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THE FAIR DISTRIBUTION OF WATER

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1. Justifications of Fair Distribution of Water in the World

1.1. *The World's Water Resources Geography*

According to estimates carried out, the entire water of the earth is around 136,000,000 cubic kilometers. Water depth would be equivalent to 2.7 kilometers if it were scattered on the ground surface of which 97% is allocated to the rivers' saline water, 2% to the giant polar glaciers and 1% to groundwater. A small portion of the water on the globe can be renewed or freshened.

500,000 cubic kilometers of the world's water is evaporated annually, of which 86% belongs to the oceans and 14% is allocated to the terrestrial surface. The same amount falls back to the earth in the form of rainfall and snow. 70,000 cubic kilometers of water is evaporated in the continents. Precipitation toward the continents is equivalent to 110,000 cubic kilometers, therefore 40,000 cubic kilometers per annum of river water is transferred to the terrestrial surface. Water per capita is approximately 7400 cubic meters considering the world's present population, which is higher than the required standard. This freshwater is not distributed homogeneously and the whole amount is not utilized. Two thirds of this water runs away as floods and 14,000 cubic kilometers form a relatively sustainable resource. The countries of the world are classified in 6 groups as far as water shortage is concerned:

Group I: According to water shortage criteria, this group consists of countries that are facing water shortage as 8% of the world's population lives in these countries. They are mainly scattered in west Asia and north Africa. These countries have to reduce their agricultural water use to compensate water required in the industrial sector and for drinking purposes.

Group II: These countries have to develop their water resources up to twice as much as there are to reasonably satisfy their future water requirements. These countries mainly exist in Africa's deserts and 7% of the world's population lives in these areas.

Group III: These countries have to increase exploitation of their water resources from 25 to 100% (48% averagely). These countries cover 16% of the world's total population and they are scattered within the developing countries.

Group IV: These countries are mainly amongst the developed countries and 16% of the world's population lives in these areas. Future water requirements in such countries are relatively low and their water resources are sufficient. This group covers the highest cereal producers, which are USA and Canada.

Group V: The countries of this category cover 12% of the world's population and do not need excessive water supply up to the year 2025. Their water requirement will still decrease because of an increase in irrigation efficiency.

Group VI: This includes India and China, both having a special situation. These countries cover 41% of the total population. Due to their high population and considerable water consumption, water resources management and development could be considered with regard to their high capacity.

1.2. *Relation between the World's Civilizations and Water Geography*

The history of human civilization indicates that initial civilizations were manifested by cities and governments based on agriculture in regions with sustainable water resources equipped with fertilized soils and an adequate amount of water. The regions with the above-mentioned specifications have been habitats of Assyria, Babylonia and Chaldea in Syria, Asia Minor and Greece. These civilizations faced risks and danger whenever there was an imbalance between natural resources and consumption ratio. Civilizations were gradually formed on the banks of the rivers Tigris and Euphrates, Nile, and Indus and modern irrigation techniques along with animal breeding resulted in additional food production.

Transportation facilities and water control within channels, to protect humans against floods, formed vast populations, which led to a new stage of civilization. A nation's development and improvement in ancient times depended on natural traditions and laws. This has a direct relation with

available water, production, exploitation of agricultural lands and existing sources in the environment. This is still a must for sustainable development. Water has always been a vital substance for all developing sectors, especially in the potable and agricultural sector. This will absolutely continue in the future.

Civilizations residing near water resources and political decisions made have caused around 40% of the world's population to settle down in river basins, which are marginal water resources.

India and Bangladesh on the Ganges, Mexico and the USA on the Colorado River, Hungary on the Danube, and Thailand and Vietnam on the Mekong River all have some concerns to be considered. In Africa there are 57 river basins and streams running along the border of two neighboring countries. None of the regions like the Middle East have such severe, challenging problems related to water resources, which do effect their economic situation and political perspective.

1.3. *Water and Cultural Heartlands*

The world transition from the dipolar frame requires a new discipline of which new political approaches have been the bases. This has apparently been formed, based on economic and production technology.

Experience has made scientists believe that technology, wisdom, and economy could not be the only factors to merge homogeneous units or to separate non-homogeneous ones. Cultural aspects play a more important role in this respect. Development will not be sustainable without including cultural and environmental aspects.

What we are expecting from economic situations cannot be gained by improving technology. This has to be provided by taking into account cultural aspects of applying and producing technology.

The most important characteristics of cultural phenomena can be summarized as follows:

– Sustainable cultural phenomena play a fundamental role in creating regional characteristics;
– Cultural phenomena have to be learnt but the teaching process is time consuming and complicated;
– Cultural uniformity is not possible and cultural pluralism should be considered as one of the most important issues;
– In the new geography, determining cultural deferential impacts on various perspectives has been considered as a factor in geographical analysis;

– The geographical perspectives of the present era are usually affected by cultural specifications rather than climatic and other natural factors.

So, even those who believe in higher technology as a main factor in forming geographical perspectives do accept that those geographical areas with similar technologies and economies may differ as far as cultural aspects are concerned.

Cultural Heartlands are focal points in the world where culture is produced. High ratios of people living on the earth are affected by these focal points. Although these focal points have not remained in their initial place and have developed and expanded in other areas of the world, they are still considered the main points where culture has been formed. Generally, different cultural heartlands can be presented of which the most important ones are:
– Athens cultural heartland (Indian and European);
– Khaseb Crescent cultural heartland;
– Confucius cultural heartland;
– Micro-cultural heartlands.
These cultural points are severely affected by available natural resources in general and available water resources in particular.

1.4. *Water as a Human Right*

The United Nations has introduced water as a human right and public commodity. In November 2002, the United Nations Committee on Economic, Social and Cultural Rights offered that access to adequate amounts of clean water for personal and domestic uses is a fundamental human right of all people.[1] It has also been stated that water is not only an economic good but also a social and cultural commodity.

The Committee also emphasized that the 145 countries which have approved the International Commitment on Social, Cultural and Economic Rights will have to commit themselves to providing freshwater for all people in the society without discrimination.

The above-mentioned committee submitted a general declaration, which described the international commitments. The representative of the governmental and private sectors and independent institutes discussed and deliberated on water possession and the need to privatize this commodity in production and distribution systems, before having the declaration approved.

[1] United Nations Department of Public Information, DPI/2293F, February 2003.

In the last version of the declaration the members came to the conclusion to omit privatization preventing political issues from getting involved. Water was finally defined as a limited natural resource and a fundamental public commodity for life and health.
– The declaration also emphasized the right of water which entitles everyone to sufficient, affordable, physically accessible, safe and acceptable water for personal and domestic uses.[2]

While water consumption is different in various cultures, supplying an adequate amount of freshwater is essential for the following purposes:
– To prevent human death caused by decrease in water volume in the body;
– To decrease risks related to water; and
– To provide required water for domestic, personal and hygienic uses.

1.5. *Food Security or Water Security?*

Food security means that all people should have physical and economic accessibility to food.[3] Food security at the macro level depends on the population and its increasing rate, food production (agricultural productivity), import and export trading, national income and the prices. Food or water security is considered one of the well-known subjects to be dealt with in the countries' strategic plans. The world's experiences have demonstrated that food security cannot be achieved by self-sufficiency at the national level. Self-sufficiency in food production in arid and semi-arid regions without promoting water productivity will endanger renewable water resources and will cause constraints for industries and other water services. Insisting on the above-mentioned issues in some countries dates back to before capitalism (tribal – agriculture). This is the reason why water security has gained the first priority. Higher production with less water is the first and simplest approach to water security policies. Laws and strategies, which are at the basis of consumption, should be based on sustainable utilization of the resources, productivity, equity and ecological conservation to achieve water security. Undoubtedly, the sustainable development of water resources is a method for promoting living conditions, therefore it is necessary to expand and fairly distribute these kinds of resources, enabling one fifth of the world's population to benefit.

[2] United Nations Department of Public Information, DPI/2293F, February 2003.
[3] FAO, 1983.

1.6. *Water as a Tool to Control Domination*

Economic globalization has caused some challenges and changes in different parts of the world. These changes occurred at the same time as a discussion, entitled geo-economics. In geo-economics, economic and political competitions are focused on a specific country, although international and regional aspects are also considered.

In this respect, economic characteristics and their role in the international economy will be defined, therefore a new political category is being formed on the basis of some economic levels, some of which result in regional convergence (such as the European Union).

This idea has ruined the holistic approach of political boundaries and it has formed a specific policy in the new category. The union factor is no longer based on tribes, races or even languages; but it is now based on special economic indices.

In this process, common money is considered, transportation laws are excluded and a new common parliament will be thought over.

Recent experiences show that the important role of economic aspects for continuous unity in regional political units should now be transferred to cultural criteria. In other words changes occurring in bigger political units will be based on cultural indices rather than economic aspects. The main factor in demonstrating and determining domination will be related to culture.

Since water plays a key role in organizing the fair distribution of water among political units in the region, it will undoubtedly remain the most vital factor in their sustainability and solidity. It will also prevent the creation of local problems and control local authorities, which usually have the potential of increasing local conflicts. In this respect a new definition of geo-politics is presented. This concept includes three main elements as geography, domination and politics. Subjects concerning geo-politics are somehow related to these three components.

Another effective tool in controlling power is using international laws on water. At the present time, these laws play an important role in world power management also in solving different conflicts caused by common water basins between countries. They not only play an important role in prevention, but also in managing conflicts. Sustainable development has been changed into an international agreement in which water issues are included. The gaps of the international laws on water are summarized as follows:

– Water and Human Rights: Challenges between the first generation (inhabitant and political rights) of human rights and the second generation (socio-economic and cultural rights). Governments have to consider supplying freshwater for people in this respect;
– Water as a trading or social commodity: Water in nature cannot be considered a good, but when it comes under authority, it changes into a kind of commodity. According to the above-mentioned issue, water is considered a public wealth such as social goods;
– Challenges concerning the balance between water users competition: Rules and regulations mainly focus on demand management rather than resources management. Sustainability is the main key in resources management. In this respect it is essential to precisely take into account conflict management in order to reduce these kinds of problems.

1.7. *Water and Sustainable Development*

Sustainable development is a kind of development which supplies the present generation's requirements without affecting the future generations' abilities to provide for their needs. Uniformity of economic, social and environmental policies is required for sustainable development. One of the basic infrastructures of sustainable development is sustainability in water resources.

Sustainable development will appeal at the world level when the difference between rich and poor countries decreases. Water limitation and its problems concerns the water requirements of rich and poor countries together. Millions of poor people eat less, so that rich people can provide themselves with high protein foods, since water and land have not been fairly distributed at the world scale and therefore, adequate resources for producing food within the political margins do not exist. There is a limited ecological capacity and when some consume more than their share, some have to consume less. This causes social tensions and conflicts, which endanger the world's sustainable development. Until now the water resources management strategy has not been based on sustainable development. The main water resources management strategy has been based on higher equality in comparison to water availability.

2. Challenges and Obstacles to the Fair Distribution of Water in the World

2.1. *International Laws on Water*

The United Nations' agreement on issues related to the environment is incomplete. Although this agreement is considered a guideline, it does not pay attention to development issues, therefore the following items should be included:
– Countermeasures of National and International laws and regulations;
– Challenges related to those supporting human rights and nature;
– Equity in water resources exploitation;
– Fair distribution of the resources throughout the world;
– National governship.

International laws should be considered as a global product in which technology is transformed into an effective tool for controlling legal regulations.

2.2. *Water Trading*

Increase in water demand has made the big trading companies of the world consider water as a beneficial trading good. The water industry is a profitable industry from the World Bank's point of view. Water is referred to as Blue Gold in the 21st Century. International trading agreements have been the most important tools for those trading companies active in the field of water.

Water is considered an economic commodity from their point of view, therefore laws and regulations on Oil and Gas govern water as well. Under these regulations none of the countries have permission to boycott water export without the World Trade Organization's authorization.

Hence, water is considered an economic good. In this case we may face the risk of leaving out the vital importance of water in human life, which may ruin various components including sustainability, productivity and ecosystem conservation.

The attitude toward privatization has accelerated in recent decades. Privatization has been publicized when free marketing (trading) and free investment have been proposed. According to this philosophy, management of social projects and resources is left to the private sector (modernism). This concept is quite different from religious and traditional perspectives. It is even in contradiction with the new postmodernist vision, which seeks a consistency between modernism and the positive aspects of tradition.

The pressure towards water resources privatization will increase by implementing new foreign trading laws and regulations. This process places at serious risk the lives of poor people and the environment. Water trading and privatization which both follow capitalist mechanisms are in contradiction with water human rights.

Virtual water trading should also be considered when discussing water trading. At present, around 15% of the entire countries' water requirements for crop production are via water with an external origin. The countries' and continents' shares is different and depends on available water resources and cropping patterns. Virtual water trading is one of the important processes toward globalization.

2.3. *Water in the Islamic Civilization*

Water is the principal vital element in legends and religion. Islam has referred to water and its role in human life in many situations. Different verses of the Holy Book, Quran, point out the importance of water, as follows:

Verse No. 31-Anbia: 'We made every living thing from water'

Verse No. 450-Noor: 'God created every living creature from water'

In most religions water is considered an important and holy substance.

In the constitutional laws of Islamic countries water is considered a public commodity, which is under the authority of the government.

According to principle No. 45 of the I.R. Iran constitutional law, water is considered a common wealth. It is under the authority of the Islamic Republic of Iran. Water is exploited according to the main laws of fair water distribution. Water conservation and supervision is left to the Ministry of Energy.

2.4. *Main Components of Water Issues in the Middle East*

Several components indicate the nature of water issues in the Middle East.
– Severe Water Shortage: The gap between demand and supply continuously increases and new resources should be provided in the region. Empowerment in water consumption and supply management is necessary. In order to achieve this goal the economic structure of the region should be altered;
– Water Reciprocal Issues: 90% of the surface water resources in the region pass through boundaries in the region;

– Political, Economic and Social Differences: Different countries in the region have various perspectives and visions on social, political and economic affairs as well as the water regime. The differences should be determined and studied, so that water-related problems could be solved in the region;
– Political Conflicts: The relation between different groups in the region varies. This may change from enmity to sustainable peace. Although the procedure is toward peace, it may change at any time;
– Defined Boundaries: In spite of efforts taken in the region, vast boundaries are still not determined by international authorities, therefore water rights are not clearly known in the boundaries of two countries. This causes local conflicts. Generally speaking, determining water crisis consequences and impacts in the Middle East is essential for national, regional and international security.

2.5. *Fair Conveyance and Distribution of Water*

New technologies in engineering works to better control the water cycle have mostly solved constraints related to non-homogeneous distribution of rainfall.

Agricultural, industrial and domestic production has increased with the contribution of large reservoirs and huge structures controlling conveyance and distribution have rapidly expanded, although this process has caused environmental destruction and higher expenses for water projects. Huge water conveyance projects are gradually being expanded in various parts of the world, such as groundwater conveyance from the southern deserts of Libya to the north and others such as transferring water from the Yangtze Kiang in the center of China to the Yellow River.

Fair water conveyance and distribution is an ensuing response to non-homogeneous distribution of rainfall, which should take into account legal, environmental, social and political considerations. It is essential to consider the cultural and social aspects of the projects when investigating water conveyance options. Undoubtedly, ignoring these kinds of considerations will result in unsuitable political and security conditions.

3. Conclusion

No influential law is available for utilizing international water, but legal, moral and ethical criteria for equity exist. There is a willingness to adopt water-sharing patterns in future, which will replace domination;

The attitude toward considering water as a sole economic commodity is too soon and social impacts should be taken into consideration as well;

Economic and trading tools include pricing, water marketing, standards, regulations and productivity criteria. Legal principles, privatization, training and civil cooperation are amongst the issues which still need to be investigated and analyzed;

Many governments have left the construction, operation and management phase to people (privatization), due to the high costs of water resources development plans. Although this will contribute to the financial part and the financial sustainability of the system, they will cause severe risks to the environment and to the poor;

Water is one of the elements of human needs that should be fairly distributed while respecting historical water rights;

Binding to the principle of water democracy and attracting civil cooperation is necessary; therefore, management of the most vital substance (water) in the world cannot be left solely to governmental bureaucracy or private companies;

Although water can be a lever for economic and political pressures, evidence proves that water is not used as a weapon due to religious and cultural trainings in the Islamic world. On the other hand, water can be considered a main axis for cooperation between governments (e.g. Doosti dam as a collaborative symbol between I.R. Iran and Turkmenistan);

Water crisis consequences for national, regional and international security require investigation on international financial and legal organization situations;

One of the most complicated water legal issues is a precise definition of international water resources and the level of authority of the governments on these resources;

Water and food security and food self-sufficiency are inaccessible and insistence on being food self-sufficient is due to national vulnerability. To overcome this problem, international legal consistency is required;

In contradiction to some concepts, conflicts between civilizations cannot be attributed prevalently to culture. This theory is based on materialistic achievements, while culture is a phenomenon beyond materialism. The present era is an era for dialogue among civilizations and civilization convergence. Undoubtedly fair water distribution at the international, regional and national level in countries with the same culture is much easier. Since water has played the main role in the creation of civilizations, fair water distribution and conveyance in regions with even different cultures could lead societies to get closer to one other.

All these subjects need to be explored enough through scientific discussions.