

# Hydro-Diplomacy: Water at the AGE of New Geo-Economic and Geopolitical world Challenges



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## Abstract

Hydro-diplomacy has become a crucial topic in global geo-economic and geopolitical issues, with water at the core of these concerns. This article highlights the increasing importance of water as a strategic resource and the challenges faced by countries worldwide. Water scarcity has become a worrisome reality, driven by population growth, rapid urbanization, and the growing demands of agriculture and industry. This situation creates tensions among nations and potential conflicts over access to and control of water resources. International cooperation in water management is, therefore, essential to prevent potential conflicts. Multilateral agreements and regional initiatives are being implemented to promote cooperation, resource sharing, and peaceful resolution of water-related conflicts.

## Keywords

Water;  
International management of water;  
Water scarcity;  
Conflict over Water Resources;  
Water security.

## الكلمات المفتاحية

الماء؛  
إدارة المياه على المستوى الدولي؛  
ندرة المياه؛  
الصراع على الموارد المائية؛  
الأمن المائي.

## دبلوماسية المياه: الماء في صلب الرهانات الجيواقتصادية والجيوسياسية الدولية الجديدة

## ملخص

تعد دبلوماسية المياه موضوعاً حاسماً في القضايا الجيواقتصادية والجيوسياسية العالمية الراهنة، حيث يدخل الماء في صميم الاهتمامات الدولية الراهنة. يسلط هذا المقال الضوء على أهمية الماء المتزايدة كمورد استراتيجي والتحديات التي تواجهها البلدان في جميع أنحاء العالم من أجل الوصول إليه، بعدما أصبحت ندرة المياه واقعاً مقلقاً، نتيجة لزيادة الطلب الناجمة عن نمو السكان والتمدن السريع والاحتياجات المتزايدة لقطاعي الزراعة والصناعة. ما تسبب في انتشار التوترات والنزاعات المحتملة بين الدول من أجل السيطرة على منابعه. لذلك يعد تعزيز التعاون الدولي بخصوص إدارة المياه أمراً حتمياً لمنع الصراع، عن طريق تنفيذ اتفاقات متعددة الأطراف ومبادرات إقليمية لتعزيز التعاون ومشاركة الموارد والتوصل إلى حلول سلمية للنزاعات المتعلقة بالمياه.

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## I- Introduction :

Water is a vital resource that plays a central role in the new global geo-economic and geopolitical challenges. As water demand increases and water resources become scarce, managing this resource becomes a major challenge for the international community. Hydro-diplomacy emerges as a crucial field to address the complex issues related to water and to foster cooperation among nations.

In a context where the global population continues to grow, urbanization intensifies, and the water needs for agriculture, industry, and domestic use increase, the pressure on water resources becomes increasingly intense. This situation generates geo-economic and geopolitical challenges, affecting food security, access to clean water, international trade, and relations between nations.

Geopolitical rivalries also manifest around water resources. The geo-economic dimension of water is equally important. Water is a key factor in agriculture, energy production, industry, and international trade, making sustainable water management imperative for ensuring economic growth, social stability, and environmental preservation. In the face of these challenges, hydro-diplomacy emerges as a crucial field to promote cooperation, negotiation, and the search for common solutions. It involves the engagement of state and non-state actors, the establishment of governance mechanisms, and the pursuit of compromises for equitable and sustainable water resource management.

This article delves into the geo-economic and geopolitical issues related to water, emphasizing the growing importance of hydro-diplomacy in addressing these challenges. It analyzes the geopolitical tensions surrounding water resources, examines the economic implications of water management, and explores mechanisms for international cooperation to address these challenges. By understanding the complexities surrounding water, it is possible to develop effective strategies and policies for the sustainable management of this crucial resource.

The main question addressed in the article is: **How can hydro-diplomacy address the current water-related challenges, taking into account the new global geo-economic and geopolitical issues?**

This central question aims to explore the role of hydro-diplomacy in addressing the global geo-economic and geo-political challenges related to water.

Water management is a complex issue that requires both economic and political approaches to ensure sustainable, equitable, and efficient use of this precious resource. This article stands out for its global perspective, geo-economic approach, and analysis of emerging issues, interdisciplinary nature, and current relevance. It provides a comprehensive and informed view of key issues in hydro-diplomacy and water geopolitics in the global context.

### I.1. Water as a geostrategic and economic Resource:

A resource becomes strategic when it fulfills two fundamental characteristics: it is indispensable<sup>(1)</sup> and scarce<sup>(2)</sup>. Scarcity creates increased value around a resource, while its indispensability makes it a crucial issue for the development and security of nations<sup>(3)</sup>. Generally, control over a strategic resource depends on three key factors: its location<sup>(4)</sup>, its transportation<sup>(5)</sup>, and its exploitation industry<sup>(6)</sup>. Countries or actors who manage to control these aspects can exert significant influence over the availability, price, and utilization of the resource, granting them an economic and geopolitical advantages.

Water is an essential resource for life on Earth and plays a crucial role in economic development, food security, and public health. Due to its vital importance, water has become a major strategic resource, giving rise to global geopolitical and geostrategic concerns. The growing interest in water as a strategic resource stems from several factors. Firstly, water availability is uneven across the world, with some regions facing chronic freshwater scarcity. This disparity creates geo-economic and geo-political imbalances.

### I.2 Water as strategic resource:

Water is often considered a strategic resource (Galland, 2009), due to its vital importance for the:

- **Food security:** Water is essential for agriculture and food production. Countries that have access to abundant water resources can develop productive agriculture and ensure their food security.
- **Water security :** (Emma Norman, 2010): Access to clean and sufficient water is crucial for human health and the well-being of populations. Countries with limited water resources or facing water quality issues may

encounter significant health and social challenges. Therefore, water security is an essential dimension of national security.

- **Economic Développement** (Even, 2016): Water is also a driver of economic development. Many industries, such as agri-food, hydropower, manufacturing, and tourism, rely on water for their operations. Access to reliable and sufficient water resources can stimulate economic growth and investment. Adequate water supply ensures the smooth functioning of industries, supports agricultural production, generates renewable energy, and attracts tourists. Additionally, efficient water management practices can enhance productivity, reduce production costs, and foster innovation in various economic sectors. Therefore, water availability and management are critical for promoting sustainable economic development.
- **Management of trans-boundary water resources:** (Richard, 2020): Water is often shared among multiple countries through trans-boundary rivers or hydrographic basins. Disputes over the sharing of water resources can have geopolitical and geostrategic implications. Effective management and cooperation among countries for the equitable sharing of water resources can help prevent potential conflicts. By promoting dialogue, negotiation, and the development of cooperative frameworks, countries can work together to ensure sustainable and fair access to water resources. This type of cooperation can contribute to regional stability, foster trust among nations, and potential tensions related to water scarcity or competition for water resources.
- **Climate Change** (Macé, 2021): By causing variations in precipitation patterns and extreme weather events, climate change leads to changes in rainfall regimes and the occurrence of extreme climate events..

### **I.3 Water as geo-economic resource:**

Indeed, water is a geo-economic resource<sup>(7)</sup> Of crucial importance, here are some key points that illustrate its significance:

- **Food security and agriculture:** Access to water becomes a comparative advantage for certain countries, while water scarcity leads to economic difficulties and food security issues.
- **Industry and energy production:** Countries with significant water resources can attract industrial investments and benefit from a clean and renewable energy source.
- **International trade:** Particularly for countries that rely on waterways for goods transportation. Major rivers and maritime routes enable large-scale transportation of goods, thereby stimulating international trade and contributing to economic growth.
- **Tourism and recreation:** Water resources, such as lakes, rivers, and beaches, attract tourists and contribute to the development of the tourism sector. Water-related tourist destinations, such as beach resorts, cruises, and water activities, can generate significant revenue and create jobs.
- **Innovation and technology:** Sustainable water management requires technologies and innovations to maximize its efficient use. Countries that invest in research and development of water-related technologies can become leaders in this field, thereby stimulating their economy and international competitiveness.

In this case, states are facing several major challenges:

- i. **Water scarcity:** The limited availability of freshwater resources is one of the most pressing challenges. The increasing demand for water due to population growth, urbanization, and economic development puts added pressure on water resources.
- ii. **Conflicts of interest:** States sharing river basins, underground aquifers, or lakes may have divergent interests regarding water use, which can lead to tensions with neighboring countries.
- iii. **The effects of climate change:** Climate change has a significant impact on:
  - On water resources: with consequences such as glacier melting, increased frequency and intensity of droughts and floods, as well as altered precipitation patterns. These changes exacerbate water-related tensions and make water resource management even more complex.
  - On water resource management: which can worsen tensions and potential conflicts related to water.

Here are some ways in which climate change affects these aspects (Gagnon, 2022):

- **Increased water stress:** Climate change leads to variations in precipitation patterns and snowmelt, which can result in more frequent and intense drought periods.

- **Increased flooding:** Alongside drought periods, climate change can also cause more intense precipitation and more frequent flood events. Floods can cause significant damage to water infrastructure, disrupt water supply systems, and result in large-scale population displacements, creating social and political tensions.
- **Alteration of river regimes:** affect the hydrological regimes of rivers by altering flow rates, water levels, and flood seasons. This can have implications for economic activities dependent on water resources, as well as existing agreements on water resource sharing between countries.
- **Migration and resource-related conflicts:** These movements can create tensions and potential conflicts, particularly in regions where water resources are already limited.
- **Competition for water resources:** With the decreased availability of water due to climate change, competition for water resources can intensify between different sectors and countries.
- **Sovereignty issues:** Water is often seen as a matter of national sovereignty, making negotiations and cooperation between states more challenging.
- **Socio-economic implications:** Access to water has significant socio-economic implications, including for agriculture, food security, public health, and economic development.

## **I.4 Actors of a strategic water management:**

Studying the strategies and policies of state and non-state actors to gain geopolitical advantage through the control of water resources is a complex and multidimensional field:

### **I.4.1 State strategies:**

States can adopt various strategies to gain geopolitical advantage through the control of water resources. This can include:

- Construction of dams and hydraulic infrastructure to control the flow of rivers and regulate access to water.
- Implementation of water management policies that prioritize their national interests, such as ensuring water supply for agriculture or domestic industry.
- Negotiation of bilateral or multilateral agreements on water resource sharing, often leveraging their political, economic, or military influence to secure favorable terms.
- Threat or actual use of force to control water resources, which can lead to tensions and conflicts with other state actors.

### **I.4.2 Non-state actors:**

In addition to states, other non-state actors may also seek to gain geopolitical advantage through the control of water resources. This can include:

- Multinational corporations that aim to exploit water resources for commercial purposes and maximize their profits.
- Ethnic, tribal, or religious groups that claim access to water as a means to strengthen their identity or consolidate their power.
- Non-governmental organizations (NGOs) and civil society groups that seek to influence water management policies and promote more equitable and sustainable use of water resources.

These non-state actors can have diverse motivations and strategies in their pursuit of geopolitical advantage, contributing to the complexities of water resource management and the geopolitical landscape surrounding water.

### **I.4.3 Instruments of power:**

To gain geopolitical advantage, both state and non-state actors can employ various instruments of power related to water resource control. This can include:

- Utilizing economic dependency by controlling access to water and using it as a means of economic leverage over other actors.
- Employing cooperation and diplomacy to establish favorable water-sharing agreements and strengthen regional alliances.

- Harnessing technology and expertise to develop more efficient water management methods, thereby gaining a competitive edge.
- Employing military force or the threat of conflict to acquire control over water resources or deter other actors from approaching them..

## **II. The Geopolitical Stakes of Hydro-Diplomacy:**

The geopolitical stakes of hydro-diplomacy are increasingly concerning; rivalries for control over shared river basins are significant geopolitical issues in many regions of the world. (Laporte, 2022). Trans-boundary river basins that flow through multiple countries are often sources of tension and rivalries over access to and control of water resources:

- **The Nile:** The Nile River basin is one of the most well-known examples of rivalries over water control. Riparian countries such as Egypt, Ethiopia, and Sudan have divergent interests in managing the waters of the Nile. The construction of the Ethiopian Renaissance Dam has generated tensions as upstream countries seek to harness more water resources, while Egypt heavily relies on the Nile for its water supply.
- **The Amu Darya and Syr Darya Rivers in Central Asia:** Central Asian countries such as Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan share the river basins of the Amu Darya and Syr Darya. Rivalries over water control and use have been a source of tensions among these countries, particularly due to the management of water resources for agriculture and hydroelectric power generation
- **The Jordan River:** The Jordan River basin is shared among Jordan, Palestine, "Israel," and Syria. Rivalries over control of the Jordan River water have been a source of tensions in the region for decades. Access to and equitable use of water have been subjects of dispute, particularly between neighboring countries.
- **The Mekong River:** The Mekong River basin is shared among six countries: Cambodia, Laos, Myanmar, Thailand, Vietnam, and China. Dam and hydroelectric development projects in the region have created tensions among the riparian countries, due to concerns over environmental impacts, reduced river flow, and access to water for agriculture and local populations.
- The scarcity of water in the Middle East, with only 0.7% of the total global freshwater resources for 4% of the population, is a major challenge for the region (Vuillermé, 2021). The arid climates make access to water limited, which has a significant impact on the development of the region. Water scarcity weighs heavily on countries in the region, pushing them to seek new solutions to meet their water needs<sup>(8)</sup>.

### **II.1 The geopolitical implications of large-scale hydraulic infrastructure projects can be significant**

Projects such as the construction of dams, canals, or large-scale water transfer systems have a significant impact on water resource management and relations between nations (Blanchon, 2019). The geopolitical implications of such projects are manifold:

- **Regional rivalries:** Countries located upstream of a river may seek to exploit water resources to their advantage, leading to tensions with downstream countries that depend on these resources for their water supply, agriculture, or energy production.
- **Water security:** When a country constructs a dam or canal, it can alter river flow patterns and affect the availability of water for neighboring countries. This raises concerns about access to clean drinking water, agricultural irrigation, and other essential needs.
- **Regional and global influence:** Large-scale hydraulic infrastructure projects can enhance a country's influence in a given region or even on a global scale. Countries that finance and build such projects can exert political, economic, and even cultural influence over beneficiary countries.
- **Environmental consequences:** including the loss of natural habitats, degradation of aquatic ecosystems, and fragmentation of river systems.
- **Cooperation and diplomacy:** Despite the potentially conflicting geopolitical implications of large-scale hydraulic infrastructure projects, countries may engage in negotiations for water resource sharing agreements, establish mechanisms for consultation and coordination, and develop partnerships for joint management of hydraulic infrastructure.

### **II.2 Potential conflicts related to the management of trans-boundary water resources:**

The management of trans-boundary water resources can potentially lead to conflicts between the countries involved (Richard, Les eaux transfrontalières fédératrices d'une, 2020):

- Unequal access to water resources: When countries share river systems, they may have different water needs.
- Construction of dams and hydraulic projects: Upstream countries that control these projects can withhold water, which can affect access to water for downstream countries.
- Pollution and water degradation: River pollution whether from industrial, agricultural, or urban activities, can cross borders and affects downstream countries.
- Climate change: The effects of climate change, such as decreased precipitation and increased drought, can exacerbate tensions around the management of trans-boundary water resources.
- Politics and geopolitics: Political rivalries and geopolitical tensions between countries can also be reflected in the management of trans-boundary water resources. Territorial disputes, economic rivalries, or strained relationships between nations can complicate cooperation and joint management of water resources.

### III. The emergence of hydro-diplomacy:

#### III.1 Definition of hydro-diplomacy and its role in resolving water-related conflicts:

Hydro-diplomacy is a concept that refers to the use of diplomacy and international cooperation to address water-related issues among different stakeholders, such as states, international organizations, NGOs, and local communities. Its objective is to promote peaceful conflict resolution and foster sustainable and equitable management of shared water resources. (Zeitoun, 2023).

The main role of hydro-diplomacy is to facilitate cooperation among relevant stakeholders to prevent potential tensions and conflicts related to water and promote sustainable and equitable solutions. The key elements of hydro-diplomacy are:

- **Dialogue and negotiation:** To resolve disputes and reach mutually beneficial agreements. It promotes a win-win approach where the interests of all parties are considered.
- **Regional cooperation:** This can be achieved through mechanisms of information sharing, joint planning, implementation of common projects, and the establishment of regional institutions dedicated to water management.
- **Mediation and facilitation:** When water-related conflicts arise, hydro-diplomacy can involve neutral mediators or facilitators to help parties find acceptable solutions. These mediators can facilitate discussions, propose compromises, and help build trust between the parties.
- **Legal and normative frameworks:** Such as treaties and conventions, to govern the sharing of transboundary water resources. It can also contribute to the development of new standards and regulations to guide the sustainable management of water resources.
- **Integrated water resources management:** The approach of integrated water resources management, which considers social, economic, and environmental aspects, is a cornerstone of hydro-diplomacy. This involves a holistic approach to water resource management, taking into account the needs of all users and preserving the ecological balance of aquatic ecosystems.

#### III.2. Examples of successful hydro-diplomacy in resolving regional tensions:

Hydro-diplomacy plays a crucial role in preventing conflicts and promoting cooperation among nations. Water diplomacy involves negotiations, agreements, and mechanisms for shared water resource management. Its aim is to find equitable and sustainable solutions for managing trans-boundary river basins, while fostering mutual trust, regional cooperation, and solidarity. In this context, hydro-diplomacy has achieved several successes in resolving regional tensions related to water. One notable example is:

- **The Nile Basin Initiative:** The agreement on the sharing of Nile waters was signed in 1999 among ten riparian countries of the Nile, aiming to promote cooperation in the management of the river's water resources. It created a framework for cooperation and dialogue among the countries, enabling the resolution of disputes and promoting equitable and sustainable use of the Nile waters (Achour, 2017).
- **The International Commission for the Protection of Lake Tahoe:** The Commission was established in 1969 between the United States and Canada to manage environmental issues and water-related conflicts in the Lake Tahoe region. Measures have been implemented to preserve the water quality of the lake and promote sustainable water resource management (Cocherel, 2019).
- **The Peace Agreement on Water Sharing between Ethiopia, Kenya, and Sudan:** In 2015, Ethiopia, Kenya, and Sudan signed a peace agreement on water sharing in the Omo River Basin. This agreement established a framework for cooperation in the equitable and sustainable management of water resources, thereby contributing to conflict prevention and regional development promotion.

- **The Water Sharing Agreement among Argentina, Brazil, and Paraguay for the Paraná River:** The three countries signed an agreement in 1991 for the sharing of water from the Paraná River, which included provisions for electricity production, navigation, and water resource management. This agreement helped prevent potential tensions and conflicts among the riparian countries (Forget, 2009).

More recent examples demonstrate that hydro-diplomacy continues to play a crucial role in resolving water-related conflicts:

- **The agreement among Egypt, Ethiopia, and Sudan on the Ethiopian Renaissance Dam:** After years of negotiations and mediation, the three countries signed an agreement in 2020 to settle disputes and coordinate the management of the dam. This agreement established a framework for coordinated water management of the Nile, preserving the interests of all three countries and promoting regional stability. It helped prevent potential conflict and laid the foundation for increased cooperation in the region. The Nile Waters Agreement: In 2021, Egypt, Sudan, and Ethiopia reached this agreement to address issues related to the filling and operation of the Blue Nile dam. These agreements established a framework for coordinated management of Nile waters, preserving the interests of the three countries and fostering regional stability. It helped prevent potential conflict and laid the foundation for increased cooperation in the region (afrique, 2023).
- **The agreement between Bolivia, Brazil, and Paraguay on the Itaipu dam:** The Itaipu dam, located on the Paraná river, had been a source of tension between the neighboring countries due to the sharing of the hydroelectric power generated. In 2009, Bolivia, Brazil and Paraguay signed an agreement revising the terms of the electricity sharing. This agreement allowed to resolve the disputes and strengthen the cooperation between the riparian countries.
- **The agreement between India and Bangladesh on the sharing of the Ganges waters:** The Ganges, a major river in the region, flows through India and Bangladesh, creating tensions over the sharing of its waters. In 1996, the two countries signed a historic agreement on the sharing of the Ganges waters, establishing principles of joint management, cooperation and equitable sharing of water resources. This agreement has helped to ease tensions and promote bilateral cooperation.

### **III.3. Importance of international cooperation in the sustainable management of water resources:**

International cooperation plays a crucial role in the sustainable management of water resources. It promotes peace, prevents conflicts, shares knowledge, strengthens resilience to global challenges, and contributes to the achievement of sustainable development goals. Collaboration between nations is fundamental to ensuring equitable and sustainable access to this vital resource for humanity.

Initiatives and mechanisms of cooperation in hydro-diplomacy aim to foster peaceful management and cooperation among nations in the realm of trans-boundary water resources.

- **Water sharing agreements:** Countries can negotiate and conclude bilateral or multilateral agreements for sharing water resources. These agreements establish rules and mechanisms for the equitable management and use of trans-boundary water resources. They may include provisions on the allocated amount of water for each country, joint development projects, prevention of pollution, and peaceful resolution of disputes.
- **International river basin commissions:** These institutions bring together riparian countries to discuss and cooperate on issues related to water resource management. They promote dialogue, transparency, and peaceful conflict resolution, facilitate policy coordination, information exchange, joint planning of water infrastructure, and integrated water resource management.
- **Consultation and dialogue mechanisms:** This can involve diplomatic meetings, technical dialogues, exchanges of experiences and best practices, as well as discussion forums among relevant stakeholders, including governments, technical experts, civil society organizations, and local communities.
- **Scientific and technical cooperation:** It plays a crucial role in hydro-diplomacy. Countries can collaborate on the collection and analysis of hydrological data, modeling of water resources, research on the impacts of climate change, and best practices in water resource management. This cooperation helps strengthen common knowledge and develop policies and strategies based on sound scientific data.
- **Mediation and conflict resolution:** In case of disputes or conflicts related to water resource management, mediation plays a key role in hydro-diplomacy. Neutral and impartial mediators can facilitate negotiations between stakeholders, help find mutually acceptable solutions, and promote cooperation. International

organizations, such as the United Nations, can also play a mediation and facilitation role within the framework of hydro-diplomacy.

These efforts in international cooperation and hydro-diplomacy contribute to the sustainable management of water resources, fostering peace, stability, and equitable access to water for present and future generations.

Hydro-diplomacy aims to transform trans-boundary water resources into a catalyst for cooperation rather than a source of conflict. In this context, there are several international conventions and agreements that aim to promote sustainable management and cooperation in the water sector, such as:

- United Nations Convention on the Law of Non-Navigational Uses of International Watercourses (Madrid Convention): Adopted in 1921.
- United Nations Convention on the Law of the Non-Navigational Uses of International Watercourses (New York Convention): Adopted in 1997.
- United Nations Convention on the Law of the Sea (UNCLOS): Adopted in 1982.
- United Nations Framework Convention on Climate Change (UNFCCC): Adopted in 1992.
- United Nations Convention on the Protection and Use of Trans-boundary Watercourses and International Lakes (Helsinki Convention): Adopted in 1992.
- Regional water-sharing agreements

These international conventions and agreements provide a legal and institutional framework to promote sustainable and cooperative management of trans-boundary water resources, helping to transform them from potential sources of conflict into catalysts for collaboration between riparian states..

#### **III.4 The institutions and organizations involved in the coordination of hydro-diplomacy:**

Multiple institutions and organizations play a key role in coordinating hydro-diplomacy and promoting cooperation in the management of trans-boundary water resources. These institutions include:

- The United Nations Economic Commission for Europe (UNECE): The UNECE facilitates cooperation and coordination between countries in Europe and Central Asia in the field of water. It hosts the Convention on the Protection and Use of Transboundary Watercourses and International Lakes (Helsinki Convention) and supports the implementation of water-related projects and initiatives.
- The Food and Agriculture Organization of the United Nations (FAO): It provides technical expertise, advice, and assistance to countries in the planning and management of water resources, as well as in establishing frameworks for cooperation in river basin management.
- The World Health Organization (WHO);
- The United Nations Environment Programme (UNEP);
- The World Bank;
- International river basin commissions: Such as the International Commission for the Protection of the Elbe River, the Lake Chad Basin Commission, and the Congo Basin Commission, play a crucial role in coordinating the management of water resources in trans-boundary river basins. They bring together riparian countries for cooperation, joint planning, and the resolution of water-related disputes.
- The World Water Council.

Regional cooperation in water resources management is essential to ensure the equitable and sustainable use of water in trans-boundary river basins..

#### **IV. Conclusion:**

The prospects for the future of hydro-diplomacy are both complex and crucial. Here are some key elements regarding the challenges, opportunities, and implications of hydro-diplomacy on a global scale:

##### **1. Challenges in implementing hydro-diplomacy:**

- Population growth and rapid urbanization are increasing water demand, putting additional pressure on available water resources.
- Climate change is leading to altered hydrological regimes, with more frequent and severe droughts and floods, exacerbating water-related tensions.
- Divergent interests of riparian countries, differences in economic development, and inequalities in water access and political conflicts can complicate cooperation and joint management of water resources.
- Lack of institutional and technical capacities in some countries limits their ability to effectively participate in regional water cooperation.

##### **2. Opportunities for strengthening cooperation and diplomacy around water:**

- Growing recognition of the importance of transboundary water cooperation for security, stability, and sustainable development.
- Mutual benefits of cooperation.
- Evolution of international legal norms and instruments that encourage cooperation in water resource management.

##### **3. Implications for the security, stability, and sustainable development of nations:**

- Cooperation in water resource management contributes to food security by ensuring sufficient access to water for agricultural irrigation and food production.
- Cooperation around water can also foster political stability by reducing the risks of violent water-related conflicts and encouraging peaceful dispute resolution.
- Sustainable management of water resources is essential for economic development, supporting access to drinking water, sanitation, industry, hydropower, and tourism.
- Protecting aquatic ecosystems and associated ecosystem services is also a key element of sustainable development, preserving biodiversity, regulating the climate, and providing essential ecological services.

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### Notes:

- [1]. An indispensable resource is one that is crucial for the survival, economic development, or security of a nation. Without this resource, it would be challenging, if not impossible, to maintain an acceptable standard of living or achieve certain economic and security objectives. Water, for example, is indispensable for human survival, agriculture, industry, and many other vital activities.
- [2]. The scarcity of a resource means that it is available in limited quantities or difficult to obtain. When a resource is scarce, access to it may be restricted, and its availability can vary from region to region. This creates an imbalance between supply and demand, which can lead to tensions, conflicts, and geopolitical issues. The scarcity of water, for example, can manifest as a shortage of freshwater in certain regions, making it a strategic resource.
- [3]. Nations then seek to secure their access to this resource to ensure their economic development, security, and the satisfaction of their population's needs. The management of these strategic resources becomes a major concern, and specific policies are implemented to preserve their availability, promote sustainable use, and foster international cooperation when the resource is shared among multiple countries.
- [4]. The geographical location of a strategic resource plays a crucial role in its control. Certain parts of the world are naturally rich in valuable resources, such as oil deposits in the Persian Gulf or diamond mines in Africa. The geographical concentration of these resources can create advantages or disadvantages for countries or actors with access to these areas. Physical control over the area where the resource is located can be a determining factor in controlling the strategic resource itself.
- [5]. This refers to the ability to transport the resource from its extraction site to markets or consumption areas. Transportation infrastructure, such as pipelines, ports, or distribution networks, is essential to ensure a continuous and efficient flow of the resource. Controlling transportation routes or key infrastructure can provide a strategic advantage in resource control.
- [6]. The resource extraction industry encompasses activities related to extracting, processing, and transforming the strategic resource into finished products. Controlling the extraction industry allows for dominance over the resource's value chain, which can provide economic, technological, and security advantages. Companies or countries that possess advanced technological expertise, significant production capacity, or specific intellectual property in resource extraction can control its value and access in global markets.
- [7]. A geo-economic resource is a natural, material, or immaterial resource that plays a crucial role in the economic and geopolitical dynamics of a region or country. These resources can have a significant impact on the economy, trade, investment, competitiveness, and international relations. They can be exploited to generate revenue, stimulate economic growth, and influence policy decisions. Geo-economic resources can take various forms, including natural resources (such as minerals, fossil fuels, fertile agricultural land, forests, water resources, and fisheries), human resources (including skills, knowledge, and human capital of a population), technological resources (advanced technologies, patents, innovations, and research and development capabilities), financial resources (including foreign reserves, foreign investments, strong financial institutions, and developed financial markets), and geographic resources (strategic geographical position of a country, such as ports, transportation routes, trade corridors, and free trade zones). The management and exploitation of geo-

economic resources can have significant political, social, and environmental implications. They can be sources of cooperation and development, but also conflict and inequality if they are poorly managed or exploited unsustainably.

- [8]. In Saudi Arabia, desalination of seawater has become a vital activity for the country. Due to its geographical location, with an extensive coastline along the Persian Gulf, Saudi Arabia has an abundant source of saline water. Therefore, desalination of seawater is a key option to meet the growing water demand in the country. Currently, the Saline Water Conversion Corporation (SWCC), a public company, controls desalination in Saudi Arabia. However, in June 2020, SWCC issued a call for businesses with the aim of privatizing the Ras al-Khair plant, which is the largest desalination plant in the world. This decision is likely intended to open up the desalination market to private actors, which could encourage investment and innovation in the sector while providing new business opportunities. The privatization of the Ras al-Khair plant could offer potential benefits such as private capital infusion, optimization of management and operational efficiency, as well as fostering competition and innovation. However, it is important to consider the social, environmental, and economic implications of this privatization, ensuring that access to water remains equitable and sustainability is taken into account in desalination operations. The privatization of seawater desalination in Saudi Arabia is an example of how countries in the region are seeking innovative solutions to address water scarcity. However, it is also crucial to implement integrated and sustainable water management policies, encouraging water use efficiency, conservation of water resources, and exploration of alternative water sources to meet the population's needs and promote the sustainable development of the region.