



## Audit Report

20/04

### Interventions to ensure sustainable water quality

The audit was included in the audit plan of the Supreme Audit Office (the “SAO”) for 2020 under number 20/04. The audit was managed and the Audit Report drawn up by SAO member Mr Petr Neuvirt.

**The objective of the audit** was to examine the effectiveness and efficiency of the funds allocated for interventions to ensure sustainable water quality and to eliminate pollution caused by anthropogenic influences.

**Audited entities:**

Ministry of Health (the “MoH”),  
Ministry of Agriculture (the “MoA”),  
Ministry of the Environment (the “MoE”),  
Czech Hydrometeorological Institute (the “CHMI”).

The audit was performed at the audited entities between February 2020 February 2021.

**The audit covered the period** from January 2013 to December 2020 and, in the case of related events, the period until the audit completion.

**Note:** The laws and regulations contained in this Audit Report are applied in the version effective for the audited period.

The **Board of the SAO** at its XI. meeting held on 28 June 2021,  
**approved** by Resolution No. 12/XI/2021  
**this Audit Report** in the following wording:

## Interventions to ensure sustainable water quality

**CZK 65 million**

Approximate amount of expenditure by the MoA and MoE on the implementation of measures set out in national action plans<sup>1</sup>

**CZK 113 million**

Expenditure of the CHMI for groundwater quality monitoring for the period 2013-2019

**CZK 2,562 million**

The value of investments in modernisation of water treatment plants for Prague and Pilsen in 2013-2020 to remove hazardous substances from drinking water

### Groundwater

(49% of drinking water sources)

**281**

sites where the limit for pesticides was exceeded in 2019 (out of a total of 689 monitored sites)

**173**

sites where the limit for nitrogenous substances was exceeded in 2019 (out of a total of 698 monitored sites)

### Surface water

(51% of drinking water sources)

**120**

sites where the limit for pesticides was exceeded in 2019 (out of a total of 559 monitored sites)

**660**

sites where the limit for nitrogenous substances was exceeded in 2019 (out of a total of 1 883 monitored sites)

In the case of non-compliance with the hygienic limits for pesticides, the lower quality of **DRINKING WATER** impacted 220 thousand inhabitants supplied from 105 water supplies in 2019. In the case of nitrates, exemptions from hygienic limits were applied to 27 water supplies, affecting 6,800 inhabitants.

For detailed groundwater and surface water quality data for 2013 to 2019 see [Annex 1](#).

<sup>1</sup> *The National Action Plan to Reduce Pesticide use in the Czech Republic for 2013-2017 and The National Action Plan on the Safe Use of Pesticides in the Czech Republic for 2018-2022.*

## I. SUMMARY AND EVALUATION

The SAO examined the effectiveness and efficiency of the funds totalling CZK 2,755 million allocated for interventions to ensure sustainable water quality and to eliminate pollution caused by anthropogenic influences. The reviewed interventions mainly concerned the implementation of national action plans, water quality monitoring and the provision of funds for upgrading water treatment plant technologies.

**Agricultural activity is a significant polluter of surface and groundwater with both pesticides and nitrogenous substances<sup>2</sup>. Pollution occurs despite the fact that <sup>3</sup> strict compliance with good agricultural and environmental condition standards and other mandatory management requirements with an impact on the aquatic environment is a condition for the use of funds.**

**In order to meet the requirements of the European Union and to improve the state of water and change the current agricultural practices, the MoA, MoE and MoH have developed<sup>4</sup> two successive national action plans. These plans have and are not designed and implemented so as to achieve the set objectives and thereby the effective use of funds for the implementation of the measures. According to the SAO's findings, the effectiveness of the implemented measures did not reach such a level that they were beneficial for the reduction of pesticide pollution of groundwater and surface water.**

**Funds amounting to EUR 65 million were spent on the implementation of the measures of both National Action Plans. However, these were usually analytical, methodological and formal tasks that were only a prerequisite for specific measures and activities to improve the state of water. The essential measures of the National Action Plan for 2013-2017 have not been fulfilled by the Ministries. The Ministries therefore carried these measures forward to the plan for the period 2018-2022. These included, in particular, measures to set up targeted monitoring of pesticide substances in drinking water and the introduction of mandatory pesticide consumption records for agricultural entities. The MoA has also, for a long time, been unsuccessful in enforcing the application of the principles of integrated plant protection in conventional farming. The failure to implement these measures of the National Action Plans was also influenced by the inability of the Ministries involved to find agreement on the wording of the individual measures and on how to implement them.**

**Despite the funds spent and the measures implemented by the Ministries, the quality of groundwater and surface water in the Czech Republic has not improved over the last 7 years in terms of reducing the occurrence of pesticides and nitrogenous substances.**

**Pesticides are now the main reason for the increasing number of exemptions from the drinking water hygienic limit. The government is responding to this problem by the support of the modernisation of water treatment technologies totalling billions of CZK. For example, CZK 2.56 billion was invested in the modernisation of the Pilsen and Želivka water treatment**

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<sup>2</sup> Pesticide substances include pesticides (active substances) and their metabolites (breakdown products). Nitrogenous substances include ammonium ions/ammoniacal nitrogen, nitrites/nitrite nitrogen and nitrate/nitrate nitrogen.

<sup>3</sup> The agricultural sector is heavily subsidised by the state budget and EU funds. In the period 2013-2019, more than CZK 30 billion was paid to agricultural entities annually.

<sup>4</sup> Accelerate the transition from conventional to organic farming, strengthen efforts to reduce the most dangerous pesticides and promote their sustainable use, and introduce integrated pest management practices and apply integrated pest management.

**plants. The SAO points out that while these investments improve the quality of drinking water, they do not address the causes of pollution.**

**The overall assessment is based on the following findings:**

**1. The national goals in improving water quality were set by the MoA, MoE and MoH in a formal and vague manner without defining the target state.**

The MoA, MoE and MoH (the "Ministries") have set Strategic Objective I in both NAPs *Reducing the risks associated with the use of certain products*. This objective has been developed into sub-objectives in the area of groundwater and surface water protection. The strategic objective and the sub-objectives were set very broadly. The Ministries set specific indicators for the sub-objectives (e.g., "*gradual introduction of an electronic portal for data entry on the application of plant protection products by professional users*", "*number of measures practically taken to reduce the risks associated with the use of products in areas important from the point of view of environmental protection*"), but these were also worded in general terms without defining the baseline and target values. Thus, the Ministries did not set specific and, above all, measurable indicators of the improvement to be achieved in water quality.

In Part B of both National Action Plans, quantitative evaluation indicators were also listed, however, only the *National Action Plan for the Safe Use of Pesticides in the Czech Republic for 2018-2022* (the "NAP 2018-2022") set the reference data for these indicators (2017 as the reference year).

In the area of water protection, the MoA, MoE and MoH set in both NAPs mostly measures of a mainly formal nature and only represented a certain prerequisite for further activities leading to the improvement of the state of water. For some measures, it was not clear what specifically was to be carried out. The measures did not have, or do not have, a direct link to the sub-objectives and the strategic objectives. It is therefore not clear which measures are intended to achieve which objectives.

The evaluation of the implementation of Strategic Objective I and its sub-objectives of *the National Action Plan to Reduce the Use of Pesticides in the Czech Republic* ("NAP 2013-2017") in the field of water protection for the entire five-year period was carried out by the Ministries only in the form of general statements without any link to the specific indicators of meeting the sub-objectives. The SAO points out that the evaluation of specific indicators with a link to quantitative evaluation indicators in the field of water protection is a precondition for ensuring the necessary level of evidence for the evaluation of the NAP 2018-2022 sub-objectives. Without such evaluation, i.e., without ascertaining information on the fulfilment of the objectives of the NAP 2018-2022, the responsible Ministries will not have the necessary information for setting relevant priorities and measures of the NAP for the next period.

**2. Measures to improve water quality have not been efficient, with a few exceptions. Thus, the desired benefits of the measures have only been seen at a small number of monitoring sites.**

In the seven years when NAP 2013-2017 and NAP 2018-2022 have been in effect, EUR 65 million has been spent on the implementation of all their objectives and measures. Of the reviewed 11 NAP 2013-2017 water protection measures, 7 measures were fulfilled while 4

were not. Their implementation has been moved to the NAP 2018-2022, with the wording of some measures having been changed from "*adopt/execute*" to "*consider/examine options*".

The measures that have been fulfilled were mainly formal and supportive in nature. Measures that, according to the SAO, had the potential to contribute to the improvement of the state of water were not implemented by the MoA, the MoE and the MoH by 2020.

In particular, the Ministries have not introduced a system of mandatory electronic recording of pesticide use or the use of pest management products and have not set up rules for targeted monitoring of pesticide substances in drinking water; the preparation of this system has been underway at the ministerial level since 2013 at least. Thus, the MoA still does not have accurate and up-to-date information not only on the amount of pesticides applied, but also on the locations where the application took place. According to the SAO, the unavailability of these data does not allow for more substantial progress in targeting the monitoring of pesticides in drinking water sources<sup>5</sup> (see Chapter IV.2.1).

Thus, the measures set out in both National Action Plans (in the section on water protection) implemented so far have not contributed significantly to improving water quality. The state of water quality in terms of pesticides' occurrence, on which the ministries based their targets and measures under NAP 2013-2017 in 2012, did not change significantly even in the plan's 2018 update. On the basis of the SAO's analysis of data provided by the CHMI, the state of groundwater and surface water in terms of pesticide presence in 2019 is generally the same as in 2013 or worse.

By comparing the data observed in 2019 with the reference year of 2017, the SAO assessed the state of interim fulfilment of the quantitative evaluation indicators set out in the NAP 2018-2022 as unsatisfactory. Particularly for groundwater and surface water indicators, there has been an increase in the number of water bodies/sites where the quality standard for pesticides was exceeded in both cases. At the same time, there has been a decrease in the number of people supplied with drinking water with above-limit pesticide levels.

### **3. Under the current form of subsidy support, farmers have no incentive to apply the principles of integrated pest management in conventional farming. The MoA does not have information on the actual consumption of pesticides and nitrates.**

The Directive on the Sustainable Use of Pesticides<sup>6</sup> obliged Member States, including the Czech Republic (the "CR"), to ensure the necessary conditions for the application of integrated pest management (hereinafter also "IPM") or to promote their implementation, inter alia, to reduce the risks and limit the impact of pesticide use on human health and the environment. In the long term, the MoA is unsuccessful in applying the principles of the IPM. At the same

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<sup>5</sup> The absence of statistics on the actual consumption of plant protection products or other related supporting products reduces the ability of existing control mechanisms to detect the use of counterfeit pesticides, which often contain already prohibited substances. In this respect, the current system of keeping records on introducing these products and devices on the market is inadequate in this respect. A 2017 [EUIPO](#) (European Union Intellectual Property Office) analysis warns that the annual losses from the illegal pesticide market amount to approximately EUR 1.3 billion on the market. In 2020, EUROPOL coordinated a police intervention ([Operation Silver Axe](#)) across EU Member States, which led to the seizure of 1,346 tonnes of counterfeit pesticide substances.

<sup>6</sup> Directive 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.

time, the current version of the Phytosanitary Care Act<sup>7</sup> does not provide for the obligation to apply these principles and does not define the actual means for their enforcement.

The MoA verifies the application of the IPM principles only formally and only for a fraction of agricultural entities. At the same time, it has no possibility to apply any sanctions in case of detected misconduct. This formal method of verifying the application of IPM by agricultural entities is insufficient, according to the SAO. The ability of the controlling bodies (MoA) to verify the level and compliance of farmers with pesticide use rules is also negatively affected by the lack of accurate and up-to-date data on pesticide consumption.

The fact that subsidy support for agricultural activity has not implemented these principles in the conditions for granting subsidies does not contribute to the motivation of agricultural entities to apply the IPM principles; these conditions only require compliance with good agricultural and environmental condition standards and compliance with the so-called mandatory management requirements.<sup>8</sup>

Sustainable use of pesticides and nitrates, also in relation to the application of the IPM principles, is based, inter alia, on the availability of accurate information on their actual consumption with a minimum delay. The current system for recording pesticide and nitrate consumption in agriculture does not provide this information. The unavailability of data on pesticides and nitrates used does not allow the Ministries to make more substantial progress in targeting measures to address the negative impact of the use of these substances on the aquatic environment.

**4. The quality of groundwater and surface water has not improved in terms of pesticides and nitrogenous substances over the period 2013-2019. In some places, it has even deteriorated. The increasing prevalence of metabolites of substances that were prohibited years ago is no exception.**

For detailed groundwater and surface water quality data for 2013 to 2019 see [Annex 1](#).

In 2013-2019, the state of **underground water** did not improve significantly. Pesticides were detected annually<sup>9</sup> at more than half of the monitoring sites, with two-fifths of the sites exceeding the set limits. The total number of sites where the limit was exceeded increased: by 6 % 2019 compared to 2013. At the same time, prohibited or unused substances are identified in underground water. For these substances, limits are also exceeded. There was an overall decrease in the number of sites with the exceeded limit for non-used and prohibited substances: by 18% in 2019 compared to 2013.

For nitrogenous substances, limits are exceeded at a quarter of the sites in underground water each year. The number of these sites has increased overall between 2013 and 2019, with an 8% increase in 2019 compared to 2013.

The state of **surface water** did not improve significantly either between 2013 and 2019. Pesticide substances were detected annually at almost all sites analysed, with a quarter of the sites exceeding the set limits. Overall, the number of sites where the limit was exceeded increased over the period. However, after a significant growth in 2017, it has dropped below the 2013 level by 9% in 2019 . Also, prohibited or unused substances are still detected in underground water at more than 80% of the sites each year. In addition, the total number of

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<sup>7</sup> Act No. 326/2004 Coll., on phytosanitary care and on amendments to certain related acts.

<sup>8</sup> See the section *Subsidy conditions for agricultural activities* in Chapter II of this audit report.

<sup>9</sup> In the analysis, a value above the limit of quantification was measured in the sample.

sites where limits for prohibited or unused pesticide substances were exceeded increased during the period.

For nitrogenous substances, limits are exceeded at a third of the sites in surface water each year. The number of these sites has increased overall between 2013 and 2019, with an 11% increase in 2019 compared to 2013.

Since 2004, the number of analyses of **drinking water** for pesticide substances and the number of individual pesticide substances found to exceed the hygienic limit has been increasing. At the same time, the number of exemptions from the hygienic limit and the number of inhabitants affected by these exemptions are increasing (from 3 areas and 10,328 inhabitants in 2004 to 105 areas and 220,241 inhabitants in 2019). Currently, pesticides are the most frequent reason for granting exemptions. In contrast, the concentration of nitrates in drinking water has been decreasing since 2004. Similarly, the number of cases where the hygienic limits for nitrates are exceeded, the number of exemptions from the hygienic limit and the number of affected inhabitants is decreasing.

**5. The ineffectiveness of National Action Plans measures leads to large-scale investments in upgrading water treatment plants. However, these are not solutions to the causes of pollution and are hardly feasible without subsidies.**

Water supply operators are often prompted by the above-the-threshold presence of pesticides in drinking water to refurbish and modernise their water treatment technologies, e.g., by introducing an additional treatment step using granular activated carbon (GAU). In the period 2007-2020, the MoE supported projects from the Operational Programme *Environment* (the "OP Environment") for a total amount exceeding CZK 16 billion<sup>10</sup>, which aimed to ensure the supply of quality drinking water to the population<sup>11</sup>. For example, a total of CZK 2.6 billion was invested in the modernisation of the water treatment plant in Pilsen and the Želivka water treatment plant to reduce pesticide pollution. At the same time, the MoA supported similarly focused, but significantly smaller projects in the period 2013-2020 under *National Grant Sub-Programmes* for a total amount of CZK 14.5 million.

The SAO has identified a risk in the availability of these costly measures, especially for water treatment plants that supply small areas of up to 5,000 inhabitants. In 2019, water supplies serving small areas accounted for most of the exemptions granted from the hygienic limit. The high cost of new water treatment technologies can thus be a major obstacle to their implementation without subsidies. However, the solution is still designed to eliminate the effects, not the causes, of pollution.

## II. INFORMATION ON THE AUDITED AREA

Water is a strategic resource. The government is obliged to create a legal and institutional framework for its protection and for the supply of safe drinking water to the population. In 2019, about 39% of the population in the Czech Republic was supplied with drinking water

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<sup>10</sup> In that period, 218 projects were approved and supported by EU funds in the amount of CZK 8,151,659,087 and by the state budget in the amount of CZK 900,522,945.

<sup>11</sup> Under this objective, projects were supported for the construction and modernisation of water treatment plants as well as for the construction of water intakes, drinking water distribution networks and systems for the protection of drinking water sources.

produced from underground sources, about 38% from surface sources, and about 23% from mixed sources. Groundwater sources accounted for 48.52% and surface sources for 51.48% of the total drinking water produced. Drinking water from public water supply systems was supplied to 10,090,190 people, i.e., 94.6% of the total population.

### **Competences in water quality protection and monitoring**

The Ministry of Agriculture is, among other things, the central state administration body for water management, with the exception of the protection of natural water accumulation, protection of water resources and protection of surface and groundwater quality. In the field of water management, it is especially obliged to survey and assess the state of surface water and groundwater, to draw up and approve water plans and programmes of measures and to fulfil the tasks arising from the relationship with the European Community in the field of water protection, and to report on the implementation of the relevant European Union (the "EU") Directives.<sup>12</sup>

The Ministry of the Environment is, among other things, the central state administration body for the protection of natural water accumulation, protection of water resources and protection of surface and groundwater quality. It is also the central state administration body for the protection of groundwater. In environmental matters, it coordinates the actions of all ministries and other central state administration bodies of the Czech Republic and ensures and manages a unified information system on the environment, including areal monitoring, also in relation to international treaties.

The MoE together with the MoA, pursuant to Section 21 and Section 108 of the Water Act<sup>13</sup>, identifies and assesses the status of surface water and groundwater and operates a public administration information system through professional entities that it authorizes or establishes for this purpose.

The Ministry of Health is the central state administration body for the protection and promotion of public health. The quality of the drinking water that the consumer takes directly from the water supply is the responsibility of the water supply operator. The operator of the water supply system is obliged to ensure that the drinking water supplied by the system is of the quality specified by the MoH in Act No. 258/2000 Coll., on the protection of public health, and its implementing regulations. Compliance with the hygienic requirements for the quality of the drinking water supplied in this way ensures that the health of consumers will not be put at risk even if the drinking water is used for a long time. The control of the fulfilment and observance of the set hygienic requirements for the quality of the supplied drinking water is the responsibility of the public health authorities.

Regular monitoring of drinking water quality is carried out by public water supply and well operators. Drinking water control analyses are carried out by the regional Public Health Offices (hereinafter referred to as "PHO") within the framework of state health supervision. The

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<sup>12</sup> The framework for the European Union's activities in the field of water policy is set out by Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000, the Water Framework Directive, which obliges Member States, inter alia, to achieve good qualitative and quantitative state of inland surface water and groundwater.

<sup>13</sup> Act No. 254/2001 Coll., On Waters and on Amendments to Some Acts (the Water Act).



results of all analyses are collected in the IS PiVo database<sup>14</sup>, which is managed by the MoH and operated by the Institute of Health Information and Statistics.

The MoH has also established the State Health Institute (the "SHI") as a contributory organisation, which provides and collects laboratory and epidemiological data necessary for the assessment and communication of health risks, including in the area of drinking water.

Based on data from PiVo IS and through the SHI, the MoH prepares and publishes an annual *report on the quality of drinking water in the Czech Republic*.

The Czech Hydrometeorological Institute is a contributory organisation established under Government Decree No. 96 of 27 November 1953<sup>15</sup>, with the MoE as the founder. With a mandate from the MoE, the CHMI performs groundwater monitoring, monitoring of biota and sediments for the analysis of long-term trends of selected priority substances and assessment of the chemical state of surface water, monitoring using solid matrices<sup>16</sup> for the purpose of determining the level of contamination of aquatic ecosystems by selected pollutants. The scope and method of implementation of such monitoring activities are set in advance in the individual monitoring programmes for the respective year or two years. The measured values from all groundwater and surface water quality monitoring are stored in the IS ARROW database<sup>17</sup>, where they are compared with standards set by legislation and over time.

Monitoring of the quality status of surface water is carried out by the state river basin enterprises under a mandate from the MoA, which were, however, not audited. The results of this monitoring are transmitted by the state river basin enterprises to the IS ARROW system.

### **Water quality monitoring and water quality requirements**

The method of determining and assessing of the status of groundwater and surface water is regulated in Section 21 (3) and (4) of the Water Act and decrees issued by the MoE and the MoA<sup>18</sup>. It is also governed by the *Framework Monitoring Programme*, which is prepared by the CHMI in cooperation with the MoE and the MoA, which then jointly approve it.

The quality standards for underground water are set out in Regulation No 5/2011 Coll. Environmental Quality Standards (the "EQS"); for surface water, these standards are set out in Government Decree No. 61/2003 Coll.<sup>19</sup>, or in Government Decree No. 401/2015 Coll.<sup>20</sup> The

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<sup>14</sup> *Drinking Water* information system.

<sup>15</sup> Government Decree No. 96 of 27 November 1953 on the Hydrometeorological Institute.

<sup>16</sup> Matrix - a component of the aquatic environment.

<sup>17</sup> Information system *Assessment and Reference Reports of Water Monitoring*.

<sup>18</sup> Regulation No. 5/2011 Coll., on the definition of hydrogeological districts and groundwater bodies, the method of assessing the state of groundwater and the details of groundwater state detection and assessment programmes. Regulation No. 98/2011 Coll., on the method of assessing the state of surface water bodies, the method of assessing the ecological potential of heavily impacted and artificial surface water bodies and the details of programmes for the detection and assessment of the state of surface water.

<sup>19</sup> Government Decree No. 61/2003 Coll., on indicators and values of permissible pollution of surface water and wastewater, the requirements for permits to discharge wastewater into surface water and sewers and on sensitive areas.

<sup>20</sup> Government Decree No. 401/2015 Coll., on indicators and values of permissible pollution of surface water and wastewater, the requirements for permits to discharge wastewater into surface water and sewers and on sensitive areas, effective from 1 January 2016.

requirements for the quality of drinking water are determined by Regulation No. 252/2004 Coll.<sup>21</sup>

### **Anthropogenic impacts and area sources of pollution**

Anthropogenic impacts are those environmental changes that are caused directly or indirectly by humans. In Audit No. 20/04, the negative effects of surface pollution from agricultural activities (pesticides and nitrates) were mainly considered. Agricultural production, especially crop production, is a significant source of surface and underground water pollution by pesticides and nitrates. The majority of agricultural entities in the Czech Republic farm conventionally. In order to achieve adequate yield and profit in crop production, pest management products, pesticides and fertilisers are used by farmers.

**Table 1: Overview of conventional and organic farmers**

	<b>Total number of active agricultural entities</b>	<b>of which engaging in conventional farming</b>	<b>of which engaging in organic farming</b>
2013	32,929	29,119	3,810
2014	34,229	30,454	3,775
2015	34,845	30,863	3,982
2016	35,336	31,197	4,139
2017	35,433	31,106	4,327
2018	35,599	31,067	4,532
2019	35,531	30,890	4,641
1–6/2020	35,542	30,947	4,595

**Source:** MoA data.

The use of pesticides is regulated by the Sustainable Use of Pesticides Directive. Based on the requirement of Article 4 of the Directive, the Czech Republic has developed a National Action Plan to set quantitative targets, objectives, measures, and timetables to reduce the risks and impacts of pesticide use on human health and the environment.

The protection of water against nitrate pollution from agricultural sources is regulated by EU Council Directive 91/676/EEC of 12 December 1991, on the protection of waters against pollution caused by nitrates from agricultural sources (Nitrates Directive). Its main requirement is to identify areas vulnerable to nitrates and to develop good agricultural practice principles aimed at protecting water from nitrate pollution. Within vulnerable areas, farmers are obliged to comply with the principles of good agricultural practice. Increased levels of nitrates in water cause subsequent eutrophication, i.e., the process of nutrient (mainly nitrogen) enrichment of surface waters. Due to eutrophication of water, cyanobacteria and bacteria proliferate, significantly impairing the usability of groundwater and surface water for drinking water production.

### **Conditions of subsidies for agricultural activities**

The payment of direct payments, certain grants under the *Rural Development Programme 2014-2020* other disbursements is conditional on maintaining soils in the so-called good

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<sup>21</sup> Decree No. 252/2004 Coll., which establishes the sanitary requirements for drinking and hot water and the frequency and scope of drinking water control.

agricultural and environmental condition<sup>22</sup> (hereinafter also "GAEC") and compliance with the so-called mandatory management requirements (hereinafter also "MMR"), among others in the environmental field. Compliance with GAEC and MMR is verified in the framework of the-called conditionality controls. Water protection requirements included GAEC 1, 2, 3 and MMR 1 and 10 standards<sup>23</sup>. An overview of the total volume of subsidies provided, the volume of subsidies provided subjected annually to conditionality control in the field of water protection (compliance with standards GAEC 1, 2, 3 and MMR 1 and 10), and the volume of sanctions imposed in 2015-2019 are shown in the table below.

**Table 2: Controlled volume under cross-compliance controls of compliance with standards GAEC 1, 2, 3 and MMR 1 and 10**

	Total amount of subsidies provided in CZK	Audited volume in CZK	Audited volume in % (calculated by the SAO)	Amount of the sanction in case of non-compliance with GAEC and MMR in CZK
2015	32,128,317,437.34	3,381,587,189.04	10.53	3,447,477
2016	31,827,616,105.71	2,727,981,823.45	8.57	3,077,798
2017	31,008,755,706.60	2,381,923,075.51	7.68	15,546,995
2018	32,992,489,158.24	3,324,602,270.69	10.08	3,652,691
2019	33,222,734,806.96	4,767,206,622.37	14.35	8,607,841

Source: information from the MoA; own analysis of the SAO.

### III. SCOPE OF AUDIT

The audit focused on sustainable water quality in the Czech Republic. The SAO reviewed the efficiency and effectiveness of the funds allocated for state interventions to ensure sustainable water quality and to eliminate pollution caused by anthropogenic influences. The funds were spent in the audited period 2013-2020.

The audit reviewed the set-up and operation of the management system for sustainable water quality in all audited entities, with a particular focus on water quality monitoring. For CHMI, the audit also assessed the change in the state of nitrogen and pesticide substances in groundwater and surface water. For MoH, the development of pesticides and nitrates in drinking water was evaluated as part of an audit of the setup and implementation of drinking water quality monitoring. The evaluation of the occurrence of pesticides and nitrogenous substances in groundwater, surface water and drinking water was carried out based on data provided by the CHMI and the MoH in order to verify and evaluate the impact of the implemented state interventions on water quality.

The SAO also verified the setting of selected objectives and measures of *the National Action Plan to Reduce the Use of Pesticides in the Czech Republic*, which was adopted for the period

<sup>22</sup> The GAECs are regulated by Government Decree No 48/2017 Coll., laying down requirements under the Acts and standards of good agricultural and environmental state for the areas by cross-compliance rules and the consequences of their breach for the granting of certain agricultural subsidies.

<sup>23</sup> GAEC 1 - compliance with buffer zones along watercourses, GAEC 2 - permission to use irrigation systems, GAEC 3 - protection of groundwater against pollution, MMR 1 - protection of water against nitrate pollution from agricultural sources, MMR 10 - marketing of plant protection products.

2013-2017, and the *National Action Plan for the Safe Use of Pesticides in the Czech Republic for 2018-2022*, and also verified the implementation of selected measures.

Regarding the effectiveness of funds spent on ensuring sustainable drinking water quality, the audit at the MoE and MoA focused on the set-up of subsidy programmes and on projects of water treatment plants modernisation.

The SAO focused on the two most important (in terms of costs and the number of inhabitants supplied with drinking water) projects of water treatment plants modernisation – Pilsen and Želivka, which were financed by OP Environment. The SAO also focused on eight water treatment plant modernisation projects supported by the MoA under national subsidy programmes. These projects were implemented due to contamination of raw water sources with hazardous substances.

For the selected projects, the audit sought information on the costs and the need for project's implementation (i.e. raw water pollution and poor drinking water quality) and the subsequent impact of modernisation of water treatment plants on ensuring the required drinking water quality. The actual implementation of the projects was not subject to the audit.

In terms of anthropogenic water pollution, the audit focused on agricultural activities and their impact on water quality. For MoA, the set-up of monitoring of pesticides and nitrates consumed in agricultural production, the set-up and application of conditions for the provision of direct payments and selected payments under the *Rural Development Programme 2014-2020* and the application of the IPM principles were thus verified.

The effectiveness of the funds spent was assessed by the SAO in relation to the fulfilment of the objectives set out in the National Action Plans. Efficiency was assessed in relation to the implemented measures of the National Action Plans and their benefits in terms of reduction of pesticide pollution of groundwater and surface water.

The audited volume of funds at the system level totalled CZK 2,755,310,250 and included:

- funds for the implementation of the objectives and measures of the NAP 2013-2017 and NAP 2018-2022 in the amount of CZK 65,032,068;
- funds spent on monitoring the quality of underground water in the amount of CZK 113,554,438<sup>24</sup>;
- total expenditure on the implementation of selected projects aimed at modernising water treatment plant technologies in the amount of CZK 2,562,265,744 for the MoE and CZK 14,458,000 for the MoA.

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<sup>24</sup> Surface water quality monitoring is performed by the state river basin enterprises, which were not subject to the audit.