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WATER, A COMMON GOOD TO SHARE

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Summary

Planet Earth is a closed system, essentially in what refers to the exchange of matter. Consequently, water and air, essential to life, are common property, limited to their existing amount in our planet. Air, due to its diffusivity, is available to every organism and consequently has been considered a *common* good by the society . However, water is not at same level of general ethical awareness: access to it is still a privilege granted to part of the humanity, and its control has been and still is an instrument of power.

Moreover, scarcity and poor quality water supply is the cause of major problems and of the poverty of many communities in several countries. Also in developed countries, the irrational use of water without a holistic perspective and exclusively based on economic goals, will be, in the mid-term, a serious threat.

The great economic effort made by the NASA (National Aeronautics and Space Administration) and the ESA (European Space Agency) generates a serious ethical question, when the most important global institutions have not been able to tackle the great ecological challenge: *water availability to all humanity, in optimal quality conditions*.

The respect of the ecological water cycle is essential for life on our planet and, at the same time, for guaranteeing a balance between regions with different WSI (Water Stress Index), overcoming boundaries between regions and States, making the *common good* prevail over economic ambition and power. A worldwide educational campaign on the proper use of water is also essential to create a new and general ethical conscience

that, according to our criteria, should be based on the transcendent dimension of the human being.

Key words: Ecological cycle, common good, water management, frugality.

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1. THE MANAGEMENT OF WATER RESOURCES IS A GREAT CHALLENGE OF INTERNATIONAL COOPERATION

Pure and salubrious water, as the one present in our planet, is essential to living beings in accordance to the needs of each species. In fact, our own experience and the theory of evolution show that life, and therefore living beings, have progressively adapted themselves according to the water available in their surroundings. Life itself has given living beings the means to search and find water, and even to migrate in order to achieve this essential biological objective.

When focusing on human species, our history consists of a constant pilgrimage in search for water – a pilgrimage not exempt from violence amongst ourselves and towards the natural environment.

A recent example of the above is the near disappearance of the Aral Sea, whose size decreased by 90% between the 1960s and the end of the 20th century. The main cause of this was the set of irrigation policies introduced in Uzbekistan by the former Soviet Union. Water, asides from being the origin of life, is an indispensable good for live preservation, our economy, and food production. Besides, it has been and still is an essential means of communication and transport.

Water of seas and oceans made it possible to access other worlds, *new worlds*, which were discovered or conquered in search of power and fortune. Currently we are also exploring the possibility of finding in other planets, i.e. in other worlds, what we fear to exhaust in ours.

The space challenge, for example, is being confronted with a collaborative spirit. This cooperation has become essential, due to both the global scale of the challenges and a larger influence of global society in

political decisions. Besides, it has been necessary to count on the help of the best scientific and technical teams of those countries with greater technological and economic resources in the field of space technology. Therefore the magnitude of the global investment in space technology must be pointed out. Besides NASA (National Aeronautics and Space Administration) and ESA (European Space Agency), agencies from other 24 countries are involved. The total budget of all space agencies in 2009 was 38,758 billion dollars (3).

It is clear that this cooperation is, in principle, a social good that has gone far beyond sharing information or technology. It has even led to the creation of large common projects as well as collateral scientific and technological advances. However, would it not be a greater social good if this common work amongst the large economic and technological powers also happened at an *earthly level*?

It must be agreed on that, being air and water essential to life, they should be considered common goods of nature – goods that belong to all mankind and all living beings. There is no doubt that air is everyone's and for everyone. Therefore it has occurred to no one to use air distribution as an instrument of power, given its diffusivity. However, a fair and equitable global water management is far from being achieved. Having now entered in the 21st century, the human species will be responsible for *managing the commons* (4). As a consequence, global water distribution services and sewage management will become the biggest challenges to which everyone must contribute – thinkers, *Hope Apostles*, economists and jurists. All of them should contribute to the construction of an ethical basis, upon which politicians may make their timely decisions and adequately face this great challenge in order to ensure the continuity of the planet and of humanity

Would it be a dream to achieve a similar effort to the one devoted to space exploration towards an equitable water management in our planet?

Public powers, on a global scale, should develop the relevant laws and regulations for water sources, water purification systems, and sewage treatment to be managed as a public service. All human beings should, therefore, have access to the water they require in accordance to their basic needs. Besides, this supply must be done in a way that is compatible with environmental sustainability. Such challenge or task is perhaps as difficult as space exploration, but it is more humble and possibly more in accordance with the root of kindness that has not completely disappeared from the human heart. However, water is still an instrument of

economic and political power, and access to drinking water is a means of realization of important financial businesses – and even political ones.

2. THE SUSTAINABLE AND RATIONAL USE OF WATER: THE WATER STRESS (WSI)

The hydrological cycle is a wonderful natural process, essential to life in our planet, which in spite of being a common experience is still subject of scientific investigation (5). Since atavistic times, human beings have had to live with changing climate conditions, for which we have used all of our inventiveness in order to face the whims of meteorology. Due to this, for centuries and in all cultures, humanity has tried to face the challenges of drought through water reserves. Said reserves began in a *micro* scale – tanks, deposits, small dams or dikes – with the aim to redirect a water source for irrigation purposes. Over the course of the last two centuries, the reserves have also been used for small-scale production of mechanical or electrical energy. This brings to light the constant effort of human beings to adapt the water cycle to their own convenience. All these works have not been exempt from conflicts and wars, which are part of our history.

Supplying water to a community in the appropriate conditions of safety and drinking quality may have a very high cost, depending on the size of the community and the quality requirements. In this context, it is easy to understand that great investments have been and are made in order to provide a proper water supply service to big cities and suburbs in many countries worldwide. On the other hand, the greatest investments in the world regarding the management of large water sources have focused on the obtention of electrical energy or on great irrigation projects. In several cases, these *macro projects* have created all kinds of strains amongst countries and have had huge environmental impacts. The example of the Aral Sea was given at the beginning of this paper.

At this point, it is useful to resort to the Water Stress Index (WSI), proposed in 2006 by D. Bixio (6) and others. This index is defined as "the proportion of total water used in a country in regards of the total amount of renewable fresh water resources available", and it is expressed as a percentage. It is used as an approximate indicator of the pressure applied on water resources by the people of a community, country, or region, according to the data available.

The authors that proposed this index published in the same paper an interesting graph that shows stress values of most of the European countries. According to their criteria, values under 10% are considered low and do not imply an alarming environmental impact. When these values are between 10% and 20% they must be interpreted as a sign that water availability is beginning to restrict development – and therefore it would be necessary to invest in more adequate supplies. A stress index higher than 20% demands a global management effort in order to balance supply and demand – as from this figure the ecological impact becomes almost irreversible.

It is obvious that, when facing a clearly unfavorable WSI, great plans of action must be implemented. It is in this situation when public powers run the risk of focusing exclusively on *macro* projects and not take into account the most important *micro* dimension, which is the one that allows people and social groups to launch resources of *resilience*. In summary, every effort must be done to implement the measures required, with everyone's empathy and cooperation. When facing a situation of water shortage, all alternatives are encompassed and, in fact, limited to the three alternatives below. The three of them should be applied simultaneously, but frugality is essential in all of them.

1. *Rationalizing water consumption*. With the option, in some cases, of duplicating the supply system
2. *Accelerating or extending the water cycle*. Distillation, reverse osmosi
3. *Recovering waste wasters through physical, chemical and/or biological resources*.

In many cases, the measures above must be applied simultaneously. However, in all of them limitation of the consumption is of vital importance.

In order to successfully implement these alternatives the participation of *micro managers* is essential, because without their cooperation the understanding or acceptance of reducing consumption is nearly impossible. When facing a shortage, especially in the case of water, it is indispensable to set in motion a great education campaign at school, family, and community levels, with the implication of said *micro managers*. As a consequence, any action taken towards a serious problem of water scarcity must start with a *personalist* strategy. According to this strategy, the

path of *common* ethics demands the implication of all affected parties through dialogue, as explained in K. Apel's and J. Habermas' *discursive ethics* and in A. Cortina's *discursive and cordial ethics*.

We must resort to this approach or methodology especially when the importance or significance of a problem demands *macro* projects, i.e. great strategies that may even involve several countries. Some examples of this would be building a large dam to obtain a large water reserve by flooding a valley, and partially or totally altering the course of a river.

In these cases, *micro managers* are of great importance to capture and transmit the challenges and the opposition of those negatively affected by the project, both on an individual level and on a collective and environmental level. Besides, these agents will show empathy towards the positive perspectives of the project, such as having a sufficient and appropriate water supply and improving the WSI. It should be pointed out that water stress (WSI) will only improve if the project involves an extra income of water, which will add on to the natural resources of fresh water available in the hydrologic area studied, or if it involves reducing consumption.

The construction of an artificial lake to obtain water resources (water supply for the people and for irrigation) and as a source of hydraulic energy should necessarily involve research studies with the aim to reduce the environmental impact of its location and usage to the minimum. There are techniques and methodologies to determine the *suitability index* (8), which allows us to obtain a map or detailed information of a whole region in order to determine the most ecologically suitable areas.

3. THE ROLE OF CIVIL SOCIETY, PUBLIC AUTHORITIES AND THE PRIVATE SECTOR IN PROVIDING A PROPER WATER SUPPLY FOR EVERYONE

For water, *common good*, to be at the service of people, it is essential for the whole society to cooperate – particularly, given the topic discussed, the private sector and public powers.

Land property has implied the right of property over everything within a piece of land, which means property of the water sources found in it. This is a very doubtful right, as the water in this source, despite rising from this property, ultimately comes from the rain and is in fact part of the water cycle. Besides, water risen from a property will end up in the sea or evaporating. Therefore the owner of this property will have

a *right of use* over this small part of the water cycle that happens in their land, but, according to our criteria, *they will not be the owners of that water*. Water must follow its natural cycle.

However, certain bottled water companies, which obviously comply with all laws and health guarantees, may not always be so loyal when it comes to advertising and therefore may mislead public opinion. This misleading may result in the idea that water supplied to all citizens by public entities, i.e. *tap water*, does not comply with all guarantees. It is likely for this mistrust to cause social resistance to implementing the *reuse of adequately treated grey waters* in areas where reusing water is practically the only alternative (5).

Over the last two centuries, it has generally been civil society, organized in companies or private entities, who has taken the initiative to supply water to several communities – towns, cities, and even regions. This is always done with the approval of the corresponding public powers, which have later complemented or even taken over the management of the service. However, building sewage systems, as well as the treatment, control, and disposal of gray waters, has almost always been and still is of public competence. Therefore the cooperation between civil society, public powers and the private sector is essential in order to progress towards the expansion of safe and sustainable access to water for all communities.

All in all, if our aim is for every human community to have access to water in proper conditions, this challenge may be posed as a global strategy in accordance with the WHO's guidance. The objective should be to shift from using water on a national level to *sharing it on a global level*, just like the water cycle has been doing since the beginning of times.

Only through utopia is it possible to find the courage to face great challenges. Rivers are often borders between countries, and at the same time the exploitation of its waters are the origin of conflicts. Hopefully, humanity, aware of the big threats we are facing, will be able to drive global organizations to transform water borders into meeting points, in order to obtain a fair and sustainable water management for the common good.

4. THE PRINCIPLE OF "WHO POLLUTES PAYS"

Living beings use water to live – they take it from the environment and return it by excreting it. Nature has already planned this cycle for

living beings on a global scale, as there are means for the used waters to be spontaneously treated (hydrological cycle) so that they may be used again.

However, the problem starts with the growing density of the human population and the increase of their activity, referring to both biological and hygienic needs as well as productive needs – agriculture, stockbreeding, and industry. Water is not only used to *live*, but also to *produce*. This production of all kinds of goods provides the society with supplies which are naturally paid for and are licitly profitable for those who generate it. But, in any case, the cost of adequately returning used water to nature after these production processes must be included in the cost of production itself. We should also take into account that many products made in a hydrographic basin are transported to another, as it is the case with bottled water and soft drinks. This implies a water transfer from the producer countries to the consumer countries. Ultimately, this could affect the WSI (Water Stress Index) of a country in regards to the other.

The points discussed above completely justify norms, duties or taxes that contribute to a financial growth and development that is sustainable and not aggressive towards the water cycle. This is what the principle "The ones who pollute must pay" is based on. Obviously, the cost of returning the water in proper conditions *to be reused* is paid for. However, polluting less and living more frugally would contribute to reducing the cost of returning the water used in our activities.

5. WATER AND THE HUMAN TRANSCENDENCE

At the beginning of this paper, when discussing the common effort to face the great challenge of global water supply, we have mentioned the *Hope Apostles*. We have done so thinking of the answer to this last point: the human mystery.

Sone paragraphs above we mentioned the utopia as an emotional and rational component of humanity, which is necessary for starting any important personal or collective project. But in many cases, in order to begin something with prospects of success, it is necessary to amend mistakes and recognize the wrong paths that have been taken. At this point, we have to quote the Encyclical letter Laudato Si' by Pope Francis, Hope Apostle, as a starting point to the analysis of our mistakes and to wonder

whether we are truly aware of the paths that we are following. With this aim, we consider it convenient to reflect on the first part of the 18th paragraph of the first chapter of this Encyclical - *What is happening to our common home II* (9): LS (30):

> *The continued acceleration of changes affecting humanity and the planet is coupled today with a more intensified pace of life and work which might be called "rapidification". Although change is part of the working of complex systems, the speed with which human activity has developed contrasts with the naturally slow pace of biological evolution. Moreover, the goals of this rapid and constant change are not necessarily geared to the common good or to integral and sustainable human development. Change is something desirable, yet it becomes a source of anxiety when it causes harm to the world and to the quality of life of much of humanity.*

As discussed above, water available for humanity and life in our planet depends on the water cycle, the rhythm of which is determined by the *natural slowness of biological evolution* – and, specifically, climatic evolution. Furthermore, taking into account climatic studies, the *rapidification* that characterizes our species seems to be partly responsible of the increase in concentration of carbon dioxide in the atmosphere and, as a consequence, of the rise of average temperature in our planet.

Scientific data show that the rise of average temperature in our planet may have a negative impact on its water cycle, which is the basic natural resource for the water fair distribution and supply for humanity and life. Besides, we must take into account that the alternatives available to artificially extend this cycle may be of significant magnitude for a hydrologically limited area with a high WSI, but would virtually have no impact on the global cycle. It is also interesting to point out, as we have before, that these processes have a high energy and technological cost – and therefore are only affordable for wealthy and developed countries or communities.

Scientists, technologists and the whole of humanity face a serious challenge, wisely defined as *rapidification* by Pope Francis. It consists on leaning to observe and discover the rhythms and tempos of the great clock of nature, to adapt our development to its harmony. The starting point is a more holistic vision or conception of the problems that we are facing – which makes us more human and, just like Saint Francis of Assisi, more

related to any living being. Amongst this issues, the one raised by Pope Francis in the following excerpt stands out:

> Yet *access to safe drinkable water is a basic and universal human right, since it is essential to human survival and, as such, is a condition for the exercise of other human rights*. Our world has a grave social debt towards the poor who lack access to drinking water, because *they are denied the right to a life consistent with their inalienable dignity*.

We cannot continue this way!

An individual and collective conversion is needed to confront our future. We are hopeful and convinced that humanity will be able to sensibly and generously coexist with nature, thanks to their inventiveness and the kindness in their hearts. This, regarding water, implies that we must cooperate with the hydrographic cycle and instead of proudly fighting its necessary laws, as *we* are partly originators of some of the climatic anomalies.

When we talk about hope we refer to the theological virtue of Hope, which is connected to Faith and freedom in human creativity - faith in nature itself and its supreme Maker which will always inspire us so that humanity can freely find the right path.

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