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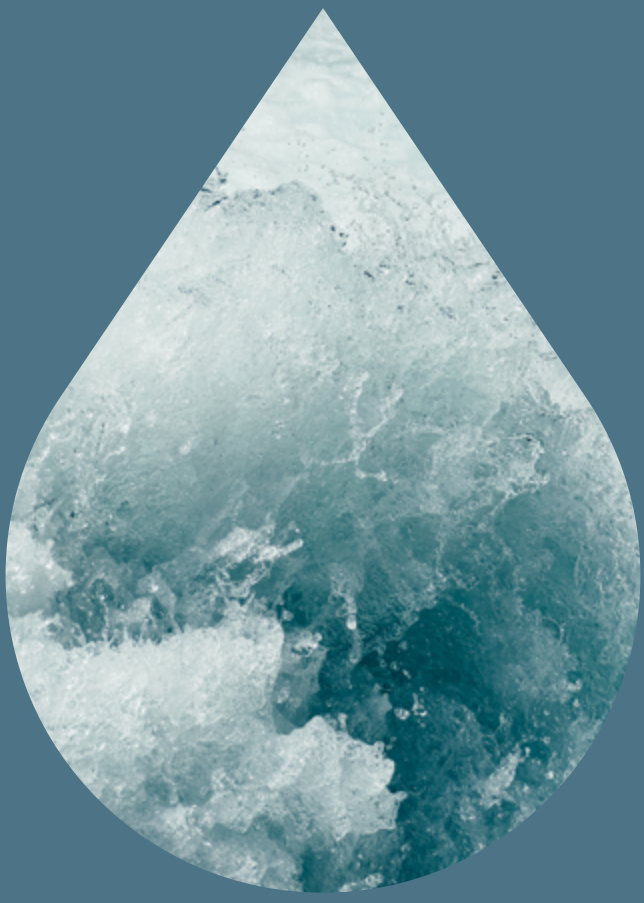

Challenges of Water Resource Management: **How to Use and Protect Water**

Policy Paper

Clear it up!

The public policy document will serve as a tool in the advocacy and lobbying campaign „Clear it up“, which will aim to influence the decision making process and shall call the target audience to action in the area of water management. The document includes data and insights into the current water management problems that require immediate attention and offer alternative solutions and specific problem solving recommendations. The document is based on research and interviews with experts in the relevant area.

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Challenges of Water Resource Management: **How to Use and Protect Water**

Policy Paper

Skopje
September 2020

Content

Alternative Solutions for the Public Policy – Sustainable Water Management Program in the Republic of North Macedonia

Executive Summary

The aim of this document is to make an in-depth analysis of data and findings from the strategic, planning and program documents in the area of water management, of the legislation in the area of water management, and to provide analyses and report on the water management status on national level and local level. It also aims to propose measures for creating a conceptual framework for solving the water management issues.

According to the Law on Waters, the water management is about taking measures and activities for sustainable, rational and efficient use of the water resources, including water protection and protection from the harmful impacts on the waters.

The water management includes measures and activities for:

Planning and implementing measures and activities aimed at rational and efficient use of the water resources

Ensuring sustainability of the water resources

Protection of waters

Protection from the harmful impact on the waters

The management objectives coincide with the objectives that need to be met with the application of the Law on Waters i.e. such management should lead to accessibility to sufficient quantity of quality water that is primarily intended for drinking as well as for other needs; protection, conservation and continuous improvement of the available water resources, coastal land, aquatic ecosystems and ecosystems that are dependent on water and biodiversity, including full reduction of harmful discharges and gradual elimination of emissions of hazardous substances and other substances into waters; mitigation of the consequences from harmful effects on waters and from water scarcity.

The envisaged measures will have to meet the challenge for sustainable management of water resources, significantly reduce the risk to the environment and, thus, improve the qualitative and quantitative status of the resource i.e. improvement of the environmental, social and health impacts.

The document provides some specific measures and interventions for each of the relevant dimensions of water management and regarding the use of waters as environmental medium. These are discussed in the text bellow, when defining priorities and measures.

The list of issues and measures related to water management included in this document is not final, but it is mainly to be used as priority list. The actual defining of the priorities and measures included in the document is based on several criteria:

- The extent of the impact on the overall resource management policy;
- The scope of the financial implications and the possibility to solve the issue on short/medium term;
- The impact the resolution of the issue will have on the environment; and
- The social implications of resolving of the issue.

The ultimate objective of the document is to contribute towards:

- Prevention of further deterioration and protection and improvement of aquatic ecosystems and aquatic habitats;
- Promoting sustainable water use based on long term protection of the water resources;

- Improving the level of protection against discharge and accidental loss of pollutants;
- Reduced pollution of ground waters;
- Mitigation of consequences of floods and droughts; and
- Achievement of objectives enshrined in international agreements and instruments.

In analyzing the data and findings on objectives, measures and priorities, we considered relevant documents and reports concerning water resource management, strategies and action plans on the status of waters on both local and national level, a series of sectoral strategic and planning documents as well as the internal legislation in the area of waters.

All specific objectives and measures included in the document are actually legal requirements and activities for both the central level authorities and for the local self-government units, in accordance with the national dynamics for implementation.

The financial implications arising from the measures and recommendations in this document will be almost entirely fiscal implications that will have to be provided from the public expenditures of the country, more precisely from its central budget. They are prepared using historical data for each of the calculated costs and by taking into account the existing average market prices for each type of potential cost – all based on the existing domestic practice for calculation of fiscal implications per individual costs in the budget.

The total financial implications of the 9 proposed measures are estimated at 1,086,017 euros, most of which are for expert work - 512,700 euros and hiring a company or companies to collect data on water pollutants and development and maintenance of software solution for the Cadaster of polluters - 370,000 euros. The remaining 203,317 euros are for various on-site expenses; development of methodologies and programs; promotion of strategies, public debates and public awareness campaigns.


1.

Introduction

The relevant Macedonian legislation on water resource management was adopted in 2008, in parallel with the process of harmonization of our legislation with the European Union Acquis (EU). In addition to the legislation that directly regulates the water management, there are important links with the environmental legislation and with other sectoral and horizontal legislation that affect the institutions and procedures in the area of water management. A coherent and complete normative framework was established with the adoption on the Law on Waters in 2008. This Law sets the legal basis for full harmonization with the EU legislation and it is arranged on the basis of the Framework Directive on Waters and other relevant acts of the European Union.

The water management is about measures and activities for rational and efficient use of waters, sustainable development of the water resources, water protection and protection from harmful effects on the waters, which include: public policy making, preparation of laws, planning and strategic documents; their implementation through issuing of licenses, monitoring, financing and control and inspection. The integrated water management in Macedonia is regulated by the Law on Waters (87/2008, 6/2009, 161/2009, 83/2010, 51/2011, 44/2012, 23/2013, 163/2013, 180/2014, 124 / 2015, 146/2015, 52/2016) as a framework law that sets out the principles, competencies, rights and obligations for water management. The structure of the Law reflects the comprehensive water management, namely the management of water protection, which refers to protection of the environment, which is primary objective of the water legislation of the European Community, and the management of the use of water resources, which refers to water use and flood protection, which is not always related to the environmental objectives and the water protection.

In the context of harmonization of the domestic legislation with the EU benefits, a complete or high degree of legislation harmonization is evident for some instruments of the Union (on quality of drinking water, quality of bathing water, treatment of urban wastewater).

The European Commission (EC) report for the Republic of North Macedonia from 2019, Chapter 27[1] notes some progress of the country in terms of water quality (plans have been developed for implementation of the Urban Water and Drinking Water Directives, a National Investment Program for the water sector has been adopted, a new methodology for

1. COMMISSION STAFF WORKING DOCUMENT North Macedonia 2019 Report Brussels, 29.5.2019 SWD(2019) 218 final https://ec.europa.eu/neighbourhood-enlargement/sites/near/files/20190529-north-macedonia-report.pdf page 88.

water service tariffs based on the principle of full cost recovery has been applied, and a public debate is ongoing on river basin management plans for the Vardar, Strumica and Crn Drim rivers; flood risk and hazard risk maps have been developed for almost all areas on the territory of RN Macedonia).

However, it should be borne in mind that the harmonization of some instruments has not started at all, and in general, the implementation of the legislation is at a very low level. This is primarily due to the lack of bylaws, which are important for implementation of the laws, thus the legal framework is not complete. The law is just a declaration of rights and obligations without real factual implementation in many segments of the management and, consequently, the water resources are not getting the adequate protection as an environmental medium. The water resources are used irrationally and the citizen's right to safe drinking water and sanitation is affected and not fully realized; there is no institutional capacity and equipment for implementation and insufficient funds are allocated from the state budget for implementation of the legislation.

In addition to the Law on Waters, other lex specialis laws have subsidiary application. These regulate certain aspects of the management, and the same goes for the bylaws adopted on the basis of those laws[2] or laws that regulate other horizontal issues or areas, but touch on issues relevant for water management[3]. This characterizes the national legal framework as extensive, complicated and multisectoral. In addition, the EC report explicitly states that the inter-ministerial cooperation in this sector requires significant improvement[4]. This standpoint stems from several key shortcomings. The legislation regulating various aspects of the water management has not been fully consolidated, especially after the adoption of the Law on Waters, which achieves harmonization with the EU legislation. The laws enter into force at different time periods and change frequently, making their successful implementation difficult. The current institutional framework implies joint rather than integrated management – the competencies are allocated to different water management bodies, each in its own area. The responsibilities for the various aspects of water management are divided between different central administration bodies. Furthermore, the competencies for managing the different segments of water management are divided between different state administration bodies. The current water management is characterized by a lack of coherent and unified national water management policy, and the bodies competent to take action in the area are not mutually coordinated. The legislation does not provide for a mechanism for coordinating policies, strategies and laws. Most of the responsibilities for managing the Law on

2. Law on Pricing of Water Services; Law on Water Supply and Drainage and Wastewater Treatment; Law on Inland Navigation; Law on Water Management; Law on Fisheries and Aquaculture; Law on Pricing of Water Services; Law on Ohrid, Prespa and Dojran Lake.

3. Law on Environment, Law on Waste Management, Law on Nature Protection, Law on Hydrometeorological Service, Law on Food Safety, Law on Agricultural Cooperatives, Law on Declaration of the Lake Dojran as a Monument of Nature.

4. Ibid. COMMISSION STAFF WORKING DOCUMENT North Macedonia 2019 Report Brussels, 29.5.2019 SWD (2019) стр. 88.

Waters are vested in the Ministry of Environment and Physical Planning, but many of the competencies are also vested in other bodies as well. The Law recognizes the need for cooperation but does not provide the tools for implementation of such cooperation. The most common designations are: coordination, consent, prior cooperation, cooperation, and the established councils for management of river basin areas, which should act as forums of all stakeholders, are not performing the function prescribed by the Law. Furthermore, the obligations for the utility (communal) services and flood protection and defense are by default vested in the local self-government units, in accordance with the Law on Local Self-Government, but the Law on Waters also vests other competencies to the local level authorities (bathing water quality). All of the above continuously leads to avoidance of liability of all parties involved when it comes to failure to meet the obligations, or if such obligations are insufficiently met in accordance with the laws; poor resource management, as well as inadequacy and inefficiency of the water management services. In a situation of dependence on international aid and assistance, a picture is created of absence of a single partner who will communicate with the foreign donors. The overlapping in competencies creates duplication of civil servants performing similar or identical functions, which in turn, has implications at general level.

In order to improve the public water policy, a team from the Institute for Communication Studies (ICS) carried out in depth research on various aspects of the water management process. Methodologically, all relevant laws and bylaws were consulted, including domestic reports on water quality, statistical reports on the degree of water supply and on wastewaters, local environmental action plans of the municipalities, the EC reports on the progress of the country regarding harmonization of the legislation, which lists the shortcomings and issues in the water management area. Furthermore, the purpose of this research was to gather different opinions and recommendations from experts in the area of water management. This methodology identifies a number of issues in the current public water management policy, which are due to the lack or regulation, or over-regulation, or inadequate regulation of specific aspects of the water management at national level; issues arising from the institutional framework and insufficient capacity for implementation of the policy – workforce and budget, including issues arising from non-compliance with the regulations.

Chapter 2 elaborates the issues that have been identified as well as the social, economic and political impacts they cause.


2.

Water Management Issues in the Republic of North Macedonia

Absence of water management planning documents

The Law on Waters envisages three types of planning documents that should be adopted after the entry into force of the Law, as follows:

- National Water Strategy, which sets the long-term policy for a period of 30 years;
- The Water Resource Management Basis of the Republic of Macedonia - the current status of waters, the current and future needs for water, technical and economic solutions for rational use of waters and timeframe for their implementation; and
- River basin management plans (for each river basin area determined as such by law) for a planning period of 6 years. These are innovative tools for integrated water management through planning.

Unlike the National Strategy, which was adopted by the National Assembly in 2010 and covers the period from 2011 to 2041, the Water Management Basis and the River Basin Management Plans have not been adopted. The Water Strategy does not include specific investment strategic objectives and priorities, nor measures and activities for their implementation.

The Water Resource Management Basis of the Republic of Macedonia was adopted in 1972. The problem is that the Water Resource Management Basis has no legal relevance, but is still used as a reference document in policy planning in the Ministry of Environment and Physical Planning. Additionally, the Water Resource Management Basis is taken into account in the Spatial Plan of the Republic of Macedonia 2004 - 2020, so the solutions in the Spatial Plan are provided in accordance with an outdated document from 1972. This means that there is no clear basis for the future water needs, for the technical and economic solutions intended for rational use of water,

protection of water from pollution and protection from harmful effects on water in accordance with the principles of sustainable development, as well as in accordance with long term environmental goals and program for measures for their implementation.

The problem is further complicated by the fact that there are no River Basin Management Plans (PURS) in place. On the territory of Macedonia, the law determines 4 areas of river basins, which according to the entire hydrographic unit, can be qualified as international in character, and because all identified areas are located on the territory of Macedonia and the territory of a neighboring state in smaller or larger part. The territory of the country includes: 1. The Vardar river basin; 2. The Strumica river basin; 3. The Crn Drim river basin and 4. South Morava river basin[5]. In accordance with the transitional and final provisions of the Law on Waters, the deadline for adoption of a PURS is 6 years from the entry into force of the law[6]. Additionally, in accordance with the Law on Waters, the water rights (water use permits, water discharge permits) are issued on the basis of the plan for the respective area (basin) and are one of the instruments for implementation of the plan[7]. Hence the question – if there is no Plan, on what basis the permits are issued and how the Ministry of Environment and Physical Planning (MoEPP) takes care of maintenance and improvement of the water regime through those permits, that is, the parameters that define the quantitative and qualitative state of the waters at a specific location and at a specific time (water level, flow, direction of the flow, the water velocity, the sediment flow, physical, chemical and radioactive properties, hydrobiological composition of the waters and other parameters)[8]. This situation, apart from being a basis for discretion in issuing permits, does not guarantee that the objectives of the Law on Protection, Preservation and Improvement of Available Water Resources through rational and sustainable use will be achieved. This means that the availability of a sufficient quantity of quality water is questionable, primarily for drinking and then for other needs (agriculture, industry, hydropower, tourism, navigation, recreation and other needs), protection and improvement of environment and nature, of the aquatic ecosystems and biodiversity, protection of human health as well as the reduction of the harmful discharges and the gradual elimination of emissions of hazardous substances into the waters.

5. See Article 7, Paragraph 2 of the Law on Waters; Decision on Determining the Boundaries of the River Basin Areas (Official Gazette of the Republic of Macedonia No. 107/2012 from 27.08.2012).

6. In accordance with the Commission Staff Working Document North Macedonia 2019 Report Brussels, 29.5.2019 SWD (2019) page 88.

7. Article 66, Paragraph 7 of the Law on Waters: "(7) The river basin management plans shall be implemented through issuance of permits and other instruments determined by this Law".

8. Ibid. Article 12, Paragraph 3

The lack of strategic and planning documentation, in addition to the above, leads to other **sub-issues** in the implementation of the legislation.

As it is evident from the statistics, the utility enterprise discharge untreated water with a high degree of pollutants into the natural recipients.

This means that either the discharge permit does not include emission limit values due to the lack of planning documents, or the companies are not holders of such discharge permit. In both cases, the action is illegal and contrary to the Law on Waters.

Furthermore, in our country, the construction of small hydro power plants is encouraged with the strategies for development of the energy sector and renewable energy sources and with the studies for small hydro power plants, where these are defined as capacities for generation of ecologically clean energy. However, their construction has unforeseeable consequences for biodiversity and leads to extinction of endemic species of animals and plants, especially if they are built in a protected area. In accordance with the environmental legislation, the strategies for energy development and the renewable energy sources are subject to strategic assessment procedure in terms of impact they have on the environment and on the human health. However, during the implementation of the strategic basis, due to the absence of a reference strategic/ planning document in the area of water, it is not clear how the environmental impacts caused by the strategies for energy development and renewable energy sources are assessed. In addition, the system for monitoring of effects on the environment and human health from implementation of the planning document is not functional, so the unforeseen negative effects and the implementation of relevant actions to correct the situation are only formal requirements that exist solely on paper.

In this context, the procedure for environmental impact assessment of specific projects is also relevant, in this case – the projects for small hydropower plants. The implementation of this legal requirement, although it provides an assessment of the impact of a specific project, does not assess the cumulative impact of several projects on the same watercourse or water body. In this way, small hydropower projects seriously alter river ecosystems, often fragmenting riverbeds and changing the river flows, problematizing the minimum ecologically permissible flow or the level that threatens the biodiversity and the endemic species, there is also a high levels of nutrients occurring, the water quality is degraded, the landscape is changing and the quantity of water that should primarily be used for other purposes is reduced, which causes a number of serious socio-economic problems.

Absence of bylaws for implementation of the Law on Waters

From a total of 106 legal grounds in the Law on Waters that are the basis for adoption of the bylaws which should ensure implementation of the Law and also ensure achievement of its objectives, 52 bylaws have not

been adopted. Most of them refer to the environmental objectives and the emission limit values for surface and groundwater, to protection zones, the permissible deviations, the protection against harmful effects on the waters, water monitoring and information system, as well as the manner of keeping records and the method of calculating the unit of harmfulness for the fees. Thus, the rights and obligations provided by the Law on Waters cannot be properly implemented.

Water supply and access to public water supply system

Supplying the population with quality drinking water is an important priority of every country. The census of population, households and dwellings, as a statistical survey that covers the entire population, regularly collects data on the manner in which the households are supplied with drinking water, as well as how are the housing units equipped with appropriate installations for supply with drinking. Despite the fact that 88,9% of all households are supplied with drinking water from public water supply, which is a high statistical indicator, the very fact that at the beginning of the 21st century, in the heart of Europe, some households still drink water that is neither biologically nor chemically tested, is an indicator of concern. The fact that most of the households that are not supplied with drinking water from public water supply are concentrated mainly in sparsely populated rural areas cannot be an excuse for insufficient care by the country, to bring quality drinking water to every household[9]. In some municipalities, due to lack of drinking water, there are remnants or newly drilled wells used for drinking, especially in areas that are not urbanized and in old settlements. These waters are not subject to control and there are no data on safety and quality criteria, especially from a microbiological and chemical aspect. This data indicates that 11.1% of the total number of households do not have access to drinking water. At national level, there are significant differences in the existing coverage with water supply services per regions. The highest coverage with regular management and monitoring - centralized supply was registered in the Skopje Region (about 91%), while the lowest coverage was registered in the Polog, Northeast and Southwest Region (66 to 75%). Enjoying the human right to water is essential for living one's life in a humane and dignified way. Access to water is a conditio sine qua non for the right to life, the right to adequate standard of living and the right to health. Providing access to water for everyone is not only a matter of access to water resources[10], technology and infrastructure, but also a matter of priorities,

9. Environmental statistics 2019, State Statistical Office, page 66. Ths publication is available at http://www.stat.gov.mk/Publikacii/ZivotnaSredina2019.pdf

10. In accordance with the Rulebook on the Drinking Water Safety (Official Gazette of the Republic of Macedonia No.57/04) and the European Directives in that area, the required water need is 150 liters/person.

tackling poverty and inequality as well as tackling social imbalances[11]. According to the Law on Waters, the public water supply of the population is about supply of drinking water to more than five households, that is, to more than 20 inhabitants, supply from own facilities to enterprises and other legal entities that produce and/ or trade food and drinks and supply for public facilities. The obligation for undertaking measures necessary for development and maintenance of efficient and economical system for drinking water supply in sufficient quantities and according to the requirements to all legal users is a requirement for the local self-government units established by Article 185 of the Law on Waters.

11. The International Covenant on Civil and Political Rights and the International Covenant on Economic, Social and Cultural Rights implicitly recognize the right to water. The International Covenant on Civil and Political Rights, adopted on 16 December 1966 entered into force on 23 March 1976, G.A Res. 2200A (XXI), UN Document A/ 6316 (1966), 993 UNTS; International Covenant on Economic, Social and Cultural Rights, adopted on 16 December 1966, entered into force on 3 January 1976, G.A. Res. 2200A (XXI), UN document. A / 6316 (1966), 993 UNTS;

Water pollution due to illegal discharges

Water pollution is the result of the ingress of hazardous substances, of poisonous or polluting substances and waste into water bodies. The discharge of industrial and agricultural liquid waste, the urban wastewater and of waste oils into the sewers, surface or groundwater, water bodies or drainage systems leads to water pollution.

According to the Law on Waters, the urban wastewaters and the industrial wastewater should be properly treated before discharged into the recipient (either a river or open-air canal). If the discharge is made in a river or in open-air canal as a recipient, it must meet the criteria for discharge in accordance with the categorization of watercourses prescribed by the Ordinance on Water Classification i.e. the Ordinance on Categorization of Watercourses (Official Gazette of the Republic of Macedonia No. 18/ 99) i.e. with the Ordinance on Classification of Surface Waters (Official Gazette of the Republic of Macedonia No. 99/16). Any discharge of industrial wastewater should be carried out under conditions and in a manner determined by the discharge permit i.e. the integrated environmental permit in accordance with the Law on Environment (Official Gazette of the Republic of Macedonia No. 50/05).

According to statistical information[12], the discharge of wastewaters in Macedonia originating from industry and mining, on which no treatment has been performed after their use, is done into a specific recipient. Recipients of wastewater are the following: soil, sewerage, watercourses, reservoirs and lakes. 0.3 percent of the total untreated waste waters that were discharged in 2017 were actually discharged into sewers and 99.7 percent were discharged into watercourses. No discharges of untreated wastewater from industry and mining were recorded in the

12. Environmental statistics 2019, page 77

lakes. According to the Environmental Statistics Office, high concentrations of pollutants have been observed[13].

In Macedonia, only about 3-4 percent of the total amount of wastewater originating from mining and industry is actually treated. This indicator reflects the situation with discharge of wastewaters which has been treated after use. They are treated in a particular way (mechanical, chemical, biological or combined) and as such, they are discharged into a recipient, most often it is the public sewers. The total quantity of untreated wastewater in 2018 decreased by 10.6 percent compared to the previous year. Most of the wastewater was discharged into watercourses, 41.7 percent of which was untreated and 20.8 percent was treated wastewater.

It is important to note that the wastewater treatment is highly dependent on the functional status of the plants intended for that purpose, and there is no tendency of increase in construction of such new plants. Most of the existing sewerage systems are in poor condition. The existing collector and treatment plant in two cities are in poor condition and, due to irregular maintenance and breakdowns, they often do not work[14]. Another six smaller municipalities have older treatment plants that are operating with difficulty due to their obsolescence and lack of maintenance funds[15]. Functional wastewater treatment plants, as of 2017, exist in two cities[16], new ones were built in five cities[17] and were put into operation in 2018[18]. The Ministry of Environment[19], the Ministry of Transport and Communications, the City of Skopje and the municipalities[20] are required to supervise and ensure that the effluents (discharges) from the industrial wastewaters and from the urban wastewaters in their area that enter the systems for collection and treatment of urban wastewaters have been subjected to pre-treatment[21]. Each discharge must meet the criteria (emission limit values for the parameters as well as targets for each water body). The holders of the discharge permit, in accordance with the law, should pay a discharge fee, on a separate payment account within the treasury account, and the funds collected on that basis should be used (earmarked) for 1) preparation and organization of implementation of the program that includes measures for protection of the waters from pollution; 2) monitoring and determining the situation with the quantity and quality of the waters and monitoring of safety of the water for human consumption and 3) establishing and maintaining protection zones in accordance with this law and construction

13. Environmental statistics 2019, page 69-74

14. Ohrid and Struga.

15. Kratovo, Lozovo, Resen, Gradsko, Makedonski Brod, Dojran.

16. Kumanovo and Berovo.

17. Strumica, Kichevo, Prilep, Gevgelija and Radovish, Ibid. page 53. There is no treatment in the municipalities of Gostivar, Vinica, Krushevo and Debrca. Final Performance Audit Report "Effectiveness of the policies, measures and activities in granting water rights, 02 218 03 65 State Audit Office, Skopje, February 2019, p.53

18. Final Performance Audit Report "Effectiveness of the policies, measures and activities in granting water rights, 02 218 03 65 State Audit Office, Skopje, February 2019, p.7, available at https://dzr.mk/Uploads/65_RU_Dodeluvanje_vodno_pravo_2019_KOMPLET_REDUCE.pdf

19. Law on Waters (2008), Article 78 (2): The state administration body responsible for performing activities in the area of environment shall be required to ensure that the permit has been issued in accordance with the existing criteria for water quality and with the environmental objectives, determined by this Law and other regulation.

20. Ibid. Article 113 and Article 114

21. Ibid. Article 115, 116 and 117

and maintenance of facilities for protection of waters from pollution. More than half do not pay, or pay partially, this fee for water use[22].

The transitional and final provisions of the Law[23] include a period of one year for obtaining a discharge permit. The Ministry of Environment and Physical Planning (MoEPP) does not have records and precise data on the number of discharge requests and permits issued. From a total of 138 applications for water rights permits that have been received, 46 percent were positively resolved, 17 percent were rejected and the remaining 36 percent were unresolved. From a total of 36 public enterprises that do collection, drainage and/ or wastewater treatment, only 4 are license holders, but the data on the permits/ resolutions are not published on the website of the MoEPP. The municipalities that have new treatment plants that have been put into use by 2018 do not have a permit[24].
As it is obvious, such illegal discharges without a permit are contrary to the Law on Waters and the Law on Environment. The Law on Waters explicitly bans in several provisions a direct discharge into groundwater, as well as discharge into surface waters. In the latter case, discharge is possible by exception, only on the basis of permit and fulfillment of the criteria.[25]

Local rural systems for water supply and water safety

Ten percent of the population in the country is supplied with drinking water and other household needs through local, rural water supply systems, managed by the local communities, and an additional 11 percent have their own, individual water supply. The smaller water supply systems built in the suburbs are mostly built by the residents themselves through financial self-contribution or in combination with donations and they are still in function for water supply to the local population. The water supply through such systems varies both in terms of quality and quantity of water. The local communities i.e. the urban communities in the country do not have the status of legal entities so they manage the water supply system in an informal way. The sanitary-hygienic inspections of the health safety of the drinking water carried out on those water supply systems show that 27 percent of the samples were bad in terms of physical and chemical parameters for water

22. Final Performance Audit Report "Effectiveness of the policies, measures and activities in granting water rights (2019), page 7

23. Ibid. Article 254

24. Final Performance Audit Report "Effectiveness of the policies, measures and activities in granting water rights (2019), page 7

25. Ibid. Article 6, Paragraph (4) "Any discharge of waste waters, materials and substances into the waters shall be prohibited, except under the conditions, in the manner and in the procedure determined by this Law"; Article 14 (3) "Any user of surface waters or groundwaters shall be obliged not to cause adverse effects on waters and on other environmental media and areas when discharging the used waters"; Article 23 (1) For the purpose of achieving the public interest in water use, as well as for the purpose of exercising the rights and obligations of the legal entities and natural persons to use or discharge waters, the right of water use from bodies of waters and the right to discharge into the bodies of waters, the water right shall be granted to the legal entities and natural persons (hereinafter: water right) under the conditions and in the manner determined by this Law; Article 77 (1) Any action or activity that pollutes the waters or discharges waste waters or any failure to act that enables pollution of waters or discharges waste waters shall be forbidden; Article 78 (1) Any discharge into waters, waterside land and water habitats shall be made on the basis of a permit in accordance with the criteria for water quality and the environmental objectives determined by this Law and another regulation; Article 79 (1) The legal entities and natural persons, including the state administrative bodies, municipalities, municipalities in the city of Skopje and the City of Skopje, may discharge waste waters or discharge or throw materials and substances in the recipients only upon previously obtained permit for discharge into waters (hereinafter: discharge permit) under the conditions and in the manner determined by this Law; Article 110 (1) Discharging effluent from industrial and agricultural

safety, and 28.6 percent were bad in terms of microbiological parameters[26]. The Law on Drinking Water Supply and Urban Wastewater Drainage[27] provides for transfer of these systems towards the public enterprises, which is done on contract basis[28]. These water supply systems are built with funds of the citizens, from domestic and foreign donors or other users, so there is resistance among the local population to transfer those systems to the utility companies. At the same time, the public utility enterprises show no interest in taking over the systems of due to their obsolescence and high costs for maintenance, reconstruction and water supply.

According to the Law on Waters, every supply of drinking water to more than five households i.e. to more than 20 inhabitants, the water supply from own facilities of enterprises and other legal entities that produce and/ or trade in food and beverages and supply of public facilities (educational institutions, health institutions, legal entities in the area of tourism and hospitality, transport, etc.) is considered a public water supply. The Law stipulates that both legal entities and individuals who draw/ capture water for public water supply must obtain a permit for water use (pumping/ catchment). Additionally, there is an obligation for health safety and meeting of the minimum parameters and standards for water safety in terms of microbiological parameters, physical and chemical parameters, radiological parameters and biological indicators (phyto and zooplankton) for water supply from surface and groundwater from specific wells. The Law is decisive that these activities and services of public interest will be performed by legal entities established by the Government of the Republic of Macedonia or by decision of the municipal council, the municipalities in the City of Skopje i.e. the Council of the City of Skopje, in accordance with their competencies determined by this or another law, in a manner and in a procedure determined by law. Thereby, the activities and services can be also performed by other legal entities, in a manner and in a procedure determined by law, referring to the Law on Concessions and Public-Private Partnership, which regulates the manner in which the private persons can undertake the obligation to provide public service for end users in areas of competence of the state/ local self-government units (LSGUs). Similar provisions are included in the Law on Communal Activity (construction of water supply system, treatment and supply of drinking water, which means capture, treatment and distribution of water through the water supply system – are all considered communal activity[29]). The communal activity, as an activity of public interest, is in the competence of the state and

fluid waste and urban waste waters, as well as waste oils (hereinafter: waste waters) into sewage or drainage system, in bodies of surface waters or groundwaters, as well as in waterside lands and water habitats shall be forbidden except on the basis of the permit referred to in Article 79 of this Law; Article 111 (1) For the purpose of protecting the groundwaters, any direct discharge of priority materials and substances and polluting materials and substances in the groundwaters determined in accordance with Paragraph (8) of this Article shall be forbidden.

26. Final Performance Audit Report "Effectiveness of the policies, measures and activities in granting water rights" (2019), page 9

27. Law on Drinking Water Supply and Urban Wastewater Drainage (Official Gazette of the Republic of Macedonia No. 68/ 04, 28/06, 103/08, 17/11, 54/11, 163/13, 10/15, 147/ 15, 31/16);

28. Article 32 of the Law on Water Supply and Drainage and Treatment of Wastewaters

29. Law on Communal Activities (Official Gazette of the Republic of Macedonia No. 95/12, 16/13, 42/14, 44/15 and 147/15)

the LSGUs and legal entities that are established by them. Other legal entities can perform this activity only if they are registered to perform the respective communal activity and have a license to perform the communal activity in accordance with the law. The communal activity is performed in accordance with the special law and the communal order of the municipality, and the communal structure facilities, in accordance with the law, are established as goods of public interest. Furthermore, the Law on Water Supply and Sewerage and Wastewater Treatment treats as activities of public interest the following: drinking water supply and urban wastewater disposal, and the activities are performed through a water supply system i.e. sewerage system which must be managed by a service provider. The service provider can be exclusively a public enterprise established by the municipality, the City of Skopje, the Government of the Republic of N. Macedonia or a legal entity that meets the requirements for performing the activity prescribed by law and in which the municipality, the City of Skopje or the state have dominant equity.

Abuse of licenses for extraction of sand, gravel and stone and lack of measures for protection against illegal excavation

The extraction of sand, gravel and stone from the riverbeds and banks of watercourses is a measure used for arranging and maintaining surface waters[30]. In terms of extraction of sand, gravel and stone from the riverbeds and banks of watercourses, lakes and reservoirs, done in order to improve the water regime, it is the water management enterprises who are responsible for this activity in their respective area, and the local self-government units are in charge in areas where such enterprises are not established. There is a general ban in the Law on Waters for extraction of gravel, sand and stone from the basins and banks of surface water bodies (watercourses and lakes and reservoirs), which worsens the existing water regime, causes erosion processes and limits or prevents the water use. Such ban is a measure for protection and maintenance of natural and regulated riverbeds and banks of watercourses, lakes and reservoirs. The prohibition of extraction of soil, sand, gravel and stone is also a measure to protect the erosive areas[31]. However, as an exception, extraction is possible as a measure of landscaping on the basis of a permit or in accordance with the terms of that permit. The permit is issued by the Ministry of Environment and Physical Planning. The permit determines the location, quantity, manner, time, objects and means for extraction, loading and transport of sand, gravel and stone, and this is recorded in the main ledger book. Until 2017, a total of 66

30. Article 142 of the Law on Waters

31. Article 131 and Article 136

permits/water management consents were issued in the Vardar river basin, which covers more than 80 percent of the total water resources available in Macedonia.

The regulation and maintenance of the surface water with extraction of sand, gravel and stone is logical only if the entity in charge of regulation in accordance with the law has initially adopted a program for protection against harmful effects on the waters and operational plan for protection and defense against floods. With these documents, the entity in charge of arranging the watercourses and banks of the surface waters should determine the erosive areas, the areas that are endangered by erosion and their boundaries. Furthermore, the program and the operational plan should determine extraction of sand, gravel and stone from surface waters as measures for protection from harmful effects, from erosion and regulation of torrents. These legal requirements are not met, so the issuance of permits is not in accordance with the law and this leads to conclusion that the locations where sand, gravel and stone should be extracted from surface waters are not planned nor intended to achieve the objectives of regulation and maintenance of the riverbeds.

Hence, the activities for extraction of sand, gravel and stone do not provide protection and improvement of the waters regime. Most of the extracted material is used for sale, while a minimal part of it is used for arranging the riverbeds[32]. Thereby, no measures for protection against illegal excavation have been established. This leads to destruction of the riverbeds (especially on the Vardar river and its tributaries, in the area of Zhelino near Tetovo, the village of Sirichino; on Crna Reka river (Rosoman, villages of Manastirec, Trstenik, Sirkovo); on the Bregalnica river in Karbinci, Shtip). Such illegal exploitation supports the erosive processes and leads to floods, thus endangering the health and property of the population.

32. The statement is explicitly included in the Final Performance Audit Report "Effectiveness of policies, measures and activities in the exploitation of gravel and sand from the Vardar River Basin", 02 2018 00 02 State Audit Office, Skopje, February 2019, available online https://dzr.mk/Uploads/64_RU_Eksploatacija_chakal_pesok_od_vardarskiot_recen_sliv_2019_KOMPLET_REDUCE.pdf


3.

Alternative Solutions for the Public Policy – Sustainable Water Management Program in the Republic of North Macedonia

Measure 1:
Revision of the National Water Strategy (2011 – 2041)

Measure 2:
Establishment of operational monitoring of river basin areas

Measure 3:
Setting environmental objectives and adopting a program of measures required for achieving of the objectives

Measure 4:
Adoption of river basin management plans

Measure 5:
Adoption of bylaws

Measure 6:
Adoption of a program for water supply program of the population using a public water supply system

Measure 7:
Creating a cadastre of water users and water polluters, recording of entities that use/ discharge into water without permission and sanctioning thereof

Measure 8:
Legalization of the water supply carried out through local, rural water supply systems

Measure 9:
Revision of the Law on Waters and bylaws in the area of issuing permits/consents for extraction of sand, gravel and stone from riverbeds and banks of surface waters

Measure 1:
Revision of the National Water Strategy (2011 – 2041)

Measure description:	The National Water Strategy should determine the long term policy for integrated water management and sustainable development by meeting the needs of all users in terms of quality water and in sufficient quantities, rational and economical use of water, protection of water from pollution and pollution control, protection and improvement of coastal land and water habitats and protection and mitigation of the consequences from the harmful effects on water and from water scarcity. The Strategy should provide technical and economic solutions for rational use of water, protection of water from pollution and protection from harmful effects of waters, as well as a time frame for their implementation.
Key findings (current situation indicators):	There is no clear basis for future water needs, for technical and economic solutions for rational use of the waters, protection of water from pollution and protection from harmful effects on water in accordance with the principles of sustainable development, as well as long term environmental goals and program of measures for their realization; The Spatial Plan fails to consider the water resources sustainable development objectives.
Expected outcomes (outcome indicators/ expected result)	Determining long term environmental goals and a program with measures for their implementation.

Quantitative:	/	
Qualitative:	Determining long term environmental goals and a program with measures for their implementation.	
Institutions directly in charge:	Ministry of Environment and Physical Planning, Macedonian Government, Macedonian Parliament	
Timeframe:	2020 – 2022	
Indicative budget:	1. Expert work:	53.100 euros
	2. Promotion of the Strategy/public awareness raising campaign:	45.000 euros
	Total:	**98.100 euros**
Territorial impact:	Republic of North Macedonia nationwide	

Measure 2:
Establishment of operational monitoring of river basin areas

Measure description:	Preparation of a program for monitoring of surface and groundwater bodies and establishment of operational monitoring.
Key findings (current situation indicators):	The monitoring is carried out by the National Hydro Meteorological Service (UHMR) in terms of quality and quantity of water within the hydrological monitoring network, but in accordance with the Law on Hydrometeorological Service, meaning that not all quality parameters are measured in accordance with Law on Waters, there is no continuous operational monitoring of priority substances; the Hydrobiological Institute/ Faculty of Natural Sciences and Mathematics do monitoring on a project basis, the Institute of Public Health monitors the drinking and bathing waters.
Expected outcomes (outcome indicators/ expected result)	Identification and showing of the significant pressures and impacts on the state of surface and groundwater caused by the human activities; information and cartographic representations of the zones registered for protection; information and cartographic representation of the water condition monitoring activities and the monitoring programs; list of environmental objectives for each body of water in the river basin, including information on deviations, marking of artificial and strongly altered surface waters.
Quantitative:	Adoption and operation of 4 monitoring programs for each river basin area.
Qualitative:	Determining the quality of all waters on the territory of the country. Establishing a basis for determining the environmental objectives for each water body by typology.
Institutions directly in charge:	Ministry of Environment and Physical Planning; National Hydro Meteorological Service; HBZ; Institute for Public Health, Macedonian Government
Timeframe:	2020 – 2021

Indicative budget:	1. Expert work:	106.200 euros
	2. On-site costs for examining the water quality:	3.667 euros
	Total:	**109.867 euros**
	* Establishment of operational monitoring in river basin areas by: 1. Preparation of a program for monitoring of water bodies, both surface and underground; and 2. Introduction of operational monitoring; 3. There will be additional financial implications for laboratories and equipment that would have to be calculated depending on the needs identified in the programs.	
Territorial impact:	Republic of N Macedonia nationwide	

Measure 3:
Setting environmental objectives and adopting a program of measures required for achieving of the objectives

Measure description:	The environmental status is determined in accordance with the biological, hydromorphological and physical and chemical qualitative elements. The reference point are the biological parameters of the waters that have suffered minimal human impact. Accordingly, the environmental status can be high, good, medium, low or bad, depending on how much impact people have had on the water quality. Good chemical situation, on the other hand, is achieved when there are no concentrations of pollutants in a specific water body, which would exceed the quality standards for the environment. The good chemical status is achieved by progressively reducing the pollution of the water bodies, especially from hazardous substances. Furthermore, the groundwater management should ensure that good quantitative and chemical status is achieved. Different standards apply to groundwaters. Good quantitative status is achieved when the extraction of groundwaters is less than the natural recharge and when there is sufficient water for groundwater-dependent surface ecosystems. Good chemical status, on the other hand, is achieved when the existing limit values are met, so their content does not have a significant negative impact. The global objective is to have a plan - which is, in fact, an action plan and an overview of the desired water qualities and the distribution of water for use. The plan also explains how to achieve and manage these objectives. The administration and the public should be also given opportunity to consult these plans and thus be informed about the objectives of the plan and of the means for achievement of those objectives.
Key findings (current situation indicators):	No environmental targets for the water bodies have been set. There is no program of measures for achievement of the objectives.
Expected outcomes (outcome indicators/ expected result):	Determination of the water bodies. Setting of environmental objectives and adoption of a program of measures for achievement of the objectives for all waters/water bodies.
Quantitative:	Setting of environmental objectives and adoption of a program of measures for achievement of the objectives for all waters in each of the four river basin areas. Achieving or preserving a «good status» for all waters i.e. ground and surface waters.

Qualitative:	Setting water quality objectives for each specific water body within the respective river basin. Achieving good environmental status of the water bodies and aquatic ecosystems, and of the water-dependent ecosystems; and good chemical status and good environmental potential of the water present in artificial lakes and water bodies who have been significantly changed. Any use of the waters and discharge into waters, coastal land and water habitats is done on the basis of a permit in accordance with the criteria for water quality and environmental objectives.	
Institutions directly in charge:	Ministry of Environment and Physical Planning, Macedonian Government	
Timeframe:	2021 – 2022	
Indicative budget:	1. Expert work:	26.550 euros
	Total:	**26.550 euros**
Territorial impact:	Republic of N Macedonia nationwide	

Measure 4:
Adoption of river basin management plans

Measure description:	Adoption of river basin management plans (PURS). The law prescribes four river basin areas which, according to the entire hydrographic unit, can be qualified as international in character, as follows: 1. The Vardar river basin; 2. The Strumica river basin; 3. The Crn Drim river basin and 4. South Morava river basin.
Key findings (current situation indicators):	The PURS are prepared with international assistance. River Basin Management Plans that have been prepared in full so far but not yet adopted are the following: Strumica river basin management plan; Plan for managing one part of the Vardar river basin, Bregalnica sub-basin; Plan for managing one part of the Crn Drim river basin, Prespa Lake sub-basin and Ohrid Lake sub-basin.
Expected outcomes (outcome indicators/ expected result):	Adopt a management plan for each river basin area. The document should include a description of the characteristics of the river basin; identification and showing of significant pressures and impacts on the status of surface and groundwaters caused by human activities; information and cartographic representation of the zones registered for protection; information and cartographic representation of the water condition monitoring activities and the monitoring programs; list of environmental objectives for each water body in the river basin, including information on deviations, marking of artificial and strongly altered surface waters. The information includes the measures that have been planned and undertaken for improving the water quality and achieving the environmental objectives; economic analysis of the water use, including a report on the application of the <user pays> principle; program of measures aimed at achieving the environmental objectives; more detailed plans for programs for managing the river basins and sub-basins; program for protection from harmful effects on the water and basic measures for flood protection; a description of the activities and results of the public participation in the preparation of the plan; list of bodies and institutions responsible for the waters in the river basin; how the information and documents related to preparation and implementation of the plan are available to the public; fulfillment of the obligations undertaken with international agreements related to water management ratified by the Republic of N Macedonia.
Quantitative:	Adoption of four plans, as follows: 1. The Vardar river basin; 2. The Strumica river basin; 3. The Crn Drim river basin and 4. South Morava river basin.

Qualitative:	Setting water quality objectives for each specific water body within the respective river basin. Achieving or maintaining «good status» of all waters i.e. groundwaters and surface waters. Achieving good environmental status of the water bodies and aquatic ecosystems, and of the water-dependent ecosystems; and good chemical status and good environmental potential of the water present in artificial lakes and water bodies who have been significantly changed. Any use of the waters and discharge into waters, coastal land and water habitats is done on the basis of a permit in accordance with the criteria for water quality and environmental objectives.	
Institutions directly in charge:	Ministry of Environment and Physical Planning, Macedonian Government	
Timeframe:	2021 – 2022	
Indicative budget:	1. Expert work:	141.600 euros
	2. Organizing 4 public debatesfor involvement of the expert publicin the development of the plan:	20.000 euros
	Total:	**161.600 euros**
Territorial impact:	Republic of N Macedonia nationwide	

Measure 5:
Adoption of bylaws

Measure description:	Adoption of the bylaws that are legally prescribed by the Law on Waters	
Key findings (current situation indicators):	From a total of 106 legal grounds in the Law on Waters that are basis for adoption of the bylaws which should ensure implementation of the Law and also ensure achievement of its objectives, 52 bylaws have not been adopted. Most of them refer to the environmental objectives and the emission limit values for surface and groundwater, to protection zones, the permissible deviations, the protection against harmful effects on the waters, water monitoring and information system, as well as the manner of keeping records and the method of calculating the unit of harmfulness for the fees. Thus, the rights and obligations provided by the Law on Waters cannot be properly implemented.	
Expected outcomes (outcome indicators/ expected result):	Implementation of the Law on Waters in terms of water protection: environmental objectives and emission limit values for surface and groundwaters, protection zones, allowed deviations, protection from harmful effects of waters, water monitoring, information system, keeping records and method of calculating the harmfulness unit of the fees.	
Quantitative:	Bylaws are adopted for 52 legal grounds from the Law on Waters.	
Qualitative:	Meeting the objectives of the Law.	
Institutions directly in charge:	Ministry of Environment and Physical Planning, Macedonian Government	
Timeframe:	2020 - 2021	
Indicative budget:	1. Expert work:	47.700 euros
	Total:	**47.700 euros**
Territorial impact:	Republic of N Macedonia nationwide	

Measure 6:
Adoption of a program for water supply program of the population using a public water supply system

Measure description:	Implementation of the measures necessary to develop and maintain an efficient and economical system for drinking water supply in sufficient quantities and according to the requirements to all legal users.	
Key findings (current situation indicators):	11.1% of the total number of households do not have access to drinking water. At national level, there are significant differences in the existing coverage with water supply services per regions. The highest coverage with regular management and monitoring - centralized supply was registered in the Skopje Region (about 91%), while the lowest coverage was registered in the Polog, Northeast and Southwest Region (66 to 75%).	
Expected outcomes (outcome indicators/ expected result):	Supply of drinking water from public water supply to all households on the territory of the country.	
Quantitative:	Number of households supplied by a public water supply system.	
Qualitative:	Enjoying the human right to water is essential for living a life with human dignity. Most households in sparsely populated rural areas are supplied with drinking water from public water supply. Safe and healthy drinking water and meeting the household needs in sufficient quantities.	
Institutions directly in charge:	Local self-government	
Timeframe:	2021 – 2023	
Indicative budget:	1. Expert work:	53.100 euros
	2. Public debate on the program:	10.000 euros
	3. Methodology for development of municipal programs:	21.150 euros
	4. Preparation of municipal water supply programs:	38.500 euros
	Total:	**122.750 euros**
Territorial impact:	Republic of N Macedonia nationwide	

Measure 7:
Creating a cadaster of water users and water polluters, recording of entities that use/discharge into water without permission and sanctioning thereof

Measure description:	Creating a cadaster of water users and water polluters, recording of entities that use/ discharge into water without permission and sanctioning.
Key findings (current situation indicators):	The discharge of wastewaters in Macedonia originating from industry and mining, on which no treatment has been performed after their use, is done into a specific recipient. Recipients of wastewater are the following: soil, sewerage, watercourses, reservoirs and lakes. 0.3 percent of the total untreated waste waters that were discharged in 2017 were actually discharged into sewers and 99.7 percent were discharged into watercourses. The public communal enterprises discharge untreated communal waste waters into the recipients. The percentage of permits issued for use of waters for specific purpose is low, and the same goes for the percentage of permits issued for discharging into recipients.
Expected outcomes (outcome indicators/ expected result):	Each use of the water is done on the basis of a permit and in accordance with the intended purpose and requirements established in the permit. Each discharge in the water is done on the basis of a permit and in accordance with the intended purpose and requirements established in the permit. Each discharge meets the criteria (emission limit values for the parameters as well as the targets for each water body). Holders of the use/ discharge permit pay a fee for use/ discharge in water in accordance with the law. The funds collected in the budget of the country are used for the intended purpose established by law.
Quantitative:	Number of water use permits that have been issued. Number of permits for discharge into waters that have been issued.
Qualitative:	Implementation of River Basin Management Plans. Achieving environmental objectives for every water body/ coastal habitat/ protected zone. Reduction of pollutant emissions in the waters.

Institutions directly in charge:	Ministry of Environment and Physical Planning, State Environmental Inspectorate – water management inspector	
Timeframe:	2021 – 2022	
Indicative budget:	1. Engaging company/ ies for collecting data on water polluters and development of software solution for cadaster of polluters:	350.000 euros
	2. Expert work:	6.750 euros
	3. Software maintenance (annual):	60.000 euros
	4. Public promotion of the cadaster of polluters:	5.000 euros
	Total:	**381.750 euros**
Territorial impact:	Republic of N Macedonia nationwide	

Measure 8:
Legalization of the water supply carried out through local, rural water supply systems

Measure description:	Legalization of the water supply carried out through local, rural water supply systems and ensuring safety of the water supplied through such systems.	
Key findings (current situation indicators):	Ten percent of the population in the country is supplied with drinking water and other household needs through local, rural water supply systems, managed by the local communities, and an additional 11 percent have their own, individual water supply. The smaller water supply systems built in the suburbs are mostly built by the residents themselves through financial self-contribution or in combination with donations and they are still in function for water supply to the local population. The water supply through such systems varies both in terms of quality and quantity of water. The local communities i.e. the urban communities in the country do not have the status of legal entities so they manage the water supply system in an informal way. The sanitary-hygienic inspections of the health safety of the drinking water performed on those water supply systems show that 27 percent of the samples were bad in terms of physical and chemical parameters for water safety, and 28.6 percent were bad in terms of microbiological parameters.	
Expected outcomes (outcome indicators/ expected result):	Providing safe drinking water that is supplied through the informal, local, rural water supply systems. Obtaining necessary permits for water use through a public service provider, as determined by the existing legislation. Ensuring regular monitoring of drinking water quality in the informal water supply systems.	
Quantitative:	Number of informal systems whose ownership/ operational management has been transferred to a service provider in accordance with a law.	
Qualitative:	Ensuring safety of the water supplied through such systems.	
Institutions directly in charge:	Local self-government, Macedonian Government	
Timeframe:	2021 – 2022	
Indicative Budget:	1. Engaging data collection company:	60.000 euros
	2. Expert work:	35.400 euros
	Total:	**95.400 euros**
Territorial impact:	Republic of N Macedonia nationwide	

Measure 9:
Revision of the Law on Waters and bylaws in the area of issuing permits/ consents for extraction of sand, gravel and stone from riverbeds and banks of surface waters

Measure description:	Changes and amendments of the Law on Waters, adoption of bylaws.
Key findings (current situation indicators):	There are weaknesses in the legislation and bylaws pertaining to maintenance and regulation of surface waters, which leads to illegal excavation of materials. The issuance of permits is not in accordance with the law and leads to conclusion that the locations where sand, gravel and stone are extracted from the surface waters are not planned and are not aimed at regulation and maintenance of the riverbeds. The activities for extraction of sand, gravel and stone do not provide protection and improvement of the water regime. Most of the extracted material is used for sale, while a minimal part of it is used for arranging the riverbeds. Thereby, no measures for protection against illegal excavation have been established.
Expected outcomes (outcome indicators/ expected result):	Effectiveness of the policy for landscaping and maintaining the riverbeds and banks of the surface waters. Creating basic conditions for precise planning of the need for landscaping and arranging of riverbeds and banks of the surface waters. Extraction of the material as a measure for regulation of riverbeds and banks and sanctioning of extraction of material for commercial purposes. Identification of entities that can do regulation, introduction of record keeping for issued permits/consents for extraction of sand, gravel and stone, regulation of the manner of sale of the excess extracted material and ensuring competitiveness and transparency of the process. Strengthening of the professional and inspection supervision.
Quantitative:	Number of permits/consents issued
Qualitative:	Effectiveness of the policy for arranging and maintaining the riverbeds and banks of the surface waters.

Institutions directly in charge:	Ministry of Environment and Physical Planning; Macedonian Government.	
Timeframe:	**2021 –2022**	
Indicative budget:	1. Expert work:	42.300 euros
	Total:	**42.300 euros**
Teritorial impact:	Republic of N Macedonia nationwide	

Total financial implications	**1.086.017 euros**
1. Expert work:	512.700 euros
2. Various on-site costs:	63.667 euros
3. Preparation of methodologies and programs:	59.650 euros
4. Engaging company/ies for collecting data on water polluters and development of software solution for cadaster of polluters:	370.000 euros
5. Promotion of strategies, public debates and public awareness raising campaigns:	80.000 euros

Gender sensitive financial implications

The costs under items 1 and 3 are gender sensitive. If we assume that the engagement of local and international experts and the actual preparation of methodologies and programs will take care of at least 40 percent representation of each gender, in that case the gender sensitive fiscal implications are 572,350 euros, of which at least 228,940 euros should be costs for each gender.

For more detailed calculation, please refer to Annex 1: Calculation of detailed financial implications with elaboration per specific measures 1-9.


4.

Conclusions and recommendations

The provisions of the water legislation are in line with the European best practices and set clear and concise obligations for water protection and define the mechanisms available for protection of the water as an environmental medium. Despite the fact that the need for further harmonization of the legislation is properly recognized, the main issue in the area of waters is the non-implementation of the legal obligations by several state administration bodies. In that sense, the intervention measures proposed are aimed at creating conditions for implementation of the legal provisions, which will enable integrated water management at national level.

Measure	Synthesis of the main findings	Recommendations	Key policy makers	Other stakeholders	Indicative budget:
Measure 1	No clear strategic basis for sustainable water management.	Revision of the National Water Strategy.	Ministry of Environment and Physical Planning, The Government, The Parliament	MH, MAFWE MTC, MoLS, LSGU, Water users, NGO	98.100
Measure 2	No exact data on the waters status from accredited laboratory.	Preparation of a program for monitoring of the water bodies, both surface and ground and establishing operational monitoring.	Ministry of Environment and Physical Planning, The Government, LSGU	Institute for Public Health, AFV, UHMR, HBZ, PMF	109.867
Measure 3	No environmental objectives are set for the water bodies. No program of measures for achieving the objectives.	Determination of the water bodies. Setting environmental objectives and adoption of program of measures for achieving the objectives for all waters/ water bodies for each river basin area.	Ministry of Environment and Physical Planning, The Government	River Basin Management Council	26.550
Measure 4	No planning document in place which is the basis for issuing permits.	Adoption of plans for managing the four basins nationwide.	Ministry of Environment and Physical Planning, The Government	River Basin Management Council	161.600
Measure 5	No acts in place which are prerequisite for implementation of the law.	Adoption of bylaws.	Ministry of Environment and Physical Planning, The Government	MH, MAFWE MTC, MoLS, LSGU, River Basin Management Council	47.700
Measure 6	Development and maintaining of efficient and economical water supply system with health-safe drinking water in sufficient quantities.	Adoption of program for water supply of the population with a public water supply system.	Ministry of Environment and Physical Planning, The Government, The Parliament	MH, MAFWE MTC, MoLS, LSGU, River Basin Management Council	122.750
Measure 7	No records regarding pressures on the water bodies. Tolerance for illegal discharges/ use, the fees are for the LSGUs that treat the water	Cadaster of water users and polluters, registration of entities that use water/ discharge into water without permit and their sanctioning.	Ministry of Environment and Physical Planning, The Government	MH, MAFWE MTC, MoLS, LSGU, River Basin Management Council	381.750
Measure 8	Unsafe drinking water supplied through informal, local, rural water supply systems. No permits for water use. Providing water supply through a legal public service provider. Lack of regular monitoring of the drinking water quality in the informal water supply systems.	Legalization of the water supply delivered through local, rural water supply systems and ensuring safety of the water supplied through such systems.	Ministry of Environment and Physical Planning, The Government, MH, MTC	MoLS, LSGU, PCE	95.400
Measure 9	Inadequate maintenance and regulation of surface waters. Illegal excavation of materials..	Changes and amendments to the Law on Waters, adoption of the bylaws.	Ministry of Environment and Physical Planning, The Government, The Parliament	"Vodostopanstvo" joint stock company, LSGU, SEI	42.300
Total:					**1.086.017**

Abbreviations:

AFV	Food and Veterinary Agency
SEI	State Environmental Inspectorate
LSGU	Local self-government units
PCE	Public communal enterprises
MoEPP	Ministry of Environment and Physical Planning
MH	Ministry of Health
MAFWE	Ministry of Agriculture, Forestry and Water Economy
MoLS	Ministry of Local Self-government
MTC	Ministry of Transport and Communications

Annexes

Annex 1: Calculation of detailed financial implications with elaboration per specific measures 1-9.

MEASURE 1: Revision of the National Water Strategy 2011 – 2041				
	Number	Engagement in days*	Average per diem in euros	Total estimated funds needed in euros
local expert	2	90	120	21,600
international expert	1	90	350	31,500
**promotion of the strategy/ campaign for public awareness raising on water protection				45,000
				98,100

Additional explanation of the calculation:

- one team of international consultant and two local experts
- *they will work 3 months
- we do not calculate the salaries of the employees in the institutions as additional cost since they are already provided in the budget
- **the estimate promotional costs would include: preparation and printing of promotional material, organizing one-day conference for debate on the topic, conference hall rental costs, catering, sound equipment, etc.

MEASURE 2: Establishment of operational monitoring for the river basin areas				
	Number	Engagement in days*	Average per diem in euros	Total estimated funds needed in euros
local expert	4	90	120	43,200
international expert	2	90	350	63,000
on-site costs for examining water quality				3,667
				109,867

Additional explanation of the calculation:

- four plans will be developed by two teams consisted of 2 local and one international expert
- *time needed for engagement: 1.5 months per plan
- we do not calculate the salaries of the employees in the institutions as additional cost since they are already provided in the budget
- on-site costs and costs related to examination of water samples (microbiological, chemical and heavy metals): 10 locations from each river basin, average distance of 125 km in one direction, average fuel consumption is 7 liters per 100 km and one laboratory examination costs 20 euros

MEASURE 3: Setting environmental objectives and adopting a program of measures for achievement of those objectives				
	Number	Engagement in days*	Average per diem in euros	Total estimated funds needed in euros
local expert	2	45	120	10,800
international expert	1	45	350	15,750
				26,550

Additional explanation of the calculation:

- * time needed for engagement: 1.5 month
- we do not calculate the salaries of the employees in the institutions as additional cost since they are already provided in the budget

MEASURE 4: Adoption of river basin management plans				
	Number	Engagement in days*	Average per diem in euros	Total estimated funds needed in euros
local expert	8	60	120	57,600
international expert	4	60	350	84,000
Organizing 4 public debates for involvement of the expert public in the preparation of the plan	4			20,000
				161,600

Additional explanation of the calculation:

- four teams, each with 2 local experts and 1 international expert
- *time needed: 2 months for each plan
- we do not calculate the salaries of the employees in the institutions as additional cost since they are already provided in the budget
- the estimated costs for public debates are about rent of space and other supplies for organizing the debate. One public debate is planned for each plan and for each river basin

MEASURE 5: Adoption of river basin management plans				
	Number	Engagement in days*	Average per diem in euros	Total estimated funds needed in euros
local expert	3	45	120	16,200
international expert	2	45	350	31,500
				47,700

Additional explanation of the calculation:

- two international experts and three local experts would work together with the institutions staff on preparation of the bylaws
- *time needed: 1.5 month

MEASURE 6: Adoption of a program for water supply of the population with a public water supply system				
	Number	Engagement in days*	Average per diem in euros	Total estimated funds needed in euros
local expert	2	90	120	21,600
international expert	1	90	350	31,500
Public debate in the preparation of the program				10,000
Local expert for Methodology for preparation of municipal programs	1	45	120	5,400
International expert for Methodology for preparation of municipal programs	1	45	350	15,750
Preparation of municipal water supply programs				38,500
				122,750

Additional explanation of the calculation:

- one team of international consultant and two local experts for preparation of the Program
- one team of local and international expert for preparation of Methodology for development of municipal programs
- *time needed: 3 months work for the program and 1.5 month for the Methodology
- we do not calculate the salaries of the employees in the institutions as additional cost since they are already provided in the budget
- one or two public debates during the preparation of the program and potential printing of fliers after the adoption of the program
- the costs for preparation of the municipal program pertain to all municipalities in Macedonia i.e. they include eventual minimum material costs because it is foreseen that the municipalities will develop the municipal programs following an established methodology

MEASURE 7: Creating a cadaster of water users and polluters, making records of entities that use water/ discharge into water without permission and their sanctioning

	Number	Engagement in days*	Average per diem in euros	Total estimated funds needed in euros
Local company for collecting data on water polluters	1	270		150,000
Local company for development of software solution for Cadaster of polluters	1	180		200,000
local expert	1	45	150	6,750
Software maintenance				20,000
Public promotion of the Cadaster of polluters				5,000
				381,750

Additional explanation of the calculation:

- the local company should do administrative and on-site collection of data for all water polluters in RN Macedonia in order to create a database
- the local company should design and develop the software application for Cadaster of polluters and ensure the linkage with other relevant software solutions
- *timeframe for engagement of the companies and the expert
- one local consultant to develop the business processes as procedures, who is in charge of submitting data to the Cadaster, in what format, privileges and software access, etc.
- we do not calculate the salaries of the employees in the institutions as additional cost since they are already provided in the budget
- public presentation of the software application and benefits from the Cadaster of polluters
- the maintenance costs are on annual level and they are recurring cost of the institution

MEASURE 8: Legalization of the water supply carried out through local, rural water supply systems				
	Number	Engagement in days*	Average per diem in euros	Total estimated funds needed in euros
local company for data collection	1	365		60,000
local expert	2	60	120	14,400
international expert	1	60	350	21,000
				95,400

Additional explanation of the calculation:

- a local company that will make an inventory of all local, rural water supply systems that should be subject to legalization with all their characteristics (number of inhabitants, length in meters, manner of construction of the water supply system, etc.)
- a team of two local and one international expert for preparation of draft solutions for legalization of the local rural water supply systems, in accordance with the analysis of the data collected

MEASURE 9: Revision of the Law on Waters and bylaws in the part concerning the issuing of permits/ consents for extraction of sand, gravel and stone from riverbeds and banks of surface waters				
	Number	Engagement in days*	Average per diem in euros	Total estimated funds needed in euros
local expert	1	90	120	10,800
international expert	1	90	350	31,500
				42,300

Additional explanation of the calculation:

- The local and the international expert would support the employees in the institutions, from the aspect of comparative analysis of this issue with other countries and harmonization with the existing relevant regulations in RN Macedonia.
- *time needed for engagement
- the salaries of the employees with regards to changes in the legislation are already an existing cost in the budget

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