



Lukas Vischer: Water – Why should we be concerned?

1. Place and Date of Publication

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2. Historical Context

The UN International Year of Fresh Water (2003) gave the World Council of Churches occasion to convene a consultation on *Water – Source of Life* (September 2003, Geneva). In 1998, Lukas Vischer had been one of the co-founders of the European Christian Environmental Network (ECEN).

3. Summary

Water is the prerequisite of life. If current developments continue unabated, ever larger parts of humankind will be in peril. The figures of the UN show the magnitude of the problem. There have always been countries where water was abundant and others where it was scarce. Accordingly, water use differs from country to country. During the last few decades, however, the availability of fresh water has considerably diminished, especially in Africa and Asia. Today 505 million people in 31 countries are experiencing water stress or water scarcity. Two developments interact for this deterioration: Human water withdrawals are steadily increasing while the availability of freshwater is steadily decreasing. The main reasons for increased water withdrawals are patterns of industrial production, intensive agriculture, population growth, international tourism, the life style of consumer societies, climate change, deforestation, waste and pollution, and poor management of water. Lack of water has devastating consequences for all forms of life – human beings, animals and vegetation. Water scarcity is, therefore, a threat to survival. It can become the source of conflicts and even wars. A wide range of measures, however, can increase the availability of water. Overall, it is essential to treat water as a scarce resource, to limit its consumption wherever possible, and to address wider issues such as global warming, energy production, protection of forests, and population control. Large sums need to be made available by national governments and the international community for effective measures and in solidarity with poorer countries. The water crisis is already on the minds of a multitude of people and institutions. Nevertheless, following the dominant economic ideology, more and more public water services are being privatised. This privatisation is furthered by the World Bank, the IMF and the WTO - even if there is increasing evidence that private companies fail to bring lasting solutions for all parts of society and for the care for the environment. – Shouldn't water therefore be considered a *common resource*, be managed responsibly together, and *shared* among people and for the benefit of all creation? In view of personal responsibility, the principle of *subsidiarity* needs to be applied in decision-making.

Christians regard water as a gift of the Creator to all creation. Water is the symbol of life and God's grace. a) Christians have the task to remind of the true value of water, to reflect on the water crisis, and to seek maximum justice in water use. b) The churches have an obligation to commit themselves in the public debate and to resist solutions which contradict Christian convictions. Participation is called for at all levels: local, national, regional and international. c) To be credible, the churches need to promote – both at the personal and the community level – a life style that conveys a sense of respect and responsibility towards the gift of water.

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Redaktion:

Dr. Konrad Melchers

Dr. Klaus Seitz

Chefredakteur: K. Friedrich Schade

Adresse: Emil-von-Behring-Straße 3, 60439 Frankfurt/Main

Briefe/Letters: Postfach/POB 50 05 50, D-60394 Frankfurt/Main

Telefon: 069/580 98-138

Telefax: 069/580 98-139

E-Mail: zeitschrift@entwicklungspolitik.org

Internet: www.entwicklungspolitik.org

Ansprechpartner in der Schweiz: Brot für alle/Fastenopfer

c/o Urs Jaeggi, Pf. 5621, CH-3001 Bern, Tel. 0041-31-3806575

Korrespondent in Berlin: Dr. Johannes Schradi, 030/85 075 601

E-Mail: schradi.berlin@t-online.de

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*A Dossier produced by the
European Christian Environmental Network (ECEN)*

*European Christian Environmental Network
Rue Joseph II, 174B-1000 Brussels
Tel: +32 (0)2 234 68 33 Fax: +32 (0) 2 231 14 13
E-mail: ecen@cec-kek.be*

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Water

Why should we be concerned?

A survey of the main issues

Lukas Vischer

I. A mounting threat

On World Water Day, March 22, 2002 the Secretary General of the United Nations, Dr. Kofi Annan, underlined in a public statement the seriousness of the issue. Referring to the present situation, he said: '1,1 billion people lack access to safe drinking water, 2,5 billion have no access to proper sanitation and 5 million die annually from water related diseases. By 2025,' he added, 'two-thirds of the world's population will live in countries with moderate or severe water shortage.'

These few figures show the magnitude of the problem. Water is the prerequisite of life. If current developments continue unabated, ever larger parts of humankind will be in peril. The magnitude of the issue is such that it provokes a feeling of helplessness. Are solutions available? Is it possible at all to cope with the threat?

The issue is of crucial importance for the witness of the churches. When the survival of living creatures is at stake, they have no other choice than to respond and call for responsible approaches to the issue.

II. A few figures

Only 3 per cent of the totality of water on the planet is fresh. The rest are oceans and seas.

Of these 3 per cent, about 79 per cent exists in the form of ice caps and glaciers, 20 per cent is groundwater, and only 1 per cent is easily accessible surface water.

Of this surface water, 52 per cent is found in lakes, 1 per cent in rivers, 38 per cent in soil moisture, 8 per cent is atmospheric water vapour and another 1 per cent is water within living organisms.

Every year, about 40.000 km³ of water is, in principle, available for human use. About 10 per cent of this amount, i.e. 4.000 km³, is actually withdrawn from its natural course.

These 4.000 km³ serve many purposes: agriculture (70 per cent), industry (22 per cent), domestic use such as drinking, bathing, washing (8 per cent).

Water use terminology

Although fresh water is a renewable resource, its total amount is fixed. Human use does not ultimately diminish the supply but may make the supply less accessible for shorter or longer periods of time. The terms we use to describe water use reflect important distinctions in the ways in which humans interact with water.

Water use. An all-encompassing term that includes water withdrawal and water consumption.

Water withdrawal. A term that indicates the removal of water from a source for use in agriculture, industry or households. Examples include: water used to generate hydroelectric power, water used for irrigation, water used for municipal and industrial waste treatment, etc.

Water consumption. Water use that prevents the immediate reuse of that water. Examples: water drunk by humans and animals; irrigation water that is incorporated into plant material; water used in industrial processes that does not return immediately to the hydrological circle, etc.

III. Uneven distribution of water on the planet

Close to sixty percent of the world's water resources are available in the following nine countries:

| | |
|-----------|------------------------|
| Total | 40.000 km ³ |
| Brazil | 5.670 km ³ |
| Russia | 3.904 km ³ |
| China | 2.880 km ³ |
| Canada | 2.850 km ³ |
| Indonesia | 2.530 km ³ |
| USA | 2.478 km ³ |
| India | 1.550 km ³ |
| Colombia | 1.112 km ³ |
| Congo | 1.020 km ³ |

There have always been countries where water was abundant and countries where water was scarce. Accordingly, water use differs from country to country. The average figures given above are therefore misleading.

In the United States, for instance, 65 per cent of all water withdrawals on an annual basis feed industry and power plants, while 27 per cent serve agriculture and 8 per cent is used by municipalities for drinking water, sanitation and other domestic purposes (World Bank 2001). By contrast, in Asia, only 8 per cent of all water withdrawals are used by industry while 86 per cent serve agriculture. The average per capita use shows the same disparities: Africa 47 litres, Asia 85 litres, United Kingdom 334 litres and USA 578 litres.

There are, of course, also considerable differences from region to region within countries. While the USA as a whole disposes of abundant water resources, states like Colorado, Arizona and Nevada face scarcity problems.

Hydrologists have developed a conceptual model to track *water scarcity* around the world. A country experiences water scarcity when there is less than 1.000 cubic metres of renewable fresh water available per person per year. If renewable fresh water availability is between 1.000 and 1.700 cubic metres per person per year, the country experiences *water stress*. At over 1.700 cubic metres per person per year a country experiences relative *sufficiency*.

IV. A diminishing resource

The availability of fresh water has considerably diminished during the last few decades, especially in Africa and Asia. The following figures illustrate the overall trend of the development. They refer to the availability of water per person (in thousands km³).

| | 1950 | 1960 | 1970 | 1980 |
|---------------|-------|------|------|------|
| Africa | 20.6 | 16.5 | 12.7 | 9.4 |
| Asia | 9.6 | 7.9 | 6.1 | 5.1 |
| Latin America | 105.0 | 80.2 | 61.7 | 48.8 |
| Europe | 5.9 | 5.4 | 4.9 | 4.4 |
| North America | 37.2 | 30.2 | 25.2 | 21.3 |

These figures indicate an average and hide the seriousness of the situation. In fact, using the definitions given above, today 505 million people in 31 countries are experiencing water stress or water scarcity. *If present trends continue, the figure could easily rise to between 2.4 and 3.2 billion people by 2025, thereby affecting human health, economic development, food production and natural ecosystems.*

V. What are the reasons for this deterioration?

Two developments interact. On the one hand, human water withdrawals are steadily *increasing*; on the other hand, owing to various factors, the availability of freshwater in many parts of the world is steadily *decreasing*.

Globally, water withdrawals continue to *increase*. For example, between 1900 and 1975 water withdrawals in the United States rose ten times while the population only increased by a factor of four. There are, however, signs that the rhythm of withdrawals is slowing down. Since 1980 the amount of water consumed per person in the United States has decreased, due, to a large extent, to new technologies. But, generally, humans today use 54 % of all accessible renewable fresh water contained in rivers, lakes and shallow underground aquifers. With population growth this percentage may reach 70 % in 2025. If global water withdrawals continue to rise at the present rhythm, humans could be expropriating over 90 per cent of all available fresh water within 30 years.

The main reasons for *increased* water withdrawals are the following:

- *Patterns of industrial production.* Though water consumption can be considerably reduced by improved technologies, the expansion of production and consumption inevitably involves larger quantities of water.
- *Intensive agriculture* – increasing amounts are required for irrigation
- *Life style of consumer society*
- *International tourism* leads to excessive water consumption through imposition of the demands of rich countries on arid or semi-arid regions.
- *Population growth* – more and more people need to share the diminishing resource

Among the reasons for the *decreasing* availability of water, the following are of particular importance:

- *Climate change* – As climatic conditions change, the hydrological cycle will inevitably be affected. More intense precipitation is likely to occur in some regions: In Northern latitudes and in snowmelt driven river basins floods may become more frequent. Increase in temperature will lead to increases in evapotranspiration – water evaporated from the surface and from plants. Consequently, even in areas with increased precipitation, higher evapotranspiration rates may lead to a reduction of water supplies. The frequency and severity of droughts could increase in some areas as a result of changes in the total rainfall, more frequent dry spells and increased water use by crops and vegetation. Developing countries in arid and semi-arid regions are particularly vulnerable. Given their limited technical, financial and management resources, adjusting to shortages and/or implementing adaptation measures will impose a heavy burden on their national economies. While in the past climatologists were cautious in their conclusions, there is now increasing unanimity that climate change, induced by human activity is already occurring. Continuing uncertainties do not concern the *fact* of climate change but rather the nature and extent of its *impact* on the various regions of the world. Predictions on particular areas are therefore difficult. Various possible risks need to be taken into account as precautionary action is considered.
- *Deforestation* is a second factor of disturbance. As forests are cut, the hydrological circle changes; the soil no longer holds back the water; springs disappear; erosion increases. This is particularly true for mountainous areas: water descends more rapidly to the plains, increasing the risk of floods.
- *Waste and pollution* diminish the amount of available water. Human waste, domestic and industrial, continues to flow into water or at least requires water to be diluted. The sediments of erosion and fertilizers used in agriculture pollute rivers, lakes and groundwater

reserves. Often, the effects of pollution are practically irreversible or regeneration demands important technical and financial means.

- Through *poor management* huge amounts of water are lost. Water is not naturally available at the time and place where it is most required. Wells and reservoirs are needed. Tubes need to be built for the distribution of water in distant places. Changing conditions, e.g. through climate change, require the constant adaptation of the infrastructure. Rapidly growing urban centres raise special problems of management.

VI. The impact of water stress

Lack of water has devastating consequences for all forms of life – human beings, animals and vegetation. No living being can exist without water. Water scarcity is, therefore, a threat to survival.

Water is the precondition for good health conditions. Access to water and sanitary installation are essential for preventing illnesses. Millions of adults and children die every year from water related diseases. The World Health Organisation gives an estimate of five million people annually (WHO, *Our planet, our health*, 1992). Five general causes can be distinguished: a) illnesses transmitted by water (typhoid, cholera, dysentery, gastroenteritis and hepatitis; b) skin infection and eye diseases; c) parasites that inhabit water; d) illnesses transmitted by insects; e) illnesses due to the absence of hygienic measures.

Water scarcity places an enormous stress on community life. Often, a disproportionate amount of time must be spent on providing water from far away sources. Commonly, water needs to be carried over long distances. *As a rule women are the first victims of water scarcity.*

As water becomes scarce its value increases. Often, poor people are unable to pay for the water brought by 'water merchants' to their habitat.

Scarcity can become the source of both local and international disputes. A frequently heard hypothesis is that future wars will be fought over water supplies. The tensions between Israel and Palestine, Turkey and Syria, the Nile states and Mexico and the United States are often cited as illustrations. Whatever the likelihood of such wars, there can be no doubt that the peaceful sharing of water resources is imperative for the future. It will not occur as a matter of course but requires careful and sustained efforts.

It is important to underline that the increasing strain on water resources occurs in the context of a general ecological crisis. The real threat consists in the fact that a wide range of ecological issues demand attention at the same time. Water issues can therefore not be addressed in isolation from the whole crisis. Measures need to take into account the total picture. It is no exaggeration to say that the water issue is omnipresent. Whatsoever ecological problem is taken into consideration, connections to the theme of water appear; and, correspondingly, every ecological problem has a dimension related to water.

VII. Measures

Of course, to the same degree as the problems, measures vary from place to place. But there are overall considerations that apply to all regions, whether rich or poor, in water resources. *Clearly, the hydrological circle of the planet must not be unduly disturbed.* As the obvious 'Achilles heel' of humanity, care must therefore be taken not to interfere too drastically into the conditions determining the general availability of water. The water issue arises, therefore, not only in places of water scarcity but everywhere. In every corner of the planet human intervention into the water cycle needs to be kept within responsible limits. In this perspective, it is true to say that water is "everybody's business".

What measures can mitigate the water crisis? A wide range of measures are capable of increasing the availability of water. Its effectiveness use can be improved, for example,

- by increasing the *storage of water*
- by reducing *water consumption in industry* through improved technologies
- by developing more efficient methods of water use in agriculture and by slowing down the expansion of *agricultural irrigation*.
- by improving installations of *water capture and distribution*
- by reducing *water pollution* and increasing the recycling of polluted water
- by systematically building up *sanitation systems*

Overall, it is essential to treat water as a scarce resource and to limit its consumption wherever possible. Even where water is available in abundance, wastage needs to be resisted. The quantity of water consumed in industrial countries needs to be further reduced.

There are not only 'direct' measures such as these. To address the water crisis effectively, wider issues also need to be addressed, such as:

- *Global warming* (in order to mitigate the impact of climate change and to protect the functioning of the hydrological cycle).
- *Energy production and energy consumption*. Compared with energy obtained from fossil fuel or nuclear fission, that gained from hydraulic power is often considered to be 'clean'. In fact, all forms of energy production carry risks. A high price needs to be paid for the construction of dams (territorial claims, evacuation of people, impact on hydrological circle, etc). There are, therefore, limits to the further expansion of dams (at present there are 40.000 large and 800.000 small dams in the world). Energy saving is also recommended for the sake of water protection.
- *The protection of forests and afforestation*, especially in mountainous areas. These not only act as sinks of CO² but also protect indispensable water resources.
- *Population control* keeps future water use within limits.

The water crisis requires a concerted response. It involves all levels of society – from the local community to the national and international levels. In order to assure the participation of people, local action is called for. But as a rule, the problems go beyond the capacities of the local community. Co-operation with other communities is required. In many cases, solutions can only be found through international co-ordination. Moreover, it is essential to develop collaboration within a certain geographical area which does not necessarily coincide with national borderlines. Coalitions within river basins must also be established (cf. the Guidelines of the European Union). To guide concerted approaches of this kind an international framework is indispensable.

Financial needs are enormous. Effective measures can only be taken if both national governments and the international community consider the water crisis to be of high priority and agree to treat it as such when establishing their budgets. Clearly, it also requires international solidarity. Large sums need to be made available to poorer countries to finance the cost of the necessary measures.

VIII. The International Response to the Water Crisis

The water crisis is on the minds of a multitude of people and institutions. Much research has been done. The issues have been analysed and addressed under all possible aspects by the academic community, by governmental agencies and a wide range of non-governmental organisations specialising in the subject. Abundant information on the issues is available.

Water is a concern of the international community. A series of intergovernmental and international organisations seek to promote awareness of the issues and to offer solutions.

For a long time the *World Meteorological Organisation* has been involved in Hydrology Programmes. While first concentrating on recording and study, it added in 1975 an operational programme to its activities.

In 1977 the *United Nations Water Conference* was held. In preparation for the Earth Summit in Rio de Janeiro (1992), the International Conference on Water and the Environment in Dublin formulated the Dublin Principles (1992). The first, the ecological principle, recognizes water as a finite and vulnerable resource with important ecosystem functions. The second, the institutional principle, observes that sound water management requires the involvement of all stakeholders, including government, civil society and the private sector and also highlights the important role of women in safeguarding water. The third, the instrument principle, aims for water to be acknowledged as a scarce economic good by promoting recognition that management requires the adherence to 'user pays', 'polluter pays' and market-based approaches.

In 1996 the *World Water Council* was created. As an international water policy think tank, the Council includes public institutions, private sector firms, United Nations Organisations and NGOs from over 40 countries. Its mission is, on the one hand, to promote awareness of critical water issues at all levels and, on the other, to facilitate efficient conservation, protection, development, planning, management and use of water in all its dimensions on an environmentally sustainable basis for the benefit of everything on earth.

In 1997 the *First World Water Forum* in Marrakesh developed a World Water Vision. The Second Forum, held in 2000 in The Hague, formulated proposals for the World Summit on Sustainable Development in Johannesburg. In the same year an International Conference on Fresh Water was convened in Bonn, Germany. A Third World Water Forum took place in March 2003 in Kyoto, Japan.

In general terms, the *United Nations* uses strong language about the water crisis. In the UN Millennium Declaration (2000) it states: "We resolve ... to halve, by the year 2015 ... the proportion of people who are unable to reach or to afford safe drinking water." UNESCO is taking a leading role in the UN's system-wide World Water Assessment Programme. *The UN has proclaimed 2003 the International Year of Fresh Water.*

The *Johannesburg Conference* repeated the proposal of the Millennium Declaration. But it is far from certain that this target can be reached. There seems to be only little political will to implement the recommendations of the Johannesburg Conference.

IX. Public Responsibility or Private Initiative

In recent years, following the dominant economic ideology, more and more public water services have been privatised, and the liberalisation process still continues. The basic idea is that the principles of the market should be applied also to the management of water supply and its distribution. Rather than being a burden on the public sector, water systems should be run as private enterprises.

Privatisation is rapidly increasing. The aforementioned Dublin Declaration (1992) explicitly refers to the role of the private sector. According to present estimates the growth of the private sector in the water market between 1997 to 2010 will be as follows (in percentage): West Europe 20-35, Central and Eastern Europe 4-20, North America 5-15, Latin America 4-60, Africa 3-33 and Asia 1-20.

Of particular importance is the worldwide dimension of the process. Several international companies have come into existence offering to take over public water services in countries of the South. Important enterprises are Suez and Vivendi in France and EON and RWE (the latter has incorporated the British private enterprise Thames Water) in Germany.

The success of the privatisation process warrants an explanation. In many countries, especially in the South, states do not have the means to build up effective water services. In view of the fact that both expertise and finances are lacking, private enterprises are in a better position to deal with the complex issues of water supply and distribution. In addition, the criteria applied by the World Bank and the IMF make their grants favour the process of privatisation. The World Trade

Organisation (WTO) consistently promotes the process, while the Trade and Services Agreement, at present under negotiation, is bound to accelerate the movement further.

Resistance, however, is growing. There is increasing evidence that private companies fail to bring lasting solutions which satisfy all parts of society. As private enterprises they are governed by the criterion of profit. Social responsibility and care for the environment cannot be the primary perspectives of their operations. Neither can prices for them be established in the light of the needs of people and the environment but according to the principles of the market. To maximize profit, companies will hesitate to invest in the infrastructure. Invariably, areas where water services do not promise profits are not covered by private firms. They tend to select urban centres, whereas poorer areas are commonly neglected.

Can the movement towards privatisation still be stopped? Whether yes or no, every possible effort needs to be made to respect the criteria of social justice and environmental responsibility. States and governments have a continuing responsibility to set the rules and control the operations of private companies. They need to be accountable, and they must know that they will, in case of failure, incur sanctions. The state's responsibility to be at the service of *all* citizens is non-negotiable. Therefore, even if the private sector is given a role in water management, the state has to make sure that the fundamental criteria of social justice and care for the environment are fully honoured. Prices must be so set that, the one hand, people can afford to pay and, on the other hand, water will not unnecessarily be wasted.

To counteract the drive towards 'wild' privatisation, the idea of an intergovernmental water convention has been put forward from various sides. Such a convention, agreed upon and ratified by the community of sovereign states, would provide a framework for water management at all levels. It would serve as a common basis and determine the collaboration of states with private companies. Water management would become a matter of international law.

X. Fundamental issues to be taken into account

In these debates, a number of fundamental choices will inevitably arise.

Water is one of the most basic, if not *the* most basic good. It is essential for survival. Should it not, therefore, be considered a *common resource*, to be managed responsibly together and *shared* among people and for the benefit of all creation? Can it ever become a tradable good? Ought it ever be allowed to become the object and instrument of profit-making? The nature of water as a common good for humankind calls for control by the community as whole.

Water is meant to be available in adequate quantities to all. It is therefore appropriate to recognise access to water as a human right. If human beings have the right to live, it follows that they also have a right to access water. Today the tendency to replace the term 'right' by 'need' exists in many circles. There is no doubt that every human being needs 'water'. But the change of language is not entirely innocent. If access to water is a right, society as a whole – both at the national and the international level – has the obligation to make a maximum effort in providing water to *all*. The term 'needs' is part of the economic discourse.

Proper use of water presupposes a sense of personal responsibility. Though it is obvious that decision and action are required at all levels, it is essential that people enjoy the maximum degree of participation in the management of water resources. The principle of *subsidiarity* needs to be applied: decisions are to be taken at the lowest possible level. People need to be aware of the issues connected with water supply in their own area. They need to be given an opportunity to share to the greatest possible extent in decision-making concerning water management. Large enterprises diminish the sense of responsibility and water becomes a mere consumer good.

XI. The Churches' Response

a) *Awareness Building*

Churches should underline the unique role that water has for all living creatures. Christians regard water as a gift of the Creator. Water is the symbol of life and of God's grace. Water represents, therefore, more than a means. Christians praise God for his gifts. Water deserves respect and care. Churches must learn to value water as a life giving force.

It is self-evident that God's gift is meant to give life to all creation. According to the second creation story, water flows out from God's paradise over the whole world. The gift of paradise is for all; and Jesus tells us that God sends rain on both the just and the unjust. Water is to be considered as a common good.

The first task of Christians is, therefore, for them to remind themselves and the world around them of the true value of water. Water qualifies as a theme of preaching and meditation. It deserves to have a place in worship. Saint Francis rightly called water our 'sister' – not an object but a life-giving co-creature.

Awareness building must at the same time include a sustained reflection on the present situation. Why do we speak of a 'water crisis'? What are its root causes? Christians need to resist consistently either the tendency to overlook the crisis or to belittle its impact and urgency. The issues need to be faced in their full complexity and with all their ramifications.

Convinced that the gift of water needs to be shared among all, Christians will seek for maximum justice in water use. The uneven distribution of water resources over the planet must not serve as a pretext to minimise the call for justice. It is a central task of the churches to alleviate by acts of solidarity the burden of water scarcity.

b) *Participation in Public Debate and Action*

As water is essential for life, the churches have an obligation to engage themselves in the present debate on the appropriate management of water resources. Since fundamental ethical choices are involved it is imperative to have full participation in the public debate and to resist solutions which contradict Christian convictions.

Participation is called for at all levels – local, national, regional and international.

Ways need to be found to share in the elaboration of an international agreement on water use capable of guiding states in their approach to water issues.

To this effect churches should work together with NGO's that specialise in water issues and seek to profit from their experience and expertise.

In many areas, solutions can only be developed on a regional basis. As churches, by their very nature, transcend national boundaries, they will seek to participate in efforts of regional collaboration.

A primary concern will be to promote people's participation in water management.

c) *Life Styles*

To be credible, the churches need to promote – both at the personal and the community level – a life style that conveys a sense of respect and responsibility towards the gift of water.

Christians should resist excessive water consumption and avoid unnecessary pollution.

They ought to participate – for the sake of water availability – in all 'indirect' measures that foster an increase in the availability of water.