supervision and the National Institute of Public Health. At the regional level, the Food Safety Authority's regional office are responsible for inspecting drinking water supply systems.⁸⁰ The County Governor is responsible for coordinating monitoring activities and registration of data in Vann-Nett in coordination with responsible sector authorities and municipalities, including also information on pollution and water bodies used for drinking water. Specific statutory tasks for County Governors related to drinking water are however not formulated.

In the Norwegian Drinking Water Regulation, several cross-references to the Norwegian Water Regulation enhance policy coherence. For example, the county municipality (as river basin district coordinating authority) has to ensure that drinking water objectives are taken into account in the regional water management plans. Furthermore, at a local level, the municipality should consider protection of drinking water sources in municipal area planning.⁸¹ Pursuant to Article 11 of the Norwegian Planning and Building Act, the municipality shall obtain views from affected State and regional bodies of government, including drinking water authorities, while developing the spatial planning components of the yearly updated municipality plans. Municipalities have the authority to impose restrictions on activities that could cause pollution of drinking water resources.⁸² This mechanism provides both access to information and possibilities for

collaboration and policy coherence through the involvement of sector authorities in the development of plans and guidelines.

Besides the mechanisms discussed above, there is no specific multi-actor platform established for the sole purpose of discussing drinking water policy development. The platforms established under the Norwegian Water Regulation on river basin level are also used by the authorities involved in the implementation of the Norwegian Drinking Water Regulation. The Food Safety Authority participates in the national level group of directorates for policy discussions and negotiations related to the Water Regulation. Similarly, the regional office of the Food Safety Authority and the water company being responsible for drinking water supply are members in the respective river basin district committee and reference group.

There is room for improvement with regard to the use of the databases as a tool for enhanced policy coherence. The Food Safety Authority highlights the importance of developing a nationwide overview of protection zones for drinking water, as such an overview would facilitate the integration of drinking water objectives into planning processes related to new infrastructure and other interventions.⁸³ The data currently available stem from the water companies reporting annually on drinking water quality to the Food Safety Authority. However, these data are not easily available or accessible and not connected to the databases referred to above.⁸⁴

5.1.3 | Nitrates policy: Mechanisms for policy coherence and coordination

The EU Nitrates Directive, which aims to protect water resources against agricultural nitrates pollution, is transposed through nine pre-existing national and regional regulations that have been drafted pursuant to the Norwegian Land Act (see Appendix A). These regulations are also important tools for achieving the WFD aims.⁸⁵ Currently however, no cross-references exist between these regulations pursuant to the Land Act and the Norwegian Water Regulation, nor to the Norwegian Drinking Water Regulation. Due to the interconnectedness between the Nitrates Directive's available measures and incentives and the objectives of the WFD, a cross-reference to the Norwegian Water Regulation is now being proposed in the Norwegian Regulation on Manure of Organic Origin, currently under revision. Policy documents addressing the run-off nutrients from agriculture, such as the National Environmental Programme developed by agricultural authorities, mention both the WFD and the Norwegian Water Regulation.⁸⁶

⁸⁰Norwegian Food Safety Authority, 'Status for drikkevannsområdet i landets kommuner' (Mattilsynet 2019) <https://www.mattilsynet.no/mat_og_vann/drikkevann/opplysninger_om_vannforsyningsystemer/status_for_drikkevannsomraadet_i_landets_kommuner.36691>.

⁸¹ibid.

⁸²AC Edwards et al, 'Identification, Designation and Formulation of an Action Plan for a Nitrate Vulnerable Zone: A Case Study of the Ythan Catchment, NE Scotland' (2003) 20 European Journal of Agronomy 165.

⁸³Norwegian Agriculture Agency, 'Nasjonalt miljøprogram 2023-2026. Nasjonale miljømål og virkemidler for miljø- og klimaarbeidet i jordbruket. Rapport nr. 33/2022' (Landbruksdirektoratet 2022).

⁸⁰Norwegian Food Safety Authority, 'Drikkevannshensyn skal inn i arealplaner' (Mattilsynet 2012) <https://www.mattilsynet.no/mat_og_vann/drikkevann/drikkevannshensyn/drikkevannshensyn_skal_inn_i_arealplaner.1922>.

⁸¹Public Health Act / Lov om folkehelsearbeid (folkehelseloven) [2011] LOV-2011-06-24-29.

⁸²Planning and Building Act / Lov om planlegging og byggesaksbehandling (plan- og bygningsloven) [2008] LOV-2008-06-27-71, art. 11.

Various authorities are involved in the implementation of regulations relevant for reduced run-off of nitrate. The Ministry of Climate and Environment is the main responsible authority for the overall implementation of the Nitrates Directive, and for reporting on the level of nitrates emissions to the European Commission. The Ministry of Agriculture and Food and its directorate, the Norwegian Agriculture Agency, are responsible for the regulations implementing the Nitrates Directive. Other national authorities involved are the Norwegian Food Safety Authority and Norwegian Environment Agency due to a shared responsibility for the implementation of the Norwegian Regulation on Manures of Organic Origin. This fosters policy coherence between those national authorities.

At the regional level, the agricultural section of the County Governor is responsible for developing a Regional Environmental Programme. These Regional Environmental Programmes, being developed within the frames of a National Environmental Programme, specify economic support for agro-environmental measures specific to the pressure situation in the region. Two farmer labour unions, the Norwegian Agrarian Association and the Norwegian Farmers and Smallholders Union, are important hearing bodies during the development of the National and the Regional Environmental Programme, and in any strategic policy development regarding agriculture. Through the development of Regional Environmental Programmes, Norway complies with the Nitrates Directive's requirement to develop Nitrate Action Programmes in the identified designated vulnerable areas.

Despite the number of authorities involved and the close interrelationship between water policy and nitrates policy in Norway, no multi-actor platform exists for policy development or evaluation in the context of the Nitrates Directive. The national-level platform to discuss implementation of the water regulation is not used to discuss measures related to reduce nutrients run-off or water retention in agriculture.⁸⁷ Nitrates are almost exclusively governed by the agricultural sector authorities, in collaboration with the two farmer labour unions. Although the Ministry of Climate and the Environment is the formal responsible authority for implementation and reporting to the European Commission, in practice the environmental authorities only have limited possibilities to affect its governance. In the process of developing the National Environment Programme and the Regional Environment Programmes, environmental authorities are only invited to send consultation opinions, while the programmes are developed by the agriculture section of the County Governor.⁸⁸

Data related to nitrate emissions are publicly available per sector on country level, through national inventory reports published by Norwegian Environment Agency.⁸⁹ However, data on emissions of nitrogen and phosphorus are not included in the two databases referred to above.

5.1.4 | Agriculture policy: Mechanisms for policy coherence and coordination

The CAP is not part of the EEA Treaty and is not implemented in Norway. Instead, the Norwegian Land Act aims to ensure the production of food, the sustainable use and protection of agricultural farmland in Norway. Pursuant to the Norwegian Land Act, the Regulation on Production Support ensures that farmers receive financial support for land in production.⁹⁰ Several regulations addressing agriculture and its impact on the environment have been enacted.

The Ministry of Agriculture and Food is responsible for the Land Act and for the associated regulations. The Norwegian Agriculture Agency is the main responsible entity for strategic planning and policy development. The Norwegian Environment Agency and the Food Safety Authority are involved in policy development with respect to through the Regulation on Organic Manure. The two national farmer unions, the Norwegian Agrarian Association and the Norwegian Farmers and Smallholders Union, generally have a strong influence on policy development. Strong informal networking platforms exist between agricultural sector authorities and these two farmers unions. These platforms are used, in particular, during the annual agricultural agreement negotiations and development of the National Environmental Programme and the Regional Environmental Programmes every fourth year.

The most relevant obligations from the WFD, Nitrates Directive and the Pesticides Directive are referred to in the National Environmental Programme being developed by the Norwegian Agriculture Agency. At a regional level, the agriculture section of the County Governor is responsible for developing the Regional Environmental Programme. These Regional Environmental Programmes not only provide the means through which Norway complies with the Nitrates Directive's requirements, but they also encompass the means to facilitate implementation of and compliance with the Land Act's focus on sustainable agriculture. The level of economic subsidies for farmers is decided by the State as part of the annual agricultural agreement between the State and the two farmer unions. The State is represented by a State Negotiating Committee that includes representatives from the Ministry of Agriculture and Food, the Ministry of Climate and the Environment and the Ministry of Finance.⁹¹ This Committee determines the size and the distribution of the agricultural budget for production support and environmental subsidies. The Ministry of Agriculture and Food then leads the negotiations with the farmer unions on matters related to production prices, as well as the size and distribution of transfers from the national budget to the agricultural sector, within the overall frames preagreed by the State Negotiation Committee. These negotiations are public, and the annual

⁸⁶Norwegian Agriculture Agency, 'Nasjonalt miljøprogram 2023-2026. Nasjonale miljømål og virkemidler for miljø- og klimaarbeidet i jordbruket. Rapport nr. 33/2022' (Landbruksdirektoratet 2022).

⁸⁷Personal communication with national advisor, 17 June 2021.

⁸⁸See, e.g., Norwegian Agriculture Agency (n 86).

⁸⁹Norwegian Environment Agency, 'Informative Inventory Report (IIR) 2021. Norway. M-1980' (Miljødirektoratet 2021).

⁹⁰Regulation on Production Subsidies in Agriculture / Forskrift om produksjonstilskudd og avløsertilskudd i jordbruket [2014] FOR-2014-12-19-1817.

⁹¹Norwegian Agriculture Agency, 'Jordbruksoppgjøret' <<https://www.landbruksdirektoratet.no/nb/jordbruk/jordbruksoppgjøret>>.

agricultural agreement National Environmental Programme is to be approved by the Parliament.

The cross-compliance mechanism aims at strengthening the degree of policy coherence between agricultural production and agri-environmental policies and pesticides policy. The Norwegian Regulation on Agricultural Production Support stipulates that only farms with a 2-m minimum buffer zone to water bodies can receive production support.⁹² In case of cultivation of new land, a 6-m buffer zone is required for watercourses with year-round water flow.⁹³ For pesticides, a minimum 10-m buffer zone is required to be eligible for production support. Other legal mechanisms for policy coherence are the regulations under the Land Act, representing important economic and legal incentives for farmers to implement environmental measures.

Besides the cross-compliance mechanisms to strengthen policy coherence, multi-actor platforms to enhance policy-related discussions and coordination between agricultural and environmental sector authorities have not been formalized. Key for policy coordination is the State Negotiation Committee associated with the annual agricultural negotiations.

6 | REVIEW AND RECOMMENDATIONS

This section reviews how the key EU policy coherence weaknesses are tackled in Norway through mechanisms that aim at strengthening policy coherence and cross-sectoral coordination. The section also provides several recommendations that might further strengthen policy coherence in the field of water and agriculture.

6.1 | Coherence between water and drinking water policies

One of the identified EU coherence challenges concerns the relationship between the water and drinking water directives. The WFD focuses on ecologic status of water bodies, whereas the Drinking Water Directive focuses on tap water quality. To better connect the two directives, the recent revision of the Drinking Water Directive introduces a risk-based approach from source to tap, including risk identification, risk assessment and risk management. This risk-based approach aims to strengthen the links between the Drinking Water Directive, WFD and Groundwater Directive and connects to WFD's methodologies regarding characterization of water bodies and pressures to risk-based monitoring to drinking water. This enables authorities to concentrate on potential risks to water quality at the source and its catchment.⁹⁴ This revision will potentially strengthen coherence between these directives, and it will be interesting to explore to what extent this revision triggers a more coordinated approach at the national level. To some extent, this will depend on the degree to

which authorities exchange information and coordinate planning processes.

Our analysis reveals that Norway's governance approach to the water and drinking water nexus has traditionally been more coherent than at the EU level. The Norwegian Drinking Water Regulation has traditionally had a broader scope than the original EU Drinking Water Directive. The Revised EU Drinking Water Directive, which may partly resolve some of the coherence challenges between the WFD and Drinking Water Directive, is closer to the Norwegian approach.⁹⁵

In Norway, the governance approach to drinking water resources appears to be well harmonized in relation to surface waters, which is the predominant source for drinking water in Norway. Several important cross-references already exist between the Norwegian Water Regulation, the Drinking Water Regulation and the Planning and Building Act. To illustrate, the Norwegian Water Regulation specifies the role of the drinking water authorities to identify which water bodies used for drinking water should be included in the open access database Vann-Nett. The Regulation also requires the monitoring of both surface and ground waters that will be used for drinking water purposes. The Programme of Measures, adopted pursuant to the Water Regulation, also includes measures for the protection of drinking water sources. Within the Norwegian Drinking Water Regulation, cross-references are being made back to the Water Regulation. The Drinking Water Regulation stipulates that the county municipality, acting as the river basin district coordinating authority, should ensure that drinking water considerations are taken into account in the regional water management plans. Water-related concerns are also considered when developing spatial plans pursuant to the Norwegian Planning and Building Act. The shared institutional responsibility for the implementation of these acts is also reinforcing the positive effect of cross-referencing.

In addition to the cross-referencing and the shared institutional responsibilities, two platforms for enhanced coherence and coordination are established. The platform established pursuant to the Water Regulation for horizontal and vertical engagement of actors at the national, river basin and sub-basin levels, and the municipal platform associated with the spatial planning components of the yearly updated municipality plans. The municipality has to obtain views from affected national and regional bodies with responsibility for drinking water.⁹⁶ These platforms provide access to information and enable sector authorities' input into processes such as the development of plans and guidelines.

Another area for improvement is related to monitoring and reporting activities, and the use of shared databases. Shared databases are an important mechanism towards enhanced coherence. The Vann-Nett database enables searches for drinking water sources. However, no other reference or database to drinking water information is provided. As an important mechanism for policy coherence, enhanced coordination of data and knowledge related to drinking water quality and drinking water resources is recommended.⁹⁷

⁹²Regulation on Production Subsidies in Agriculture (n 90) para 4.

⁹³ibid para 6.

⁹⁴Drinking Water Directive (n 32) art 8.

⁹⁵Personal communication with national advisor, 3 May 2019.

⁹⁶Planning and Building Act (n 82) para 11.1.

⁹⁷Norwegian Food Safety Authority, 'Drikkevannhensyn skal inn i arealplaner' (n 80).

6.2 | Coherence between water protection and nitrate regulation

A second EU coherence challenge concerns the relationship between water protection and nitrates regulation, where the Nitrates Directive does not sufficiently consider the ecological status of water bodies when specifying measures and incentives. The Nitrates Directive stipulates emission rate thresholds irrespective of the ecological status of a water body.

Also in Norway, the mechanisms for promoting policy coherence between the objectives of the Norwegian Water Regulation and nitrates regulations are limited. Cross-references between the Norwegian Water Regulation and nitrate-related regulations are non-existent. The situation can be considered as uncoordinated because it does not reflect improved awareness of the causal relationship between the available measures and incentives related to nitrates, and the objectives of the water regulation. The Norwegian Regulation on Manures of Organic Origin is currently under revision though and a cross-reference to the Norwegian Water Regulation has been proposed.⁹⁸

Despite the need for improved coordination of water and agricultural policies in order to reach the aim of good ecological status of water bodies, an important mechanism for coherence can be identified. The shared institutional responsibility for the implementation of the Norwegian Regulation on Manures of Organic Origin, a key instrument implementing the Nitrates Directive, is important. Any revision of this regulation involves representatives from several sectors, including the authorities responsible for the Norwegian Water Regulation.

Two recommendations for enhanced coherence between water and nitrates policies can be made. First, a stronger interlinkage between the Programmes of Measures (included in the River Basin Management Plans pursuant to the Water Regulation) and Regional Environmental Programmes (representing the action plans required pursuant to nitrates related regulations) is needed. This should also be reflected in the municipalities' strategy regarding grants for special environmental measures in agriculture. Second, there is a need for a national-level multi-actor platform for the discussion of agro-environmental trade-offs and priorities, including measures for reduced nitrate and phosphorus emissions from agriculture. The National Environment Programme and the Regional Environment Programmes are developed by the agricultural authorities, with input from the two farmer union organizations. The Norwegian Environment Agency is only invited to express a written statement as a means of involvement and to provide input into the draft programme. A proper platform for the co-development of the Programmes is currently lacking.

6.3 | Coherence between the water and agriculture frameworks

A final policy coherence challenge identified in this article concerns the relationship between water regulation, agriculture policy and

legislation, and regulations addressing nutrients run-off. Certain policy coherence challenges between the CAP and the WFD (as presented in Section 4) also appear at the national level in Norway between agricultural and water policy. Like the CAP, the Norwegian Regulation on Production Support ensures that farmers receive financial support for land in production. The farmer will lose income from reduced yield and from less production support. The challenge may be that farmers aim at keeping farmland in production to be eligible for support, risking increased run-off to water sources.

The establishment of buffer zones around water sources is stipulated by several different regulations including the Norwegian Land Act, Planning and Building Act, Forestry Act, and regulations under the Land Act and the Water Resources Act. Currently, it appears that different actors' interpretation of requirements related to the establishment and management of buffer zones have caused inconsistencies. The actual width of buffer zones between agricultural land and streams and rivers varies across farmlands, and the buffer zone is frequently too narrow and not in compliance with the requirements of the Norwegian Water Resources Act.⁹⁹ The width of buffer zones on farmland affects the total area of productive farmland, and hence decreases the amount of financial support available for the farmer.¹⁰⁰

Even though the agricultural sector aims for sustainable agriculture, there are no cross-references between the Water Regulation and agricultural regulations addressing reduced run-off of nitrates and phosphorus. Moreover, no shared platform for proper collaboration or policy coordination among water-agricultural authorities exists on national or regional level. While the sub-basin district committees represent local arenas where agricultural production and measures for improved ecological status are balanced and discussed, considerable potential exists to strengthen policy coherence through the creation of national platforms for policy discussions and collaboration.¹⁰¹ The establishment of a platform for bilateral dialogues between the agriculture and water sector on national ministry level is therefore highly recommended.

7 | CONCLUSION

Throughout the EU, agricultural practices contribute significantly to the pollution of water resources by nitrates, phosphorus and pesticides. This article sheds light on the degree of horizontal legal coherence between the main EU legal and policy instruments applicable to the protection of water resources against agricultural pollution. After identifying key coherence challenges at the EU level, the article thoroughly assessed the regulatory and governance approach in Norway. The key question was how certain EU-level coherence challenges could be mitigated at a national level through mechanisms aimed at facilitating cross-sectoral coordination and policy coherence.

⁹⁹Personal communication with municipal advisor, 28 January 2022; Personal communication with regional advisor, 26 January 2022.

¹⁰⁰AGB Blankenberg, E Skarbøvik and S Kværnø, 'Effekt av bufferzoner - på vannmiljø og andre økosystemtjenester. (NIBIO 2017); I Staubo et al, 'Kantvegetasjon langs vassdrag. Veileder nr 2-2019' (Norges Vassdrags- og Energidirektorat 2019).

¹⁰¹Personal communication with regional advisor, 26 January 2022 (n 99).

⁹⁸Regulations on Organic Fertilizers / Forskrift om gjødelsvarer mv. av organisk opphav [2003] FOR-2003-07-04-951.

The three identified coherence challenges concerned the relationship between the WFD and Drinking Water Directive and the diverging focus on ecological status of water bodies versus tap water quality; the relationship between the WFD and Nitrates Directive, where the latter does not sufficiently consider the ecological status of water bodies when specifying measures and incentives; and the relationship between the CAP and the WFD, where certain measures may incentivize farmers to keep farmland in production to be eligible for support, risking increased pollutants run-off to water sources. Through examining the national implementation of EU law in Norway, the article provided insight into the possible spill-over effect of the identified policy coherence challenges at the EU level to the national level, as well as into the complex implementation arrangements. The article further analysed three mechanisms with potential to mitigate identified policy incoherencies and challenges. These are (i) legal mechanisms, including cross-referencing and joint institutional responsibility for implementation; (ii) the establishment of platforms for cross-sectoral policy coordination or actor participation; and (iii) the establishment of monitoring and reporting processes that ensure access to information and data sharing.

The article emphasized that cross-referencing provides an important mechanism to establish better interconnections across acts and regulations. Both at the EU level as well as in Norway, cross-referencing between legislation and policies at the different levels of governance should be more frequently applied to enhance policy coherence. Furthermore, the article underlined the importance of cross-sectoral platforms for collaboration and coordination. The EU and Norwegian legal framework for the protection of water resources against agricultural pollution is fragmented and complex. The existence of well-functioning platforms at the national level is therefore crucial to ensure a coherent governance approach. In Norway, such platforms for collaboration have been established at national, river basin and also some sub-basin levels to discuss planning and measures for reaching a good ecological status of waters. However, a national-level platform for discussing sector priorities such as agriculture production objectives versus environmental objectives is currently lacking. Such national-level platforms could contribute to increased coherence and cross-sectoral policy coordination.¹⁰²

The use of shared knowledge through easily and openly accessible national databases presenting water quality data for water bodies is also important to support collaboration between sectors, so that all actors and authorities have access to the same knowledge as a joint basis for decision-making. The shared databases in operation in Norway are important tools for coordination across sectors. Overall, Norway's governance approach and established mechanisms for policy coherence and cross-sectoral coordination provide important insight and experience for other European countries that seek to better protect water resources against agricultural run-off.

¹⁰²ibid.

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DATA AVAILABILITY STATEMENT

Data are available.

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APPENDIX A

EU level	Legal Acts	Reference	Regulation	Reference	
Water protection					
Water Framework Directive 2000/60/EC	1	The Nature Diversity Act No. 100 of 19 June 2009	Lov om forvaltning av naturens mangfold (naturmangfoldloven), LOV-2009-06-19-100	1 Regulation of 15 December 2006, No. 1446 on the framework for water regulation	Forskrift om rammer for vannforvaltningen, FOR-2006-12-15-1446
	2	The Pollution Control Act No. 6 of 13 March 1981	Lov om vern mot forurensninger og om avfall nr. 6 av 13. mars 1981 LOV-1981-03-13-6	2 Regulation of 1 June 2004, No. 931 on pollution control	Forskrift om begrensning av forurensning (forurensningsforskriften), FOR-2004-06-01-931
	3	The Water Resources Act no. 82 of 24 November 2000	Lov om vassdrag og grunnvann (vannressursloven), LOV-2000-11-24-82		
	4	The Planning and Building Act No. 71 of 27 June 2008	Lov om planlegging og byggesaksbehandling (plan- og bygningsloven), LOV-2008-06-27-71		
Groundwater Directive 2006/118/EC	1	The Pollution Control Act No. 6 of 13 March 1981	Lov om vern mot forurensninger og om avfall nr. 6 av 13. mars 1981 LOV-1981-03-13-6	1 Regulation of 1 June 2004, No. 931 on pollution control	Forskrift om begrensning av forurensning (forurensningsforskriften), FOR-2004-06-01-931
				2 Regulation of 15 December 2006, No. 1446 on the framework for water regulation	Forskrift om rammer for vannforvaltningen, FOR-2006-12-15-1446
Nitrates Directive 91/676/EEC	1	The Pollution Control Act No. 6 of 13 March 1981	Lov om vern mot forurensninger og om avfall nr. 6 av 13. mars 1981 LOV-1981-03-13-6	1 Regulation of 1 June 2004, No. 931 on pollution control	Forskrift om begrensning av forurensning (forurensningsforskriften), FOR-2004-06-01-931
	2	The Land Act No. 23 of 12 May 1995	Lov om jord (jordlova), LOV-1995-05-12-23	2 Regulation of 11 February 2002 on livestock manure	Forskrift om husdyrgjødsel, FOR-2002-02-11-337
	3	The Public Health Act No. 29 of 24 June 2011	Lov om folkehelsearbeid (folkehelseloven), LOV-2011-06-24-29	3 Regulation of 4 July 2003 on manures of organic origin	Forskrift om gjødselvarer mv. av organisk opphav, FOR-2003-07-04-951
	4	The Food Production and Safety Act No. 124 of 19 December 2003	Lov om matproduksjon og mattrygghet mv. (matloven), LOV-2003-12-19-124	4 Regulations of 4 February 2004 on Investment Support for Environmental measures in agriculture	Forskrift om tilskudd til spesielle miljøtiltak i jordbruket, FOR-2004-02-04-448
			5	Regulation of 27 November 2000 on subsidies to organic farming	Forskrift om tilskudd til økologisk landbruk, FOR-2000-11-27-1682
			6	Regulation of 1 July 1999 on Fertilization Planning	Forskrift om gjødslingsplanlegging, FOR-1999-07-01-791
			7	Regulation of 18 March 2017 on Organic	Forskrift om økologisk produksjon og merking av

(Continues)

EU level	Legal Acts	Reference	Regulation	Reference
			Production and Labelling of Organic Products	økologiske landbruksprodukter, akvakulturprodukter, næringsmidler og fôr (økologiforskriften), FOR-2017-03-18-355
			8 Regional regulations on environmental requirements (In vulnerable areas, e.g.: sub-basin districts Glomma sør for Øyeren, Haldenvassdraget og Morsa, Østfold of 19 June 2015)	Forskrift om regionale miljøkrav i vannområdene Glomma sør for Øyeren, Haldenvassdraget og Morsa, Østfold, FOR-2015-06-19-836
			9 Regional regulations on environmental subsidies (Oslo og Viken of 28 June 2021)	Forskrift om regionale miljøtilskudd i jordbruket, Oslo og Viken, FOR-2021-06-28-2356
Pesticides Directive 2009/128/EC	1 The Food Production and Safety Act No. 124 of 19 December 2003	Lov om matproduksjon og mattrygghet mv. (matloven), LOV-2003-12-19-124	1 Regulation of 6 May 2015 on Pesticides	Forskrift om plantevernmidler, FOR-2015-05-06-455
	2 The Product Control Act No. 79 of 11 June 1976	Lov om kontroll med produkter og forbrukertjenester (produktkontrollloven), LOV-1976-06-11-79	2 Regulation of 28 January 2004 on Food Authorities' Fees	Forskrift om gebyr i matforvaltningen, FOR-2004-01-28-221
Water use				
Drinking Water Directive Council Directive 98/83/EC	1 The Food Production and Safety Act No. 124 of 19 December 2003	Lov om matproduksjon og mattrygghet mv. (matloven), LOV-2003-12-19-124	1 Regulation on Drinking Water of 22 December 2016	Forskrift om vannforsyning og drikkevann (drikkevannsforskriften), FOR-2016-12-22-1868
Revised Drinking Water Directive 2020/2184	2 The Health Contingency Act No. 56 of 23 June 2000	Lov om helsemessig og sosial beredskap (helseberedskapsloven), LOV-2000-06-23-56		
	3 The Public Health Act No. 29 of 24 June 2011	Lov om folkehelsearbeid (folkehelseloven), LOV-2011-06-24-29		
Agriculture				
CAP (not implemented)	The Land Act No. 23 of 12 May 1995	Lov om jord (jordlova), LOV-1995-05-12-23	Regulation of 19 December 2012 on agriculture production subsidies	Forskrift om produksjonstilskudd og avløsertilskudd i jordbruket, FOR-2014-12-19-1817
			Regulation of 4 February 2004 on agriculture subsidies for special environmental measures	Forskrift om tilskudd til spesielle miljøtiltak i jordbruket, FOR-2004-02-04-448
			Regulation of 27 November 2000 on subsidies to organic farming	Forskrift om tilskudd til økologisk landbruk, FOR-2000-11-27-1682