United Nations A/HRC/54/32

General Assembly

Distr.: General
20 July 2023

Original: English

Human Rights Council
Fifty-fourth session
11 September–6 October 2023
Agenda item 3
Promotion and protection of all human rights, civil, political, economic, social and cultural rights, including the right to development

Fulfilling the human rights of those living in poverty and restoring the health of aquatic ecosystems: two converging challenges

Report of the Special Rapporteur on the human rights to safe drinking water and sanitation, Pedro Arrojo Agudo

Summary

For the Special Rapporteur, getting drinking water to the 2 billion people without guaranteed access to it, most of them severely impoverished, is only possible if progress is made in restoring the good condition of the aquatic ecosystems that supply their water.

The present report focuses on the problems of pollution, overexploitation and mismanagement of rivers, lakes, wetlands and aquifers, and their impacts on the human rights to drinking water and sanitation. In particular, it shows how the toxic contamination of water by heavy metals and other contaminants breaks not only the right to water but also the rights to health and life of millions of people.

Given the magnitude of the harm, the Special Rapporteur suggests starting a debate in the international community with a view to including these actions in the list of crimes against humanity in order to hold the perpetrators accountable.

The Special Rapporteur states that the human rights to drinking water and sanitation and the human right to a clean, healthy and sustainable environment go hand in hand with promoting climate change adaptation strategies to face the increasing risks of drought and floods that climate change causes.

I. Introduction

1. The Special Rapporteur explained in his first report to the Human Rights Council that we face a paradoxical crisis: a global water crisis on the water planet, the blue planet, with 2 billion people without guaranteed access to safe drinking water.[1] Many argue that the water crisis is a consequence of freshwater scarcity. Only 2.5 per cent of the planet's water is freshwater, and 0.03 per cent feeds lakes, wetlands and rivers on islands and continents.[2]

2. In the opinion of the Special Rapporteur, stating that the global water crisis is a consequence of freshwater scarcity on the planet is simplistic and misleading. It blurs the real, critical issues on which action must be taken. Most of the 2 billion people without guaranteed access to safe drinking water are not thirsty people without water in their living environments, but impoverished people living next to rivers or aquifers that are contaminated, often with toxins, or are overexploited by abusive and unsustainable agricultural and industrial activities. Likewise, people who do not have the means to bring water to their homes and treat it are even less able to overcome the problems of degradation of their aquatic ecosystems.

3. Overexploitation and pollution of aquatic ecosystems restrict access to safe drinking water, especially for the most impoverished and those who suffer marginalization and discrimination. Tap water is often unsafe to drink, when sources are contaminated with toxins that cannot be removed by ordinary purification processes, when waste water is inadequately treated or when contamination occurs in the distribution networks. At times, agriculture and industry grab the water, leaving only small amounts, which are polluted, for people. In these cases, consumption of bottled water increases among those who can afford it, but those who are financially strapped end up drinking unsafe water supplied by public networks.

4. For the Special Rapporteur, the roots of this water crisis lie in the unsustainability of the current development model which is based on the paradigm of domination of nature, and in the greed and irresponsibility of the rich. It is necessary to move towards a new environmental regeneration model that is based on sustainability while promoting democratic water governance based on a human rights approach.

II. Health of aquatic ecosystems is critical to realizing the human rights to safe drinking water and sanitation

5. It could safely be said that in all areas of our planet, our ancestors walked until they found springs, rivers, lakes or wetlands where they could obtain quality water, and could settle. Networks of rivers, lakes, wetlands and underground aquifers have constituted the natural supply network for human settlements for tens of thousands of years.

6. In addition to acting as a distribution network for human communities, this natural network stores and regulates flows, mainly in underground aquifers, wetlands, lakes, glaciers, and snow masses in the mountains. These storage and regulation functions guarantee permanent flows in many rivers, even when it is not raining, and they generate essential water reserves to support life during periods of low water levels and drought cycles.

7. Managing this complexity of functions and values, ensuring sustainability and prioritizing the fulfilment of the human rights at stake requires promoting the participative democratic governance of these ecosystems and waters.[3]

A. Surface water in rivers, lakes and wetlands

8. Aquatic ecosystems – such as wetlands, rivers and lakes, including mangroves and lagoons in deltas and estuaries – manage the surface waters of the water cycle and are the

[1] A/HRC/48/50.

[2] Water Science School, "Freshwater (lakes and rivers) and the water cycle".

[3] United Nations Environment Programme (UNEP), "Freshwater strategic priorities 2022–2025 to implement UNEP's medium-term strategy" (March 2022).

backbone of life on islands and continents, but also significantly influence coastal marine life and ecosystems. They also provide goods and services essential for human well-being and economic development. Aquatic ecosystems provide water for drinking, sanitation, recreation, irrigation, fisheries, energy production, and industrial activity, sustain spiritual values, and generate natural flow regulation and purification functions.

9. Rivers, with their flows, are arteries of life on islands and continents. They transport sediments and nutrients essential for fluvial biodiversity, riparian ecosystems, and biodiversity on coastal marine platforms. The sand on beaches comes mainly from the solid flows that rivers bring, and that currents distribute along the coasts. Similarly, the fluvial flows of continental nutrients fertilize the marine littoral platforms' life and fisheries. Indeed, in closed or quasi-enclosed seas, such as the Mediterranean Sea, that are poor in plankton, important fishing species such as sardines or anchovies depend on river flows loaded with continental nutrients, especially during flooding.

10. Although all aquatic ecosystems function as natural water treatment plants, wetlands are the natural mega-treatment plant systems of the water cycle. The action of plants and microorganisms digests the organic matter generated in nature and societies. They also retain sediments and even remove toxic contaminants. It is estimated that wetlands alone can remove 20 to 60 per cent of the heavy metals that pollute water.[4]

11. Riverine ecosystems manage essential functions for riparian communities. They are green filters that purify the waters of the alluvial aquifer, part of the river that cannot be seen, flowing more slowly under the gravel of the riverbed. Furthermore, these riparian ecosystems, together with wetlands and lakes, soften river floods by expanding them and slowing them down in the flood areas of the riverbeds with their riparian forests. These flood expansion and softening functions are most significant in the middle catchments, reducing flood risks downstream where there are often densely populated areas.

12. If they are in good condition, rivers, lakes and wetlands also provide support as an essential food source for many communities, with fishing as the protein base of their diet.

13. As the United Nations Environment Programme (UNEP) underlines, biodiversity is widely regarded as an important measure for indicating ecosystems' integrity and healthy functioning.[5]

B. Groundwater

14. Above all, underground aquifers are nature's water lungs on islands and continents, storing and managing 99 per cent of the planet's fresh liquid water.[6] Aquifers sustain aquatic ecosystems, feeding the base flows of rivers, even when it does not rain.[7]

15. Groundwater provides half of the water withdrawn for domestic use in the world. Also, most of the supply from rivers, lakes and wetlands depends on aquifers.[8] Underground aquifers provide the only feasible and affordable access to water for many impoverished rural communities, especially in arid and semi-arid territories such as sub-Saharan Africa and South Asia, with large but dispersed rural populations.[9] About 25 per cent of the irrigation water is extracted from the aquifers, covering 38 per cent of the irrigated area.[10]

16. Aquifers offer greater guarantees of water quality protection against possible contamination risks. Also, well-managed, non-overexploited aquifers can be strategic

[4] World Water Assessment Programme and UN-Water, *The United Nations World Water Development Report 2018: Nature-based Solutions for Water* (Paris, United Nations Educational, Scientific and Cultural Organization (UNESCO), 2018).

[5] UNEP, *A Framework for Freshwater Ecosystem Management: Volume 2 – Technical Guide for Classification and Target-Setting* (2017).

[6] UNESCO and UN-Water, *The United Nations World Water Development Report 2022: Groundwater – Making the Invisible Visible* (Paris, 2022).

[7] Ibid.

[8] Ibid.

[9] Ibid.

[10] Ibid.

reserves to manage extraordinary droughts that climate change aggravates. Unfortunately, the systematic processes of overexploitation and breaking of these functions can generate impacts of salinization or compaction and irreversible loss of aquifer capacity. Similarly, the systematic infiltration of pollutants may be difficult to reverse or take a long time, depending on the geological substratum.[11] The reduction rate of global groundwater storage is estimated to be between 100 and 200 cubic kilometres per year, representing about 20 per cent of the total water currently pumped.[12]

III. Keys to the degradation of aquatic ecosystems

17. As explained, if a community settles in a territory, it is because it has a close water source. Then, why do 2 billion people lack reliable access to safe drinking water?

18. The answer can be found in the interaction of multiple and accumulative pressures driven by human activities that threaten or undermine the water sources of billions of often impoverished people.[13]

A. Toxic pollution

19. Pollution by heavy metals, metalloids and other toxins generated by legal and illegal mining and other productive activities continues to grow in many countries. Water is the main vector for the spread of this type of pollution. Large-scale mining requires much water, but above all, it produces large volumes of toxic waste: sulphuric acid, arsenic, copper, cadmium, lead, cobalt, zinc, and chemical agents, such as cyanide.[14] Small-scale gold mining pollutes aquatic ecosystems mainly with mercury.[15]

20. In Paso Yobái, Paraguay, the use of mercury and cyanide in gold mining severely impacts aquatic ecosystems, particularly fisheries, progressively poisoning mine workers and other people.[16]

21. In Mongolia, gold mining using arsenic and cyanide killed fish in the Onon River in Khentii Aimag and poisoned the waters used by pastoralist communities and their livestock.[17]

22. Mining is estimated to discharge more than 180 million tonnes of hazardous waste annually into rivers, lakes and oceans worldwide.[18] The contamination of river headwaters affects entire watersheds, infiltrating into aquifers and contaminating soils.[19] Toxic contamination of aquatic ecosystems often reaches drinking water and water for irrigation and livestock, affecting food and causing progressive, cumulative and permanent population poisoning.[20]

23. Oil and gas extraction severely impacts freshwater ecosystems by releasing high amounts of so-called produced water during extraction (a dangerous and potentially

[11] Ibid.
[12] Ibid.
[13] Frederick Boltz and others, “Healthy freshwater ecosystems: an imperative for human development and resilience” (The Rockefeller Foundation, 2015), p. 34.
[14] Observatorio Económico Latinoamericano, “La contaminación del agua en la minería”, 9 April 2021 (in Spanish).
[15] See A/HRC/51/35.
[16] Statement by the Special Rapporteur on the implications for human rights of the environmentally sound management and disposal of hazardous substances and wastes, Marcos A. Orellana, at end of his visit to Paraguay, 14 October 2022, available from https://www.ohchr.org/sites/default/files/documents/issues/toxicwaste/2022-10-14/EOM-Statement-SR-Toxics-Paraguay-14-Oct-2022-EN.pdf.
[17] See A/HRC/45/10/Add.3.
[18] See https://earthworks.org/resources/troubled-waters/.
[19] See A/77/183.
[20] UNESCO and UN-Water, *The United Nations World Water Development Report 2022: Groundwater*, pp. 4 and 5.

carcinogenic mixture).[21] The Kichwa, Quechua and Achuar Indigenous Peoples in the Department of Loreto, Peru, have been denouncing the contamination of their rivers and territories by Pluspetrol, with the discharge of some 1,669 million barrels of highly toxic produced water between 2000 and 2009.[22]

24. Fracking natural gas also presents considerable risks of groundwater contamination affecting drinking water supplies.

25. According to UNEP, an estimated 100 million tonnes of plastic are wasted yearly,[23] in nature, particularly in rivers and aquatic ecosystems, and go all the way into the sea, generating toxic substances and microplastics pollution.[24]

26. Also of concern is the contamination of water by the chemical industry. In the Veneto region of Italy, more than 300,000 people were impacted by water contaminated with Per- and PolyFluoroAlkyl Substances (PFAS), chemicals which do not break down in the environment and accumulate in living tissue.[25] Some industries have poisoned cities in the United States of America and in Belgium, making growing food in vast regions impossible. In the United States, courts have already handed down sentences condemning companies that pollute rivers with PFAS in the lower Cape Fear River basin.[26]

27. Among the biggest sources of toxic pollution is the massive and ever-growing use of pesticides, especially in industrial agriculture, with diffuse pollution difficult to control.[27] Sri Lanka, one of the countries with the highest rates of pesticide use, suffers from water contamination by heavy metals and other toxins, which has led to an increase in chronic kidney diseases in the country.[28]

28. In many countries, industries discharge toxic pollutants into rivers or the sewage system without considering that treatment plants operate based on biological digesters supported by microorganisms like those in nature. Therefore, the sanitation process is degraded or collapses, in addition to not eliminating the pollutants.

B. Biological, organic and nutrient pollution

29. Undoubtedly, one of the reasons for the non-drinkability of water is biological contamination by pathogens. Key factors include the lack of wastewater sanitation, inadequate disinfection by chlorination or other methods, and water contamination in obsolete or poorly maintained networks with frequent water cut-offs.

30. Reports show that one third of all rivers in Latin America, Africa and Asia suffer from severe pathogenic pollution. Severe organic pollution is found in around one seventh of rivers, and severe and moderate salinity pollution in around one tenth of all rivers.[29] According to the World Health Organization (WHO), at least 2 billion people use a source of drinking water contaminated with faeces.[30]

[21] See A/77/183.

[22] See communication PER 3/2021. All communications mentioned in the present report are available from https://spcommreports.ohchr.org/Tmsearch/TMDocuments.

[23] "Governments agree landmark decisions to protect people and planet from hazardous chemicals and waste, including plastic waste", press release, 12 May 2019.

[24] See A/76/207.

[25] Statement by the Special Rapporteur on the implications for human rights of the environmentally sound management and disposal of hazardous substances and wastes, Marcos A. Orellana, at end of visit to Italy, 13 December 2021, available from https://www.ohchr.org/en/statements/2022/01/end-visit-statement-united-nations-special-rapporteur-toxics-and-human-rights.

[26] United States District Court for the Eastern District of North Carolina, Case No. 4:21-cv-01535-PJH.

[27] UNEP, *A Framework for Freshwater Ecosystem Management*.

[28] See communication LKA 6/2021.

[29] See https://www.unep.org/resources/publication/snapshot-report-worlds-water-quality.

[30] WHO, World Bank Group and the United Nations Children's Fund (UNICEF), *State of the World's Drinking Water: An Urgent Call to Action to Accelerate Progress on Ensuring Safe Drinking Water for All* (Geneva, WHO, 2022).

31. In addition to microbiological pollution, organic and nutrient pollution exceeds the self-purification capacity of aquatic ecosystems, producing eutrophication processes that end up collapsing the life and potability of the water as cyanobacteria that generate toxins appear.

32. Lack of means and of priority in budgets means that 90 per cent of wastewater is discharged into rivers, lakes and seas untreated or into pit latrines, even in urban areas.[31]

33. The difficulties treating wastewater faced by people in extreme poverty are often compounded by the greed and irresponsibility of companies allowed to dump waste without treatment, the abusive fertilization of fields, and the excessive or inappropriate use of slurry from intensive livestock farming.

34. The intensive industrial livestock sector is among the top three contributors to water-quality degradation. When livestock is concentrated, the associated production of manure tends to exceed the rate of crop utilization and the buffering capacity of surrounding ecosystems, and pollutes surface waters and groundwater.[32] Also, there is growing concern about the public health impacts of pathogens, drug residues, hormones and antibiotics in livestock waste contaminating water. Intensive farming practices in Rivadavia, Argentina, have resulted in water pollution and significant desertification of ancestral Indigenous lands, violating the human rights to water, a healthy environment, culture and other fundamental rights.[33]

C. Geogenic contamination

35. Geogenic (i.e. natural) arsenic water contamination can occur in certain aquifers, depending on the nature of the underlying materials. Recent studies estimate the number of people at risk of progressive arsenic poisoning from their drinking water at between 94 and 220 million.[34] Often, in cases of overexploitation, the concentration of geogenic arsenic rises to levels that are severe for health, as deeper water has to be pumped. One example is the overexploitation of the Chihuahuan Aquifer in northern Mexico to grow alfalfa to feed dairy industry cattle. After the surface water had been consumed and the huge endorheic wetland of La Laguna in Torreón had been dried up, the water was pumped from deeper and deeper within the aquifer, loaded with increasing concentrations of arsenic, poisoning the population.[35] The Government of Mexico recently prioritized the urban use of the Nazas River flows over irrigation, which is cheaper than removing arsenic from drinking water.

D. Unsustainable growth of irrigation, overexploitation of aquifers and overallocation of use rights

36. Worldwide, irrigated agriculture,[36] which accounts for 70 per cent of all surface and groundwater withdrawals, is growing uncontrolled and, in many cases, outside the law, leading to serious problems of unsustainability.[37] It has gone from 139 million hectares of

[31] T. R. Kumaraswamy and others, “Impact of pollution on quality of freshwater ecosystems”, in *Fresh Water Pollution Dynamics and Remediation*, Humaira Qadri and others, eds. (Singapore, Springer, 2020), p. 72.

[32] Javier Mateo-Sagasta, Sara Marjani Zadeh and Hugh Turral, “Water pollution from agriculture: a global review – executive summary” (Rome, Food and Agriculture Organization of the United Nations (FAO)); Colombo, International Water Management Institute on behalf of the Research Program on Water, Land and Ecosystems of the Consultative Group on International Agricultural Research, 2017), pp. 9 and 10.

[33] Inter-American Court of Human Rights, *Indigenous Communities of the Lhaka Honhat (Our Land) Association v. Argentina*, Judgment, 6 February 2020.

[34] Joel Podgorski and Michael Berg, “Global threat of arsenic in groundwater”, *Science*, vol. 368, No. 6493 (May 2020).

[35] See https://bj.scjn.gob.mx/doc/sentencias_pub/wbaN44cBvbG1RDka4eoh/%22NOM%22 (in Spanish).

[36] In the present report, agriculture refers to cropping activities, livestock and aquaculture.

[37] FAO, *The State of the World’s Land and Water Resources for Food and Agriculture: Systems at Breaking Point – Synthesis Report 2021* (Rome, 2021).

land in 1961 to 320 million hectares in 2012, overstepping the limits of ecosystem sustainability in quantitative terms and increasing agricultural contamination of aquatic ecosystems.[38]

37. Large-scale irrigation is one of the leading consumers of water, competing with, and threatening the supply of, people's basic needs, particularly the needs of impoverished communities. The de facto prioritization of these economic activities over domestic supply constitutes a human rights violation.

38. The abusive and uncontrolled pumping of groundwater for productive uses, mainly irrigation, dries up wetlands and springs that feed rivers and puts drinking water supplies at risk, particularly during drought cycles. When these aquifers supply the populations directly, pumping costs from deeper become expensive, affecting the affordability. In the current climate change emergency, the overexploitation of aquifers aggravates the vulnerability of populations to water scarcity, during extraordinary drought cycles.

39. Over-allocating concessions generates unreal availability expectations, which leads to encouraging an unsustainable demand growth, causing quality and availability problems for domestic supply, mainly in drought cycles.

40. A positive reference for applying the precautionary principle is the decision of the Victorian Civil and Administrative Appeals Tribunal, in Australia, that denied irrigation licences due to uncertainty about groundwater availability.[39]

E. Population growth

41. The growth of large metropolitan areas leads to water demands that can deplete the flows of the aquatic ecosystems in the territory concerned. In these cases, a distinction should be made between the water demands generated by these populations for their basic needs, in what the Special Rapporteur calls uses of water for life (mainly domestic demand and basic food production), and the water used for economic growth, which, although legitimate, should never take precedence over the flows – in terms of quantity and quality – needed to guarantee the human rights to drinking water and sanitation. In fact, on average, the proportion of water used for economic activities – agricultural, industrial and service activities – is around 90 per cent of the total demand. The remaining 10 per cent is for urban uses, which includes about 5 per cent that could be considered the bare minimum to ensure the human rights to safe drinking water and sanitation. Therefore, if priorities are set and respected, there should always be a supply of water to satisfy the population's human rights as a priority, even if the population grows.

42. As populations grow and people migrate to cities, the accelerated development of informal settlements overwhelms urban planning. The need to guarantee drinking water to residents requires the developing of supply and sewage networks and the renewing and maintaining of existing networks. Remarkably, losses due to the deterioration of networks are at around 50 per cent in many cities, which justifies frequent and even systematic cuts (to avoid losses); this leads to polluting intrusions at the leak points when removing pressure. Therefore, renewal and maintenance are essential to prevent losses, increase water availability, avoid contamination and ensure potability.

F. The commodification of water and the privatization of water management

43. As the Special Rapporteur outlined in his report to the General Assembly in 2021,[40] considering water as a merely economic good, and its commodification, can jeopardize the sustainability of ecosystems and the human rights to safe drinking water and sanitation. Since

[38] Sagasta, Zadeh and Turral, "Water pollution from agriculture: a global review – executive summary".

[39] Victorian Civil and Administrative Appeals Tribunal, *Alanvale Pty Ltd & Anor v. Southern Rural Water and Others* (2010); see also *National Environmental Law Review*, vol. 12 (2010).

[40] A/76/159.

ecosystems cannot compete in markets, their sustainability is at risk. As argued by the former Special Rapporteur, Leo Heller, in his report to the General Assembly in 2020, privatizing water and sanitation management to pursue corporate profit increases the vulnerability of the most impoverished.[41]

44. In Cartagena, Colombia, the privatization of water and sanitation services has led the company with the concession to embark on major supply works without consultation with the affected communities, which have led to the clogging and eutrophication of the Juan Gómez lagoon system, destroying fishing – the food and livelihood base of the Afro-Colombian communities in the territory.[42]

G. Land and water grabbing

45. In many countries, land grabbing, often involving water grabbing, entails misappropriations of resources from communities, and undermines freshwater quantity and quality, putting the communities directly affected and downstream populations at risk. In Borneo, Indonesia, communities along the Sambas and Pewan Rivers are victims of water grabbing by oil palm plantations, with massive use of pesticides and fertilizers; fisheries have been destroyed, water is no longer drinkable, and people are ill.[43] Peasant communities in Bajo Aguán, Honduras, have suffered similar impacts.[44]

H. Drainage and dewatering of wetlands

46. Development often justifies drainage and desiccation of wetlands, degrading the essential functions of these ecosystems, and endangering the water supply, fisheries, and functions vital to regulating the ecosystem for downstream riparian populations at risk of droughts and floods due to climate change.

47. The Pantanal, in the heart of South America, is the world's largest tropical wetland, one of the most biologically rich environments on the planet. It also performs vital functions of massive flow regulation to reduce flooding risks. Likewise, it is a vast reservoir of water in drought cycles. Similarly, it operates as a powerful natural purifier that removes the heavy metals with which mining contaminates the Paraguay River's flows. Unfortunately, increasing cattle-ranching activities, export agribusiness and mining, and devastating fires, mostly arson, are causing an accelerated degradation and shrinkage of this enormous water reserve.[45] Also, the growing activity of fluvial transport has led to the design of various Hidrovía Paraguay-Paraná projects since 1989 to facilitate navigability for ships of greater draught, to dredge sections and rectify meanders, among other things, which entails serious risks for the Pantanal. The recent droughts in the Paraná basin warn of what may come with climate change. Considering the Hidrovía as a programme of multiple international cooperation projects seems to avoid a strategic environmental assessment of synergistic impacts that will multiply with climate change, affecting the human rights to water and sanitation of millions in the basin.[46]

[41] A/75/208.

[42] Submission from Corporación Agencia Nacional Étnica, Alianza para la Defensa del Canal del Dique, Corporación Viso Mutop, Global Justice Association, International Association for Human Rights and Social Development and ACATS – Desobediència Cultural (in Spanish). Submissions are available from https://www.ohchr.org/en/calls-for-input/2023/thematic-report-human-rights-council-54th-session-fulfilling-human-rights.

[43] See https://grain.org/es/article/6582-rios-toxicos-la-lucha-por-recuperar-el-agua-acaparada-por-las-plantaciones-de-palma-aceitera-en-indonesia (in Spanish).

[44] Consultation in 2021 with OHCHR Honduras (L. Aguilar).

[45] Jose A. Marengo and others, "Extreme drought in the Brazilian Pantanal in 2019–2020: characterization, causes, and impacts", *Frontiers in Water*, vol. 3, 23 February 2021.

[46] Wetlands International, "Una mirada sobre los impactos de la Hidrovía en los humedales del Corredor Fluvial Paraguay-Paraná" (2019) (in Spanish).

I. Riverbeds and riparian ecosystems

48. For decades, the management of river channels and riverbanks has led to the felling of riparian forests, encroachment onto the river domain for urban development and productive activities, the construction of embankments, the narrowing and dredging of channels, and the removal of meanders to facilitate navigation, severely degrading riparian ecosystems. This strategy has serious consequences for riparian populations, beyond these environmental impacts. By eliminating the functions of expanding and slowing down floods in these riparian spaces, the destructive power of floods on downstream towns and cities has multiplied, aggravating the risks to drinking water and sanitation services.

49. The history of catastrophic flooding in large navigable rivers such as the Mississippi or the Rhine demonstrates that these traditional engineering approaches to river basin management, based on the walling of channels, have increased the risks of catastrophic flooding in low-lying basins by multiplying the destructive kinetic energy of floodwaters. New management approaches, based on the motto, "Give the river a place to go", promote levee setbacks to reduce losses caused by floods. Giving rivers more room for expansion and even providing for the gentle flooding of certain areas through gates in the dikes, and economic compensation agreements for the owners, allow the expansion and smoothing of floods. Moreover, these new strategies value the role of meanders and riparian forests in slowing down floods and reducing their energy.[47]

J. Impacts of hydraulic megaprojects

50. Throughout the twentieth century, the development of large-scale hydraulic works was at the heart of hydrological planning and management. Today, with a better understanding of their impacts on river ecosystems and the riparian populations affected, directly or indirectly, the so-called supply strategies based on this type of mega-infrastructure that receives massive public subsidy are in question. As outlined in the final report of the World Commission on Dams, in 2000, the forced displacement of between 40 and 80 million people directly affected by the flooding of their valleys and villages has led to a worsening of their poverty and vulnerability, their health, their food, and in many cases, their access to drinking water and sanitation. For instance, Lake Turkana has been listed by the International Union for Conservation of Nature as being "in danger", given the impacts of the Gibe III dam, affecting the human rights of communities living around the lake.[48]

51. Large inter-basin water transfers are usually justified to address drought risks arising from climate change and to supply large irrigation projects in the receiving basins; however, droughts are not typically local but regional, so they often affect the transferring basins. Therefore, water transfers tend to collapse in drought cycles, due to a lack of transferable flows. Moreover, these large projects generate high expectations and growing demands that, when frustrated, exacerbate scarcity rather than solve it.

K. Impacts of climate change

52. As stated by the Special Rapporteur on the promotion and protection of human rights in the context of climate change, the number of people at risk of floods will increase from 1.2 billion to 1.6 billion in the next 30 years.[49]

53. The major social impacts of climate change are related to water. Over the last 20 years, 90 per cent of significant disasters were caused by water-related events that climate change will exacerbate. The Special Rapporteur insists on the need to develop adaptation strategies

[47] Jenny Rogers, "Letting the river run", *Nature Conservancy*, 27 February 2021.

[48] See https://leap.unep.org/countries/ke/national-case-law/friends-lake-turkana-trust-v-attorney-general-and-others.

[49] See A/77/226.

based on a hydrological transition, strengthening the resilience of ecosystems to minimize risks, especially for those who live in vulnerable situations.[50]

54. During floods, nutrients such as nitrates or livestock slurry, solid waste and pollutants on the territory are washed into rivers and lakes, degrading ecosystems and water potability, and affecting sanitation.[51]

55. During droughts, water stress due to less water availability is coupled with a lower dilution of pollution in river flows, degrading potability. For this reason, aquifers are usually more reliable to ensure drinking water if they are appropriately managed.

56. Unfortunately, climate change also affects natural groundwater recharge, although less than it affects surface flows. Heavy rains increase surface runoff and reduce the infiltration rate into aquifers, while rising temperatures increase evaporation as well as vegetation consumption. In addition, the increased risk of fire destroys vegetation cover and accelerates soil erosion, increasing runoff and reducing the infiltration rate into aquifers.[52]

57. In this context, to strengthen the resilience of aquatic ecosystems to climate change, it is essential to restore and conserve aquifers, wetlands and riparian ecosystems as the most inertial parts of the water cycle, with their natural functions of flood buffering and water storage for drought cycles.[53]

IV. Impacts of the degradation of aquatic ecosystems on the human rights to safe drinking water and sanitation

A. Availability

58. Generally, the law establishes the primacy of drinking water over productive uses, however this legal precept is often unfulfilled. For instance, during his visit to Tunisia, the Special Rapporteur observed how wells are granted for large-scale agro-export irrigation schemes that leave the surrounding rural supplies without water, as they are deeper and more powerful.[54] In Peru, the Special Rapporteur heard reports of water cuts during droughts, even in major cities such as Cajamarca, while large-scale mining upstream continued to operate.[55] In the Special Rapporteur's view, in these cases, repeated worldwide, the lack of compliance with the human rights to safe drinking water and sanitation is not due to non-availability but to a failure in governance for not prioritizing water for domestic and personal uses over productive uses.

59. It is also usual that States allow the abusive use of available resources by over-allocating surface water rights, overexploiting aquifers, allowing illegal wells, or even polluting available flows, leading to a lack of availability of drinking water.

60. The degradation of aquatic ecosystems aggravates drinking water unavailability, especially in drought cycles, whether due to physical water scarcity, contamination, hoarding of available water by the most powerful, or lack of means to access the available water among the most impoverished.

61. Likewise, as the Special Rapporteur stressed in his first report to the General Assembly, in 2021,[56] the accelerated change in the rainfall regime in arid and semi-arid spaces, due to climate change, with increasingly prolonged and intense droughts, will

[50] Special Rapporteur on the human rights to safe drinking water and sanitation, "Special thematic report on climate change and the human rights to water and sanitation: part 1 – outlining the impacts of climate change on the human rights to water and sanitation around the world" (January 2022).
[51] UNEP, "Freshwater strategic priorities 2022–2025", pp. 4 and 5.
[52] UNESCO and UN-Water, *The United Nations World Water Development Report 2022*: *Groundwater*.
[53] Special rapporteur on the human rights to safe drinking water and sanitation, "Special thematic report".
[54] See A/HRC/54/32/Add.1.
[55] See A/HRC/54/32/Add.2.
[56] A/76/159.

undoubtedly generate real scarcity problems and water unavailability, even for the most basic needs, putting at risk the habitability of certain territories.

B. Accessibility

62. Human settlements usually receive water from rivers, lakes, wetlands and aquifers. Accessibility problems arise either when the sustainability or the existence of these ecosystems is disrupted or when communities do not have the infrastructure and essential means to bring water in adequate condition to their homes.

63. Even with ecosystems in good condition, accessibility requires facilities to make a continuous supply of drinking water and basic sanitation services physically accessible in homes, public centres and workplaces, or their immediate surroundings.

64. When financial means are available, expensive infrastructure is often developed to bring water from distant sources or to treat polluted water, with costs charged to the population. However, the population bears no responsibility for the problems created. The Special Rapporteur insists that such practices are contrary to human rights that state that the available, closest and highest-quality flows should be, as a priority, for domestic uses.[57]

65. Sometimes, the available flows in nearby ecosystems are not accessible to specific populations, when land and water are grabbed or when water is used as a war strategy, as in the State of Palestine, particularly in Gaza,[58] or in the northern Syrian Arab Republic[59] or because of discrimination based on descent and work[60] – which affects 260 million people in the world.

C. Affordability

66. The degradation of aquatic ecosystems, which affects drinking water quality, leads to higher tariffs, as water must be fetched from distant sources or treatment costs are higher, increasing the risk of unaffordability for the most impoverished. It also leads to an increase in the purchase of bottled water due to distrust of tap water. In many cases, the need for more equipment and means forces people to use unsafe water or to buy it from unreliable street vendors at unreasonable prices.[61]

67. The economic problem for these impoverished families of paying more for water is aggravated by the time that women and girls have to spend on carrying water to their homes and the time they have to spend on caring for those made ill by contaminated water, which reduces their ability to work, to go to school and to provide resources for their families.[62] Despite unreliable access, it is estimated that most impoverished families spend up to half their income on meeting their basic water needs.[63]

D. Quality and safety

68. As explained, the sources of contamination of aquatic ecosystems,[64] putting potability at risk, are multiple: microbiological and organic, due to lack of sanitation treatment of used

[57] See communication ESP 4/2022 (in Spanish).
[58] Communication ISR 13/2020.
[59] Communication SYR 3/2020 and the reply from the Government of 10 November 2020; and communication SYR 3/2014.
[60] Office of the United Nations High Commissioner for Human Rights, “The Dalit: born into a life of discrimination and stigma”, 19 April 2021.
[61] Christophe Bosch and others, “Agua, saneamiento y la pobreza” (1999) (in Spanish).
[62] Ibid.
[63] WaterAid, “Water: at what cost? The state of the world’s water 2016” (March 2016).
[64] UN-Water and UNEP, *Progress on Freshwater Ecosystems: Global Indicator 6.6.1 Updates and Acceleration Needs* (UNEP, 2021).

water; agriculture and livestock, by nitrates, manure and pesticides;[65] mining and toxic industrial contaminants, with heavy metals, metalloids and others; [66] and emerging contaminants, such as antibiotics, with the worrying emergence of resistant bacteria,[67] and hormones from intensive farming, and drugs, perfluorinated compounds, microplastics and others.[68]

69. Microbiologically contaminated drinking water kills around 1.8 million people yearly from diarrhoea alone.[69] Contaminated water also transmits other diseases, such as cholera, dysentery, typhoid fever and polio.[70]

70. The Special Rapporteur pays special attention to the increasing toxic contamination, especially by heavy metals, that produces massive, progressive, cumulative poisoning processes that go unnoticed as they show no signs of taste or smell and do not cause immediate health problems.

71. Toxic pollution of industrial origin generates severe impacts. Negligence in these cases is a grave matter, since avoiding and controlling these discharges is possible and is often required by law. The Atoyac-Zahuapan basin in Mexico, with more than 3 million inhabitants, is a significant example. According to official data, around 20,400 companies emit some 778,000 tonnes of pollutants daily into the rivers,[71] including heavy metals, hydrocarbons and volatile organic compounds.[72] Besides seriously affecting the biodiversity of rivers and the related ecosystems, contamination has generated a significant increase in chronic diseases and other serious health problems: kidney diseases at double the national rate (215 per cent); 95 per cent more congenital malformations; 82 per cent more bleeding and hematological disorders in newborns; 60 per cent more anaemia; and 53 per cent more cancer of the thyroid and endocrine glands.[73]

72. According to the Food and Agriculture Organization of the United Nations (FAO), from 1994 to 2014 – in just two decades – the pesticide trade quadrupled.[74] Over 4 million tons of pesticides are used annually, contaminating water bodies with concentrations well above the set limits.[75] As the Special Rapporteur pointed out in his 2022 report on the human rights to water and sanitation of impoverished rural communities,[76] FAO recognizes the need for and the feasibility of an agroecological transition towards sustainable food systems that reconcile human and ecosystem health with social well-being.[77]

73. The Special Rapporteur focuses his greatest concern on contamination from mining. Traditionally, mining exploited deposits with high concentrations of metals or minerals. However, the progressive depletion of these veins led to the development of open-pit mining: which, in the case of gold, to be profitable, yields 1 to 3 grams of gold per ton of material removed, damaging thousands of hectares of land, and often destroying aquatic ecosystems in the headwaters vital to regulating river flows, such as aquifers, lagoons and wetlands.

---

[65] Michael J. Pennino, Jana E. Compton and Scott G. Leibowitz, "Trends in drinking water nitrate violations across the United States", *Environmental Science and Technology*, vol. 51, No. 22 (November 2017).

[66] See A/HRC/45/10/Add.3.

[67] Ibid.

[68] Pennino, Compton and Leibowitz, "Trends in drinking water nitrate violations".

[69] Ibid.

[70] WHO, "Drinking water: key facts", 21 March 2022.

[71] See https://megalopolismx.com/noticia/45884/cada-dia-778-mil-toneladas-de-sustancias-contaminantes-metales-pesados-y-toxicos-van-al-atoyac-zahuapan-tla.

[72] Samuel Rosado-Zaidi, "Análisis geoespacial e hidrográfico del deterioro ambiental y su impacto en enfermedades crónico degenerativas en la cuenca Atoyac-Zahuapan", thesis, National Autonomous University of Mexico, 2021 (in Spanish).

[73] Ibid.

[74] FAO, "Water pollution from agriculture: a global review – executive summary".

[75] Samira Mosalaei Rad, Ajay K. Ray and Shahzad Barghi, "Water pollution and agriculture pesticide", *Clean Technologies*, vol. 4, No. 4 (December 2022).

[76] A/77/167.

[77] High-level Panel of Experts on Food Security and Nutrition, *Agroecological and Other Innovative Approaches for Sustainable Agriculture and Food Systems that Enhance Food Security and Nutrition* (Rome, FAO, 2019).

Additionally, the millions of tons removed cause massive leaching, generating huge volumes of toxic water, which are dumped into nature or stored in huge dams with a high risk of collapsing in the short, medium or long term or infiltrating and leachate-contaminating aquifers and rivers.

74. The Special Rapporteur on the issue of human rights obligations relating to the enjoyment of a safe, clean, healthy and sustainable environment, referring to the areas irreversibly contaminated with toxic contamination, uses the term "sacrifice zones".[78] He says that toxic substances kill more than 9 million people annually, damage the health of billions, and inflict costs measured in trillions of dollars. The burden of contamination falls most heavily upon communities already vulnerable or marginalized because of race, poverty, and other socioeconomic factors.[79]

75. In Ghana, it is estimated that 60 per cent of aquatic ecosystems are polluted with mercury, zinc and arsenic from mining, leaving many communities without safe drinking water sources and with serious health problems due to progressive poisoning.[80]

76. From his global and country-level work, the Special Rapporteur on the human rights to safe drinking water and sanitation has observed several systematic pollution processes affecting large territories, aquatic ecosystems and public health in all world regions. In this regard, and based on the evidence gathered and observations, he believes there is a need to consider codifying these egregious and systematic human rights violations into a specific category in international law that moves the world towards greater accountability and access to effective remedies.

V. Intersectionality of poverty, unhealthy aquatic ecosystems, and access to safe drinking water and sanitation

77. The Special Rapporteur observes the intersectionality between the degradation of aquatic ecosystems, poverty, and lack of access to safe drinking water and sanitation, noting that human activities that cause depletion and pollution (often toxic) of an aquatic ecosystem, affecting drinking water, are disproportionately located in the territories of Indigenous Peoples, communities of African descent, and communities discriminated against by reason of descent and work, such as Dalits and others, and, in general, in territories of impoverished rural communities,[81] which cannot access effective remedies for such serious problems.[82]

78. As a significant reference, on average, only 8 per cent of domestic and industrial wastewater is treated in low-income countries, compared to 70 per cent in high-income countries.[83]

79. Even taking the example of a wealthy country such as the United States, studies have shown that race, ethnicity and language have the strongest relationship to slow and inadequate enforcement of the Safe Drinking Water Act at the county level.[84]

80. Billions of people, holders of drinking water and sanitation rights, are marginalized, without representation in the United Nations or the institutions that manage water. Thus,

[78] See https://www.ohchr.org/sites/default/files/2022-03/SacrificeZones-userfriendlyversion.pdf.

[79] See A/HRC/49/53.

[80] Statement of the Special Rapporteur on the implications for human rights of the environmentally sound management and disposal of hazardous substances and wastes, Marcos A. Orellana, at the end of his visit to Ghana, 13 December 2022, available from https://www.ohchr.org/sites/default/files/documents/issues/toxicwaste/statements/2022-12-12/20221213-eom-ghana-sr-toxics-en.pdf.

[81] See A/HRC/36/41.

[82] Ibid.

[83] World Water Assessment Programme, *The United Nations World Water Development Report 2017: Wastewater: The Untapped Resource* (Paris, UNESCO, 2017).

[84] Kristi Pullen Fedinick, Steve Taylor and Michele Roberts, *Watered Down Justice* (Natural Resources Defense Council, Coming Clean, and Environmental Justice Health Alliance for Chemical Policy Reform, 2019).

problems and obstacles remain, while rights holders are criminalized and persecuted when they raise their voices.

81. In the Guajira region, home to the Wayuu, one of the most impoverished peoples in Colombia, the Cerrejón open-pit mine consumes and pollutes the region's rivers, increasing poverty and causing severe malnutrition and lack of drinking water. In 2019, the mortality rate of Wayuu children under 5 years old was almost six times higher than the national average.[85]

82. Based on data and proposals from WHO, 2 billion people could have safe drinking water at $8 billion, which is $4 per person.[86] Although an estimate, the scale of the issue means that the costs would be affordable if they were given priority in budgets.

A. Persons living in poverty

83. The overexploitation, hoarding and contamination of aquatic ecosystems enrich those who promote them, bankrupt human rights, and impoverish the most impoverished,[87] closing a vicious cycle that is as unfair as it is perverse. The degradation of aquatic ecosystems reduces essential inputs into the livelihoods of poor people, causes diseases, and affects education, increasing school absences due to illness and time spent on retrieving water. Preserving and recovering the good state of aquatic ecosystems is crucial to breaking the cycle of poverty.

B. Women and girls

84. As indicated earlier, when nearby water sources dry up or become contaminated, it is mainly women and girls who are forced to spend more time, and risk gender-based violence, having to fetch water from further away.[88] Likewise, women care for those who become ill due to water contamination, taking time away from working, farming and other activities outside the home and from girls attending school.

C. Children

85. The combination of unsafe drinking water and high poverty rates leads to the highest infant mortality rate. Each year, diarrhoea kills around 525,000 children under the age of 5.[89] Children from low-income communities that are marginalized and discriminated against are at higher risk. In such communities, exposure levels to contamination are often higher, and are exacerbated by malnutrition. Contamination by heavy metals in children, who are even born "pre-polluted",[90] is serious, because, as the toxins are not metabolized and are difficult to eliminate, they produce progressive poisoning that can affect them throughout their lives.

D. Persons with disabilities

86. Poverty, pollution and lack of water represent a more significant burden for persons with disabilities, especially in settlements where community organization is weak.

[85] See https://reliefweb.int/report/colombia/colombia-ni-os-ind-genas-en-riesgo-de-desnutrici-n-y-muerte.

[86] See https://sdgs.un.org/partnerships/2-8-sharing-experience-how-safe-drinking-water-2-billion-people-possible-household.

[87] World Bank Group, *Reducing Inequalities in Water Supply, Sanitation, and Hygiene in the Era of the Sustainable Development Goals: Synthesis Report of the WASH Poverty Diagnostic Initiative* (Washington, D.C., 2017).

[88] UNICEF, "Reimagining WASH: water security for all", p. 7.

[89] WHO, "Diarrhoeal disease: key facts", 2 May 2017.

[90] See A/HRC/33/41.

Waterborne diseases due to viral or bacterial contamination are a substantial cause of disability worldwide.[91]

E. People of African descent

87. Communities of African descent are disproportionately targeted by polluting industries, impacting the aquatic ecosystems where they draw drinking water for domestic use. Providing safe drinking water entails high, unaffordable costs for many lower-income families, forcing them to consume non-potable water and to suffer disproportionate water cuts.[92]

F. Indigenous Peoples

88. Indigenous Peoples' poverty and discrimination are aggravated by projects in their territories that pollute or grab their water, without consultation or free, prior and informed consent.[93] Often, the water infrastructure in Indigenous communities is substantially inferior to that in non-Indigenous communities.

89. For example, in Canada, Indigenous Peoples experience a disproportionately higher number of drinking water advisories, warning people not to drink water that may be unsafe or is known not to be safe, and more drinking water advisories are issued for extended periods than for non-Indigenous persons.[94]

90. In the province of Nueva Vizcaya, Philippines, the Didipio River, which is the source of drinking and irrigation water for the Bugkalot, Ifugao, Ibaloi and Kankanaey Indigenous Peoples, is poisoned by gold and copper mines.[95]

VI. Options to protect and restore aquatic ecosystems and the human rights to water and sanitation of billions

91. Technology offers tools to tackle many problems and improve people's living conditions. There are certainly multiple solutions to the breakdown of the sustainability of aquatic ecosystems and of the human rights of the most impoverished, such as bringing water from distant sources, cleaning up pollution or even buying bottled water. However, it must be remembered that impoverished people do not have the financial means to access these solutions. They generally rely on the water cycle's complex and efficient natural engineering, powered by free solar energy.

A. Ecosystems-based solutions under a human rights approach

92. A better understanding of the natural green engineering that manages the water cycle enables the development of the most cost-effective water management options for safe drinking water availability and effective climate change adaptation strategies. Also, applying a human rights approach based on the principles of equality, non-discrimination, prevention, precaution and non-regression, that respects and supports the impoverished and vulnerable communities that depend on these ecosystems, would lead to more sustainable, more economically reasonable and fairer solutions.

93. In the view of the Special Rapporteur, these ecosystem-based solutions represent a remarkable advance over technocratic methods derived from the paradigm of domination of

[91] Ibid.

[92] Coty Montag, "Water/color: a study of race and the water affordability crisis in America's cities" (National Association for the Advancement of Colored People Legal Defense and Educational Fund, 2019).

[93] See A/HRC/51/24.

[94] Ibid.

[95] See communication AUS 1/2019 and the reply from the Government dated 4 April 2019.

nature. However, the Special Rapporteur would like to draw attention to the risk of perverting the concept with a neoliberal approach that justifies the appropriation of nature. Terms such as nature-based solutions, which recognize the value of nature and ecosystem services, are increasingly used to privatize and commodify the benefits they provide, marginalizing those who live in close dependence on nature.

94. The Special Rapporteur emphasizes that using economic tools differs from developing a market logic. In addition to the cost-effectiveness analysis mentioned, there are other useful economic tools to develop the objectives of sustainability and compliance with human rights standards: such as tariff strategies for blocks of consumption, and increasing tariffs (as opposed to lowering costs for customers in order to encourage consumption and maximize profits, under the logic of the market); or even the polluter pays principle, if it is set up in such a way as to cover the costs of complete restoration.

95. For instance, New York, in order to ensure safe drinking water for its population at the lowest possible cost, chose in 1997 to protect the river basins that supply the metropolitan area. New York funded a land management and best practices programme in three river basins, providing the city with the largest unfiltered water supply in the United States, saving residents more than $300 million a year in water treatment costs.[96] Vancouver, Canada, did this a century ago, protecting the watersheds that supply the city with water.

96. In 2014, China launched the sponge city strategy in large cities such as Shanghai. In contrast to traditional impermeable city planning, with drainage linked to sewers and large storm tanks (which are expensive and inefficient), the sponge city strategy offers floodable spaces and parks, artificial or natural wetlands in the cities, and simple infrastructures that favour the infiltration of rainwater into underground aquifers, adapting cities to the growing risks of flooding due to climate change. China has an ambitious 2030 target of infiltrating 70 per cent of rainfall runoff into aquifers in 80 per cent of its urban areas.[97] Many other cities around the word, such as Berlin, have adopted this climate change adaptation strategy.[98]

97. After decades of developing classic wetland drainage and groundwater pumping strategies, other large capitals, such as Jakarta[99] and Mexico City,[100] are now subject to gradual subsidence and frequent flooding, leading to a reconsideration of these strategies. In Mexico City, new approaches that are based on wetland restoration, the infiltration and management of aquifers, and taking advantage of these bodies of water to meet the urgent needs of the local population, have been put into action. This is also the case of the Tláhuac-Xico Lake Enabling Project, approved by the government of Mexico City and the state of Mexico.[101]

B. The human right to healthy and sustainable rivers and aquatic ecosystems

98. On 28 July 2022, the General Assembly recognized the human right to a clean, healthy and sustainable environment. Recognizing this right is equivalent to recognizing the need for the planet to be a safe home for all.[102]

99. The Special Rapporteur on human rights and the environment moved the debate forward by stressing our dependence on the environment we live in, insisting that without a healthy environment, we cannot build a life of dignity for all.[103]

[96] Michael C. Finnegan, “New York City’s Watershed Agreement: a lesson in sharing responsibility”, *Pace Environmental Law Review*, vol. 14, No. 2 (1997).

[97] See https://www.preventionweb.net/news/chinas-sponge-cities-aim-re-use-70-rainwater-heres-how.

[98] See https://upe2020.wordpress.com/2020/12/09/berlin-a-sponge-city-part-1/.

[99] N. Ardhianie and others, “Jakarta water supply provision strategy based on supply and demand analysis”, *H_2Open Journal*, vol. 5, No. 2 (June 2022).

[100] Alma R. Huerta-Vergara and others, “Assessment of vulnerability to water shortage in the municipalities of Mexico City”, *Boletín de la Sociedad Geológica Mexicana*, vol. 74, No. 1 (2022).

[101] See http://www.aldf.gob.mx/archivo-11fd56bd888638afed62729f4197917a.pdf.

[102] General Assembly resolution 76/300.

[103] See A/73/188.

100. This recognition implies not only moving from the paradigm of domination of nature to that of sustainability, and from the traditional vision of water as a resource to an ecosystem approach, but also doing so from a human rights perspective, which means prioritizing attention to those who live in conditions of poverty and vulnerability. Rivers, lakes and wetlands in good ecological condition can no longer be considered a luxury of the rich but rather a right for all, especially those who live in close relationship to them, to provide themselves with drinking water, food and livelihoods for a decent life. Likewise, this vision responds to the need to promote sustainable planning and/or management of watersheds under the current climate change perspective.

101. Similarly, the Inter-American Court of Human Rights substantiated the link between human rights and the environment, in its advisory opinion OC-23/17 of 15 November 2017.

C. Positive legal and governance alternatives

102. The Special Rapporteur on the human rights to safe drinking water and sanitation understands that the human right to a clean, healthy and sustainable environment, derived from a human-centred vision, assumes an ecosystemic approach and converges with the ecocentric vision that inspires recognition of the legal personality of rivers and other aquatic ecosystems.[104]

103. A positive example is the European Union's Water Framework Directive, the central objective of which is to restore the good ecological status of aquatic ecosystems.

104. The abundant jurisprudence of the Inter-American Commission of Human Rights, binding on the States involved, takes into account the rights of Indigenous Peoples, ecosystem health and human rights, with rulings such as that on the Marín gold and silver mine, which affects the Tzalá River and the communities that depend on it,[105] in the case of the Santiago River and Lake Chapala with industrial pollution in Mexico,[106] and in cases of toxic contamination from mining, such as that of Madre de Dios in Peru.[107]

105. Also relevant are the numerous cases judged by the Latin American Water Tribunal, a peoples' initiative that has worked rigorously on many cases, linking the right to rivers in good condition with the right to drinking water.

106. The Constitution of Ecuador recognizes rights to nature: total respect for its existence, life cycles, structure, functions and evolutionary processes, and the right to its restoration.

107. Moreover, recognizing the significance of the responsibility held by present governments towards future generations is crucial. In Hungary, decision No. 28/2017 of the Constitutional Court[108] takes up the principle of intergenerational equity in international law.[109] It stipulates three basic obligations of present generations towards future generations, with clear relevance to the management of water ecosystems: the preservation of options, the preservation of quality and the preservation of access to natural resources.

D. Recognizing the legal personality of aquatic ecosystems

108. In the Special Rapporteur's opinion, it is significant that the legal personality of rivers and aquatic ecosystems is recognized in more and more countries: the Whanganui River in

[104] See A/HRC/51/24.

[105] Inter-American Commission on Human Rights, report No. 20/14 of 3 April 2014 on the admissibility of petition 1566/07, brought by the communities of the Sipakepense and Mam Mayan People of the municipalities of Sipacapa and San Miguel Ixtahuacán (Guatemala).

[106] Medida cautelar No. 708-19 (2020), Pobladores de las zonas aledañas al Río Santiago.

[107] Medida cautelar No. 113-16 (2016), Comunidad nativa "Tres Islas" de Madre de Dios.

[108] See https://www.ohchr.org/sites/default/files/documents/issues/water/cfi-hrc54/hrc54-cfi-UN-SR-right-to-water-OCFR-Hungary.pdf.

[109] Edith Brown Weiss, *In Fairness to Future Generations: International Law, Common Patrimony, and Intergenerational Equity* (Tokyo, United Nations University; and New York, Transnational Publishers, 1988).

New Zealand (2017), by national law;[110] Río Atrato and other rivers in Colombia (2017), by the Colombian Constitutional Court;[111] all rivers in Bangladesh (2019), by the Supreme Court;[112] Snake River in the United States (2020), by the Nez Perce tribe;[113] Magpie River in Canada (2021), by the Innu Indigenous People and the Minganie Regional Municipality;[114] Río Monjas in Ecuador (2022), by the Constitutional Court;[115] and the Rivers Ganges and Yamuna in India (2017), by the High Court of Uttarakhand, although this was overturned by the Supreme Court.[116] Furthermore, the recent legal recognition of Mar Menor in Spain was the first legal recognition in Europe of the rights of nature.

109. In his report on the human rights to safe drinking water and sanitation of Indigenous Peoples, the Special Rapporteur underlines the wise coherence of Indigenous worldviews in their integrated vision of the territory.[117] This ecocentric approach has led in many places to the proposal to endow these water bodies with legal personality, with a corresponding right to have their integrity and health respected and protected. By making the ecosystem a legal entity, a holistic approach is assumed, which includes flora, fauna and even the human communities that depend on it. It overcomes the traditional fragmented vision that leads to specific laws being developed on managing water as a resource, on fishing, on biodiversity or the river territory, when they are interdependent.

110. The approach is based on these principles:

(a) Nature's capacity to be represented in court as a new legal entity;

(b) Damage is not necessarily focused on impacts on humans but on nature itself;

(c) Right to compensation for damage.[118]

111. Ruling T-622/16 of the Colombian Constitutional Court complemented these principles by recognizing biocultural rights that link human rights and the rights of nature.[119]

112. The General Assembly's "Harmony with Nature" initiative, dating from 2009, under the leadership of the Plurinational State of Bolivia, currently offers 13 resolutions based on a non-anthropocentric paradigm.[120]

113. As the Māori proverb says, "We are the river, and the river is us."

VII. Conclusions and recommendations

114. **The 2 billion people without guaranteed access to safe drinking water are mostly not thirsty people without water in their living environment but extremely impoverished people whose access to safe drinking water depends on polluted or overexploited aquatic ecosystems and/or who have no means of accessing available water.**

[110] Te Awa Tupua (Whanganui River Claims Settlement) Act 2017, available from https://www.legislation.govt.nz/act/public/2017/0007/latest/whole.html.

[111] See https://www.corteconstitucional.gov.co/relatoria/2016/t-622-16.htm (in Spanish).

[112] Mari Margil, "Bangladesh Supreme Court upholds rights of rivers", Center for Democratic and Environmental Rights, 24 August 2020.

[113] Nez Perce Tribal General Council, resolution recognizing the rights of the Snake River (2020).

[114] Yenny Vega Cárdenas, "The recognition of the Magpie/Muteshekau Shipu River as a non-human person", International Observatory on the Rights of Nature, 6 March 2021.

[115] See https://portal.corteconstitucional.gob.ec/FichaRelatoria.aspx?numdocumento=2167-21-EP/22 (in Spanish).

[116] Bronagh Kieran, "The legal personality of rivers", EMA human rights blog, 16 January 2019.

[117] A/HRC/51/24.

[118] Christopher D. Stone, "Should trees have standing?: towards legal rights for natural objects", *Southern California Law Review*, vol. 45 (1972), available from https://iseethics.files.wordpress.com/2013/02/stone-christopher-d-should-trees-have-standing.pdf.

[119] See https://www.corteconstitucional.gov.co/relatoria/2016/t-622-16.htm (in Spanish).

[120] See http://www.harmonywithnatureun.org/chronology/.

115. **Consequently, securing the human rights to safe drinking water and sanitation entails the obligation of States to manage aquatic ecosystems, ensuring their good ecological status.**

116. **Toxic contamination by heavy metals, metalloids and other toxics, and the short-, medium- and long-term risks arising from certain mining operations, have the following characteristics:**

(a) **Systematic contamination, beyond accidental risks;**

(b) **Severe and massive damage to the health of millions of people;**

(c) **There is an awareness of the progressive poisoning of the population, even if there is no will or intention to cause it;**

(d) **The population does not perceive the poisoning. It is cumulative and irreversible, which implies particularly severe conditions for children.**

117. **Despite these acts' gravity and widespread consequences on the population, systematic toxic contamination is not among the actions defined as crimes against humanity in the Rome Statute of the International Criminal Court. The Special Rapporteur considers it critical to initiate discussions at the international level to explore the inclusion of these actions among the specific crimes defined in the Rome Statute as crimes against humanity, recognizing the magnitude of the harm inflicted and the need to hold the perpetrators accountable.**

118. **In addition, the above-described actions could also be considered ecocide for seriously affecting the health of aquatic ecosystems and public health. Still, this legal concept has not been approved or regulated in the international legal framework.**

119. **However, environmental criminal legislation has advanced in many countries and has begun to consider toxic contamination a crime. Still, developing it, enforcing it vigorously and scaling it up internationally would be necessary.**

120. **States are obliged to provide environmental education and information, to promote training, to ensure effective drinking water disinfection and continuous distribution through well-maintained networks, and to adequately treat faecal and organic waste discharges.**

121. **Overexploitation of aquifers, overallocation of water rights and the de facto prioritization of water used for productive activities by powerful actors violate people's rights to safe drinking water and sanitation, and this will be exacerbated by climate change.**

122. **Indigenous Peoples have effectively protected the good state of aquatic ecosystems through their worldviews, practices and knowledge, which today prove effective in the face of the challenges of sustainability and democratic governance of water that the world faces.**

123. **Tackling climate change from a human rights approach requires promoting adaptation strategies based on a water transition that allows for the recovery of the good state of aquatic ecosystems, paying special attention to aquifers, wetlands and riparian ecosystems to strengthen the resilience of the water cycle.**

124. **Aquifers, the water lungs of nature, protect groundwater quality from polluting events and extreme weather phenomena and should be strategic reserves to manage extraordinary droughts.**

125. **The challenge of financing actions to guarantee drinking water to 2 billion impoverished people is a feasible and democratic challenge that must be addressed for States to comply with their human rights obligations and achieve the Sustainable Development Goals, especially Goal 6 on universal access to safe drinking water and adequate sanitation.**

126. **To complement the recommendations above, the Special Rapporteur on the human rights to safe drinking water and sanitation proposes the following framework for aquatic ecosystem governance with a human rights-based approach:**

127. **Water legislation – grounded in recognition of the human right to a clean, healthy and sustainable environment and the human right to safe drinking water and sanitation – must be based on an integrated vision of the water cycle that allows for the sustainable management of water, and on water being considered as a common good, accessible to all but not appropriable by anyone.**

(a) **Legislation must ensure the transition from traditional approaches to managing water as a resource, to new ecosystem approaches that guarantee the sustainability, good condition, and functionality of rivers, lakes, wetlands and aquifers. On this basis, priority must be put in place to guarantee, in legislation, safe and sufficient drinking water and adequate sanitation for the entire population, as human rights.**

(b) **To the extent that it is about managing a common good on which human rights depend, States must guarantee democratic governance of water under a human rights approach, and therefore must guarantee transparency, public participation and accountability during the planning and implementation phases, preventing any intentional or unintentional discrimination.**

(c) **Guaranteeing the good state of aquatic ecosystems requires, above all, the effective prevention of toxic contamination, especially protecting river headwaters and aquifer recharge zones, imposing strict surveillance and harsh penal sanctions for crimes against public health, guaranteeing the effective treatment of industrial and municipal discharges, promoting rigorous regulation of activities that generate elevated risks, such as mining and chemical manufacturing, and even prohibiting productive activities that harm public health.**

(d) **Diffuse agricultural and livestock contamination of rivers and aquifers by nitrates, manure and pesticides must be combated by promoting an agroecological transition towards sustainable food systems that make it possible to reconcile human and ecosystem health with social well-being, reducing the use of pesticides, integrating sustainable livestock farming and production agriculture, and recovering soil fertility.**

(e) **The sanitation of wastewater must be ensured, not only in large cities with intensive wastewater treatment plants but also in smaller municipalities and rural communities, through extensive but effective systems, that are manageable and affordable for municipalities and community institutions, as well as by providing support in the construction and maintenance of stand-alone systems, such as septic tanks, in dispersed populations. Beyond cleaning up wastewater, States must guarantee the disinfection of water and the maintenance of networks to guarantee the potability of the water supply.**

(f) **States must avoid the overexploitation of aquifers, the existence of illegal wells, the overallocation of water rights and the hoarding of land and water, and avoid unfounded expectations of current or future water availability, guaranteeing the supply to populations and communities in situations of vulnerability and poverty, above any productive use, however profitable it may be.**

(g) **States must monitor companies and hold them accountable for the degradation of aquatic ecosystems and the impacts on water potability, forcing them to comply with their obligation to repair and compensate for damages through legislation based upon the Guiding Principles on Business and human rights.**

(h) **States must promote transparent and participatory public management models in the river basin, aquifer institutions, and municipal water and sanitation services. In rural areas, community water management is undoubtedly the genuine expression of democratic water governance that many peasant communities and Indigenous Peoples have traditionally practised. Therefore, States must recognize and strengthen community water management and institutions, promoting public-community partnership strategies.**

(i) **States must recognize and respect Indigenous worldviews, practices and knowledge in water management within the framework of the rights recognized by the United Nations Declaration on the Rights of Indigenous Peoples.**

(j) **Promoting a participatory and responsible culture requires education, information and training policies on water management for the entire population, paying particular attention to children, and must be presided over by the values of caring for others and for aquatic ecosystems, and have an egalitarian approach between boys and girls, and men and women.**

(k) **It is necessary to develop adaptation strategies based on hydrological, land and urban planning to face climate change which strengthen the environmental resilience of aquatic ecosystems and the social resilience of the population – recovering the good condition of wetlands, riverside ecosystems, and especially aquifers, as strategic drought reserves will be essential to reduce the impacts of droughts and floods. Guaranteeing the human rights to safe drinking water and sanitation and to safe homes against the risk of flooding, particularly for the most impoverished, and developing water supply and sanitation facilities adapted to extreme events of drought and river floods, reduce the population's vulnerability.**

(l) **To meet Sustainable Development Goal 6, States and international institutions must take on the challenge of making peace with our rivers and aquatic ecosystems, and recovering their good condition and ecosystem functionality. Still, it is also necessary to establish budgetary priorities at the national, regional and global levels to finance the basic infrastructures of communities in extreme poverty.**

(m) **The Special Rapporteur is deeply concerned by the growing toxic contamination of rivers, aquifers and drinking water sources and recommends that a debate be opened within United Nations bodies and human rights mechanisms to define and clarify the criminal typology to be applied to massive and systematic processes of toxic contamination by heavy metals, metalloids and other toxins, such as those that often occur in legal and illegal mining operations and chemical manufacturing.**

(n) **Finally, the Special Rapporteur supports the recommendations made by the Special Rapporteur on the issue of human rights obligations relating to the enjoyment of a safe, clean, healthy and sustainable environment in his 2021 report to the Human Rights Council entitled "Human rights and the global water crisis: water pollution, water scarcity and water-related disasters"[121] and considers that report to be complementary.**

[121] A/HRC/46/28.