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International Centre
for Water Resources and Global Change
under the auspices of UNESCO



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The Importance of Cooperation Between Transboundary River Countries



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This work was composed during an internship at the International Centre for Water Resources and Global Change (ICWRGC) located in Koblenz, Germany, during a span of 3 months, from May to August.

Taking up the publication from Molnar, Kata, et al. (2017), this internship work focuses on cooperation between countries. It points out the importance of cooperation especially within transboundary river countries using the Nile and the Rhine River as examples where cooperation has developed over time.

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1

Introduction

The goal of this paper is to understand why cooperation is important for countries sharing a river using examples such as the Nile River and the Rhine River. Different forces influence countries to cooperate and differences are set aside in order to find mutually beneficial goals. Factors like water pollution, governmental and political concerns, as well as driving forces such as climate change and population growth can push countries to cooperate. It is important to take a close look at these issues and ask how they can be improved. The Nile River, although very different from the Rhine, can still share similarities; the rivers both signify a lifeline for all of those who benefit from their water. Both rivers connect several countries, but not all aspects are positive: climate change, for instance, affects us all, therefore, not one river is free from its effects. It is important to note how humans adapt to new conditions from all parts of the world. Sharing that information can help other regions understand those conditions and better adapt to their surroundings. Water is one of the most important elements to the survival of humans, without water, nothing can survive. So, under what conditions is cooperation possible? Why is it important for countries to cooperate? And, what drives countries to cooperate?

1.1 The Importance of Freshwater: A Human Right

According to the World Health Organization (WHO), an estimated 1.2 billion people worldwide do not have access to clean drinking water, with numbers predicted to rise. Lack of access to clean drinking water is a violation of human rights. In July 2010, the United Nation's General Assembly explicitly recognized the human right to water and sanitation (UN Office of the High Commissioner Rights). So why is it that accessibility to safe and clean water continues to be a debate? We have a global responsibility to do better and want better for the countless people who to this day lack safe, easily accessible, and clean water.

Rivers and ambient freshwater are very important to our livelihood, that is why water needs to be protected and cleaned. A river knows no country borders, it just continues to flow. That is why it is important to have cooperation between the countries in which transboundary rivers flow. A stable legal framework is essential in obtaining reliable cooperation between states. But how can countries effectively cooperate? A major challenge is having countries with political disparity organize water agreements that all riparian countries involved can agree on. Understanding the importance of water can help guide a country towards improving their water quality.

The *UN 2030 Agenda for Sustainable Development* and its 17 Sustainable Development Goals (SDGs) focuses on people, the planet, prosperity, peace, and partnership. The aim is to set human rights as a top priority; a shared principle and commitment. The new Agenda is guided by the purposes and principles of the Charter of the United Nations, including full respect for international law. It is grounded in the Universal Declaration of Human Rights, international human rights treaties, the Millennium Declaration and the 2005 World Summit Outcome Document. It is informed by other instruments such as the Declaration on the Right to Development.



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1.2 UN initiatives

The Sustainable Development Goal 6 (SDG 6)

In the definition of SDG 6: "Ensure access to water and sanitation for all" (UN SDGs, 2015) it is expressed *"Clean, accessible water for all is an essential part of the world we want to live in and there is sufficient fresh water on the planet to achieve this. However, due to bad economics or poor infrastructure, millions of people including children die every year from diseases associated with inadequate water supply, sanitation and hygiene. At the current time, more than 2 billion people are living with the risk of reduced access to freshwater resources and by 2050 at least one in four people are likely to live in a country affected by chronic or recurring shortages of freshwater."* The World Water Development Report 2019 "Leaving no one behind" (UN-Water, 2019) shows the current situation and the needed further efforts.

The United Nations Economic Commission for Europe Water Convention (UNECE-WC)

The SDG target 6.5 raises the importance of transboundary cooperation: *"By 2030, implement integrated water resources management at all levels, including through transboundary cooperation as appropriate"* Sub-goal 6.5.2 is defined *"Proportion of transboundary basin area with an operational arrangement for water cooperation"* and its indicator 6.5.2 seeks to oversee transboundary water cooperation via reporting the percentage of transboundary basin area within a country that has an operational arrangement for water cooperation. The reporting on this indicator has been combined with the reporting on the Water Convention, because this Convention is meant to promote transboundary water cooperation and regulates a lot of details how to organize this cooperation. The Water Convention requires parties to institute cooperation agreements or arrangements for their transboundary waters (Article 9)." (UNECE Water Convention 2003). The UNECE-WHO/Europe Protocol on Water and Health's (UN "Economic

and Social Council" 18 October 1999) objectives are to protect human health by bettering water management and by reducing water-related diseases. The Protocol and the Convention provide an agenda to practice the human rights to water and sanitation and to implement SDG 6.

In the meantime the UNECE WC has been signed already by countries outside its regional competence and is moving forward to become a global convention.

United Nations Water (UN Water)

The United Nations Water (UN Water) organizes the efforts of UN bodies and international organizations working on water and sanitation problems. They believe that water matters are embodied in all of the UN's focus areas and that it is their role to coordinate so that the UN conveys 'as one' in regard to water associated issues (UN-Water, 2008).

There are 263 transboundary lakes and river basins that cover almost half the Earth's surface. 145 States have territory in these basins, and 30 countries lie entirely within them. Cooperation between countries is essential, especially in vulnerable areas where water is already scarce. Transnational rivers provide essential ecosystem services to the surrounding populations. Since 1948, approximately 295 international water agreements have been negotiated and signed (Wolf, Yoffe, Giordano, 2003; Salman, 2015); like the UNECE Water Convention, a legal framework for transboundary water cooperation worldwide. The Convention on the Protection and Use of Transboundary

Watercourses and International Lakes (Water Convention) aims to ensure the sustainable use of transboundary water resources by assisting with cooperation. Originally, it was only open to countries in the pan-European region but was made globally available in 2003. However, around two-thirds of the world's transboundary rivers do not have a cooperative management framework. (UNEP, 2016).

European Union (EU)

"The use of transboundary waters can be managed through international multilateral agreements, bilateral agreements or by international customary law. The European Union (EU) stresses the importance of regional cooperation on the issues of water, environment and energy. In this regard, the EU is supporting a project to enhance regional cooperation on Environment and Water. The EU initiative complements the work of the World Bank in the region."

Library of the European Parliaments, 2018



2 Transboundary River Challenges

Challenges can arise within transboundary river countries, but solutions can also come about. Countries can face problems such as governmental and/or political troubles and at times, it may be tedious to get all countries to see how beneficial cooperation between them can be. The availability and quantity of water we have continues to be the core issue of many transboundary river countries. The rising demand in water has led many to ask if we have enough water for all and if the water we have available is clean enough for all. The uneasiness of not knowing if there will be enough water for a country can lead to a destabilizing government. Problems over the distribution and sharing of water can be complex, negotiations on these issues can be conducted diplomatically. Legal agreements on water sharing can be negotiated between countries and that can lead to long-time peace between countries. Sharing information on the status and testing of the water can prove to be beneficial for all countries as they can look deeper into the problem and find a solution for it.

2.1 Why is Cooperation Important?

Cooperation between transboundary countries is of utmost importance. Cooperation among countries can help solve shared troubles which can be solved by sharing knowledge and they can also share one another's best practices. WHO enables cooperation between countries in regards to their

shared concerns to achieve public health solutions. The idea of developing effective cooperation between countries is so that countries can focus on state ownership and aligning with state policies and urgencies, all while working together. For example, the Nile River serves to be the most important water source to all countries that the river passes through.

Example

The Rhine River

The Rhine River is not only home to people, but it provides water to 30 million residents. It is the third largest river in Europe (1,233 km in length) and one of Europe's leading transport routes. Originating from Italy, the Rhine flows through Switzerland, France, Germany, and the Netherlands where it enters the North Sea. For nearly 70 years now, these countries have managed to work together in achieving mutually beneficial goals. So, how do these riparian countries work together? How have their efforts affected the transnational river? And how do these riparian countries manage to maintain and improve the Rhine water quality?

The Nile River

The Nile River is a very important water source to several neighboring countries, but most importantly, Egypt. Egypt is one of the oldest civilizations in the world that heavily depends on the Nile River. According to the Dutch bilingual travel magazine "Traveling Along Rivers", the Nile waters flow at an average volume of 300 million cubic meters (79.2 billion gallons) per day. The Nile River is approximately 6,650 km in length and flows northward through eastern Africa and into the Mediterranean Sea,

passing through 11 countries. The Nile River has two major tributaries; the White Nile and the Blue Nile. The White Nile begins at Lake Victoria and the Blue Nile begins at Lake Tana; both rivers meet near Sudan's capital city, Khartoum, to form the Nile River, which flows north into Egypt. The Nile River is one of the world's largest river deltas and holds roughly half of Egypt's population; about 40 million inhabitants. Because 11 countries share the Nile River, disputes are inevitable. To better address any issues, the Nile Basin Initiative (NBI), an intergovernmental partnership between all the basin states, was created in 1999. NBI is there to facilitate cooperation between all water-sharing countries (Flamik, Madeline, June 21, 2018). Getting countries to agree on terms of what is considered equal water sharing can be a challenge, but it is not impossible. For example, the Rhine River brought together countries who were war rivals during WWII, to discuss the importance of the river and how to care for it together.

2.2 Under What Conditions is Cooperation Possible?

What is the drive that motivates countries to cooperate with one another?

Many things can push countries into cooperating with each other. Things like a disaster, a mutual need to fix a transboundary issue, or the public pressuring their government to take action. An example of the public pressuring their government to take action, would be the chemical spill of 1986 over the Rhine River. Another example would be at the Nile, during colonial times: England made a treaty with Egypt and Sudan over water sharing excluding

the other countries that the river passed through. This led to the other countries asking for equality and the Nile Basin Initiative (NBI) was created (UN-Water (2008)).

Example

The Rhine River

In November 1986, a chemical spill caused the Rhine to turn red. A fire broke out at a chemical factory near Basel Switzerland, sending about 30 tons of toxic chemicals into the river Rhine. The factory was used for storing pesticides, mercury, and other highly poisonous agricultural chemicals. These chemicals, once they entered the water, killed off everything in their path, wiping out the entire eel species alongside several others. People were advised to remain indoors while the situation was being assessed. Industrial expansion had polluted the Rhine to such a degree that fish began to disappear and people no longer swam in it due to the dangers of polluted water. According to BBC News, pollution took 10 days to travel up from Basel to the Rhine into the North Sea which is roughly 883 kilometers, and it took several years to recover from it. Because of the disaster, people began to protest and demand action towards cleaner water. Public uproar resulted in the Rhine Action Program of 1987 which focused on returning salmon to the Rhine by the year 2000; now known as Rhine 2020. The agreement also targeted reduction of contaminants and accidental spills, as well as improving drinking water. Micro-pollutants are a new concern to the Rhine.

The Nile River

The Anglo-Egyptian Treaty of 1929 was signed between Egypt and Great Britain, which at the time represented Uganda, Kenya, Tanganyika (now Tanzania) and Sudan. The document gave Egypt the right to veto projects higher up the Nile that would affect its water share (Dereje Zeleke Mekonnen). The 1959 treaty allocates 75% of the Nile's water to Egypt and the remainder to Sudan completely ignoring the other nine countries that depend on the river. The Nile Waters Agreement was in response to the 1929 agreement which "provided only for the partial use of the Nile waters and did not extend to include a complete control of the River waters," leaving Egypt and Sudan with individual shares of the waters of the Nile River. The 1929 and 1959 agreements have created resentment among the other Nile River States whom call for change to the deal. Water use tension between the Nile River Basin countries has had a long history. Ethiopia began the construction of the Grand Ethiopian Renaissance Dam (GERD) back in 2011 (Kumagai, J. 2016). GERD has caused major controversy and instability within the Blue Nile Basin region, primarily with neighboring countries Egypt and Sudan. Egyptian President Abdel Fattah al-Sisi fears that GERD will threaten the country's already low water supply, which is essential for sustaining the country's food security and economic development. Egypt has historically preserved influence over the Nile River and is thus concerned with a power dynamic shift. GERD gives Ethiopia economic influence in the Blue Nile region (Schwartzstein, P. 2017).

At the start of 2009, the Ethiopian water diplomacy activity was heightened by the new agreement on water sharing. This was followed by several meetings of Nile Basin Water ministers, all of which did not succeed due to the historic rights of Egypt and Sudan to the 1929 Nile Water Agreement and the discussion over the article on water security. Egypt had signed the Anglo-Egyptian Treaty of 1929 with Great Britain giving Egypt the veto power over construction projects on the Nile River and this was reinforced in 1959 with the Bilateral Agreement with Sudan known as the Nile Waters Agreements which allocates water between the two countries, not including Ethiopia, a major contributor to the Nile River (Lumumba, P. (2007). Disagreements over the use of the Nile River have a long history due to the water dependency of the countries. The 1929 agreement was between Egypt, Sudan, and Great Britain concerning the use and distribution of the water of the Nile River; Britain at that time represented the colonies in the Nile River Basin (Raphaelli, N., Dr., 2004). This agreement gave Egypt roughly 48 billion cubic meters of water, leaving Sudan with 4 billion cubic meters; this was later increased in the 1959 bilateral agreement between the two countries. The Nile Basin countries resorted to the creation of the Nile Initiative, the Cooperative Framework Agreement (CFA) [N. (Ed.). (n.d.)], which was held in Entebbe, Uganda, and was open for signatures by all States situated on the Nile River Basin, from August 1, 2009 to August 1, 2011. In May 2010, four upstream countries signed the CFA, Ethiopia, Uganda, Rwanda, Tanzania, and Kenya; later joined by Burundi in February 2011 in the legal framework with the signature of six Nile Basin Member States (I. (Ed.). (n.d.), 2009).



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2.3 Challenges That Impede Cooperation

Unfortunately, not everything is a smooth sail and challenges like political issues can arise between countries that cause the delay of cooperation. An example of this would be the building of the Grand Ethiopian Renaissance Dam (GERD). Tensions between

Ethiopia and Egypt cause cooperation to halt because Egypt felt that their water was being threatened by the Ethiopian dam and they did not need their water to be furthered endangered since they already suffer from water scarcity. Another example would

be at the Rhine River where in order to complete the goal of returning the salmon to the Rhine River, France needs to agree to build fish pass-ways to aid the salmon in returning to their breeding grounds.

Example

The Rhine River

The current issue at the Rhine would be river continuity. Since fish-ways were added to the Iffezheim and Gamsheim hydroelectric dams, salmon have been able to swim upstream to Strasbourg again. Unfortunately, there are three more French dams that block the salmon's migratory path, Rhinau, Marckolsheim, and Vogelgrün. The fish are unable to reach the best breeding grounds found further upstream near Basel, Switzerland. Since these dams cannot be removed due to their importance in hydroelectric energy production, there are some possible technical solutions to re-establish ecological connectivity (see Internet link Salmon Comeback):

- Installation of fish passes and ladders
- Increase of instream flows
- Construction of nature-like bypass channels
- Re-establishment of connectivity with the Old Rhine

Although these three hydroelectric dams are found on the French-German border, the responsibility of these dams is placed solely on France (terms found in the 1919 Treaty of Versailles). All three dams are managed by the Electricité de France (EDF); currently no modifications for fish passes have been made. The ICPR has asked France to provide upstream passages for the dams which would comply with the commitments made at the 15th Conference of Rhine Ministers on October 28th, 2013.

The Nile River

Currently, Ethiopia is building a five billion dollar Grand Ethiopian Renaissance Dam (GERD) on the Blue Nile close to the border with Sudan. Egypt acquires almost all of its water needs from the Nile, but with the dam being built, Egypt feels that their water resources are being threatened. The dam may not be to blame though, Egypt already had an existing water scarcity problem; pollutants in the Nile River make its water extremely dangerous for humans. The Egyptian Organization for Human Rights (EOHR) estimates that around 4.5 million tons of pollutants like untreated or partially treated industrial waste, agricultural waste, and sewage flow into the Nile every year (Amir Dakkak, July 22, 2017). Egypt has begun to pursue domestic and regional strategies in an attempt to address any problems related with GERD and potentially avoid a disaster (Ethiopia, BBC-News).

"With the help of the European External Action Service, the country has completed a National Water Resources Plan that focuses on water management over the next two decades. The plan covers efforts to raise awareness on water usage practices, promote water conservation, reform the public water sector, invest in desalination plants, and upgrade the country's irrigation infrastructure. As all these measures are of vital importance to Egyptian water security, the government must implement them in a sustainable manner. Governmental bodies have announced that they will pursue large-scale legacy projects such as numerous desalination plants. However, it is equally, if not more, important to tackle endemic issues that have undermined Egypt's water security, including the inefficiency of its inefficient irrigation infrastructure. Yet significant improvements in this area will not by themselves offset GERD's impact, let alone the broader water supply problems Egypt confronts. Cairo also needs to engage in regional diplomacy. There are signs that Egypt has chosen to focus its diplomatic negotiating strategy while Ethiopia is filling the dam's reservoir." [Commentary by Tareq Baconi, July 25, 2018 for the European Council on Foreign Relations (ECFR) ECFR.EU]

2.4 What Drives Countries to cooperate?

Cooperation between countries is very important, so why is it that countries decide to set aside any differences and cooperate? Simple, they have mutual needs and benefits. Developments like population growth increase the demand for water, as well as climate change, and water pollution can lead a country to change strategies and focus on public needs.

Our planet only has a small portion of freshwater with about 70% of the planet being covered in water, only 2.5% of it is freshwater and the other is saline and ocean-based. Even then, just under 1% of our freshwater is easily accessible, with much of it trapped in glaciers and snowfields. In reality, only 0.007% of the planet's water is available for its 6.8 billion people. (National Geographic assessed 2019). According to UN-Water, "Global water demand is expected to continue increasing at a similar rate until 2050, accounting for an increase of 20-30% above the current level of water use, mainly due to rising demand in the industrial and domestic sectors. Over 2 billion people live in countries experiencing high water stress and about 4 billion people experience severe water scarcity during at least

one month of the year" [UN-Water – World Water Development report (UN-WWDR), March 18, 2019] According to the United Nations, "water use has grown at more than twice the rate of population increase in the last century. By 2025, an estimated 1.8 billion people will live in areas plagued by water scarcity, with two-thirds of the world's population living in water-stressed regions as a result of use, growth, and climate change." [Water and Sanitation-UN-SDG (n.d.)] The task humans face now is how to successfully protect, manage, and distribute the water we currently have.

2.5 Factors for Cooperation:

Example

The Rhine River

i. Population Growth

Population growth is currently no issue to any of the Rhine River sharing countries. Germany overall ranks 19 in the list of countries (and dependencies) by population, with a total of 82 million people according to WorldOMeters.info. But its population is no longer growing significantly but instead tends to shrink.

ii. Climate Change

Climate change is a transnational responsibility, it affects us all. The world is getting warmer over time and heat will continue to increase. According to Germany's international public broadcaster Deutsche Welle "Mild temperatures will mean the end of Alpine glaciers by the end of this century. They will melt away due to the higher temperatures, causing flooding at that time, but rivers like the Rhine, which depend on glacial melt, will turn into a trickle of their former strength." According to the ICPR, climate change impacts the hydrological process so, in 2007, they started the "Study of Scenarios for the Discharge Regime of the Rhine". Climate change effects modify the discharge pattern of the Rhine and its tributaries. For example, droughts and floods could become more extreme and can cause damage; floods or low-flow will become more frequent and more severe. The International Commission for the Hydrology of the Rhine basin (CHR), in cooperation with hydrological scientists of all Rhine River countries, are currently working on basic hydrological knowledge about the historic, present, and future developments of the Rhine river's water balance. (CHR-KHR.org)

The Nile River

i. Population Growth

Egypt has a rapidly growing population, along with poor garbage and pollution management, adding to their severe water scarcity and water quality problem; the river has become a place to deposit garbage and waste (El-Kowrany, S. I., El-Zamarany, E. A., El-Nouby, K. A., El-Mehy, D. A., Abo Ali, E. A., Othman, A. A., ... El-Ebiary, A. A., 2015). According to the World Health Organization (WHO), Egypt's population growth is leading to dangerous levels of pollution in waterways. Egypt has one of the lowest rates of water availability per capita in the world and most of its water is used for irrigation. Due to climate change and poor garbage and pollution management, the river has deteriorated into a dump for contaminants that threaten the lives of many (Ritter, Kayla, 2018).

ii. Climate Change

Impacts of climate change may affect the Nile's water supply due to increasing water demand from the countries in the Nile Basin caused by population growth and economic and human development. Rising temperatures will most likely increase the water demand even further, because people will require energy for cooling [UN-Enviroment. (n.d.)]. Climate change will most likely affect the upstream countries like Egypt most, since they are at the end of the river and rely heavily on the Nile River for all its water needs. Professor Elfatih Eltahir of the Massachusetts Institute of Technology (MIT) and post-doc Mohamed Siam, predict that climate change will alter the water levels of the river Nile and that these will become more and more unpredictable (Timberlake, F. M. 2018). They expect that devastating floods could be followed by severe drought. Drought conditions in the Nile basin in 2015 have contributed to an intense El Niño year (Climate Change, 2017). The following year, La Niña is thought to have been responsible for intense flooding in many countries (Zeitoun, M., Goulden, M., & Tickner, D.). The MIT report suggests that in the future, there are likely to be fewer normal Nile flow years. Cooperation between Nile Basin countries can prove to be beneficial for all participating states. The creation of the Nile Basin Initiative (NBI) has brought riparian countries together. The NBI's goal is to bring these countries together and create win-win situations. They believe that by sharing information, forming strong relationships, and by investing in joint infrastructures that benefit all participating states, the NBI can create a "Stronger Together" atmosphere [Soliman, A. (2019)].



Source: Pecold – stock.adobe.com

The Rhine River

2.6 The Result of Cooperation

The result of cooperation does not just mean countries cooperating by signing agreements. An example of

this would be the public gathering together at the Nile River to ask that their water be cleaned, informing

themselves on the causes of pollution, and taking action to ensure they do their part in cleaning their river.

Example

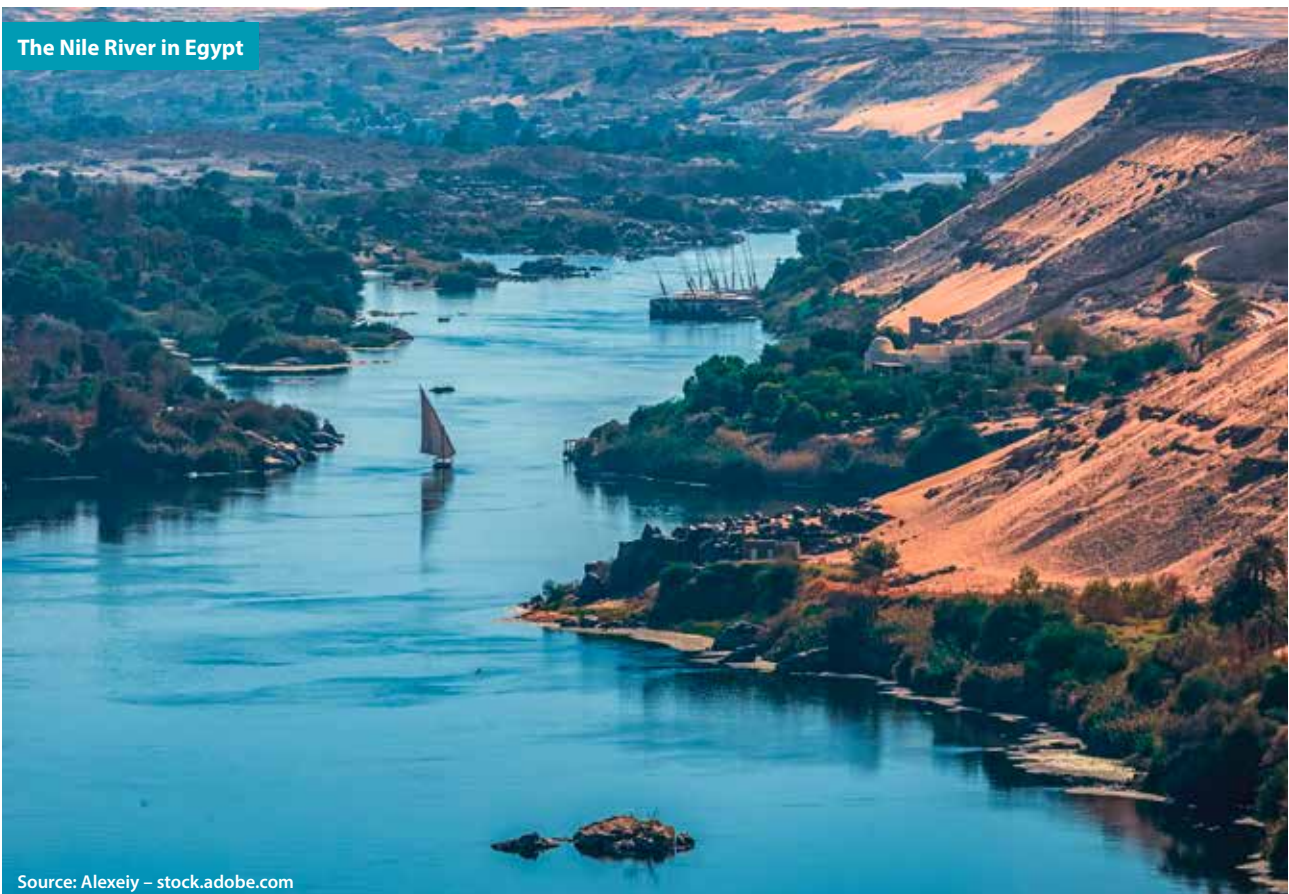
The Rhine River

In the 1950s the International Commission for the Protection of the Rhine (ICPR) was created so countries that depended on the Rhine River could come together and work on mutual goals within an agreed working structure. On November 1st, 1993, the Maastricht Treaty took effect and focused also on the protection of the environment and water, which established objectives for the European Union. The ICPR has had quite a success in international water protecting and has since served as an example for drafts of river basin-associated initiatives for environment and water protection. In December 2000, the EU Water Framework Directive (EUWFD) integrated water management into the ICPR objectives; its obligations are binding for all EU Member States. The EUWFD made it their objective to elevate the overall quality of all water bodies. Switzerland, a non-EU member state, agreed to support the catchment-wide coordination of the EU Member States in the ICPR on the basis of national laws. Every 6 or 7 years the ICPR ministers get together to discuss their achievements and goals to further their work together; the next meeting is scheduled to happen in 2020 (Internet link ICPR).

The Nile River

The pollution of the Nile River has served as a wakeup call for all of its residents. Over time, projects have sprouted which have proven to be successful. Project "VeryNile" was started by Egyptian associations Greenish and Bassita. Greenish is a compilation of social businesses whose sole intention is to create and implement sustainable environmental solutions. They focus on educating the public on health and create awareness on the impact of plastic waste and climate change. Bassita is a local association that focuses on raising funds and awareness for clean-up activities which include developing partnerships with a wide-range of stakeholders, media, governmental entities, NGOs, and private sector companies. Together, they formed to create the VeryNile project which is the first large-scale project designed to clean the Nile, while at the same time raising awareness on the significance of protecting the environment. The VeryNile project organized its very first cleaning event on December 15th, 2018 where in just three hours, 250 volunteers removed 1.5 tons of trash from the Nile and its shores (see Internet link "Cleaning the Nile, One Kilo at A Time", <http://verynile.org>, Mobirise, 2018). Volunteers were given training on how to safely and properly collect garbage off the Nile. Volunteers also used biodegradable bags to collect the trash and they were given package-free food and beverages as a thank you for their time. Since their launch, the VeryNile project has continued to plan cleaning and education events aimed at raising awareness; they currently have planned seven for the year of 2019 (Deyaa, N., 2019).

The Nile River in Egypt



Source: Alexey – stock.adobe.com

3 Conclusion and Outlook

In all, cooperation between states is essential to a fruitful future. Taking steps to cooperate with other countries, sharing our knowledge over their waters, and taking the proper steps to care for the water one currently has is very important. Both Nile River countries and Rhine River countries have challenges they face, and while both rivers are very different, they serve as an example of what it looks like to face challenges, share information, and how each one handles their water issues. The Nile has chosen to focus on their water scarcity problems but the residents of the Nile River have decided to focus on the river's pollution. Egypt wants to focus their efforts on water quantity and making sure that they do not lose valuable water since Egypt's main source of water is the Nile River (Parizek, K. A. (2018)). Egypt should also take into account that while they may lack water, they also lack clean water and should focus on cleaning the water they have, rather than wondering where their water will come from. The Rhine river activities focus more on water quality

and making sure that the proper measures are being taken to avoid another spill. The ICPR continues to check their water on a regular basis to prevent any unforeseen pollutants.

Cooperation and diplomacy work hand-in-hand; without one, the other cannot function alone. With the cooperation of the Rhine River countries, they have been able to co-manage a river they find value in. Finding ways to cooperate by meeting up every 10 years to set up goals they would like to accomplish by their next meeting is a great way to cooperate with one another. The establishing of the NBI is a great way to pave the road towards cooperation between all countries that share the Nile river. Creating agreements in which all countries take a part in and promise to commit to, is part of cooperation.

Finding alternative solutions for a smooth cooperation process between Egypt and the other countries depending on the Nile River, so that all countries the Nile River passes through can peacefully cooperate and find ways to properly distribute water between them: this helps Egypt maintain their water and not fear a shortage of water, keeping in mind the political differences between the countries as well as the Anglo-Egyptian Treaty of 1929. In regard to the Rhine River, major objectives are finding an alternative solution for the salmon to gain access to their breeding grounds, and for the ICPR to effectively arrange cooperation between Germany and France.



Source: Riccardo Niels Mayer – stock.adobe.com

Work Citations

- Agreement on the Nile River Basin Cooperative Framework (2009). Accord-cadre Sur La Coopération Dans Le Bassin Du Fleuve Nil, 1-42. doi:10.3897/bdj.4.e7085.figure3a
- Amir Dakkak, (July 22, 2017). Egypt's Water Crisis – Recipe for Disaster. Retrieved July 1, 2019, from <https://www.ecomena.org/egypt-water/>
- "Cleaning the Nile, One Kilo at a Time." Mobarise, verynile.org/.
- Climate change will alter flow of River Nile. (2017, May 01). Retrieved from <https://climatenewsnetwork.net/climate-change-alter-flow-river-nile/>
- Cooperative Framework Agreement. Retrieved July 16, 2019, from <http://www.nilebasin.org/index.php/81-nbi/73-cooperative-framework-agreement>
- Dereje Zeleke Mekonnen, The Nile Basin Cooperative Framework Agreement Negotiations and the Adoption of a 'Water Security' Paradigm: Flight into Obscurity or a Logical Cul-de-sac?, *European Journal of International Law*, Volume 21, Issue 2, May 2010, Pages 421–440, <https://doi.org/10.1093/ejil/chq027>.
- Deyaa, Nada., (2019, January 14). Verynile: Local initiative seeking to end Nile's pollution. Retrieved June 27, 2019, from <https://www.dailynewsseggypt.com/2019/01/15/verynile-local-initiative-seeking-to-end-niles-pollution/>
- El-Kowrany, S. I., El-Zamarany, E. A., El-Nouby, K. A., El-Mehy, D. A., Abo Ali, E. A., Othman, A. A., . . . El-Ebiary, A. A. (2015, December 7). Water pollution in the Middle Nile Delta, Egypt: An environmental study. Retrieved July 16, 2019, from <https://www.sciencedirect.com/science/article/pii/S2090123215001137#b0015>
- Ethiopia ratifies River Nile treaty amid Egypt tension. (2013, June 13). Retrieved May 25, 2019, from <https://www.bbc.com/news/world-africa-22894294>.
- Flamik, Madeline., (2018, June 21). Grand Ethiopian Renaissance Dam Causes Turbulence Within East Africa. Retrieved June 15, 2019, from <https://www.americansecurityproject.org/grand-ethiopian-renaissance-dam/>
- German Federal Water Legislation. (n.d.). Retrieved from July 1, 2019, from: <https://www.bmu.de/en/topics/water-waste-soil/water-management/acts-and-ordinances/german-water-legislation>
- ICPR, I. C. (n.d.). The Rhine in a European context. Retrieved from July 1, 2019, from: <https://www.iksr.org/en/icpr/about-us/history/the-rhine-in-a-european-context/>
- Kumagai, Jean., (2016, December 30). The Grand Ethiopian Renaissance Dam Gets Set to Open. Retrieved July 16, 2019, from <https://spectrum.ieee.org/energy/policy/the-grand-ethiopian-renaissance-dam-gets-set-to-open>
- Lumumba, L. O. Patrick., (2007). The Interpretation of the 1929 Treaty and its Legal Relevance and Implications for the Stability of the Region. *African Sociological Review/Revue Africaine De Sociologie*, 11(1), 10-24. Retrieved from <http://www.jstor.org/stable/24487583>.
- Molnar, Kata, et al., 2017. "Preventing Conflicts, Fostering Cooperation – The Many Roles If Water Diplomacy" Preventing Conflicts, Fostering Cooperation – The Many Roles If Water Diplomacy, UNESCO's International Centre For Water Cooperation (ICWC) at SIWI Stockholm, Sweden and ICWRGC, Koblenz, Germany, 2017, pp. 1–38.
- Parizek, K. A. (2018). The Grand Ethiopian Renaissance Dam On The Nile River Is A Wake Up Call For Egypt. *Yale Environment* 360. doi:10.1130/abs/2018am-322926
- Protocol on Water and Health to the 1992 Convention on the Protection and Use of Transboundary Watercourses and International Lakes. (1999, October 18). Retrieved August 1, 2019, from <https://www.unece.org/fileadmin/DAM/env/documents/2000/wat/mp.wat.2000.1.e.pdf>
- Raphaeli, Nimrod., Dr. (2004, February 27). Rising Tensions over the Nile River Basin (M., Ed.). Retrieved from <https://www.memri.org/reports/rising-tensions-over-nile-river-basin>
- Ritter, K. (2018). Egypt's Nile River Pressured by Population Growth, Rising Sea Level. *Circle of Blue: Where Water Speaks*. doi:10.3897/bdj.4.e7720.figure2f
- Ritter, Kayla et al. "Egypt's Nile River Pressured by Population Growth, Rising Sea Level." *Circle of Blue*, Kayla Ritter <https://www.circleofblue.org/Wp-Content/Uploads/2018/06/Circle-of-Blue-Water-Speaks-600x139.Png>, 15 June 2018, www.circleofblue.org/2018/africa/egypts-nile-river-pressured-by-population-growth-rising-sea-level/.
- Salmon Comeback. Context. (n.d.). In "The Battle for the Salmon is Not Over". Retrieved from: <http://www.salmoncomeback.org/context/>. Retrieved July 8, 2019
- Schwartzstein, P. (2017, October 10). Death of the Nile (P. Shah & A. Awasthi, Eds.). Retrieved July 9, 2019, from https://www.bbc.co.uk/news/resources/idt-sh/death_of_the_nile

- SKOBA, Laine. "Transboundary Water Management". Library Briefing- Library of the European Parliament, 28 Aug. 2013, [www.europarl.europa.eu/RegData/bibliotheque/briefing/2013/130621/LDM_BRI\(2013\)130621_REV1_EN.pdf](http://www.europarl.europa.eu/RegData/bibliotheque/briefing/2013/130621/LDM_BRI(2013)130621_REV1_EN.pdf).
- Snow and glacier melt in the Rhine River (ASG II). (n.d.). Retrieved August 1, 2019, from <https://www.chr-khr.org/en/general>
- Soliman, Ayat. (2019, February 20). Working together in the Nile River Basin for a win-win future. Retrieved July 28, 2019, from <https://blogs.worldbank.org/water/working-together-nile-river-basin-win-win-future>
- Sustainable Development Goal 6: Synthesis Report on Water and Sanitation 2018. (2018). Retrieved July 1, 2019, from https://www.unwater.org/app/uploads/2018/12/SDG6_SynthesisReport2018_WaterandSanitation_04122018.pdf
- Timberlake, F. M. (2018, November 29). Nile countries prepare water monitoring system to fill data gaps. Retrieved July 16, 2019, from <https://www.climatechangenews.com/2018/11/29/nile-countries-prepare-water-monitoring-system-fill-data-gaps/>
- Transforming our world: The 2030 Agenda for Sustainable Development: Sustainable Development Knowledge Platform. (n.d.). Retrieved August 1, 2019, from <https://sustainabledevelopment.un.org/post2015/transformingourworld>
- UN-Environment. (n.d.). How climate change and population growth threaten Egypt's ancient treasures. Retrieved July 13, 2019, from <https://www.unenvironment.org/news-and-stories/story/how-climate-change-and-population-growth-threaten-egypts-ancient-treasures>
- UN-Water (2008). Transboundary waters: sharing benefits, sharing responsibility. Thematic Paper. Available from http://www.unwater.org/app/uploads/2017/05/UNW_TRANSBOUNDARY.pdf
- UNEP, 2016. Transboundary Waters System – Status and Trends: Crosscutting analysis. United Nations Environment Programme (UNEP), Nairobi. https://uneplive.unep.org/media/docs/assessments/transboundary_waters_systems_status_and_trends_crosscutting_analysis.pdf
- United Nations, Office of the High Commissioner for Human Rights (2003). General comment no. 15: the right to water (arts. 11 and 12 of the International Covenant on Economic, Social and Cultural Rights). 20 January. E/C.12/2002/11. <https://unhabitat.org/slum-almanac-2015-2016/>.
- United Nations, Statistics Division (n.d.). UNdata: A World of Information. Available from <http://data.un.org/Default.aspx>.
- Water and Sanitation - United Nations Sustainable Development. (n.d.). Retrieved July 1, 2019, from <https://www.un.org/sustainabledevelopment/water-and-sanitation>.
- World Water Development report 2019: UN-Water. UN-Water, March 18, 2019: <https://www.unwater.org/publications/world-water-development-report-2019/>
- Zeitoun, M., Goulden, M., & Tickner, D. (2013, May 29). Current and future challenges facing transboundary river basin management - Zeitoun - 2013 - Wiley Interdisciplinary Reviews: Climate Change - Wiley Online Library. Retrieved July 1, 2019, from <https://onlinelibrary.wiley.com/doi/pdf/10.1002/wcc.228>



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