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WATER: A GLOBAL CHALLENGE FOR A SUSTAINABLE WORLD

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Abstract

Water is one of the most controversial and debated issues of the 21st century.

The growing global level of water scarcity is at the basis of one of the most frightening challenges facing humanity. As it currently affects all human beings, if not taken seriously enough, the potential impact will carry devastating consequences. This impact is already evident on a daily basis worldwide, therefore it is necessary to explore the roots of this crisis in order to preserve mankind's 'habitat'. This paper starts by examining the global crisis and its diverse causes. It then proceeds by considering water as an unquestionable life giving source and its need to be ethically managed, either by private or public entities.

Water needs to be safeguarded as a human right and this is achievable only through real democratic systems, which apply their theoretical values in their practical applications.

Introduction

The aim of this dissertation is to analyse the theme of water according to the perspective of a global challenge for the sustainability of the Earth.

Considering this era of evident freshwater scarcity, the presence of the so-called "Global Water Crisis" is explored. The dissertation investigates some of the main factors of this crisis, such as man-made climate change, water pollution, demographic and consumption growth, and the first and secondary sectors of the global economy, which carry a significant responsibility in conserving this resource.

There is a widespread fear that water will become the future "Blue Gold" of the 21st century, thus suggesting that wars in the future will arise precisely because of the dispute over this resource. Therefore, the importance of water is also examined as an element of peace, and social and political stability through the case of the Israeli- Palestinian war, which can be interpreted as one of the most significant cases of on-going water disputes.

By focusing on this concrete example, the significance of this molecule is taken into consideration as a source of life since all living organisms on earth need water, and therefore, without it, there will be no life

The Israeli- Palestinian conflict also offers an avenue to discuss ethical guidelines as to 'how' and 'why' we should propose specific considerations when dealing with the management and delivery of water sources. There is an urgent need to make water accessible to all people and to distribute it with consideration to vulnerability. The increased access to fresh water and the

guarantee for its equitable and fair distribution should be encouraged thus, by following moral values of compassion, generosity, solidarity, and equality.

Countries should discuss the issue and use specific water ethics to devise binding rules and regulations on how to share water resources and to manage complex situations, like that of Palestine.

Subsequently, the recognition of water as a human right and its management and value in the public sphere are analysed. The study concludes focusing attention on the significant positive association between democracy and sustainability. A potential response to support issues of sustainability, like that of water, could be found in the democratic systems of government where opportunities for fairer policies regarding sustainability can be created.

Chapter I : Global water crisis

The scarcity of fresh water occurs when there are not sufficient water resources to satisfy long-term average requirements, hence when the demand of potable and unpolluted water within a geographic area is greater than its natural availability.

During the last century, global water consumption increased six-fold, twice the population growth, resulting in drinking water becoming known as the so-called "blue gold," an increasingly rare resource and an increasingly, pressing issue for the whole of humanity. It is a problem that has been exacerbated by pollution, climate change, over-consumption and lack of technical and financial capacity and infrastructure.

Generally, the water crisis is defined as a temporary state of interruption in the distribution of water in a given territory. But this de facto temporary state of interruption is at present, becoming a permanent state of water scarcity, and it is an increasingly global phenomenon, no longer an exception to those few countries perhaps already disadvantaged by the lack of water sources.

The World Economic Forum has identified fresh water scarcity and security as the major crisis of the 21st century. In 2016, the water crisis was identified as the most worrying global risk concerning the potential impact for humanity and economies for the next ten years (WEF, 2016). Already two-thirds of the global population live under conditions of moderate to severe water scarcity at least one month of the year. Of this proportion, the majority lives in India, China, Bangladesh, Pakistan, Mexico, Nigeria and 130 million in western states of USA such as California and in southern states such as Texas and Florida (Mekonnen and Hoekstra, 2016). The water emergency is already a tangible reality, and within seven years, it is expected

that two-thirds of the entire world population will suffer inconveniences due to the reduced availability of fresh water.
Sustainable water supply limits have already been breached as evident in ecosystems and fisheries in decline; cities like Cape Town facing severe water shortages, the drying up of lakes and rivers, rising rates in lack of safe fresh water systems and, escalating international conflicts over the management of this precious resource.
Water scarcity is usually generated by two processes: physical water scarcity and economic water scarcity (FAO, 2009). The first is the consequence of inadequate natural water resources to meet a region's demand, while the latter is the result of the lack of investment in water or poor management of the available water resources.
Additionally, water scarcity is determined by two concurrent events, the increase in the demand for freshwater use and diminution of available freshwater resources, linked to three macro phenomena: climate change, strong demographic growth and consumption growth.

Climate change

In this regard, man-made climate change plays a crucial role. It will exacerbate the risks associated with variations in the distribution and availability of water resources (UNWWDR 2015). Because of climate change, the global water cycle is becoming more accentuated, desert regions are generally becoming more arid and wetter regions are becoming wetter (World Water Development Report 2018).
In many areas of the world, there is either too little or too much water; these two extremes have intensified and are a threat to survival. Between 1964 and 2017, according to NASA, global average temperatures rose at a rate of 0.18 degrees per decade, and as a result, there is a loss of important sources of fresh water such as glaciers and ice caps. According to John Wallace, Professor of Atmospheric Science at the University of Washington, "the permanent summer fusion of the entire Arctic could take place within a few decades if the trend of the last twenty years does not change."
In these last twenty years, the evolution of the world climate has been characterised by the frequency, intensity, spatial diffusion and unusual duration of extreme weather events. No continent has escaped this evolution. Evidence of this can be seen in the storms on the Atlantic coasts of Europe, the cyclones in the Caribbean, the hurricanes in the Indian and Pacific oceans; the drought periods in China, Brazil, and Africa, the heat waves in Russia, and the primitive precipitation in Bangladesh.

According to the data disseminated by the GIEC (Intergovernmental Panel of Experts on Climate Change), climate change is having an enormous impact on the availability of water resources. According to scientists, a rise in the earth's temperature corresponds to a reduction of 20% in the availability of water resources for 7% of the population. This means that if no decisive measures are put in place, the risk is that by 2030, water availability could be reduced by 40% compared to today.

This is a dramatic facet of the water crisis because both the absence of rain and the consequent collapse of crops and the evaporation of rivers are causing food and water crises.

Furthermore, the consequences for coastal communities are equally threatening. In extreme circumstances, rising sea levels may result in certain evacuations and migrations, which invites the question as to whether the global community will be sufficiently prepared to bear the very high economic and social costs.

Water mediates the impact of the climate crisis on all forms of life by means of floods, cyclones, heat waves and droughts. This fury of water can be tamed solely if the presence of carbon dioxide in the atmosphere is contained. Climatic destabilisation started with the advent of industrialisation but has undergone an exceptional acceleration in recent times. In fact, in 1850 the presence of carbon dioxide in the atmosphere was approximately 280 parts per million (ppm), in the mid-nineties, it had reached about 360 ppm. In April 2018, the average concentration of carbon dioxide in Earth's atmosphere hit 410 parts per million for the first time in recorded history (Rob Monroe, 2018). These are the highest CO2 levels in the 800,000 years for which we have useful data (Kevin Loria 2018).

At present, carbon-dioxide emissions are still rising. The goal set in the Paris agreement on climate change is to limit the global temperature increase to 2 degrees Celsius or less. However, as a recent feature in the journal Nature revealed, the earth is destined for more than 3 degrees of warming.

The climatic instability seen today in the form of extreme droughts, floods, cold winters, and heat waves is the result of atmospheric pollution exacerbated by the wealthiest regions of the world.

The latest edition of the U N’s World Water Development Report suggests that as demand for water increases throughout the globe, the availability of fresh water in many areas is likely to decline because of climate change (WWDR4). It estimates that primarily the burden will fall on the lowest social classes, and in fact these pressures will intensify economic inequalities between certain countries, as well as between regions or sectors within countries.

The irony is that the primary victims of this climate disaster are those who often have less

responsibility for destabilising the climate. They are now and will be in the future, mostly those communities dedicated to sheep farming, fishing, coastal populations and the inhabitants of small islands whose lands could be erased from the world map.
In this regard, the Samoan Ambassador, A.T. Neroni Slade, supporting the Alliance of Small Island States (AOSIS), has sent an appeal of desperation testifying, "The strongest human instinct is not greed but survival, and we will not allow bartering our countries, our peoples, our cultures with short-term economic interests ".
However, despite the global recognition of climate change and international efforts to combat global warming, the United States, the second largest emitter of carbon dioxide in the world (REUTERS, 2017), has adopted a hard line of non-cooperation in the field of reducing emissions.
Since the early 2000s, George W. Bush, shortly after his presidential inauguration at the White House, withdrew the initial adherence to the Kyoto Treaty by saying, "Our economy is slowing down, we are still going through an energy crisis, and the idea of putting a carbon dioxide lid on is also economically senseless ". Approximately one decade later, on June 1, 2017, President D. Trump decided to pursue the same policy, declaring the exit from the Treaty of Paris on climate change mitigation. Similarly, the new President declared, "The Paris accord will undermine the (U.S.) economy, and puts the U.S. at a permanent disadvantage."
It was another verbalisation of the tendency of the wealthiest and most responsible countries to prioritise one's short-term economic interest, to the detriment of others. This may appear somewhat paradoxical since they, themselves, are on the forefront of being seriously threatened by the global warming. An increase in sea level could erase the East Coast as well as the states of the Gulf coast like Florida, Louisiana, Mississippi, Texas, and Alabama.
The world's top three greenhouse gas emitters: China, USA, and the European Union contribute more than half of total global emissions. (The World Resources Institute, 2014).
The International Energy Agency reported that if the world wants to avoid drastic global warming this century, a sharp reduction in greenhouse gas emissions in the years ahead is fundamental. However, at present, universal trends are pursuing the opposite path: gas emissions from the use of coal and natural gas grew 1.4 % globally in 2017, comparable to adding 170 million new cars to the road worldwide (B.Plumer 2018).

Demographic Growth

In addition to climate change, the new UN report warned that the increase in world population should seriously be considered as another critical determinant of the water crisis.
Some estimates suggest that the number of population experienced 5,500 years ago was less than 10 million individuals. In 1950, there were less than 2.5 billion people, while today the population has reached the impressive figure of 7.5 billion people, even if compared to 1950, the rate of growth has halved. According to some experts, in 2050 there will be 9.7 billion and 11.2 at the end of the 21st century, in the absence of catastrophes or pandemics (World Bank 2017). This ever-increasing demand is provoking amplification in the already existing pressure on water resources.
Under pressure from demographic growth and due to climate change, available water resources per capita, in the last fifty-four years, have fallen by 50% (from 16,800 m3 to 8.470 m3) and it is expected that in 2025, we will be able to dispose only of 4,800 m3, that is the consumption of 57% of the resources currently accessible in recent years. Water needs will increase by more than 50% by 2025 (IFPRI, 2002).
According to some scholars like R. Macdonald, P. Green, M. Todd, C. Revenga and M. Montgomery in their study, "Urban Growth, Climate Change and Freshwater Availability", until 2050 the increase in population will be the primary cause of water scarcity of the planet, overtaking the impacts of climate change with a direct correlation, measurable, and moreover predictable thanks to the probability models employed by scholars of global change studies, the branch of research which deals with complex transformations at a worldwide level.

Consumption growth

An increase in the population is naturally correlated with an increase in consumption, which in the last century saw a rise in water consumption of 12.8 times, a 14% rise in irrigated areas and the loss of one third of arable land in the previous forty years. This led to a radical alteration of the Earth's surface, making 50% of its area 'modified by man' with a reduction of a quarter of the species of mammals and birds (W.V. Reid, H. A. Money, 2016).
This increase in water consumption is depleting world aquifers faster than they can be replenished. Moreover, the problem of supply will increase drastically. As the UN estimates, by 2030 global water demand will exceed 40% of supply.
Many industrialised countries have invested considerable capital in the construction of innovative and technological systems to recover more fresh water. Since the 1950s, for

example, the construction of dams and water drainage works have started to capture enormous masses of water, preventing the natural outflow to the sea.
This, however, may not prove to be an entirely positive choice: some of the largest rivers on the planet, such as the Nile, the Ganges, the Yellow River, and Colorado, often dry up before reaching the sea.
In particular, it is expected that the population increase will put megacities and large urban areas under water stress. For instance, the Brazilian megalopolis of San Paolo in 2014 and 2016, showed how large megacities without good water resilience plans could incur prolonged water rationing due to a high consumption concentration and a high per capita demand. However, water rationing may also be likely due to bad management of water basins and Rome is a prime example of this. In 2017, it risked prolonged rationing of water due to firstly, poor management of Lake Bracciano, its largest reservoir and secondly, to an inefficient plan of pipelines and distribution.
Particularly exposed are all those cities that depend on distant basins or sources, such as Los Angeles which draws sustenance from the Hoover Dam which is 200 kilometres from the city. More developed countries have adopted a lifestyle that requires great use of this fundamental resource for every area of their existence, from agriculture, breeding, industry, sanitary use, domestic life to entertainment.
In today's society, people are increasingly aspiring to widespread prosperity, based on the traditional linear economy, "extract, consume, discard." Often, we do not realise that our lives depend on what we consume and what impacts this lifestyle have. Normally, we ignore how much water is needed to produce what we have on the table, but the figures are exorbitant. For instance, according to the Water Foot Print Network, it ranges from 70 litres of water to produce a single apple and up to 15,500 litres for a kilo of steak. All this has driven Professor Tony Allan to develop the concept of “virtual water,” the “invisible” quantity of water necessary for the production and trade of any good, which clearly shows the water weight of a product based on the water availability of the state or region and business.
Every day, a large amount of water is wasted on food that is virtually unnecessary for global food security due to diet and cultural customs that could probably be superseded or merely changed. Food waste is another major contributor to the water crisis. Every day, a third of global food production does not reach the table, due to poor management and a loss of its real value (M. Musella, F. Vernau, 2017). Everywhere, in homes, supermarkets, schools, and restaurants, vast quantities of food are thrown away even when still edible. Such waste has an impact on both the water and the environment.

Each year, approximately one-third of all food produced for human consumption in the world is lost or wasted (FAO, 2013). Due to food waste, it is estimated that around 250 cubic kilometres are thrown away, an area equivalent to the whole of Mongolia.
As for the impact on the environment, this food waste contributes 3.3 giga tons of carbon dioxide emissions annually, a figure higher than the annual emissions of all the cars present in the world (FAO 2013).
Furthermore, another particular issue is that over-consumption is added to waste. According to the World Health Organisation, worldwide obesity has nearly tripled since 1975.
In 2016, more than one billion adults, 18 years and older, were overweight. Of these, over 650 million were obese. Their life expectancy is reduced, and they risk serious illnesses that could be preventable; such overconsumption implicates severe costs. Obesity, in addition to being a health problem, is a tremendous social and economic scourge, which in fact motivated the former first lady Michelle Obama to carry out the initiative ,"Let's Move", the cornerstone of her mandate, recently thwarted by the new president.
Two Italian scholars have elaborated the "Metabolic FoodWaste" to analyse precisely the water impact of overconsumption. It is an index that measures the amount of food consumed beyond the metabolic needs of its carbon and water footprint. It turned out that as regards overweight or obese Italians, we consume an average of 127.2 kilos of extra food. This surplus has a water equivalent estimated at 2.2 billion cubic meters of water and equivalent to 4 billion tons of carbon dioxide (M.Serafini, E.Toti, 2016). These are extreme measures that give an idea of the quantity of water lost in the private sphere alone, but those concerning the public field are also alarming.
Arjen Hoekstra, Professor at the University of Twente, introduced the measure of the "water footprint" with which the consumption of fresh water taken from lakes, rivers, and strata can be measured. From his studies, it has emerged that the water footprint at the world level for the production of exported goods is equal to 1700 billion cubic meters a year, about a fifth of the global water footprint (A. Hoekstra 2013).
In agriculture, the footprint referring to the exported products covers 19% of the total water footprint of the sector, using the most substantial amount of virtual water exchanged, accounting for more than two-thirds of global trade.

The agricultural sector

Such data that emerged concerning the agricultural sector seems entirely accurate since it is not inconsistent with the worrying estimates of the OECD. Agriculture is the most crucial global consumer of water, and the OECD estimates that around 70% of global freshwater is used solely for agricultural production with variable quotas for industrialised states, where the levy is reduced and less developed countries, where water usage can reach even 98% of the total.

The majority of the total consumption of fresh water in the agricultural sector is used for irrigation. For instance, the ISTAT data indicate that in Italy, to irrigate two a half hectares of agricultural land, 11 billion cubic metres of water is used.

Sandra Postel, director of the World Water Policy Project, suggests that if the exploitation of water reserves occurred more rationally, especially in the agricultural sector, it could have a considerably positive impact on available reserves. She points out that the use of better irrigation technologies could increase the efficiency of water distribution by 95%, increase agricultural productivity, reducing the world's water needs by 10%, doubling the amount available for domestic consumption.

Because of the high levels of consumption, industrial agricultural techniques that have now taken hold within the last few decades, are forcing food production to use methods that have led to a reduction in soil water and an increase in the demand for water.

Agriculture based on organic fertilisers is increasingly being abandoned for industrial agriculture that makes excellent use of chemical fertilisers, and replacing crops that require little water with others that need large quantities of water, a sure recipe for desertification, water shortages, stagnations, and salinisation.

The droughts, due to low humidity in the ground, have become an increasingly frequent phenomenon, as there is often a lack of organic material that serves to hold water in the soil.

The “Green Revolution” that has allowed a significant increase in agricultural production, has often been achieved by undermining indigenous agricultures in favour of monocultures through chemical fertilisers and intensive irrigation systems. With the advent of this radical change, the agriculture of developing countries has been forced to produce wheat and rice, often non-local crops that require more water than the indigenous varieties.

These dramatic transformations have had both social and ecological consequences.

As regards the ecosystem, the increase in water used has often compromised the stability of the regional water balance. Agriculture and irrigation which demands an intensive use of

water have released into the ecosystem, a quantity of water higher than that borne by its natural flow system, thus causing salinisation, stagnation, and desertification. Salt poisoning of arable lands is a consequence of intensive irrigation, and today, more than a third of the world's irrigated land is polluted by salt.

These disturbances of the ecosystems have also brought about social problems such as when, due to stagnation, conflicts between farmers and the state erupt. An example of this is the stagnation in the region of Malaprabha, in India. In this semi-arid land, low- water-consumption crops such as legumes were once cultivated. With the arrival of the cultivation of cotton, a plant that requires high quantities of water, the intensive irrigation program has quickly produced desert areas. In this case, irrigation has not improved the productivity of the land but has led to peasant uprisings, repressed by the police who shot the peasants who refused to pay water taxes.

That transition from crops that received water from rains to irrigated and marketed agricultural products instead of improving farmers' economic conditions, often led to famines, deaths and even debt as farmers often resorted to bank loans for land development or the purchase of pesticides and fertilisers.

The World Water Council and FAO have warned in a paper published in April 2018, that it is crucial to work to create a “water and food secure future.” Investments and government policies in the public and private sectors (FAO 18 April) should be encouraged to guarantee that crops, livestock, and fish are sustainably produced aiming at protecting water resources. "The essence of the challenge is to adopt programs that involve investments in longer-term returns, such as the rehabilitation of infrastructure. Agriculture has to follow the path of sustainability and not one of immediate profitability", argued B. Braga, President of the WWC. Since the agricultural sector is the number one consumer of water, it should be at the forefront in promoting solutions to the growing global demand for water and the potential depletion of the globe’s natural resources (FAO on World Water Day).

Food of better quality needs to be produced using inferior quantities of water per unit of output. Agriculture must contribute in an effective way to local and national economies. Green technologies that ensure environmental sustainability must be utilized and rural people need to be given the resources and opportunities to live healthy and productive lives.

Industries and the energetic production

In addition to the demand for water from the agricultural sector, another essential allocation of available water is destined for the secondary sector of the economy.
The industry is a significant promoter of economic growth, in fact in the fast-growing East Asia and Pacific regions, industry now provides 48 % of total GDP.
Industries in developed and developing countries require clean water, and their water security is increasingly affected by water shortages and deteriorating water quality (UNIDO report).
As global energy consumption is predicted to increase by as much as 50% by 2030, the demand for water supplies and resources to support this growth will also increase. This will place the energy sector into greater competition with other water consumers for already limited freshwater resources in many regions of the world. This competition for water resources will impact future energy development and could have significant impacts on energy reliability and energy security in areas around the globe (Bigas, H., 2012).
Almost every industry relies on large quantities of water. The primary water consuming industries are the manufacturing industry, mining industry, construction industry, food industry, pharmaceutical industry, thermoelectric power plants, hydroelectric dams and other plants that use water for cooling, such as oil refineries, coal industries and generic production plants, which overall consume 22% of the water available on Earth.
Furthermore, water is demanded by the plastics processing industry and by companies that use water as a solvent. Water is used in most industrial processes, such as precision cutting, fertiliser production, and energy production. It is precisely due to this last sector, the industrial and energy production, that a significant increase in water demand is expected (WWAP, 2015). Freshwater withdrawals for energy production account for 15% of the world's total (WWAP, 2014) and are expected to increase by 20% by 2035 (IEA/UNESCO, 2012/15).
The dramatic increase in the production of biofuels, including ethanol, tripled between 2000 and 2007, and the need for a quantity ranging between 1,000 and 4,000 litres of water to produce a single litre of biofuel, have amplified the already complicated relationship between world development and water demand.
However, the connection between water and energy is often overlooked. When turning on an electric light, the last thing we think about is water. Yet water and energy are strictly interconnected, and their union is indispensable for economic and social development.
Water in the energy sector is mainly used in four production fields: nuclear, coal, in both mines

and thermoelectric plants, the conventional and unconventional hydrocarbons such as oil sands or shale gas and finally in hydroelectrics through the creation of dock or "run-of-river" dams (World Energy Resources Hydropower, 2016).
During the production of energy, water is necessary at every stage, from the extraction of raw materials to the generation of electricity. In the same way, energy is needed for pumps of domestic, agricultural, industrial use and water for purification and treatment systems. One is a function of the other, and this interdependence can have an impact on both water and energy security. For instance, using too much energy to sustain the demand for water, especially during periods of drought, can lead to blackouts, as happened in India in 2012 when 620 million people remained without electricity and with a significant risk of potential economic disaster since every human activity was arrested. Conversely, using too much water to produce energy is equally unjust as it risks taking it away from ordinary people.
According to a forecast by the International Energy Agency, the global need for energy is set to increase 60% by 2030, with the energy demand coming from developing countries, while consumption of hydroelectric energy is also destined to increase by 60%.
With the growing scarcity, sagacious management of water resources becomes more important than ever (K. Matsuura UNESCO).

Water pollution

In conclusion, the hydrologic condition is additionally linked to an issue of quality.
Quality also determines the availability of water. Contaminated water cannot be used for any of these purposes: drinking, bathing, industrial activities or agriculture. Research has shown that it damages human health and degrades the natural resources.
It is estimated that over 80% of wastewater worldwide is not collected or treated, and urban settlements are the fundamental source of the point- source pollution.
In addition, poor-quality water can also determine significant economic costs, for instance in countries in the Middle East and North Africa, poor-quality water ranges from 0.5% to 2.5% of GDP (WWDR4).
Water pollution is a crucial factor because even when there is sufficient water, the resources are increasingly polluted by human and industrial waste and economic activities.
The quality of water is declining because of various pollutants found in the water.
Water pollution can be of a physical, chemical or microbiological nature, and the major pollutants include microbes, nutrients, heavy metals, organic chemicals, oil, and sediments; heat, which raises the temperature of the receiving water, can also be a pollutant.

The consequences can compromise the health of flora and fauna involved, including humans, damaging the ecosystem and the water reserves for food use.

Pollutants reach the water directly or indirectly. Direct pollution occurs when pollutants are poured directly into the watercourses without any purification treatment. The indirect route, on the other hand, happens when the polluting substances reach the watercourses through air and soil.

Water pollution is predominantly urban or industrial. The first type of water pollution is caused by water derived from discharges not subjected to purification treatments. On the other hand, industrial water pollution is due to the pollutants that in large quantities are discharged by the industries.

The chemical industries, which produce substances such as nitric acid, soda, phosphoric acid, ammonia, hydrochloric acid, etc., are among the major producers of water pollution. In addition, industries such as paper mills, sawmills, and dairies, release residues able to encourage the growth of moulds and bacteria.

One last type of water pollution, which emerged in recent decades, is that which involves seas and oceans invaded by floating plastics and micro-plastics that tend to enter the water cycle and then directly into the food chain of marine aquatic organisms and consequently, into that of humans.

Agriculture and industry mostly consume drinking water that often returns polluted and are the sectors that pay the lowest rates for the use of drinking water. Paradoxically, according to OECD data, $347 billion a year is spent to subsidise the intensive farming model, while with $ 180 billion a year for ten years, access to water could be guaranteed drinkable for everyone.

Waterborne diseases appear as another critical facet of this crisis since they represent a significant cause of death. Seven million people die annually of such diseases (R. Moorthyand and G. Jeyabalan, 2011).

An unacceptably large proportion of the world's population, one person in five, does not have access to safe and affordable drinking water, and half the world's people do not have access to sanitation (High-Level Panel on Water report, 2018). Each year at least 3 to 4 million people die of water-borne diseases, including more than 2 million children who die from diarrhea, according to World Health Organisation statistics (WHO, 1996).

842,000 deaths per year, is attributable just to a lack of safe drinking water supply, sanitation, and hygiene. In this regard, the WHO has emphasised the role of climate change-induced flooding and droughts, which can severely impact sanitation infrastructure and household water with related health risks. For instance, flooding can disperse fecal contaminants,

increasing chances of outbreaks of waterborne diseases such as cholera, while water shortages due to droughts, can increase risks of diarrhoeal disease.
The UN High-Level Panel on Water sent a key message through the recent study entitled, "Making Every Drop Count: An Agenda for Water Action." The report emphasises that water should not be seen as a given any longer and underlines the urgency of actions to avoid a great water shortage.
Its recommendations aim at achieving better management, valuation, and understanding of water at different scales in order to implement the Sustainable Development Goals (High-Level Panel on Water report, 2018). Ambitions that besides promoting the previous objectives such as reduced inequalities, zero hunger, no poverty, reduced child mortality, peace, justice, strong institutions and quality education, now give particular importance also to missions such as climate action, clean water and sanitation, responsible production and consumption, sustainable cities, life under water and on land and finally to clean water and sanitation.
In this regard, everyone at different levels of society is addressed: international organisations, governments, private sectors, and civil society.
Over five billion people could, in the not too distant future, experience the effects of the global water crisis. The current demographic increase continues to grow, consumption levels, climatic changes and pollution of resources show no signs of abating, and are predicted to surge dramatically if the problem for competing demands for water is not addressed.

"The Israeli-Palestinian water conflict"

Water does not only hold the key to nutrition, prosperity, and health but also to peace, security and stability. It is a geopolitical resource that no one can do without it. When a primary good is scarce, it is difficult for political tensions not to escalate. Without water, there is no peaceful coexistence among peoples. Whoever owns more significant quantities is in a position of strength compared to other countries and using it, as a weapon of blackmail is a particularly, widespread reality.
Water as a strategic resource is at the origin of numerous conflicts for its control in various parts of the globe. Some 181 conflicts over water are reported to have occurred between 3000 B.C. and the end of 2007 (Gleick, 2009). Some 146 of these conflicts took place in the 5,000 years between 3000 B.C. and the year 2000. The remaining 59 conflicts, therefore, occurred in this century. The number of water-related conflicts reported worldwide has surged in the last fifteen years, according to the Pacific Institute.

A prominent example of water-related conflict is the decennial tension between Israel and Palestine. It is an ongoing conflict where several issues overlap. Some of the most significant are: the dispute over the borders and the division of the land, the right of return of Palestinian refugees living in the Palestinian diaspora, the status of Jerusalem, the security concerns over terrorism, Palestinian concerns over Israeli settlements in the West Bank; and the last but not least crucial component: water control. The division and use of water resources are one of the still unresolved critical issues, that have been hampering peace in the region for decades.
Tensions between the two parties have grown following the victory in 1967 in the "Six Day War" by the Jewish state which since then, in addition to controlling the territory of East Jerusalem, the Gaza Strip, the West Bank, the Sinai Peninsula and all water resources of the West Bank, controls the Golan Heights, an area of high geo-strategic importance and confluence of the primary water resources of the state of Israel.
In the period between 1977 and 1982, the waters of the West Bank were controlled by the military, presently, they are controlled by the Israeli water company, the M'ekorot.
The area in which Israelis and Palestinians live does not have abundant water resources, and currently, Israel makes an abusive use to the detriment of its Palestinian counterpart.
With the passage of time, Israel has appropriated all water resources, and paradoxically, Palestinians are forced to buy back their own water from M'ekorot. This Israeli water company, year after year, is not only diverting most of its water reserves to the Jewish state, leaving scant remains for the West Bank and the Gaza Strip, but it charges those Palestinians who want to buy the latter salty remnants at higher prices compared to those in place for Israelis.
The UN-Ocha shows that the cost of the bills is unacceptably high, 400% higher than the average water bill and in addition, the supply is often interrupted due to military exercises.
An escalation of the crisis erupted in summer 2016 when several Palestinian refugee camps and villages were left with no water for several days.
Palestinians have had to confront a real water crisis, to import water in large barrels to meet basic needs and stay awake entire nights waiting for the pressure in the pipes to return.
Despite the aquifer basins in the central-northern territory of the Palestinians, they are almost entirely dependent on the Israelis for water.
According to Amil Gilutz, spokesman for B'tselem, an Israeli pacifist organisation, there is discrimination between the two peoples over the right to water. Water is not equally distributed, and limited access to water resources penalises Palestinian development, agricultural cultivations and simultaneously, penalising the health and hygiene standards of

Palestinian families.
Moreover, the Palestinian infrastructures in the areas controlled by the Israelis are often damaged or destroyed and obtaining permits to build new wells is difficult.
Following the Oslo II treaties of 1995, Israeli control, in place since 1967, was consolidated. The water-sharing arrangements between Palestine and Israel were defined; the water distribution between the two parties should have been implemented with shares of 80% for the Israelis and 20% for the Palestinians.
The agreement was supposed to last only five years, waiting for a definitive statute that would have given life to the Palestinian state and the borders of the Israeli state (G. R. Watson, 2000). Today, it is still in place, and water-sharing agreement discussions are left to the long-awaited final status negotiations.
After twenty years little has changed, and the situation for the Palestinians has deteriorated further. Today, Palestinians have access to less water than they were granted by the already-inequitable Oslo agreements: 13 %, with Israel abstracting the remaining 87%.
Moreover, it can be argued that Palestinians are incapable of maintaining and developing their water infrastructure also due to a significant obstacle represented by the dual Israeli permit regime. The Joint Water Committee, where Israel has a de facto veto power, is the institution in charge of giving approvals to Palestinian water projects. Only a half of all Palestinian water and sanitation projects were approved by the JWC and only one-third of those could be implemented, against a near 100 % approval rate for the Israeli projects.
In Area C, in addition to the JWC approval, it is also required the permit approval by the Israeli Civil Administration, which are known to be difficult to obtain (C. Corradin, 2016). As reported by the United Nations Office for the Coordination of Humanitarian Affairs (OCHA), between 2010 and 2014, the ICA has refused 98.5 % of the Palestinian building permit applications for Area C projects.
The refugee camps have been administrated since 1949 by the UNRWA, "United Nations Relief and Works Agency for Palestine Refugees in the Near East." From humanitarian assistance to refugees, UNRWA has become a service agency in education, health, welfare, finance, infrastructure and emergency in the complex archipelagos of the Palestinian territories divided into three macro areas: "Area A" that is under the control of the Palestinian Authority, "Area B" that is governed by the Palestinian civil administration but controlled by a mixed military control and "Area C" covering the Palestinian territories where Israeli settlements are located and controlled de facto by Israeli civil and military authorities.
Also due to this complicated political geography, water management is complex and is a

constant source of tension between the many levels of administration, because of the difficulty of coordination, poor Palestinian maintenance, and the Israeli military interference.
Moreover, according to the B'etzalem Organisation, despite the demographic increase in the West Bank, the availability of water dropped from 118 cubic meters of water in 1995 to 87 in 2014.
While Areas A and B are not “safe havens,” the most serious problems occur predominantly in “Area C.” As OCHA reports, 180 Palestinian communities are not connected to the water network and 122 have a connection with no or irregular supply thus becoming dependent on M’ekorot which assigns fixed quotas and during periods of water stress, the water pressure drops to 40% leaving the Palestinians without water for weeks or receiving only a little during the night.
The approximately 300,000 inhabitants of this area live in a situation of a continuous water emergency, accentuated by the summer droughts, the lowering of the lake of Tiberiade which has dropped by 4 meters since 1993 and the further need to cut water consumption and switch to drought-resistant agricultural products.
Therefore, it can be seen that whatever the locus of the Arab-Israeli conflict was historically or is at present, the control over water and land has always been at the core of these arguments and actions. The two issues, land and water, are inextricably bound. The very creation of Israel was based on the commitment to ensure access to water, and thus to strategic land areas.
In fact, in a statement by the former Israeli Prime Minister, D.B. Gurion, it was declared, "It is necessary that the water sources, on which the future of the earth depends, do not lie outside the future homeland of the Jews."
Water plays a role in Israeli territorial claims and the alienation of land impacts on Palestinian access to water.
Whether or not Israel uses water as an argument for retaining land, such retention has signalled and will continue to signal harsh implications for Palestinian access to water and therefore, a lasting crisis and conflict over competing water demands.
The theme regarding water remains fundamental for peace agreements. It is one of the pivotal points for peace negotiations. The goal should be equitable use for both peoples, with a modification in per capita consumption that should be entirely reviewed to attain a just balance. The average 70 litres for a Palestinian against an Israeli's 280 and a colonist's 350 are too unbalanced, unjust and discriminatory figures since 100 litres are the minimum threshold for a healthy life as attested by the World Health Organization (L.G. Feidinger, 2013).
An agreement to properly share this dwindling and priceless resource is indispensable.

Otherwise, the two states will never reach consensus and peace in the "Holy Land," that they both claim as their homeland, will remain elusive.

Chapter II : Water as the basis of life

As the Israeli-Palestinian conflict highlights, water is the essential molecule for both society and the biosphere. It is the matrix of culture and the basis of life. Our lives are linked to water, and every human activity depends on the possibility of accessing it.

It has been called the "source of life" as it performs essential ecological functions in every environment. Life on earth began in water, and without water, there is no life. Plants, animals and human beings cannot live without it, and each organism has the right to its quota.

Everyone needs water to survive. Water is the major component of the food we eat, and we are composed of it ourselves. Water makes up at least 60% of a person's body weight, and it is needed for all bodily functions.

It is the only global resource that has no economic substitute, supports most global economic development, and it is fundamental to every human livelihood.

Mankind has always recognised its intrinsic value. Since the most ancient Greek cosmogonist doctrines of Homer, Hesiod and Plato, water is referred to as the primordial element of the universe.

Thales of Miletus considered water to be the ἀρχή (arch), the principle, the origin and did so by virtue of empirical observations on the importance of water in the generative processes.

He was the first philosopher in the western philosophical tradition to explain the origin of the cosmos with an actual substance like water. Subsequently, in the 5th century BCE, the ancient poet Pindar stated, "The noblest of all things is water." Almost all cultures and religious beliefs of the world refer in some way to the founding, vivifying, generating value of this element.

In the Quran, water is specifically perceived as the origin of life and Hinduism as well, gives special meaning to water sources as they are considered sacred, objects of devotion and respect. In fact, in India the rivers are holy, they are considered as extensions and partial manifestations of divinities. As far as Christianity is concerned, on the other hand, following the decree of the Saxon King Edgar in 960, the worship of the springs was forbidden to promote Christianity and extinguish paganism. Despite this, the profound faith in its sacredness persisted. In fact, water has retained its sacredness in the form of baptism and the washing of hands and feet.

Moreover, it is interesting to note that this primary resource has a biunique character.

Cosmogonies, mythologies, religions, cults, and practices present us with a non-unilateral conception of water. Water not only represents a founding and life-giving element, but is also a determinant of destruction and devastation. The same water can be contemporaneously beneficial and malevolent, life-saving and harmful.

The lives, fortune and duration of great civilisations have been dependent on the skills, patience and imagination of the collectors to conserve and manage the water supply.

Water presents itself as perhaps the most potent and effective point of intersection between human and natural history. What differentiates us is the culture, the history, and the relationships we have established with the environment. It is a global, common element that indicates unity and distinction, as the Israeli-Palestinian conflict strikingly demonstrates. The relationship between mankind and water should never be taken for granted. Even if water is one of the most widespread primary goods in nature, the different populations have been able to dispose of it only with construction, effort, and dedication. Fishing, breeding, harvesting, agricultural production, and hunting depend directly on the presence or lack of water, and on the ability to use and store it. Peoples' lives have been strongly influenced by the vagaries of the climate, by the sudden passage from unstoppable rains to forms of prolonged drought; as is happening, for instance, in Somalia, where 427,000 people are affected by the floods in the last months. Of these, 175,000 people already displaced in the previous year due to drought and famine have been forced by catastrophic flooding to move again, becoming even more vulnerable to malnutrition and disease.

Water is life because it is essential, but although water is a renewable resource, whose reserves are continually reintegrated through a large natural cycle, water is scarce in many areas of the world. In others, however, there is abundant water, but the quality is continually compromised by pollution and neglect of man.

The availability of fresh water from rivers and subsoil is progressively becoming more inadequate. In fact, it should be considered that the number of human beings and their needs will grow, but the world's water resources will always remain constant.

Water represents an element of survival for life on Earth, and human history is inextricably linked to this resource. In fact, the availability of drinking water has always been a crucial parameter for the choice of the site on which to build any settlement and, historically, civilisations have always developed in close proximity to rivers and lakes. A demonstration of this, for example, is the Tigris-Euphrates system: two rivers that flow in what was once called Mesopotamia, that have provided the foundation to the cradle of Western civilisation. Conversely, where water resources are scarce, the life of the populations is arduous, the

indispensable sharing of the scarce resources among neighbouring peoples may result in complexity and in some cases, failure as the relationship between the Israelis and Palestinians demonstrates.

Furthermore, due to the lack of water, human development is severely impeded. There is a 100% correlation between water availability and GDP; if there is no water, there is no economic growth (fund manager of Pictet Asset Management).

The Earth is also called the "blue planet," precisely because 70% of its surface is covered with water. But one could mistakenly think that water is an infinite good and that humanity should not worry about how it is managed. The reality is very different: in fact, 97% of groundwater is salty and only 2.5% of all water in the world is fresh water according to Kenneth Strzepek, a research scientist at MIT's Joint Program on the Science and Policy of Global Change. Of that minute fraction, more than 98 % is either frozen, in glaciers or icecaps, or is under-ground. Humans use approximately 15 % of the planet's surface freshwater because we only have real access to 0.0007% of the planet's water: this amount must feed and sustain over 7 billion people and millions of animal species and plants.

About 80% of fresh water is concentrated in some basins and large river systems: the Great Lakes in Canada, the Tigris and Euphrates in the Middle East, Tanganyika, Victoria and Malawi in Africa, the Amazon and the Orinoco in South America, the Ganges and the Brahmaputra in India, the Congo in Africa, the Yangtze in China and the Tigris and the Baikal in Siberia.

The fresh water of our planet undergoes a continuous process of transformation: it evaporates and returns to earth in the form of rain, snow or ice. Most of the water that precipitates evaporates immediately, is absorbed into the most inaccessible areas or flows to the oceans before it can be harvested. Humankind can only use about 10% of rainwater and only 4% of total rainfall.

Today, water scarcity already affects every continent. Around 1.2 billion people, which corresponds to approximately one-fifth of the world's population, live in areas of physical scarcity, and 500 million more are in danger of being included in this concerning statistic (UNDESA, 2014).

However, the ultimate paradox is that the amount of fresh water available on the planet could be sufficient to meet the needs of the world population. The problem we are facing today is mostly one of governance (WWAP, 2006), the unachieved balance of equitably sharing this element while ensuring the sustainability of natural ecosystems.

The current water supply, consumption and infrastructure systems will no longer adequately satisfy the needs of world society nor those of the sustainability of our planet. The issue of

water scarcity is at the very core of sustainable development, and therefore we should focus on preserving this precious resource to be available for future generations.
A Chinese story teaches: "If we think about water flowing in a river, it is always staying low. It helps all the plants grow and keeps all the animals alive. It does not draw any attention to itself, nor does it need any reward or recognition. It is humble. But without water's humble contribution, life as we know it may not exist" (D.Charles, 2018). Humans, like water, should stay more humble, "low" in their greed to take possession of every element on Earth, be less indifferent towards the "other," draw less attention to themselves and allow the water to make its contribution as a life-giving force.

Chapter III: Water ethics

Since the growing demand is increasingly conflicting with our finite global water supply, anyone involved in the management of water resources should understand the moral values and obligations corresponding to its significance. The principles of equal respect for human dignity, equity, and proportionality, solidarity, the common good, right relationship or responsible stewardship, and inclusive and deliberative participation are all useful in setting guidelines to regulate water distribution and management (Smith, 2017). These principles emphasise the importance of making water accessible to all people and distributing it with consideration to vulnerability. They also show how people depend on each other in sharing water resources and how an individual intervention of water resources may affect others (Groenfeldt, 2017). Finally, they highlight the importance of protecting and using water resources carefully and outline how water resources decisions should be inclusive and transparent.
The ethics discussed above, must be implemented to increase access to freshwater and ensure its equitable and fair distribution as it should be done to improve the situation between the Israelis and the Palestinians. These ethics give clear guidelines as to 'how' and 'why' we should include specific considerations when dealing with the management and delivery of water sources and therefore should be mandatory. Moral values of compassion, generosity, and equality should impel people to follow these ethics.
The concept of water ethics recently emerged after environmental concerns and water conflicts become a global concern. The tensions in the West Bank represent a particular case of water conflict also linked to a failure to apply a code of ethics in the management of water.

The conflict has been heightened after Israel deliberately denied the Palestinians control over their water resources. The Israeli water company denied thousands of Palestinians their basic right to water. Since Israel took over the northern West Bank, there has been a discriminatory water-sharing agreement. The Israelis have prevented Palestinians from accessing water from the Jordan river: the conflict was precipitated by the failure of Israel to honour their water sharing agreement and by their subsequent increased control of finite water resources.

At present, water management and distribution in the territory remains highly unjust and unethical since the Israelites have greater possibilities in terms of exploitation of water resources than the Palestinians, who have a per capita quantity of daily water well below the minimum legal threshold.

These behaviours are not only highly unethical, ignoring the principles previously mentioned, but they also contravene international law based on the fourth Geneva Convention, which regulates the behaviour that the occupying power is required to maintain in the territories subjected to military occupation, as in the case of Palestine

Israel, as the occupying power has an obligation to ensure the dignity and wellbeing of the population under its control; it should guarantee the provision of and access to humanitarian relief and basic services, including water and sanitation without any kind of coercion or discrimination.

As facts demonstrate, Israel is failing to provide for such basic needs. Its discriminatory water policies also prove that it is using water as a tool to dominate Palestinians, exercise its power, and punish an entire population by deliberately depriving its inhabitants the most basic of rights.

On one side of this crisis, is an unrecognised people endowed with an ancient rage, led by an organisation, which for too long has affirmed and threatened to wipe out his neighbour, while on the other, is a powerful party, armed and well protected by allies who uses blackmail to maintain its rule.

Certainly, in this tragedy, both have great responsibilities, but until there is no respect for human rights, there can be no peace because every violation of personal dignity provokes rancour and a spirit of revenge.

Obviously in this case, everything depends on the responsibility of governments and on the goodwill of their leaders, but the development of relevant ethical values of water could be a fundamental, almost vital ingredient, for robust water governance and could help support equitable water policies with a view to peace.

A non-violent solution is the only possible solution to the Israeli-Palestinian conflict, but peace and harmony cannot be built on a basis of hatred and violence: everyone should seek mutual dignity and solidarity.

In a period where negotiations have recommenced, the hope is that the parties involved will be able to turn water from being a cause of conflict into an instrument of dialogue, so that it can be a common good from which both sides can benefit in a fair and responsible way.

This concrete example shows the importance and necessity of water ethics to describe the moral, religious, and cultural attitudes towards water and how it is valued. The objective of water ethics is to respond to challenges such as sea pollution, scarce water resources and illegal human activities causing the drying-up of water bodies (Agoramoorthy, 2014). Human activities, which change the chemical composition of water and privatisation of water, are other challenges that are addressed in water ethics. Therefore, the conceptualisation of water ethics using a philosophical approach will help in determining ethically responsible solutions for dealing with water conflicts (Groenfeldt, 2017).

Water is a symbol of life and regeneration as it is the potent link people have with nature. Therefore, water ethics offers an avenue for a global project that unites people to work together towards the stability and sustainability of water resources.

Water is regarded as a precondition of life and as such, has prominence amongst all cultures and religions (Kallhoff, 2014). In areas where water is scarce, it is highly valued, and its use is well regulated. Arguments put forth by religious leaders have been scrutinised with respect to their argumentative grounding. Religious elders urge people to apply the principle of human dignity: that life should be protected at all cost. Since life cannot exist without water, if you deny someone water, you deny him life (Meisch, 2015).

Pope Francis echoes this fact by claiming that the principle of human dignity and the basic minimums are correlated. The Pope asserts that, “God’s power is manifested through water which restores life every day.” In situations where values are inconsistent with a plan of action, normative uncertainty is bound to be experienced (Ziegler et al., 2017). Nonetheless, the value assigned by traditions, cultures, and religion cannot be termed as ethically legitimate as they do not prevent water conflicts.

Today, water has an economic value, and people recognise it as an economic good. However, it is important to realise that the first basic right for all humanity is access to clean water.

In 2010, the UN termed water as a human right, and this can perceived as a countermeasure for refocusing attention on the value of water. This highlights an urgent need for determining if water is considered a public or private good. The declaration illustrates that access to water

is a necessary condition for human life (Falkenmark, 2017). Thus, the right to water reflects the assumption of human dignity because water is necessary for basic survival, for cooking food and for cultural practices. Ethically legitimate principles in this declaration illustrate relevant issues on water conflicts and explore various interventions for water systems to ensure its sustainability.

From an ethical perspective, a clear initiative seeks to ensure water is managed properly (Hake et al., 2016). The value of water has to be carefully considered in water ethics due to its importance in cultural attitudes towards water.

Advances in science and technology have contributed to solving most of the water conflicts. For instance, the technology of membranes has helped to solve water problems in coastal cities (James, 2014). The development of maritime transport systems has changed the paradigm of water. The intensive use of groundwater has been made possible by advanced drilling equipment. The moral principle of the common good applies to this scenario in that having access to water is a moral right of human beings, and of the community as a whole. Through technological advancement, conbined with ethical values, people will enjoy clean and affordable water.

Chapter III Water: a public or private good?

Water as a human right

Above all, safe water is a common and public good of humanity, a universal, indivisible and imprescriptible right, and thus inalienable, and should not be considered only as a mere commodity.

This principle is enshrined and recognised as a human right by the UN General Assembly's resolution (64/292) of July 2010. The resolution was a response to the humanitarian crisis that saw one billion, five hundred million people without access to safe drinking water. Juridically, it is named the "Human Right to Water and Sanitation" (HRWS) because the human right to sanitation is connected to the human right to water, since the lack of sanitation reduces the quality of water downstream, but a revised UN resolution in 2015 emphasised that the two rights were separate but still equal.

The United Nations Committee on Economic, Social and Cultural Rights declared that access to water is a prerequisite to attain the right of an adequate standard of living, related to the right to the highest attainable standard of health, and therefore a human right. The human right to

water has the power to entitle every individual to sufficient, safe, acceptable, accessible and affordable water for personal and domestic uses.

All nations have ratified either a human rights convention or a political declaration which recognises the HRWS. According to it, every government should ensure that people can enjoy clean, available, acceptable, accessible, and affordable water and sanitation but in several countries, this is not the reality; some member states do not actively safeguard it, and there is an urgent need to increase access and improve services.

However, the UN does not have the power to sanction governments. After having recognised the human right to water and sanitation, now the burden lies on local and national authorities to deliver better infrastructure for drains and clean water (UNRIC, 2018).

There is not one globally coordinated and integrated policy on water within the UN because the problems concerning water are too vast and diverse to be tackled by a "one size fits all" policy.

However, in 2003, an attempt of cooperation was made with the introduction of “UN-Water” as an interagency mechanism that had the duty of enhancing coherence and coordination between the UN agencies in the field of water and sanitation (UNRIC, 2018).

Today, a strong foundation is present for renewed efforts to ensure that all people actually enjoy this theoretical right in practice, due to the legal goal that has been achieved for the most part, and the evident, evolving global awareness of human rights.

However, it is also important to highlight that a significant juridical gap remains between codified treaty rights and obligations by nation states. “This gap is one of the greatest challenges for international law and the advancement of progressive and effective human rights standards, particularly for marginalised and impoverished citizens in the world” (R.M. Pink).

There is no appropriate legal framework, and water laws are not yet an adequate tool to give a concrete response to ecological and political threats. Even if significant steps have been taken, such as the UN resolution of 2010, this recognition remains in the sphere of the “soft law,” that area of rules neither of a binding nature nor subject to sanctions, therefore incapable of obliging states to respect as prescribed. Hence, the human right to water today can be considered as an "invitation to the commitment" of governments to make the exercise of law effective, a field that remains still open and vague. Nevertheless, states would have the primary responsibility to ensure the realization of all human rights, so the granting of private drinking water management should not exempt the states from their human rights obligations.

Water as a commodity

The value of water should be preserved as a common good, a source of life and therefore as natural capital, and not a commodity but despite its nature, it is commodified.
It has become an asset that is marketed, from which few but powerful companies derive profit. Not only water but almost every element of the planet is increasingly seen as a marketable good. Because it is a scarce commodity, many people see it necessary to transform water into a good.
The commodification, privatisation, liberalisation, and commercialisation of water transforms this freely usable natural resource into a financial asset.
The reason being, is that the economic demand for this raw material is enormous, and a study of the bottled water market reveals evidence of the enormous private interests behind it.
Only in 2015, this good was sold for a total of $170 billion, and it is estimated that the global value of the market will reach $250 billion by 2020 (E.Royte, 2011).
In addition to the beverage industry, is that of water utilities, another extremely lucrative business for the multinational companies that see a boundless market in water's growing scarcity and demand. Its leading companies are Veolia with €24.39 billion of total income, Suez with €15 billion and thirdly, Thames Water with €670 million annually (annual reports of the utilities 2016).
Moreover, regarding the financial sector, water is becoming a safe haven as investors are diversifying their investments in less volatile assets, especially with links to agribusinesses and infrastructure. In fact, according to a report by KBI Global Investors, an International Financial Services Centre pioneering Natural Resource Strategies, "investors with shares that are looking for long-term financial transactions should seriously consider investing in water and agribusiness-related actions since the performance of these actions has been excellent in the last ten years and above all because the growing demand for solutions to remedy the scarcity of this source remains firmly strong ".
These unavoidably attractive speculations on this good are without doubt, contributing to deprive water of its universal value. It represents the lifeblood of ecosystems on which the food and nutritional security of present and future generations depends.

Privatization vs. collective ownership

The privatisation of water, like that of many other public goods, is a very controversial subject. The argument triggers heated debates all over the world mainly because in this case, water

resources are limited. But finding the best way to manage them means working for the good of mankind and the planet.
The privatisation of water can be of different degrees. For example, private property rights of water can be generated. In practice, the purchase and sale of water resources are admissible by a private individual who "owns" them. It is a model quite removed from the European experience where public ownership of resources is preferred. This element in Europe is owned by everyone and only the right to use this good is bought, not the good itself.
At other times, privatising means choosing to entrust private operators that engage in water services in a private management A third model provides private financing of infrastructure and services. By giving individuals the opportunity to finance these aspects of water management (in exchange for exploitation of the resource or other benefits), it is possible to overcome problems (such as lack of funds or difficulty in meeting construction times) related to the circuits typical of public finance.
Although water has been managed as common property throughout human history, today the tendency towards privatisation is gaining momentum.
The expression "water grabbing" refers to situations in which some powerful actors are able to take control or divert water resources to their advantage, denying them to local communities or entire nations (J. Franco, S. Kishimoto, S. Kay, T. Feodoroff, G. Pracucci, 2014), such as the case of the Palestinians, whose livelihood is based precisely on those resources of which they are being deprived.
The geography of the water grabbing affects large parts of the planet, the desert areas of North America and Australia, the tropical regions, the great water basins of the Middle East, Asia, South America, and the Mediterranean area.
The effects of this trend are devastating. There are mega evacuations of displaced people who have to leave their lands to make room for large companies that privatise their sources, or for the construction of mega dams (ie. in China 10 million people forced to evacuate for the construction of the Three Gorges dam), for the forced control of large-scale agribusiness projects, for industrial pollution that benefit the few and damage whole ecosystems, thereby making life in that place unsustainable.
In both developed and less developed countries, as a freely accessible common good, water is in many cases flowing in the opposite direction, towards private property or controlled by those in power (A.B.Bernard and P. H. Chang, 1994).
This current tendency to privatise common water sources has its roots in the American pioneer economy. It was in the far west mining exchanges where the rule of appropriation was

born, according to the principle of “Prior est in tempore, potior est in jure,” that is, whoever is first in time, is first by right. Even if the rights were based on the occupation priority, the Native Americans, the first inhabitants of the lands, were excluded from these water appropriation rights.

The core of the pioneer mentality was that "might is right" and therefore those who possessed economic power could invest in means and capital to appropriate the water, independently of the ecological limits and the needs of others like those of the Native Americans.

The value of water was determined by the monopoly of the first settlers, and so were the water markets that soon supplanted the natural rights of use.

Ignoring the natural rights of others led to the denial of their access to water. Throughout the American West, unsustainable, unequal, agriculture based on water waste regimes spread.

As in the past, private interest groups ignore the option of community control over water despite decentralised management and democratic ownership being a sustainable, equitable and efficient system for the benefit of all.

The father of classical liberalism, John Locke, presented a firm theoretical basis for the defence of privatisation. Several of his essays, in particular, "The Second Treatise of Government," are at the basis of practices and theories that erode common goods. In his treatise, he legitimised the practice of the theft of village commons which spread in the seventeenth century in Europe during the movement which led to acts of Enclosure.

He supported this idea by stating that property is created once inert natural resources are transformed from their original spiritual form through the application of labour, thereby producing progress.

The ideology of progress has been used to legitimise every form of enclosure and privatisation. For the powerful, enclosure of common land has meant growth and development; while for the ordinary people it resulted in the opposite: poverty, exclusion, and loss of power.

In more recent times, the privatisation of water has found its theoretical foundation in "Tragedy of the Commons" by Garret Hardin. He justifies privatisation, holding that common goods are free to access in systems that are not socially governed and devoid of ownership. It is this precise absence of ownership that represents for Hardin, the path to illegality.

According to his view, the experiment of common pastures was destined to fail because every owner would have acted according to his interests by introducing more and more cattle.

It is considered an “ineluctable change” without reflecting on the fact that the very essence of collective goods implies the presence of joint management and the sharing of property.

Positive management does not necessarily exist only in the hands of private individuals.

Collective management is often even more effective in managing common assets, thanks to universal solidarity and unity of people concerning their shared heritage. Moreover, in contrast to what the writer imagines, common goods perhaps, should not be considered as open access resources, but the concept of ownership should rather be applied on a group basis, which is capable of establishing restrictions and standard rules for their use. Those rules of usage have after all, protected forests from destruction, pastureland from hyper-exploitation and water resources from disappearing.

Additionally, one could reflect on effective management of common goods through the anthropological and historical analysis of Youval Noah Harari in "Homo Sapiens." A key solution perhaps could be seriously adopting that capability of flexible cooperation in large numbers, and the attitudes of mutual aid that after all, have determined the survival and evolution of the best species throughout the history of humankind.

However, according to Vandana Shiva, the focus of the issue should be addressed to the economy of globalisation that is changing the definition of water from public good to private property. It is the global economic order that calls for the removal of all restrictions and regulations on the use of water and the establishment of a market for this property.

Since the Byzantine empire, water in the “Institutiones” of Justinian, which is still the basis of modern civil law, has been indicated as a public good because, by law of nature the elements such as fresh water, air and sea are common to all mankind, and therefore they must remain external to property relations.

Another vital proponent of water as a common good was William Blackstone who stated, "Water is a mobile, itinerant element and must, therefore, continue to be a common good by nature's law so that I may have only a temporary, transitory and usufructuary property.”

The right to water, as a natural right, is not born with the state, but stems from a given ecological context of human existence. As a natural right, that of water should be recognised as the right of usufruct, so that water can be used but not owned.

One of the leading causes of the increasing role of private companies in water management may be the inevitable degradation of public goods and services and the introduction of new extraction technologies, which over time have superseded self-management systems.

The privatisation of water resources in parallel with globalisation are indeed increasing the erosion of the rights of peoples and are replacing collective ownership with the control of large companies.

In the 1970s and 1980s, several international relief organisations, notably the World Bank, in their mission to bring development and cooperation, had focused their activities on water

supply technologies that ultimately proved to be remarkably inappropriate.
Increasingly, in the 90s, these agencies pushed for the privatisation and distribution of water based on the market.
The severe consequence was an exaggerated acceleration of the exploitation of groundwater. Water was extracted from a depth of between four hundred and five hundred meters, impoverishing the water tables and leaving the surface reserves empty.
Development has taken control away from the local communities and improperly using new technologies has irreversibly changed the water cycle. As an obvious consequence, it has resulted in an inevitable lack of water in several regions.
A striking example of this disastrous man-made effect is the Mankund village in India, which takes its name from the hundreds of ponds and cisterns that once existed. Today, it no longer has water, and its 5,000 inhabitants are experiencing a tremendous humanitarian crisis because the thousand tubular wells in the region have exhausted all the traditional sources.
In contrast is the Chobala Lake in the village of Mundlana where collective management of water is still practised, and this is undoubtedly the reason why the needs of the ten communities continue to be met.
Water scarcity is inevitable if its sources are not regenerated and used within the limits of renewability.
Vandana Shifa stresses that, " the powerful technologies only led to the exhaustion of water and not to its optimal use. The result: famine of water in the subsoil."
A dramatic contrast between two different water cultures is evidently obvious: on the one hand is one that sees water as a public good, as something sacred, whose equitable distribution is a duty to preserve life, and on the other, one that sees it as a commodity and considers its trade and possession as two fundamental business rights. Today, the culture of commodification, non-sustainable, non-renewable and pollutant, is increasingly in conflict with the culture of sharing, of renewal, giving and receiving water as a gift.
For instance, in the same country like India, there are still two very different water cultures. In Delhi, drinking bottled water like "Aquafina" produced by Pepsi is a well-established custom. While in Jaipur, just a few hundreds of kilometres away, the water culture is different where social solidarity and the ethics of water are still present. During periods of drought, "jal mandirs" are erected. These are shacks that take on the function of water temples where water is offered as a gift to the thirsty in terracotta pots.
In conclusion, on the one hand, there are millions of animal species and billions of people asking for the minimum amount of water necessary for survival, while on the other, there are

global institutions like the World Bank, the World Trade Organisation, the International Monetary Fund and G7 governments that sustain global companies dominated for example, by the Vivendi Environment, Suez Lyonnaise des Aux, Betchel; all driven by lucrative businesses which choose to ignore the severe ecological limits imposed by the water cycle or the economic limits dictated by poverty.

Moreover, it is important to emphasise that this underestimation of water as a common good is not only an issue that affects the poorer and developing countries; in different ways, it also evident in the wealthiest societies.

The European Commission on January 2018 disillusioned millions of citizens who supported the initiative for the right to water. The proposal for a recent drinking water directive is disappointing and does not meet the expectations of the citizens and organisations that supported this first European Citizens Initiative (ICE) on the right to water. The Commission had elaborated the revision of this directive, and five years later, this draft still has not entirely addressed the requests made by nearly two million people.

Elisabetta Cangelosi, member of the European Water Movement, stated, "We waited for an answer for five years, and the result could not be more disappointing. While we appreciate the Commission's timid effort to include provisions on universal access to water and the emphasis on minorities and vulnerable groups, this text has nothing to do with the human right to water recognised by the UN and called for by the citizens".

The human right to water, as defined by the UN, implies that water must be accessible, safe, acceptable, sufficient and economically affordable. The draft of the Drinking Water directive only addresses the first three aspects.

As David Sánchez, Director of Food & Water Europe added, the Commission’s proposal ignores the most difficult challenge for human water law in the European context, which is the question of affordability. With thousands of families having been cut off water in recent years because they cannot pay their bills, ensuring access to water is not enough.

In addition, in the “old Continent,” political courage is needed from the European Commission to question private companies that profit from water management to implement this human right in Europe.

In a time of significant change, the discussion and resolution of the problem regarding the best way to manage water and in general, public goods will remain open and, in all probability, be subject to changes; the recent bridge tragedy in Genoa represents a “wake-up call” to the Italian government in the context of public management and concessions to private companies.

Certainly, the proponents of water privatisation will continue to cite higher efficiency among the main advantages of this practice, even if it is hardly provable a priori, in the private sector compared to the public sector, which would lead to optimising the distribution of water. Additionally, other cost considerations would result in a reduction in the bill for users. Entrusting water management to different companies would, for instance, allow sharing the costs for the maintenance of the aqueduct networks.

On the other hand, those opposed to privatisation are worried by the increases in tariffs and difficulties in ensuring the new operators respect their obligations to develop the water network, especially in the poorest neighbourhoods, where consumption is lower. They highlight the risks related to the decision to entrust the management of water resources to private individuals where there will be neither control nor security to ensure reinvestments for the safety and proper maintenance of the national water network.

The crux of the problem is that the State, even if it gives concessions, should not abdicate its role as an overarching, central controller and guarantor of the service.

Conflicts and personal interests aside, it is important to remember that what matters most is the development of an effective control system that protects citizens from the mismanagement of their “blue gold,” be it public or private.

Beyond the ‘public or private’ debate, water should not become the "blue gold" of the 21st century, in the same way that oil was the “black gold" of the twentieth century.

Water before being a commodity, should be preserved as a common heritage. To defend it therefore, a greater sense of responsibility and the implementation of effective legal instruments rather than infrastructure is needed. Regenerating forests, protecting rivers and protecting wetlands: these are the ways ahead. And perhaps we should also rediscover some of the wisdom of the many cultures, which in the past have managed to create rational, supportive and sustainable systems of water management; or take the example of the religious beliefs of indigenous peoples, who could never imagine selling their water or their land: water that means life and the land that is the home of their ancestors. This is why there needs to be a new consciousness or spirituality, which would inspire a modern lifestyle that is more respectful of others and the environment.

Chapter IV Conclusion: Democracy and sustainability

The global water crisis is a phenomenon that needs more emphasis. Scholarly findings report a growing trend towards scarcity. To summarise, it is crucial to engage in a recapitulation of the

causes of the global water crisis as a reminder of why the crisis is a challenge to sustainability. One cause is the human-made changes to the natural climate, which has caused an imbalance in the amount of water available for various people. There is either too little or too much water as manifested in the occurrence of drought or floods. Secondly, the world population is constantly rising with the current figure at 7.5 billion. This increase is deemed as a major cause of the global water crisis because there is no corresponding increase in the water resources available to cater for this increased demand.

Consequently, the rates of consumption due to the population explosion have become another threat to water security. The higher population has created more avenues for water usage, for instance, an increased practice of irrigation. More dams are being constructed, and this has in some cases led to the drying up of rivers.

The agricultural sector has also played a major role in advancing the scarcity, especially through the green revolution that has led to the use of more water since farmers and agricultural firms are now relying on chemical fertilisers that require intensive irrigation. Water consumption increases as more countries set up manufacturing plants and power plants that generally depend on water to function.

Lastly, water pollution has been a major cause of scarcity because the already available water resources are polluted either by human or industrial wastes. This limits the quantity of safe water available for use.

Pilita Clark has proposed some of the solutions to the water crisis in his article for the Financial Times (Clark, 2018). The first is using wind turbines to make water. The turbine cools off the air with the help of ammonia, which compresses and condenses the water into droplets that can be stored in tanks attached to the system. Secondly, various structures that depend on a lot of water to function like hydraulic fractures and flush toilets are now being developed into waterless fracking systems and waterless latrines, which will prevent the present wastage. For countries that lack sufficient water, water sipping as a new practice is currently being tested as a solution to water scarcity. Water machines that do not use a lot of water are being developed for instance in the Xeros company project.

Smart irrigation can also limit the amount of water needed by each plant as the flow can be controlled by valves to minimise unnecessary wastage.

Various scholars have observed a significant positive association between democracy and sustainability. Myint and Lambert assert that the main aspect of this association is the chance of re-election. Elections do not necessarily provide a solution to environmental challenges directly, but there may be hope that alterations in the public policy make a shift towards the

adoption of the standard that favours sustainability and provides more room for the advance of the green movement. Active political participation provides forums where issues concerning the environment can be discussed. In any given democracy where leaders seek popular votes from the people as a means to attain power, policies are tested in various manifestos. People have the power to elect into office the type of leader who values sustainability and has structured a strategy to provide solutions to the existing environmental problems. This can only occur in democratic institutions.

In any real democracy, inclusiveness, popular control, and transparency thrive. A flourishing democracy also supports freedom of the press and advocates for the presence of just legal frameworks. Because democracy provides citizens with a chance to be involved in the day-to-day management of their countries, leaders must be held accountable whenever they make wrong decisions. If such decisions cause flaws in the achievement of sustainable goals, democracy provides room for intervention. This implies that in democratic institutions, there is a great chance for fairer policies regarding sustainability. It is possible for people to devise the most favourable policies if active participation is heightened.

As Gandhi once stated, "The world has enough for everyone's need, but not enough for everyone's greed" (Raven, 2002). Human actions are entirely to blame for the scarcity of water. The climate changes and lack of water ethics, for instance, are perpetrated through greed and self-driven interests. If all sectors could adhere to water ethics without having to commercialise water or achieve their opportunistic agendas, there would be enough water and water resources to sustain the world's population.

Democracy as a system of government thrives in the respect for fundamental human rights and equality for all. Water is one of these human rights and should therefore be safeguarded as one of its core values. A democratic nation is better placed to promote equality and availability of water for all.

Democratic structures should, therefore, be maintained and widened to advocate for proper water ethics and fair distribution and management of water. However, as several scholars highlight, the current democracies we live in are not always sufficiently capable of pursuing and protecting those values that are at the basis of those same values they are built on. Therefore, while democracies are the most powerful mechanisms, they are often imperfect and in constant need of being maintained, calibrated and refined. If this does not occur, crises such as water scarcity are likely to continue to arise and will be difficult to overcome. However, a true democracy is the vital resource to address major environmental challenges.

It is not only crucial for human protection and development but also for just and sustainable development.

As this dissertation demonstrates, the epochal challenge that faces humanity today is to be able to co-exist on this planet with an increasing number of people in a peaceful and equitable manner, without destroying the very resources from which plants, animals and humans draw life.

Riassunto in italiano

Lo scopo di questa tesi è analizzare il tema dell'acqua come sfida collettiva per il conseguimento di una sostenibilità globale.
Prendendo in considerazione la crescente scarsità di acqua dolce, si esplora la presenza della cosiddetta "crisi globale dell'acqua". S'indagano i principali fattori di questa crisi come il feroce cambiamento climatico causato dall'uomo, l'inquinamento delle acque, la crescita demografica e del consumo, e il settore primario e secondario dell'economia globale.
Un'ipotesi diffusa individua l'acqua come il futuro "oro blu" del XXI secolo, suggerendo così che le guerre in futuro possano svilupparsi proprio a causa della disputa per questa risorsa.
Pertanto, l'importanza dell'acqua viene anche esaminata come un elemento fondamentale per la pace e la stabilità sociale e politica attraverso il caso della guerra israelo-palestinese che può essere intesa come uno dei casi più rilevanti d'attuale guerra per l'acqua.
Partendo da questo esempio concreto, è analizzato il significato di questa molecola come fonte di vita e come via per discutere di linee guida etiche su "come" e "perché" dovremmo porre considerazioni specifiche quando si tratta di gestione e distribuzione di risorse idriche.
In seguito, è esaminato il riconoscimento dell'acqua come diritto umano, la sua gestione e il suo valore nella sfera pubblica. Lo studio termina in fine, portando l'attenzione sulla positiva associazione tra democrazia e sostenibilità. Una possibile risposta a sostegno di questioni legate alla sostenibilità, come quella dell'acqua, può essere trovata nelle vere democrazie in cui vi è la possibilità di sviluppare politiche corrette in materia di sostenibilità.
La crisi di acqua dolce è definibile come la situazione in cui la domanda d'acqua potabile e non inquinata in una data area geografica è superiore alla disponibilità in quella specifica area.
Nel corso dell'ultimo secolo, il consumo globale di acqua è aumentato di sei volte, il doppio della crescita della popolazione, ed è così che l'acqua potabile è diventata il cosiddetto "oro blu", una risorsa sempre più rara e un problema crescente per l'intera umanità.
La scarsità idrica è un fenomeno globale e una realtà evidente. Il World Economic Forum ha infatti identificato la scarsità e la sicurezza delle acque dolci come la principale crisi del XXI secolo. Già due terzi della popolazione mondiale vive in condizioni di scarsità d'acqua almeno un mese l'anno. La crisi idrica è il rischio globale più preoccupante in termine di potenziale impatto sull'umanità e le economie per i prossimi dieci anni (WEF, 2016).

Il cambiamento climatico, accelerato dall'uomo, rappresenta uno dei fattori decisivi della crisi idrica globale. Esso influisce sulle problematiche associate alle variazioni nella distribuzione e nella disponibilità delle risorse idriche (UNWWDR, 2015).
I cambiamenti climatici stanno avendo un'enorme influenza sulla disponibilità della risorsa idrica. Secondo gli scienziati, infatti, un aumento della temperatura della terra corrisponde a una riduzione del 20% nella disponibilità delle risorse idriche per il 7% della popolazione.
L'acqua media l'impatto della crisi climatica su tutte le forme di vita in termini d'inondazioni, cicloni, ondate di calore e siccità. Questa furia d'acqua può essere domata solo se la presenza di anidride carbonica nell'atmosfera è contenuta.
L'obiettivo fissato nell'accordo di Parigi sui cambiamenti climatici è di limitare l'aumento della temperatura globale a due gradi Celsius o meno. Tuttavia, come rivelato dalla rivista Nature, siamo sulla buona strada per oltre tre gradi di riscaldamento globale.
Oltre ai cambiamenti climatici, il nuovo rapporto delle Nazioni Unite ha avvertito che l'accelerato aumento demografico mondiale dovrebbe essere seriamente considerato come un altro fattore determinante della crisi idrica globale. Secondo alcuni esperti, nel 2050 si arriverà a circa 9,7 miliardi e 11,2 alla fine del XXI secolo (World Bank, 2017).
Questa domanda crescente sta provocando un'amplificazione nella pressione già esistente sulle risorse idriche. Sotto la pressione della crescita demografica e dei cambiamenti climatici, le risorse idriche disponibili pro capite, negli ultimi cinquantaquattro anni, sono diminuite del 50% e si prevede che nel 2025 si potrà usufruire solo di 4.800 m3, ovvero, solo il consumo del 57% delle risorse attualmente accessibili negli ultimi anni.
L'aumento della popolazione è naturalmente correlato a un aumento dei consumi.
Solo nell'ultimo secolo si è riscontrato un aumento nel consumo di acqua di 12,8 volte maggiore. Un problema di fornitura idrica è destinato ad aumentare drasticamente.
Secondo le stime dell'ONU, entro il 2030 la domanda mondiale di acqua addirittura supererà l'offerta del 40%.
La tradizionale economia lineare: "estrai, consuma, scarta", adottata dall' odierna "società dei consumatori"(Z. Bauman, 2007), inevitabilmente porta a perdere di vista quanto ognuno di noi dipenda da ciò che consuma e quali siano i veri impatti di questo stile di vita. S'ignorano le enormi quantità d'acqua necessarie per produrre ciò che abbiamo sul tavolo. Ogni giorno è sprecata molta acqua a causa di esagerate quantità di cibo buttate che non servirebbero per soddisfare la sicurezza alimentare globale. E' proprio questo, lo spreco alimentare a rappresentare un altro importante fattore della crisi idrica globale. Un grave problema che si somma allo spreco, è il sovra consumo che indirettamente implica costi assai elevati. L'obesità

oltre ad essere un problema di salute è una tremenda piaga sociale, economica e gravosa per l'ambiente come messo in luce dall'indice del "Metabolic Food Waste", utile per calcolare l' impatto idrico causato da tale sovra consumo.
L'agricoltura è in assoluto il maggior consumatore d'acqua dolce, circa il 70% è globalmente utilizzata solo per la produzione agricola.-La maggior parte del consumo totale di acqua nel settore agricolo è utilizzata per l'irrigazione. Diversi esperti hanno infatti rilevato che è necessario l'utilizzo di migliori tecnologie d'irrigazione, per aumentare l'efficienza della distribuzione idrica, aumentare la produttività, ridurre il fabbisogno mondiale di acqua e raddoppiando così la quantità disponibile per il consumo interno.
A causa degli alti livelli di consumo, l'agricoltura industriale ha preso piede ormai da svariati decenni, e ha spinto la produzione alimentare a utilizzare metodi che hanno portato a una riduzione delle acque del suolo e un aumento della domanda di acqua con conseguenze sociali ed ecologiche assai gravi.
Oltre alla domanda di acqua proveniente dal settore agricolo, un'altra considerevole fetta di acqua disponibile è destinata al settore secondario, e in particolare all'industria energetica.
Le industrie richiedono acqua pulita e la loro sicurezza idrica è sempre più condizionata dalla mancanza d'acqua e dal deterioramento della qualità della medesima (rapporto UNIDO).
Solo i prelievi di acqua dolce per la produzione di energia rappresentano il 15% del totale mondiale (WWAP, 2014) e il consumo globale di energia continuerà ad aumentare fino al 50% entro il 2030. Aumenterà quindi anche la domanda di risorse idriche per sostenere questa crescita e ciò metterà il settore dell'energia in concorrenza sempre maggiore con altri utenti dell'acqua.
Per finire la condizione idrologica è legata a un problema di qualità poiché ne determina la sua disponibilità. L'acqua, se inquinata, non può essere utilizzata, danneggia la salute umana e degrada le risorse naturali.
L'acqua però, non è solo la chiave per l'alimentazione, la prosperità e la salute, ma anche per la pace, la sicurezza e la stabilità politica. L'acqua come strategica risorsa geopolitica è all'origine di numerosi conflitti per il suo controllo in varie parti del globo. Un esempio prominente di conflitto legato all'acqua è la tensione decennale tra Israele e Palestina.
È un conflitto in corso in cui diverse problematiche si sovrappongono, ma la divisione e l'uso delle risorse idriche sono una delle questioni più critiche, ancora irrisolte, che hanno ostacolato la pace nella regione da decenni.
L'area in cui vivono israeliani e palestinesi non possiede abbondanti risorse idriche, e attualmente, Israele fa un uso abusivo a scapito della controparte palestinese.

Al momento i palestinesi hanno accesso a meno acqua di quanto non sia stato già concesso dagli ineguali Accordi di Oslo nel 1995.
Il controllo per l'acqua e la terra sono due questioni assolutamente intrecciate e giocano un ruolo cruciale per gli accordi di pace. L'acqua è uno dei punti cardine per i negoziati. L'obiettivo è il raggiungimento di un equo e proporzionale utilizzo idrico per entrambi i popoli. Un accordo per condividere correttamente questa preziosa risorsa in continua diminuzione è indispensabile. In caso contrario, sarà molto difficile una svolta risolutiva e la pace nella "Terra Santa", che entrambi i popoli rivendicano come propria patria, rimarrà inattuabile.
Come messo in luce anche da questo conflitto, ogni esseri vivente ha diritto alla propria quota di acqua per sopravvivere. L'acqua è vita allo stato puro, è la molecola essenziale per la società e la biosfera. Ogni attività umana dipende direttamente dalla presenza o dalla mancanza di acqua e dalla possibilità di utilizzarla, conservarla o accedervi.
Gli uomini hanno da sempre riconosciuto il suo valore intrinseco come principio di ogni cosa. Dalle più antiche dottrine cosmogoniche greche a quasi tutte le culture e le credenze religiose è condiviso questo suo valore fondante e vivificante.
La storia umana è inestricabilmente legata a questa risorsa perché rappresenta il vero elemento di sopravvivenza sulla Terra.
Poiché la crescente domanda è sempre più in conflitto con la limitata disponibilità mondiale di acqua, chiunque sia coinvolto nella gestione delle risorse idriche dovrebbe comprendere i valori morali e gli obblighi corrispondenti al suo significato.
Il concetto di etica dell'acqua è emerso dopo che le preoccupazioni ambientali e i conflitti idrici sono diventati una preoccupazione globale. Le tensioni in Cisgiordania rappresentano infatti un caso particolare di conflitto idrico anche legato alla mancata applicazione di un codice etico dell'acqua. Pertanto, la concettualizzazione dell'etica dell'acqua con un approccio filosofico aiuterebbe a determinare soluzioni eticamente responsabili per affrontare i conflitti idrici (Groenfeldt, 2017).
Al disopra di tutto, l'acqua è un patrimonio comune dell'umanità, un diritto universale, indivisibile e imprescrittibile, quindi inalienabile, motivo per il quale non dovrebbe essere considerata solo come una merce.
Questo principio è sancito e riconosciuto come un diritto umano dalla risoluzione dell'Assemblea Generale delle Nazioni Unite (64/292) del luglio 2010. Il diritto umano all'acqua autorizza tutti a disporre di acqua sufficiente, sicura, accettabile, accessibile fisicamente per uso personale e domestico.

Nonostante la formale ratifica, molti stati membri non la salvaguardano attivamente sebbene sia sempre più urgente aumentare l'accesso e migliorare il servizio a causa della crescita demografica. Un'evoluzione della coscienza globale sui diritti umani è indiscutibile e l'obiettivo legale è stato per lo più raggiunto, fornendo una solida base per rinnovare gli sforzi.
Tuttavia, permane un rilevante divario giuridico tra i diritti e gli obblighi del trattato codificati da parte degli stati membri. Non è presente un quadro giuridico chiaro e le leggi sull'acqua non sono ancora uno strumento adeguato per dare una risposta veloce e concreta alle minacce ecologiche e politiche. Anche se sono stati compiuti grandi passi, come la risoluzione ONU del 2010, questo riconoscimento rimane nell'ambito della "soft law". Oggi il diritto umano all'acqua può essere considerato come un semplice "invito all'impegno" dei governi a rendere effettivo l'esercizio del diritto. E' un campo che rimane ancora aperto e vago.
Tuttavia, gli Stati membri hanno la responsabilità primaria di garantire la realizzazione di tutti i diritti umani, quindi per esempio la concessione della gestione privata dell'acqua potabile non dovrebbe esentare gli Stati dai loro obblighi in materia di diritti umani.
Nonostante la natura dell'acqua come bene comune, è sempre più considerata solo come bene economico. È diventato un bene commercializzato, da cui poche ma potenti aziende traggono enormi profitti.
Essendo un bene essenziale ma scarso, per molti appare inevitabile la sua trasformazione in merce. Tuttavia è proprio la mercificazione e la privatizzazione che hanno reso delle risorse naturali liberamente utilizzabili, in beni economici non da tutti accessibili. La ragione principale è che gli appetiti economici dietro questa risorsa primaria sono infiniti.
Analizzare il settore delle utility idriche, il mondo della finanza o il mercato dell'acqua in bottiglia, costituisce la dimostrazione di questi interessi privati che la manovrano. Sono attività estremamente redditizie che vedono un mercato sconfinato nella sua crescente scarsità e domanda.
Esiste un forte contrasto tra due diverse culture d'acqua. Da un lato c'è chi la vede ancora come un bene pubblico, come qualcosa di sacro, la cui equa distribuzione è un dovere per preservare la vita, e invece dall'altro, c'è chi la giudica semplicemente come una merce e considera il suo commercio e possesso due fondamentali diritti economici.
La privatizzazione dell'acqua, come quella di molti altri beni pubblici, è una scelta assai controversa. L'argomento scatena accesi dibattiti in tutto il mondo specialmente poiché in questo caso si tratta di un bene in continuo esaurimento privo di un sostituto. Trovare il modo migliore per gestirla significa lavorare per il bene dell'umanità, del pianeta e delle future generazioni.

In sintesi, la crisi idrica globale è un fenomeno che non può essere sottovalutato. Le scoperte accademiche riportano una tendenza crescente verso la scarsità.
Nonostante ingegneri, scienziati e imprenditori di tutto il mondo stiano sviluppando possibili e rivoluzionarie soluzioni tecnologiche alla crisi idrica, è parallelamente necessario analizzare il problema riflettendo attraverso una visione di ordine politico globale.
Vari studiosi hanno osservato un'associazione positiva tra democrazia e sostenibilità, il cui aspetto principale è la possibilità di rielezione. Le elezioni non forniscono necessariamente una soluzione diretta alle sfide ambientali, ma sicuramente solo nelle fiorenti istituzioni democratiche può esserci lo spazio per discutere questioni relative all'ambiente, quindi la possibilità di politiche più eque in materia di sostenibilità e il potere di eleggere il tipo di leader che valuta la sostenibilità e ha strutturato una strategia per fornire soluzioni ai problemi ambientali esistenti.
E' estremamente difficile affrontare le grandi sfide ambientali senza democrazia. Essa è cruciale non solo per la protezione e lo sviluppo umano, ma anche per quello sostenibile.
La sfida epocale davanti a cui si trova oggi l'umanità, è quella di riuscire a convivere su questo pianeta con un numero sempre crescente di persone in modo pacifico ed equo, senza distruggere le risorse naturali da cui traiamo le risorse per vivere.

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