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The effectiveness of water law – Brazil, Angola, and United States interface

A efetividade da lei de água – interface Brasil, Angola e Estados Unidos da América

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Abstract: Water resources are essential for life on earth. It has already been proven that although it is a resource renewable, water is a limited natural resource. Countries like Brazil, Angola and the United States of America, despite being on different continents and having economic development indices very different, are privileged in this regard, and that is why they were chosen to be objects of this search. But the lack of preservation of this natural resource in all of them, combined with poor water distribution, triggered important warnings in these nations. Consequently, it was necessary to implement regulation for water protection and its correct distribution. From this delimitation, the object of this article is to investigate the main foundations and instruments existing in the Water Laws edited in the Brazil, Angola and the United States. With the use of the deductive method and from research bibliographical and legislative of each of the countries, it is concluded by the need of adequate use of the water resources from the principle of sustainability and the constitutional principles governing the environmental and urban policy, as it is a limited and fundamental resource for the survival of humanity.

Keywords: Environment. Pollution. Water. Sustainability.

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Resumo: Os recursos hídricos são essenciais para a vida na terra. Já ficou comprovado que embora seja um recurso renovável, a água é uma riqueza natural limitada. Países como Brasil, Angola e Estados Unidos da América, apesar de estarem em continentes diversos e possuírem índices de desenvolvimento econômico muito diferentes, são privilegiados nesse quesito, e por isso foram escolhidos para serem objetos desta pesquisa. Mas a falta de preservação desse recurso natural em todos eles, aliado a má distribuição hídrica, fizeram acender importantes alertas nestas nações. Consequentemente, foi necessário implementar regulação para proteção hídrica e para sua correta distribuição. A partir dessa delimitação, o objeto deste artigo é investigar os principais fundamentos e instrumentos existentes nas Leis de Água editadas no Brasil, em Angola e nos Estados Unidos. Com a utilização do método dedutivo e a partir de pesquisa bibliográfica e legislativa de cada um dos países, conclui-se pela necessidade de adequada utilização dos recursos hídricos a partir do princípio da sustentabilidade e dos princípios constitucionais regentes da política ambiental e urbana, pois trata-se de um recurso limitado e fundamental para a sobrevivência da humanidade.

Palavras-Chave: Meio Ambiente. Poluição. Água. Sustentabilidade.

1 INTRODUCTION

The Earth is comprised of several interconnected ecosystems. Thus, disturbances related to water pollution, or any other natural element can disturb all other systems connected to natural resources.

In this context, water is known to be essential for plant and animal life, being one of the most abundant substances in the biosphere. Hydrogen, for example, which is a primary element of water, is the most abundant element in the seas that cover most of the earth's surface and plays an essential role in innovative prospects for the future.

The amount of water on earth is constant and is continually recycled. According to Ferrey (2022), most of the existing water on planet earth arrived through a billion years of collisions of meteorites and comets, which brought enough water to fill the oceans. Thus, the seas of the oceans already had their current size 3.8 billion years ago.

> More than 90 percent of all of the water on earth is in the oceans, with another 2 percent in glaciers and polar ice caps, with 90 percent of that in Antarctica. Four percent of water is in the lithosphere including groundwater, and less than one-tenth of 1 percent of water is in freshwater bodies such as lakes, rivers, and streams. Therefore, freshwater constitutes less than 6 percent of all the water on earth. Yet this freshwater is essential to survival. While humans can go for months without food, they can only fast for a few days without water. Seventy-five percent of the world's freshwater supply is frozen in glacier and ice formations. (Ferrey, 2022, p. 3)

Nevertheless, under the pretext of human and society development, the water reserves of most countries, for multiple causes and choices, began to face serious crises of pollution of their surface and underground waters.

Historically, industries were almost always located along waterways, which provided a means of exit and entry for commerce and populations, as well as providing a cheap means of disposing of waste and pollutants directly into the water.

It is important to recognize that many factories, commercial facilities, and inefficient sewage treatment plants, until today, throw sludge and other effluents directly into water courses, without adequate treatment, causing serious environmental damage – direct and indirect – to water resources.

Therefore, from the 1960s onwards, a large part of the world public began to recognize that the protection of the environment was imperative and, in particular, the water, to preserve human life and the natural resources of nations.

In this context, every decade the planet's water resources reserves become increasingly scarce, with poor management in its distributive phase, without any equitable objective. Therefore, there must be an effective action by the government and society itself in the protection of this very important natural resource, essential to the life of the entire planet. Thus, environmental protection laws were enacted to

promote two major objectives: to prevent irreparable environmental damage and to force the consideration of environmental values in all domains of private and commercial activities, including the actions of governments.

One of the government agencies responsible for protecting Brazilian waters is the Agência Nacional de Águas e Saneamento Básico (ANA), responsible, including, for inspecting and implementing the National Water Resources Policy, as provided for in Law n. 9.433/1997 and other specific regulations. This law also creates the National Water Resources Management System, based on the following foundations: a) water is a public domain, a limited natural resource with economic value, and its use must be proportionate in the management of water resources multiple; b) in situations of water scarcity, priority use will be given to human consumption and animal watering; c) the hydrographic basins are the territorial unit responsible for the implementation of the National Water Resources Policy and the performance of the National Water Resources Management System; d) the management of water resources must "be decentralized and count on the participation of the Public Power, users and communities" (Article 1. Of Law 9,433/1997).

Likewise, in 2010 Angola created the National Institute of Water Resources (INRH), an institution similar to ANA, in Brazil, through Presidential Decree no. 253/10, of November 16. Its attributions are to guarantee the execution of the policy national water resources, planning and integrated management, use, preservation, protection, supervision and control. It is also interesting that the Water Law in Angola no. 6/2002, of June 21, assigns as the main entity for water management the river basin committees (article 14), which must prepare, with the participation of the communities involved, National Plans for Water Resources and General Plans for Development and Use of Water Resources in the Basins, which will be approved by the central government (Article 15).

In the United States of America, the Environmental Protection Agency (EPA) was created around the 1970s under President Nixon

and is responsible for administering the main American environmental laws, including the Environmental Protection Act. Clean Water Act and the Safe Drinking Water Act.

The Clean Water Act (CWA) regulates the discharge of pollutants in the navigable waters of the United States of America, reflecting its legislative basis as a device for the protection of navigation and the regulation of wetlands also inserted, not regulating the discharge of pollutants in the groundwater.

On the other hand, the Safe Drinking Water Act regulates groundwater sources of drinking water and recharge areas, as well as public water systems in general. Therefore, the Clean Water Act is the most far-reaching US statute and will receive the most attention in this survey.

Each of these related laws concerning US, Angolan and Brazilian companies express specific environmental quality goals, and the Environmental protection obliged to work in this exact direction, within the scope specific to each statute, which, for better understanding, will be analyzed separately in the topics below.

2 BRAZILIAN WATER LAW

Brazil is one of the richest countries in the world in terms of natural reserves. In relation to water resources, it could not be different since the Brazilian State has 12% (twelve percent) of the planet's freshwater reserve. Despite this abundance, water resources in Brazil are not inexhaustible and not even properly distributed.

This concern with the limitations of good quality water resources and with their adequate distribution are not only Brazilian dilemmas but are current problems on the world stage. In this sense, the 2030 Agenda for Sustainable Development of the United Nations (UN), by instituting the 17 Sustainable Development Goals (SDGs) and the respective goals set, brings in its objective number 6, expressly, the

need to universalize the access to water and sanitation. Countries that are not so wealthy in terms of water reserves have carried out more and more studies for the correct use and reuse of potable and non-potable water, to assure current and future generations the obligation to have water at adequate quality standards for their respective uses.

Many people believe that Brazil will never suffer from a water crisis. But "our carelessness is unfounded. Although the Brazilian territory has 'vast reserves' of fresh water, we witness, in its due proportions, a replica of the maldistribution presented in the international scene." (Dantas, 2015, p. 11). Therefore, do not lose sight of the fact that the Brazil's resources are finite and limited too.

Thus, from the promulgation of the Constitution of the Federative Republic of Brazil of 1988, more precisely, the need to regulate article 21, item, XIX, the Brazilian State recognized the need to create, regulate and protect the waters within the national territory, worrying about its management within the sustainable development and equal sharing of this very important natural resource that is essential to life.

In January 1997, the Brazilian National Congress created the Law n.9.433, better known as the "Water Law", which gave greater scope to the 1934 Water Code and was responsible for instituting the National Water Resources Policy and the creation of the National Water Management System of Water Resources, thus regulating item XIX of art. 21 of the Federal Constitution. This system is composed of the following bodies: National Water Resources Council, National Water Agency; State and Federal District Water Resources Councils, Hydrographic Basin Committees and Federal, State, Federal District and Municipal Government Agencies.

The law n. 9.433/97 (Brazilian Water Law) provided for a more decentralized management, with the creation of bodies, agencies, and watershed councils, promoting a great advance in the adequate distribution of water resources in the national territory, including the search for the protection and sustainable use of resources water. Following a global trend, the Brazilian Water Law instituted and consolidated

contemporary environmental principles in relation to the adequate and sustainable management of the use of water resources, given the enormous global concern regarding the rationalization and better use of natural resources, including the water resources.

The Brazilian Water Law was responsible for improving the quality of several national watersheds, rivers, and lakes. It so happens that despite these important achievements, Brazil's challenge remains enormous, as managing this abundant and very rich natural heritage in a sustainable manner is not a simple task and needs to be constantly updated.

In the National Water Resources Management System provided for in the Brazilian Water Law, the role of the National Water and Basic Sanitation Agency stands out, which is a federal entity (Autarchy under special regulation), with autonomy and linked to the Ministry of Regional Development. It was regulated by Law 9,984/2000 (with wording updated by Law 14,026 of 2020 - new legal framework for basic sanitation) and is responsible for establishing reference standards for the regulation of public sanitation services, as well as establishing rules for its performance, administrative structure and sources of funds.

It should be noted that the recent changes brought by the New Legal Framework for Basic Sanitation have innovated by unifying water management with the management of basic sanitation in the country. This happened with the justification of universalizing public service in the country, since data indicate that approximately 50% of Brazilian homes are not served by basic sanitation, which is highly harmful to public health. It can be observed that the years after the approval of the water law in Brazil demonstrated that an update in the legislation was necessary. Otherwise, Brazilian rivers and groundwater would continue to be polluted, as there are still practices of illegal deforestation, the use of unregulated pesticides, the dumping of domestic and industrial waste in surface waters and other factors that quickly lead to the reduction of achievements. hard attained in recent decades, under the principles, foundations and legal instruments of the Brazilian Water Law.

Thus, the New Legal Framework for Basic Sanitation aims to stimulate competition between economic agents and improve regulation in the sector, with the regionalized provision of services. Companies operating in the sector must set performance and universalization goals, which is a gigantic challenge in view of the huge contingent of people who are underserved by the scope of basic sanitation in Brazil.

> Desse modo, o novo art. 10-A, caput e inciso I, da Lei 11.445/2007 prevê que os contratos de prestação dos serviços de saneamento básico deverão conter, expressamente, sob pena de nulidade, determinadas metas de desempenho, que podem ser sintetizadas a seguir: (i) proceder à universalização (metas de expansão) e (ii) melhorar a qualidade dos serviços, (iii) reduzir perdas na distribuição de água, (iv) racionalizar o uso da água e dos recursos naturais, e, incentivar (v) a eficiência energética, (vi) o reuso de efluentes sanitários e (vii) o aproveitamento da água da chuva (esses objetivos são reforçados pelo disposto no art. 2º, XIII, da Lei 11.445/2007). O art. 11-B, da Lei 11.445/2007, prevê que os contratos de saneamento básico devem definir metas de universalização, metas quantitativas de não intermitência do abastecimento, de redução de perdas e de melhoria dos processos de tratamento que garantam o "atendimento de 99% (noventa e nove por cento) da população com água potável e de 90% (noventa por cento) da população com coleta e tratamento de esgotos até 31 de dezembro de 2033". Embora perceba-se uma clara intenção do legislador em tentar resolver o crônico problema de saneamento no Brasil, tudo leva a crer que as metas de universalização não serão cumpridas até 2033, haja vista o vulto dos investimentos, o tempo e o ambiente político necessários para tanto. Entretanto, existe uma possibilidade de dilação do prazo para o cumprimento das metas de universalização até, no máximo, 1º de janeiro de 2040 quando os estudos para a licitação referentes à regionalização da prestação "apontarem para a inviabilidade econômico-financeira da universalização na data referida no caput deste artigo, mesmo após o agrupamento de Municípios de diferentes portes" (art. 11-B, § 9º). (Antunes; D'Oliveira, 2020)

The proposal is to reduce or even remove the direct action of the public power in these issues, delegating them to the private sector through concessions or privatizations. The National Water and Basic Sanitation Agency will be responsible for the role of regulatory and supervisory agent of the public service, encouraging national and foreign investments in the sector.

> O objetivo do legislador é estabelecer um ambiente de segurança jurídica e regulatória, com regras claras e uniformes em todo o país, a fim de que possa atrair investimentos para o setor e contribuir com a universalização dos serviços públicos. Aliás, a Lei contempla expressamente as ideias de uniformidade regulatória do setor e de segurança jurídica na prestação e na regulação dos serviços (art. 4º-A, § 7º, da Lei nº 9.9984/2000 e art. 48, III, da Lei nº 11.445/2007). (Antunes; D'Oliveira, 2020)

Therefore, that the New Legal Framework for Basic Sanitation brought abyssal changes in the Brazilian Water Law. The institutional arrangement previously used, which was the preponderance of state public companies performing public water and sewage treatment services, was changed to open up the niche for the exploitation of these services to national and foreign private companies. However, privatization does not necessarily mean the efficiency and effectiveness of public service provision. In the words of Souza:

> A privatização expandiu-se nos anos 1980 na Europa e nos anos 1990 na América do Sul e na África. Em vários países esse modelo é questionado e muitas concessões privadas são desfeitas. Sobretudo o aumento tarifário, a precarização dos serviços e investimentos privados aquém do previsto são os principais problemas. E em alguns países como Argentina, Uruguai, Bolívia e Equador, as multinacionais que controlam essa área se viram obrigadas a abandonar os serviços devido às fortes pressões populares (2015, p. 52).

In this way, it is imperative to endow the regulatory agency with strength and legitimacy in order to succeed in charging and

controlling companies that operate in this sector so that they meet the universalization goals set in Law No. charging excessive fees. Avoid repeating what has already happened in countries that have opted for the private paradigm of providing public water and sanitation services, further weakening the population lacking these services and the quality of the environment in general.

3 THE WATER LEGISLATION IN ANGOLA

Angola is a country on the west coast of the African continent, with more than 35 million of inhabitants (UN, 2022). As in Brazil, Angola was colonized by Portugal, having Portuguese as the official language, which coexists with countless other languages traditional local. Its independence from the colonizer is recent, on November 11, 1975, after a long war of liberation, with the signing of the Alvor Agreement for Portugal and the three national liberation movements: MPLA (Popular Movement Liberation of Angola), FNLA (National Front for the Liberation of Angola) and UNITA (National Union for the Total Independence of Angola). However, soon after the independence, the country entered a fratricidal war between the three movements listed above, which lasted for three decades (it ended in 2002, with the victory of the MPLA, which he governs until today), making it impossible for any initiative to development of a minimal infrastructure, economy, or organization in that period. (Araújo, 2012)

In 2010 Angola edits its Constitution of the Republic, and from there perceives a boom in economic growth and foreign investment, accompanied by an accentuated process of formation and establishment of its foundational institutions.

Regarding the water issue, the country has enormous potential, only surpassed in Africa by the Democratic Republic of Congo. However, in view of the long period of civil war, the infrastructure necessary for access to the water and basic sanitation is still very

incipient, being among the most African countries with the lowest standard of water supply coverage. Another serious problem is its uneven distribution. In the provinces of the south, almost desert region, as Cunene, Namibe and Huíla, there has been low rainfall since 2008, accompanied by almost endemic hunger, requiring the urgent development of technologies and appropriate public policies for the capture, storage, and rational use of water in the most critical months. In a survey carried out in families belonging to the basin of the Caculuvar River, which bathes the provinces of Cunene and Huíla, approximately 100% of the houses, mostly made of straw, there is no running water. Its residents use rainy weather, water taken from small "ponds" (omatala in the local language). And in the dry season they use water from artisanal wells to capture water underground, which is used for watering people and animals, since the rivers dry up. This water, which is very scarce, is far below what the WHO recommends, apart from the fact that animals and people are used in the same well, spreading diseases. (Bonga, 2016) Thus, the water issue is one of the biggest public problems from the country.

In turn, there are no concessions and licenses for private companies in the country to provision of water and sanitation services, all of which are the responsibility of the government central or provincial governments. In the capital of Angola, the public management entity water systems is "Empresa Provincial de Água de Luanda", which provides access to water in only 50% of homes. (Faria, 2016, p. 74)

The first regulation on water resources in Angola dates from the end of the war civil service, with the Water Law nº 6/2002 of June 21st. Applies to inland waters surface and underground, brings general principles in water management, regulates its use and protection, as well as assigns penalties to those who infringe with your commandments. Treats waters as finite natural resources, owned by the State, constituting part of the public water domain. inalienable

right and imprescriptible, which must be preserved and managed for the benefit of the public.

In its article 22, the Angolan Water Law classifies the uses of water in common and private. The first ones are free and take place in natural and free conditions, intended to meet the user's domestic, personal, and family needs, their animals and to water their subsistence crops, other than commercial purposes (Article 23). Private or private uses, on the other hand, can only take place with a license or state concession (article 24), for individuals or legal entities, national or foreign, and will be immediately revoked when they call into question the uses common. This is because the legislation provides that the supply of water for consumption human resources and the satisfaction of sanitary needs has priority over other uses private property (Article 33). The same provision can be observed in the law Brazilian economy, which indicates that in situations of scarcity, the priority use of resources water is human consumption and animal watering. (Bonga, 2016, p. 29-31). To finance public policy involving water resources, the Water Law provides that a National Water Resources Fund will be created, which will be supplied by the central government (Article 16).

In 2010, the National Institute of Water Resources was created, institution like "ANA" Agency, in Brazil, through Presidential Decree nº 253/10. Its attributions are to guarantee the execution of the national resource policy resources, integrated planning and management, use, preservation, protection, supervision, and control (Bonga, 2016, p. 30)

It is also interesting that the Water Law in Angola attributes as an entity main for its management are the river basin committees (article 14), which must draw up, with the participation of the communities involved, National Plans for Water Resources and General Plans for Development and Use of Resources Water in the Basins, later approved by the central government (Article 15). However, although they are provided for by law, the committees are not yet established in all

country. The first case implemented was the River Basin Committee Cunene, by presidential order No. 28/PR/91 of November 4, 1991. (Bonga, 2016, p. 31) Later, offices were also created to administration of the hydrographic basins of the Cunene, Cubango and Cuvelai rivers, through of Presidential Decree no. 160, of June 18, 2021. (Lexlink, 2022)

After the enactment of the Water Law and the end of the civil war, the Angolan Government improving the legal and institutional context of the water sector, with the publication of several important diplomas to promote and establish an appropriate context for the sustainable development of the sector. Complementing the legislative package on the sustainable use of water resources, on April 22, 2020, the Presidential Decree no. 117, which established the Basic Environmental Law, which provided for the mandatory licensing of activities that, by their nature, location, or size, may cause significant environmental and social impacts. Subsequently, on May 19, 2020, Presidential Decree n. 138, which approved the National Environmental Quality Program, focused on quality assurance of air, water and soil through short-, medium- and long-term government programs. At the regarding water quality, in its item 4.2.2, it has the following objectives: a) to collect information on sources of contamination of Angola's main water bodies and its impacts on health and the environment; b) promote the preservation, protection and conservation of water resources in the country; c) implement water quality indices, of potability and microbiological patterns in water bodies used as a source of supply to the population, so that public and private providers adapt to them; d) create a bathing index for rivers and seas, given their relevance to tourism, for sensitive ecosystems and because coastal areas are the areas of greater population concentration; e) recover silted or contaminated rivers and lakes; f) establish turbidity standards for post-filtration or pre-disinfection water, as well as organoleptic standards of water potability and radioactivity standards for water

for human consumption; g) monitor water quality parameters, enabling technicians in this area. This law also brings action plans with objectives, activities, previously defined evaluation modes.

As for the fees charged for the use of water resources, in October 2020, Presidential Decree n. 255, which regulated the tariffs for public water supply and wastewater sanitation services, whose collection and inspection is carried out by the State Regulatory Entity of the Water and Sanitation. It applies to all legal entities that provide abstraction, treatment, distribution, transport of water, as well as collection, treatment, and final destination of wastewater from public supply systems. And on the 12th of February 2021, Presidential Decree n. 41, which established the regime legal fee for water abstraction from the water domain as remuneration economy for the use of water within the scope of licenses and concessions for the capture of raw water. This rate was imposed on national and foreign companies with a view to offset the environmental cost inherent to activities that cause significant impacts to the water domain. (Lexlink, 2022) This is similar legislation to the Brazilian one, when it institutes the onerous grant for the use of water. (Santin; Goellner, 2013)

4 WATER LEGISLATION IN THE UNITED STATES OF AMERICA

The United States of America, one of the world leaders in several segments, had serious environmental problems in relation to the pollution of natural water resources until the 1970s, when the American government had not yet regulated the standards of control of discharge into water in the country.

After the occurrence of several environmental crises and health outbreaks, together with the fact that the environmental movement brought to light the problems that had been occurring in several environmental matters, the US Congress created environmental

protection laws and Environmental Protection Agencies, as will be shown below. seen next.

a. The Clean Water Act

In the United States of America, environmental laws began to reflect a sense of community, where the health and safety of individuals is as important as the economic well-being of a nation.

In the 1930s, most states had already adopted administrative programs to control surface water pollution, but regulatory measures were generally quite ineffective. States were reticent to impose the cost of better sewage treatment on local and private governments, as they feared that industries would flee elsewhere if they repressed industrial discharges into riverbeds and other waterways. (Salzman, Thompson, 2019)

The US Congress first discussed water pollution in the Water Quality Act of 1965. Like many previous laws related to water protection, this one also relied almost entirely on states to improve water quality, as the US federal model values local autonomy, and the law required states to adopt water quality standards that guarantee intended use and formulate plans to implement these standards.

It so happens that the 1965 Law did not manage to control water pollution, as the states did not have the political will to enforce the water quality standards they had established. States did not even have the scientific information necessary to determine the required standards of appropriate water quality. Faced with such scientific uncertainty, it was common for polluters to argue that their industrial discharges were not the cause of environmental problems related to water quality, which ended up plaguing the American nation with serious problems with water quality. (Salzman, Thompson, 2019)

But it was clear that the main sources of pollution of American waters came from industries, municipalities, and agricultural sectors. The types of pollutants that enter streams, lakes, and oceans include

organic waste, other nutrients, toxic chemicals, and other hazardous substances.

> About Half of the states still had not promulgated water quality standards under the 1965 Act. Less than ten percent of municipal sewage facilities used anything other than filters and settling tanks to treat their sewage before dumping it into the closest waterway. Less than a third of industrial facilities treated their wastes. Although the Cuyahoga River captured the public's attention When it caught fire um 1969, the Cuyahoga had already caught fire at least a dozen times before. A 1952 fire caused over $ 1 million damages to boats and a building. (Salzman, Thompson, 2019, p. 179)

Beginning with the National Environmental Policy Act of 1969 (NEPA) that a true national policy was established to ensure that all American citizens have a safe, healthy and productive environment, as enshrined in the Clean Air Act.) and in the Clean Water Act, two large and important US statutes that are historic landmarks in American environmental defense and protection.

Before the enactment of these two legislative frameworks, the American Water Quality Act, in fact, did not even come close to achieving its objectives, as many critics of the law already argued, as the objectives were totally unfeasible, and therefore, destined to lead to to the public's disappointment. But the US Congress had the main objective in passing the CWA, to reduce point source discharges, and that was achieved.

Starting with the CWA, which was passed in 1972, the US Congress set extremely ambitious goals for its new regulatory regime, as the Water Act should provide for the protection and propagation of fish, shellfish, and wildlife, in addition to eliminating all discharges of pollutants in the country's waterways until 1985. Thus, the Clean Water Act in the United States of America (Clean Water Act - CWA) established a comprehensive legal framework to regulate all sources of pollution and discharges of pollutants. in American waters, including

with respect to discernible water transport, confined or discrete, including, but not limited to, any pipe, ditch, canal, tunnel, well, storm water, etc.

The law is implemented by the Environmental Protection Agency (EPA), several interstate agencies, fifty states (and several territories), and thousands of local governments. Its purpose is to restore and maintain over three million miles of rivers and streams, nearly twenty-seven million acres of lakes, and over thirty-five thousand square miles of estuaries. (Alder, 1993, p. 13)

The Clean Water Act (CWA) is the main federal statute dealing with water pollution in the United States of America, having several distinct programs that regulate the control of water pollution, requiring that all industrial and municipal facilities that directly discharge pollutants in waters such as rivers, lakes or oceans obtain a special permit called the "National Pollutant Discharge Disposal System". This permit generally contains limitations on the amount or concentration of pollutants that the facility can discharge into the environment.

In addition, as for the facilities that discharge their waste into the sewers, as well as agricultural runoff or runoff from city streets, which are not point sources, the CWA requires that the control of this type of pollution takes place through planning. site, in addition to meeting the "pre-treatment" requirements applied to waste that is discharged into the sewer.

The Clean Water Act also contains a separate program of water quality standards. States can designate appropriate uses for water within their borders and adopt criteria regarding the level of environmental pollutants that allow such use. These designations and criteria for the use of water resources are called "water-quality standards" and are subject to review by the US environmental control agencies (EPA).

> Water quality requirements consist of a set of rules designed to achieve a certain level of quality for a natural body of water. They are based on scientific information regarding pollutant levels consistent with various uses of water, such as public

> water supply, recreation, industrial uses, and protection of fish and wildlife. Water quality standards are adopted by states and submitted for EPA approval (Sive; Friedman, 1987, p. 46)

The US Environmental Protection Agency (EPA) has struggled for many years to develop a regulatory program for point discharges from stormwater runoff, as some facilities still discharge into a municipal or private sewer system, rather than directly on a waterway. Therefore, the CWA envisages the development and application of various types of limitations and effective standards.

Thus, in the long term, just as the Clean Air Act improved air quality, the Clean Water Act also significantly reduced the volume of effluent discharged from factories and sewage treatment plants. sewage into American surface waters, significantly improving the quality of American water supplies.

Today, much of the water pollution comes from farms, mines, construction sites, parking lots and other lighter regulated land uses. When a farmer irrigates his crops, for example, much of the water runs off the land and mixes with various pesticides and other agricultural chemicals and finds its way into the river.

With the Clean Water Act, point sources of pollution (factories and commercial facilities, etc.) are no longer the main contributors to water pollution in American rivers and lakes, as seen in past decades. The CWA legislation directed a shift from reliance solely on water quality standards to the additional use of technology-based standards mandated by the federal government.

> This regulatory scheme is a reaction to the prior half century of unsuccessful state management of water pollution. The Act recognizes the need, not so much to analyze the pollution problem from the perspective of where the pollution is received, but rather to control how much is sent. The theory is that if the discharge of pollutants is restricted at the inception, then water quality necessarily will improve. (Weinberg, 2013, p. 117)

In other words, under the Clean Water Act, the US Environmental Protection Agency (EPA) or even approved state agencies are now able to regulate direct or indirect discharges of pollutants into the waters of the United States of America. In addition, each discharger must obtain a license and comply with standards based on technology or water quality.

The U.S. Environmental Protection Agency (EPA) also oversees the cleanup of oil spills or hazardous substances in U.S. waters, assessing the costs of removal for the parties involved, and can generate fines for each day of violation of the statute or even extend to criminal actions against individual executives in some cases.

As a result, existing water resources in the United States of America are much cleaner than when the Water Act was passed nearly half a century ago. However, there is still a long way to go to ensure and increasingly improve water quality throughout the US country.

Therefore, the Clean Water Act (CWA) is designed to protect and increasingly improve the quality of water resources in the United States of America, being formed by a body of laws and numerous regulations that are based on established requirements on water quality, administered by the Environmental Protection Agency (EPA) or by each individual US state through permit programs.

b. Safe Drinking Water Act

The Safe Drinking Water Act of 1974 was prompted by outbreaks of waterborne diseases and increased chemical contamination of the water supply. The law's sponsors cited numerous known outbreaks of disease or poisoning from unsafe water that caused illness and death between 1961 and 1970.

> The large pollution and economic development around the great lakes have combined to produce many water quality problems. [...] The outbreaks of the disease were the result of sewage contamination of the lakes from which these cities draw their drinking water. (Baker, 1997, p. 170)

Consequently, public authorities' concerns at various levels regarding the quality of drinking water focus on acute health threats caused by microbes, viruses, and other disease-causing pathogens in public water sources.

Currently, it has been scientifically identified and proven that the treatment of drinking water is one of the most significant advances in public health in the 20th century. As a result of this water treatment, waterborne health epidemics such as cholera are now a thing of the past in the United States of America. In fact, more than 300 (three hundred) million Americans who consume water regulated by the provisions of the SDWA, are protected by the regulatory framework which it offers to protect their health and prevent disease as an essential part of their well-being. (Sullivan, 2017, p. 489)

Major amendments were added to the law in 1986, requiring the US Environmental Protection Agency to list 83 additional contaminants to be regulated over a three-year period, another 25 through 1991, and another every three years thereafter. The Safe Drinking Water Act was amended again in 1996 to require the Agency to regulate 25 new pollutants at least every three years as they are discovered. (Ferrey, 2022, p. 326)

Thus, the American states began to have the freedom to be able to assume responsibility for the drinking water program in their territory, and many chose to do so. It is noted that the Safe Drinking Water Act (SDWA) establishes substantive and procedural requirements for "public water supply systems", which are defined as a system of supplying piped water for human consumption.

Enacted and existing regulations under the Safe Drinking Water Act (SDWA) authorize the US Environmental Protection Agency (EPA) to set standards for maximum levels of contaminants for specific chemicals, as well as bacteria, coliforms, and certain types of radiation.

The US Environmental Protection Agency (EPA) has identified hundreds of organic chemicals, synthetics, heavy metals, pesticides and other pollutants in the drinking water supply, and the Safe Drinking

Water Act requires the US Environmental Protection Agency (EPA) to determine which contaminants threaten public health and establish standards for those contaminants. (Sullivan, 2017)

US states, aided by federal grants, enforce drinking water regulations and supervise water providers in the country, who must also monitor their water for potential contaminants and treat it to meet existing standards in the law.

> EPA officials work with state administrators to train operators of municipal wastewater treatment facilities. [...] The EPA's Clean Water program is primarily an effort to protect public health. The Agency oversees public drinking water systems to ensure that utilities meet appropriate standards. In addition, the agency implements a program to protect present and future sources of drinking water from contamination by underground injection. (O´Leary, 1993, p. 15)

Congress has also taken steps to reduce lead in drinking water, with amendments to the Safe Drinking Water Act (SDWA) prohibiting pipes, solders, and flux with more than small amounts of lead in the installation or repair of public water systems. This prohibition also applies to plumbing in homes and other buildings connected to the systems. Accordingly, local water providers are required to test water for copper and lead under recent regulations. If excessive levels are detected, water supplies must be properly treated to reduce the likelihood that metals in pipes will leak and contaminate drinking water. (Ferrey, 2022)

However, although there have been improvements in the quality of American drinking water through the controls carried out, still today, almost 20 (twenty) million Americans annually are thought to become ill each year from drinking water contaminated with bacteria, parasites, and viruses, not to mention other chemicals. (Ferrey, 2022, p. 326)

So, it is very important a daily struggle for all countries, developed or not, to preserve this finite and essential resource for human life, as well as for all life on the planet: water.

5 CONCLUSION

Water, as a natural element, is essential to human life. In this context, Brazil, Angola, and the United States of America, even with all abundance of natural resources, sees its populations suffer from pollution and bad distribution of water resources.

Aware of this situation, the Public Power and several other social actors from both countries managed to leverage legislative victories that made visible the improvement in the distribution and quality of water resources in their territory.

In Brazil, the Water Law No. 9,433, of January 8, 1997, decentralized the National Water Resources Management System into several bodies, and managed to better coordinate water management in the national territory, planning and regulating the use and preservation of resources. Brazilian waters. In turn, the new Legal Framework for Basic Sanitation in the country brought important innovations to the sector, unifying the regulation of water and basic sanitation in a single regulatory agency, and encouraging the opening of this market to competition from the private sector, to reach the goals set by the UN of universal access to clean water and sanitation for its inhabitants.

In Angola, the Water Law nº 6/2002 of 21 June brought a to regulate the sector, greatly shaken by the years of civil war that preceded this legislation. Subsequently, an effort by the government Angola to improve the legal and institutional context of the sector, with the edition of several relevant legal diplomas to promote and establish an appropriate context for the sustainable development of the country. However, it is also clear that much of the that is in the legislation is not yet effective in practice, such as the issue of committees of hydrographic basins, fundamental elements for the implementation of the water policy within that country.

The United States of America, having fought air pollution in the early 1970s, the American Congress turned its attention to verifying the conditions of American water reserves, through the Water

Laws, gradually improving the results in relation to potable or even navigable water quality.

In general, it was found that local and state water pollution control activities were superseded by federal laws and authorities created in the 1970s onwards. Currently, state and municipal governments are primarily responsible for developing emission controls and regulations that comply with these general federal control programs, through waste-to-water permits.

Therefore, nowadays, both Brazil and the United States of America enjoy relatively clean water reserves, or, at least, much better than the phase prior to the enactment of their water resources protection laws, since the amount of water pollution dumped into waterways annually is less than a fifth of the amount of pollution dumped into the air. Likewise, the US Water Act dramatically reduced the number of toxics pumped into lakes and rivers.

In this way, both countries began to incorporate good results in their domestic scenario and must maintain a long participatory journey of all sectors/social actors in the search for environmental protection and correct use of water resources, under the principles of sustainability, aiming at the use of the current and future generation.

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