



**FOLKETINGET  
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# **Protection of groundwater from pesticides**

# 1. Introduction and conclusion

## 1.1. Purpose and conclusion

1. This report concerns the Danish Ministry of Environment and Food's monitoring of groundwater and management of emergency authorisations for pesticides. Rigsrevisionen initiated the study in February 2019.

2. In Denmark, the drinking water supply is based entirely on groundwater, and there is political consensus that the groundwater must be kept so pure that it only requires a simple treatment before it can serve as drinking water. This is noteworthy in comparison with the other EU countries, where drinking water is generally provided from both surface and groundwater that has undergone a purification process, before it is distributed to the consumers.

Today, almost all groundwater used as drinking water is formed under farmland, where pesticides are frequently applied and can potentially pollute the groundwater. It is therefore essential that the responsible authorities monitor the quality of the groundwater thoroughly and consistently and authorise only plant protection products that offer a high level of protection against pollution. Pesticide pollution of the groundwater can lead to closure of groundwater wells and ultimately constitute an environmental risk as well as a health risk. The Ministry of Environment and Food can authorise emergency use of non-authorised pesticides, if safe application in relation to health, environment and groundwater can be demonstrated.

3. Rigsrevisionen has followed developments in the protection of the water supply from pesticide pollution for several years. In 2011, we submitted a report to the Danish Public Accounts Committee on national measures taken to protect the groundwater against pesticide leaching. In response to the findings of the report, the ministry implemented various initiatives in order to provide better protection of the groundwater. For instance, the waterworks were required to test for more types of pesticides in the drinking water than they had done before, and the ministry committed to eliminating the backlog of applications for approval of plant protection products.

4. In the course of 2018, Rigsrevisionen became aware that a number of pesticides had been detected in the groundwater in Denmark that were not encompassed by the Ministry of Environment and Food's monitoring programme. Furthermore, we noticed that the Ministry of Environment and Food had granted emergency authorisations for plant protection products that the ministry had previously banned. Against this background, Rigsrevisionen decided to do another study of pesticides with focus on emergency authorisations granted to plant protection products and monitoring of groundwater, among other issues.

### **Groundwater and drinking water**

*Groundwater* is found below the land surface and is formed when rain and snow seeps into the ground. Through infiltration through soil and sediments, the water is naturally cleaned and filtered.

*Drinking water* is produced from groundwater that is pumped up from the underground. The water is then aired and filtered at a water works, before it is pumped through a network of pipes to the consumers' taps.

### **Plant protection products and pesticides**

Pesticides are also referred to as plant protection products. These contain one or several active agents – pesticides – that ensure that the product has the intended effect. Pesticides are degraded entirely or partially, after they have been used on crops.

5. The purpose of the study is to assess whether the Ministry of Environment and Food's monitoring of groundwater and management of emergency authorisations for plant protection products are satisfactory. The report answers the following questions:

- Is the Ministry of Environment and Food monitoring the groundwater in a satisfactory manner?
- Is the Ministry of Environment and Food managing emergency authorisations for plant protection products in a satisfactory manner?



## Conclusion

It is Rigsrevisionen's assessment that the manner in which the Ministry of Environment and Food has monitored the groundwater and managed emergency authorisations for plant production products can be criticised. Consequently, the environment and groundwater are at risk of pollution, which may ultimately jeopardise the health of the consumers.

It appears from the legislation that drinking water in Denmark must comply with a number of threshold values for pesticides that have been set based on the precautionary principle, among other things. The threshold values have been set to reflect a high level of protection and to ensure that the water can be drunk safely without posing a risk to consumers.

It is Rigsrevisionen's assessment that the Ministry of Environment and Food's monitoring of pesticides in the groundwater can be criticised. According to the Groundwater Directive, the ministry is required to monitor the sum of pesticides in the groundwater and take action, if the level of pesticides approaches the threshold value. It is not clear to Rigsrevisionen, whether the ministry's monitoring of the groundwater can fulfil the provisions of the groundwater directive. The study also found that the ministry was unable to document why pesticides that meet the criteria to be included in the list of pesticides that is used by the waterworks to assess the quality of the drinking water, were not added to the list. Moreover, the ministry has on several occasions in the period 2011 - 2019 failed to respond to a number of specific warnings of the possible occurrence of pesticides in the groundwater. On two occasions, several years passed, before the ministry took action after having received specific warnings; the ministry received the initial warnings in 2007, but did not examine the cases closer until 2017 and 2018. Subsequent to the inclusion of the pesticides in the list of pesticides used by the waterworks, the ministry observed that the two pesticides were present in approx. 26% and 31% of the tested well drillings. As a result, an increasing number of waterworks have begun to mix pesticide-polluted groundwater with other groundwater in order to ensure that the drinking water supplied to the consumers complies with the threshold values.

It is Rigsrevisionen's assessment that the manner in which the Ministry of Environment and Food has managed emergency authorisations for plant production products can be criticised. Rigsrevisionen's scrutiny of applications for emergency authorisations regarding 18 selected plant protection products shows that there is no documentation to support the safe use of these plant protection products in relation to groundwater. In the course of the examination period, the ministry forwarded additional reports to Rigsrevisionen as documentation for the assessments that led to the ministry's decision to grant the emergency authorisations. Rigsrevisionen notes that the ministry deviated from its own guidelines for the assessment of groundwater risk for 13 of the 18 plant production products referred to in the reports. In the period 2002 - 2018, the ministry granted emergency authorisations to one specific plant protection product although the ministry, since 2004, knew that this particular plant protection product posed an unacceptable risk to the groundwater. Moreover, the ministry granted an emergency authorisation to this plant protection product although the ministry was aware that it could not be approved due to the particularly restrictive Danish requirements concerning the assessment of the cancer risk to persons applying plant protection products that were in force in the period 1997 - 2016. In the period 2013 - 2018, the ministry granted an emergency authorisation to another plant production product that the ministry had previously banned, because its degradation rate was too slow, and it therefore represented a potential risk to the environment and groundwater. Subsequently, the emergency authorisations were granted despite the fact that the ministry organised and conducted its tests in a manner that, in the assessment of Rigsrevisionen, did not provide an accurate picture of the risk of pesticide leaching.

The Ministry of Environment and Food's knowledge base for conducting risk-based control of professional users' application of plant protection products is incomplete. This entails a risk that not all relevant companies are selected for control and that the reports to the European Commission on the use of pesticides can be affected by error, because the ministry's data on pesticide consumption are incomplete. Moreover, the ministry has failed to establish an administrative platform that facilitates follow-up on reported use of illegal plant protection products.

The Ministry of Environment and Food recognises that Rigsrevisionen has detected weaknesses in the procedures and processes followed by the ministry along with examples of inadequate administration. Rigsrevisionen's study has prompted the ministry to take steps to improve its administrative platform, internal coordination between units in the ministry and external coordination between the authorities and institutions of knowledge.