THE INTERACTION OF WATER AND SOIL IN INTERNATIONAL LAW

The purpose of this scoping is to examine the extent to which international law reflects on the water and soil nexus with special attention to few most relevant issues like pollution, floods, land uses impacting water resources as well as climate change impact on water and soil. Many others, though water and soil are not necessary a primary subject of their regulation, they support the objectives of protection and suitable development of water and soil.

The extent to which international law regulates the nexus between soil and water will be assessed in respect to four key issues: 1) scope of treaties defining as geographical and functional application of a treaty, which identifies resource in question like watercourse, groundwater, wetland, soil, land, catchment; 2) substantive norms reflecting right and obligations pertaining to management of the relevant resources; 3) procedural norms offering implementation mechanisms enabling effective implementation of the substantive norms, 4) dispute settlement framing the way to peaceful solution of any dispute among the state parties.

Key words: international law, water law, natural resources, climate change, ecology.

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Целью данного обзора является изучение степени, в которой международное право отражается на взаимосвязи между водой и почвой, особое внимание уделяется нескольким наиболее актуальным вопросам, таким как загрязнение, наводнения, использование земли, влияющим на водные ресурсы, а также воздействие изменений климата на воду и почву. Некоторые международные правила прямо регулируют вопросы, связанные с водными и почвенными

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О взаимодействии воды и почвы в международном праве

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Introduction

Scope of international law on soil and water nexus. Numerous activities related to the use of land can have an impact on the water resources, and vice versa in terms of causing pollution or floods, also the interaction between surface water and groundwater and its role in floods management (recharge and storage of water), developing on wetlands and floodplains, etc. Therefore, an important question to consider in terms of scope is whether international law both on global and basin levels, takes into account the water and soil linkages.

1.1 Watercourses

Global level of regulation

There are 263 transboundary river and lake basins and around 300 transboundary aquifers worldwide and merely some of them are regulated by relevant agreements. International legal status and regime of international watercourses is codified at the global level by the Convention on the Law of the Non-Navigational Uses of International Watercourses of 1997 (UN Watercourses Convention) and The Convention on the Protection and Use of Transboundary Watercourses and International Lakes of 1992 (UNECE Water Convention). These two conventions provide for ecosystemic approach allowing for considering of both, water and soil, within their physical scope of regulation. The UNECE Water Convention includes the requirement for parties to protect environment of transboundary waters within the catchment area (Art. 2 para. 6). Such an approach extends the scope of the Convention beyond water resources including other elements of the environment, such as land (UN, 2013). The contextual interpretation allows for even further enhancement of this understanding of the Convention’s scope while referring to the ecosystemic approach to conservation and restoration parties’ obligations (Art. 3 para 1, Art. 2 para 2 (d)) without limiting the “ecosystem” to aquatic and water related ecosystems (UN, 2013).

Regional level of regulation

On the regional level the recent conventional practice included in the international water treaties reflects a broad ecosystemic approach to the definition of geographical and hydrographical scope of their rules covering water and soil.

Agreement on the action plan for the environmentally sound management of the Common Zambezi River system of 28 May 1987 (International Legal Materials, 1988) (Botswana, Mozambique, the United Republic of Tanzania, Zambia and Zimbabwe) adopts the Action Plan for the Environmentally Sound Management of the Common Zambezi River System (Art. 1). It provides for co-operation in devising land-use practices, watershed management, soil conservation and development patterns appropriate for conditions in the river basin and its related marine regions (Annex 1, para 29 (1)).

Agreement on the Protection of the River Scheldt of 26 April 1994 (Belgium, France and the Netherlands) (Milner, 1995) requires appropriate measures to achieve an integrated management and
sustainable development of the Scheldt drainage area, defined as area, the waters of which run into the Scheldt or its tributaries (Art. 1 and 3).

Convention on Cooperation for the Protection and Sustainable Use of the River Danube of 29 June 1994 (Austria, Bulgaria, Croatia, Germany, Hungary, Moldova, Romania, Slovenia and Ukraine) (International Environmental Law, 1994) applies to the catchment area of the Danube River defined as hydrological river basin as far as it is shared by the Contracting Parties (Art. 3).

Agreement on the Cooperation for the Sustainable Development of the Mekong River Basin of 5 April 1995 (Cambodia, Laos, Thailand and Vietnam) (International Legal Materials, 1995) provides for protection of the environment, natural resources, aquatic life and conditions, and ecological balance of the Mekong River Basin from pollution or other harmful effects resulting from any development plans and uses of water and related resources in the Basin (Art. 3).

Revised Protocol on Shared Watercourses Systems in the Southern African Development Community (SADC) Region of 7 August 2000 reflects a broad approach to watercourse (Art. 1).

1.2. Desertification

Global level of regulation

The way land resources are managed has direct impact on the water resources. The changes in plants and forest cover add to risk of natural disasters like floods and landslides as well as impacts on the ground water recharge. Climate or anthropogenic driven droughts and desertification emphasise the strong link between soil and water management. The United Nations Convention to Combat Desertification of 1994 (UNCCD) has been adopted by 195 states and lays the ground for global efforts to address the roots causes of desertification, including land management. Convention calls for international cooperation and partnership arrangements, highlighting a need for integrated approach (Art. 2 para 1). The interrelation between water and soil is of primary importance to ensure that a coordinated approach to combat desertification is implement.

1.3. Wetlands

Global level of regulation

Wetlands, soil and water are hydrologically interlinked. Wetlands, being connected with water of basins as well as coastal and marine systems on one side they depend, and on the other side they regulate the water regime, recharge ground waters, play important role in flood control and protection from shore erosion, etc. Protection of wetlands from negative impact from land use has direct impact on water quality. Interconnectedness between wetlands and water and soil is being recognised by the Convention on Wetlands of International Importance of 1971 (Ramsar Convention) (UN, 1971) uniting 168 states. Its scope provides for national activities but also for international cooperation in conservation and wise use of areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed 6 metres (Art. 2). It regulates transboundary wetlands, shared wetland systems, and shared species offering a framework for managing the interrelations between water and soil covered by the wetlands. Endorsements of Ramsar convention’s provisions over transboundary Ramsar sites offers a mechanism of water and soil protection and conservation. States are required to designate wetlands of international significance within their territories to be included in the List of Wetlands of International Importance (UN, 2012)

Legal status of wetlands is to be additionally defined referring to the framework of the international climate change legal regulations. States worldwide have already recognised the impact on climate change on wetland ecosystem including the changes in water availability. In order to adopt to climate change countries shall increase capacity of wetlands to better provide their ecosystem services (UN, 1971) There is still a need for bigger recognition of the importance of different wetland types in the global carbon cycle. The degradation of wetlands, especially peatlands, which are even more important carbon store than the forest biomass, will lead to increase of annual seal tool emissions (UN, 1971) Conversion of wetlands, due to increase of biofuel-driven land use, might additionally add to the growth of greenhouse gases (UN, 1971).

1.4. Biodiversity

Global level of regulation

Infrastructure constructed to regulate the river flows for the sake of electricity generation or diversion of water flow for agriculture purposes presents another issue relevant for water and soil combined
management. Such activities impact on the water quality, changing its biological diversity as well as limiting the floodplains areas. Conservation of biodiversity and the sustainable use of its components fall within a scope of the UN Convention on Biological Diversity of 1992 (CBD) It defines biodiversity as the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems (Article 2 of The Convention on Biological Diversity). This Convention enjoys almost universal participation of 196 states, between species and of ecosystems (Article 2 of The Convention on Biological Diversity). This Convention enjoys almost universal participation of 196 states and its endorsement may significantly improve quality of soil resources, and respectively the quality of water.

Increase of soil biodiversity might have significant impact on water filtration and storage as well as reduction of greenhouse gas emissions. The management of soil and its biodiversity can be achieved also by actions undertaken on local scale and guided by national law of countries. Biodiversity of the soil is expected to be seriously impacted by the climate change among others and it will have direct reference to soil carbon sequestration capacity.

**Regional level of regulation**

Both 1968 African Convention on the conservation of nature and natural recourses as well as its revised version from 2017 provide for well elaborated definition of national recourses, which directly refers to soil and water as well as other recourses interaction and requires parties to regulate the conservation and improvement of the recourses overall status. The 1995 Protocol concerning specially protected areas and biological diversity in the Mediterranean contains in its scope clear reference to terrestrial, marine and other aquatic ecosystem, reflecting on the linkage between water and soil recourses. A similar definition of biological diversity has been included in 2002 into the Black Sea Biodiversity and Landscape Conservation Protocol to the Convention on the Protection of the Black Sea Against Pollution. In 2003 Framework Convention on the protection and sustainable development of the Carpathians provides for sustainable and integrated basin management, including reference to surface and groundwaters, as well as wetlands interaction with soil recourses. In 2005 Agreement on the Establishment of the ASEAN Centre for Biodiversity has provided a platform for international actions on protection of different biodiversity components, including soil and water.

### 1.4. Hazardous substances

Global level of regulation

Soil and water are both endangered by pollution by hazardous substances and waste. There are number of multilateral environmental agreements serving the purpose of protection from the negative impact of pollution from waste to ecosystem. The first globally adopted agreement was the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal (1989), which requires parties to control and reduce the export and import of hazardous wastes and other wastes (Art. 4). It is encompassing in its scope both soil and water resources in the transboundary context. In terms of management of protection of soil and water from pollution by insecticides and industrial chemical and fertilisers few conventions were adopted, which include in their scope “protection of environment” (emphasis added):

1) Stockholm Convention on Persistent Organic Pollutants (UNTS, 1991), with the goal to protect human health and the environment from persistent organic pollutants (Art. 1);

2) Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade (UNTS, 1998) with the goal to support cooperative efforts among parties in the international trade of certain hazardous chemicals in order to protect human health and the environment from potential harm and to contribute to their environmentally sound use (Art. 1);

3) Minamata Convention on Mercury (2013) protecting human health and the environment from the anthropogenic emissions and releases of mercury and mercury compounds (Art. 1).

### 1.6. Floods

Global level of regulation

Integrated approach to flood management should be undertaken in the whole catchment area. It also applies to transboundary waters. It shall take place within the whole catchment area and its coastal areas rather than focusing merely on management of floods as such (UN, 1994). It also applies to transboundary waters. The holistic approach to flood risk management includes following steps: flood prevention, protection, preparedness, emergency response and flood damage recovery. The operation on relevant technical structures in retention areas should be also approached in a holistic way within the whole catchment area (UN, 2009).
IN the international water law and its watercourses agreements there are provisions directly considering flood management. First of all, in the 1997 UN Watercourses Convention (Art. 27) it requests countries to take appropriate measures to prevent or mitigate harmful water conditions, which might result from the natural causes such as floods and desertification. There are more than 140 other conventions which partly refer to flood management (IFRC, 2003).

Regional level of regulation

There are two regional legal regimes regulating floods. First has been developed by UNECE in the form of Model Provisions on Transboundary Flood Management (UN, 2006). It is designed “to be used as part of either a general bilateral or multilateral normative instrument on transboundary water issues or a flood-specific one among riparian States, in order to address transboundary flood prevention, protection and mitigation and enhance preparedness thereto”. Another regional legal document is the EU Flood Directive, which complements the EU Water Policy Directive (Eur. Parliament and the Council, 2007).

As for basin and bilateral agreements, one can mention 1935 Agreement between the United States and Canada on Lake Memphremagog (Rieu-Clarke, 2008) as well as 2002 Agreement on the Incomati and Maputu, both providing for actions in case of floods to mitigate the effects of floods. The 1998 Convention on the protection of the Rhine refers to Rhine ecosystem as a natural floodplain, as well as adopts Rhine Action Plan on Floods to be implemented by 2020. The Danube Convention as well as 1995 Mekong Convention (Rieu-Clarke, 2008) both provide for water law regulations which were extended by flood management regulations after few years of existence, Action Programme on Sustainable Flood Protection in the Danube River Basin (ICPDR, 2004), 2005 Flood Management and Mitigation Programme in Mekong.

1.7. Climate change

Global level of regulation

Land and water management, each of them separately and also in nexus, are central components of states activities aimed at adaptation to climate change. Climate change directly impacts on the quantity and quality of water, and also may have impact over food security. Some of adaptation activities impact even on both - soil and water resources simultaneously. It may happen in case of energy production based on technologies with negative emissions sequestering CO2 in carbon sinks. This technology, and especially bioenergy production based on it, relays on considerable quantities of water, which might lead water shortages. Bioenergy production requires also big amounts of land to grow energy relevant plants which may lead to competition with food production processes (Dombrowsky I., Bauer S., Scheumann W., 2016) United Nations Framework Convention on Climate Change of 1992 (UNFCCC) requires states to cooperate in preparing for adaptation to the impacts of climate change especially preparing plans for coastal zone management, water resources and agriculture as well as for the protection and rehabilitation of areas affected by drought and desertification, as well as floods (UN, 2013). In 2015 UNFCCC adopted the Paris Agreement, which requires states to define their nationally determined contributions (NDCs) intended to achieve to reduce national emissions and adapt to the impacts of climate change. Significant number of NDCs identify water and land use for agriculture as a central component of their adaptation work.

1. Substantive norms applicable to water and soil resources

The multilateral environmental agreements can help to reinforce the protection and sustainable development of water and soil. Their simultaneous implementation strengthens the legal force of the overall recognised principles of international environmental law like: sustainable development, precautionary principle, polluters pays future generation principles, cooperation principle, etc. included by them as well as some principles specific for like water resources including equitable use and no harm principle. Their holistic approach to the concept of “environment” allows to apply the conventions’ substantive provisions to the protection of land and water resources.

2. Procedural norms

The interaction between existing legal instruments incorporated by multilateral environmental agreements which are relevant for soil and water nexus can be implemented by contentious application of the cooperation’s mechanisms included in these instruments starting from their procedures supporting information exchange, consultation, notifications,
and research up to the transboundary institutional cooperation. Below there is a list of most relevant instrument inherent for legal framework regulating soil and water protection and management.

**Information exchange**

Most treaties covering in their scope water and soil nexus refer to the obligation of information exchange. Some of them are more specific in the regulation, requesting parties for “widest exchange of information” meaning environmental conditions, best available technologies, some data, waste, also in transboundary context (Article 9 of UNECE Convention) (Dombrowsky I., Bauer S., Scheumann W., 2016)

Some other conventions refer the obligation to state parties to collect information merely for purpose of research and exchange of data. The Desertification Convention requests state parties to information collection, analysis on exchange on related issues to land aggregation. There are some conventions which includes specific requirements regarding the exchange of information, listing required information to be exchanged. Ramsar Convention’s states are to inform the Secretariat at the earliest possible time of any changes or likelihood of changes to the ecological character of these wetlands due to technological developments, pollution or other human interference (Article 3(2)).

**Consultations**

Countries’ obligation to conduct consultation were foreseen already in earlier conventions covering the interrelation between water and soil. Some of the conventions expect states to consult on the issues at stake directly, some through jointly established bodies (Article 9 (2) UNECE Convention), or within multilateral consultative processes (Article 13 of the Climate Change Convention.). The main goal of the consultation is to facilitate the cooperation of states in terms of implementing of the interstate legal instruments (UN, 2013) and for the sake of transparency (Article 13 of Paris Agreement). The obligation to conduct consultation may concern the preparation and implementation of sub-regional or joint action programmes or increasing of the effectiveness of national programmes through interstate cooperation (Article 5 (1) of Desertification Convention). The Basel Convention (Art. 12) prescribes an obligation of states to conduct consultations on liability and compensation for damage resulting from transboundary movement disposal of hazardous wastes and other wastes. It is to be noted that the Ramsar Convention (Article 5(1)) imposes the obligation to consult with contracting parties on domestic wetlands situated within an international river basin.

**Notification procedures concerning planned measures**

Important procedural obligation includes a mechanism of notification concerning planned measures, which may have significant transboundary impact. Some of the conventions referring to water and soil interrelation have introduced relevant provisions, which are supposed to facilitate interstate consultations in case of measures taken or planned to be taken to prevent transboundary impact . Biodiversity Convention (Article 14) encourages countries to engage public participation in such procedures and to introduce appropriate arrangements to ensure that environmental impact on biodiversity is duly taken into account. Mercury Convention (Article 12 (3 (c)) requires Conference of Parties to adopt guidance on managing contaminating sides that may include environmental risk assessment.

**Monitoring and assessment**

Monitoring and assessment represent an important mechanism of interstate cooperation according to the international conventions dealing with water and soil. The main goal of monitoring is to deliver information about conditions of the protected recourses (UN, 2013) Monitoring has been used in case of development of plans, implementations of plans, policies (Articles 5, 8, 11 of Desertification Convention) programmes and actions (Article 7 (d) of Paris Agreement). Monitoring and assessment may concern the quality of the resources as well as other data (Article 11 (2) of UN/ECE Convention.). Data delivered by monitoring are requested to be accordingly organized (Article 7 (d) of Biodiversity Convention). The countries of the Mercury Convention draw special attention to research development and monitoring to assess the level of pollution, as well as the level of mercury and mercury’s compounds in the populations and environmental media (Article 19 (1) of Mercury Convention). According to Ramsar Convention, the management planning shall incorporate monitoring of the ecological character of Listed and non-Listed wetlands (Art. 3).
Access to public information

Multilateral environmental agreements promote public access to information related to the national resources. The public access to information is related to the status of the resources and shall build capacities of the technical and managerial personnel as well as promote and encourage understanding of the issues related to natural resources.

Development of agreements, harmonised policies, programs and strategies

Most of the relevant conventions dealing with water and soil require countries to develop and implement relevant policies to protect sustainable development of resources. Most of the conventions require state parties to enter into agreements to facilitate the cooperation on implementation of the convention provisions. UNECE Water Convention (Art 2. Para 6) requires states to develop harmonised policies, programs and strategies. For parties of UNECE water convention it’s also mandatory to enter into agreements or other arrangements in order to define their mutual relations and conduct regarding the prevention, control and reduction of transboundary impact, they remain free to define their scope through definition of the catchment areas or part(s) thereof (Art. 9 Para. 1). Some of the conventional bodies are assigned to promote harmonisation of policies, strategies and similar measures allowing for better implementation of the conventions’ requirements (Article 15 of Basel Convention). The Rotterdam Convention requires its Conference of Parties to encourage World Customs Organization to assign specific Harmonized System customs codes to the individual chemicals or groups of chemicals (Article 13 of Rotterdam Convention).

Transboundary institutional cooperation

Creation of joint bodies is one of crucial means of interstate cooperation recognised by both Convention, however ECE Water convention requires co-riparian to enter into agreements establishing joint bodies for management of international watercourse (Art. 9 para. 2), when the UN Watercourses Convention refers merely to such possibility (Art. 8 para. 2). States parties to water and soil related conventions are required also to facilitate the cooperation through joint bodies, where some of them request parties to establish relevant joint bodies (Art. 9. UNECE Convention). The institutional mechanisms of the Ramsar Convention facilitate the implementation of its obligations, include, inter alia, decision-making bodies, advisory bodies and national focal points. The Ramsar convention provides for an international network of wetlands for the conservation of global biodiversity and requires its contracting parties to establish national networks of Ramsar Sites. The integration of wetland sites management within an overall environmental management plan, including rivers and coastal zones, reflects the interconnectedness between soil, water and wetlands.

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