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Water: a strategic challenge for the Mediterranean Basin

Report[1]
Committee on the Environment, Agriculture and Local and Regional Affairs
Rapporteur: Mr Bernard MARQUET, Monaco, Alliance of Liberals and Democrats for Europe

Summary

Although water is essential to life, there are currently 3 billion people in the world who do not have access to drinking water.

The Parliamentary Assembly notes that climate change, the over-exploitation of water resources, deforestation and extremely rapid urbanisation are factors which not only result in a drop in resources but also in the pollution of rivers and groundwater.

The Assembly also firmly believes that the lack of water will cause tension and conflicts and points out that civilisations and societies have always developed in places where there is water and fertile land.

Consequently, the Assembly recommends, among other things, that legislation should be drawn up on the right to water and sanitation, that the opportunities provided by water as a source of thermal energy be exploited, that transregional and transboundary water co-operation be promoted and that a culture of water awareness and water education be introduced.

The Assembly also wishes to continue considering the role played by water in conflicts.

1. Reference to committee: Doc. 11582, Reference No. 3448 of 29 May 2008.

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A. Draft resolution

1. Bearing in mind that three billion people in the world have no access to drinking water, the Parliamentary Assembly recalls that water is the major challenge of our century.

2. The Assembly stresses that access to water must be recognised as a fundamental human right because it is essential to life on earth and is a resource that must be shared by humankind.

3. It recalls, however, that water is also a source of "renewable" energy and of thermal energy, thanks to the permanent heat of the earth's crust.

4. The Assembly observes that it is primarily drinking water resources that will become increasingly rare, at a time when needs are increasing, even though three-quarters of the planet is under water.

5. The Assembly also stresses that climate change is likely to exacerbate desertification as people are therefore forced to move to areas where water is accessible.

6. The same is true of the over-exploitation of water resources, deforestation, intensive farming and extremely rapid urbanisation, which not only lead to water shortages but also seriously pollute rivers and groundwater.

7. Under a general perception, the growing water shortage, competitive demands on water sources and pollution are liable to aggravate the potential for conflict among the riparian countries, while transboundary water resources should actually provide a genuine opportunity for co-operation rather than be a source of conflict and an obstacle to development.

8. In the circumstances, the Assembly is convinced that the water shortage will create tensions – according to some experts, the wars of the future will be sparked off by the search for access not to oil but to water – and that measures should be taken to compel states to manage transboundary rivers and aquifers jointly. Lasting solutions should be obtained through confidence-building measures and genuine co-operation among the riparian countries.

9. The Assembly notes that water stress has become a reality in both northern and southern Europe and emphasises that the problem will become increasingly crucial in the regions of the Mediterranean Basin because the population is concentrated in coastal towns and water resources are being over-exploited as a result of the expansion of such sectors as agriculture, tourism and industry and rising household consumption.

10. The Assembly points out that the uncontrolled discharge of municipal and industrial waste water and polluted rainwater is affecting many people's health and causing heavy economic losses, whether loss of income or the costs to health.

11. The Assembly refers, in this connection, to the commitments entered into by the heads of state and government of the Council of Europe member states in Warsaw on 17 May 2005 to fulfil "everyone's entitlement to live in a balanced, healthy environment" and to improve "the quality of life for citizens" by developing integrated policies in the environment field "in a sustainable development perspective".

12. The Assembly also refers to the proposals put forward by parliaments at the 5th World Water Forum on 19 March 2009, during which the participants highlighted the importance of the role of parliamentarians in drawing up rules concerning water management, water supply, generalisation of the principle of the right to water and the implementation of water policies with due regard for climate change.

13. However, the Assembly regrets that the Istanbul Ministerial Statement of 22 March 2009 does not recognise the right to water and sanitation as a human right.

14. In this connection, the Assembly welcomes the decision taken in Istanbul to hold a conference, under the auspices of the Parliamentary Assembly on follow-up to the 5th World Water Forum and the proposals made for themes for the next forum.

15. The Assembly therefore recommends that member and non-member states and, in particular, the countries of the Mediterranean Basin:

15.1. take the measures needed to ensure that everyone has access to water and sanitation;

15.2. promote transregional and transboundary co-operation on water;

15.3. introduce a culture of water awareness and water education;

15.4. devise co-operation policies encouraging the transfer of technology to those countries which need it most, particularly in the area of salt water desalination and the recycling of waste water;

15.5. develop research programmes leading to the establishment of a European water resources database;

15.6. exploit the opportunities provided by water as a source of thermal and renewable energy;

15.7. draw up environment-friendly water resource management programmes;

15.8. decentralise water management systems to make them the responsibility of local and regional authorities, and give the latter the necessary legal powers and financial resources;

15.9. set up centres providing training in water trades and professions and water technology;

15.10. inform and involve the public, in particular the young generations, by inculcating a sense of responsibility;

15.11. take steps to make water sanitation techniques more generally available.

16. The Assembly also recommends that the Congress of Local and Regional Authorities of the Council of Europe:

16.1. ask local and regional authorities to carry out an accurate assessment of water needs in municipalities and regions and make arrangements to draw up a guide to good practice;

16.2. encourage twinning or co-operation agreements between local authorities as a means of stepping up the exchange and sharing of knowledge concerning water.

17. The Assembly will continue to address this issue and, in particular, the possibility of drafting legislation on the right to water and sanitation as a human right, the role played by water in conflicts, the opportunities offered by water as a source of energy, new agricultural irrigation technology and the consequences of climate change for water.

B. Explanatory memorandum by Mr Marquet, Rapporteur

1. Introduction

1. Are we facing a water shortage? A crucial question, because without water no life is possible.

2. Our planet has an abundance of water and is sometimes even threatened with an excess of it, as a result of the increasingly marked trend towards global warming. But the risk of a water shortage mainly concerns the quality of our drinking water, since only a small proportion of our fresh water resources is really accessible.

3. In contrast to its image of a highly developed continent, there are 41 million people in Europe who do not have access to safe drinking water, while 85 million people lack access to basic sanitation.[2]

4. However, the Middle-East and North Africa region (MENA) is by far the world's most impoverished area in terms of water, with 1% of the world's freshwater resources and 5% of the world's population. The fact that 60% of the region's water-courses flow through several countries makes water resource management all the more difficult.[3]

5. Owing to climate change and increased demand for water, the problems of water access and availability are an issue in both the north and south of the Mediterranean Basin.

6. This is why it is now becoming urgent to change the arrangements for managing our water resources and sanitation systems and secure a new water culture that strikes a reasonable balance between economic, ecological and social considerations.

2. Water stress: a reality

2.1. Major geographical disparities

7. In the northwest of Europe – highly developed and humid – water shortages are not really an issue and, accordingly, the countries there focus on the environmental and ecological aspects of water management.

8. Southern Europe has satisfactory water supply and sanitation, although despite frequent droughts, often associated with falling groundwater tables.

9. In the countries of central and eastern Europe, water supplies are often intermittent and of poor-quality, and most of the infrastructure is in a poor state.

10. In the Middle East and North Africa, drinking water supplies are often patchy, and sanitation coverage is inadequate in some countries. But the most alarming threat is the lack of renewable water resources in relation to demand, likely to affect this region in the immediate future.

11. Morocco, for example, is rapidly approaching a water crisis. This in fact is the downside of the country's economic success. The development of certain sectors of activity such as agriculture, tourism and industry has greatly increased the demand for water, to which should be added household consumption in a country that is rapidly urbanising.

2.2. Deterioration of the resource

12. Throughout Europe and the Mediterranean Basin, the concentration of the population in coastal towns and the increase in demand is resulting in water resources being over-exploited. The levels of some groundwater tables are falling dramatically. In the coastal areas, this is increasingly causing an inversion of flow between mainland water and seawater, leading to an irreversible salinisation of freshwater stocks.

13. Limited exchanges of water with the open sea render the region's seas more vulnerable to pollution, which has increased considerably since the 1970s. All these seas are polluted with heavy metals, persistent organic pollutants, microbes and high levels of untreated wastewater.

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2. *Europe, water and the world*, 4th World Water Forum, 2006.
3. World Bank, 2003.

14. Agriculture is the prime cause of pollution in Europe and the MENA region. Discharges of agricultural fertilisers containing, among other things, organic matter, nitrogen and phosphorus, are responsible for the eutrophisation of numerous bodies of water. Moreover, agriculture is the sector that consumes the most water; particularly in Mediterranean countries.

15. In this context, the World Bank issued an alarming report on the water situation in the Maghreb and the Middle East and has urged the region's governments to introduce urgent policy reforms to avoid serious water shortages in the future.

16. One example is Algeria, another major Maghreb country confronted by this problem, where the government has started to use alternative resources, including a vast sea water desalination programme that should be operational throughout the country by the end of 2009.

2.3. Ever more frequent floods and droughts

17. Climate change simulation models point not only to the drying out of zones that are already arid but also to more frequent and more severe extreme hydrological events (floods and droughts).

18. Since 1998, flooding has caused around 700 deaths in Europe, the displacement of about half a million people and economic losses to the tune of 25 billion euros.

19. Flooding can also have serious environmental consequences. Sewage plants can be flooded, for example, as well as factories containing large quantities of toxic chemical substances. It can also destroy wetlands and decimate biodiversity.

20. Droughts have caused over 85 billion euros in losses in Europe over the last 30 years, averaging 5.3 billion euros per annum between 1991 and 2006. In 2003 southern and western Europe was hit by an exceptionally long, rain-free heat-wave, causing the death of thousands of people, particularly among the elderly. On the southern shores of the Mediterranean, there has been a sharp upward trend in the number of drought years over the last 30 years.

2.4. Water is also an energy source

21. It is also worth bearing in mind that water is a significant source of renewable energy, whether from rivers, lakes, waves, tides or sea currents.

22. For example, in the north of Scotland equipment has been installed to supply electricity to small islands where it was previously lacking and to fuel a sea water desalination plant.

23. Similarly, a British company plans to operate marine current turbines (a form of underwater wind turbine), which use sea currents like a boat propeller to generate electricity.

24. Water-based energy is clean and renewable and has the advantage of not consuming water.

25. Water-based energy is free, but limited by however much water is available in any particular country. While such energy is positive for the environment, it may have major side effects when it requires the construction of dams or artificial lagoons.

26. Water can also be a source of thermal energy, thanks to the permanent heat of the earth's crust. Water from aquifers or deep water tables of sedimentary basins is hot and can be used to heat homes with the aid of pumping systems. This energy source is still little used and should be looked at much more closely.

2.5. An example of mutual assistance: transferring water by sea to Barcelona

27. A tanker containing 36 000 m^3 of drinking water docked at Barcelona on 21 May 2008. Over a period of several weeks, around 25 000 m^3 more were shipped each day by sea from Marseille, Fos-sur-Mer and Tarragona to the Catalan capital, which was suffering from scarcity of water supply.

28. This emergency measure was prompted by a persistent drought over the winter of 2007-2008, leading to an alarming drop in Catalonia's water stocks. The urban district of Barcelona, with some 5 million inhabitants in a geographical area lacking strongly flowing rivers, faced the prospect of a water shortage by summer 2008, in the peak-season for tourism, which would cause substantial economic losses.

29. The shipping of drinking water by sea, envisaged since January 2008, had already been undertaken in the 1980s from Marseille and Fos-sur-Mer, in the direction of Spain, Algeria and Sardinia. Under the latest scheme, six vessels chartered by the Marseille Water Company and the Provence Canal Company were due to make deliveries at a rate of 63 shipments a month. Barcelona should receive 1.66 million m^3 of drinking water each month, representing some 6% of the city's consumption, at a monthly cost of 22 million euros.

30. This very expensive solution was seen only as a stop-gap measure, pending the commissioning of a seawater desalinisation plant at Llobregat, in the south of Barcelona, which will supply 200 000 m^3 a day by the end of 2009.

31. It is true that transfers of this kind are an opportunity for the supplier region to make better use of a resource in over-supply in the interests of trade and economy, and to maintain international solidarity. But they also prompt numerous backlashes from local politicians, environmental protection associations and the public. Most of the criticism is levelled at the lack of foresight of the Spanish authorities which, instead of taking a firm approach to deal with a structural water crisis, are over-exploiting freshwater stocks for irrigated agriculture and tourism (golf courses, swimming pools, hotels).

32. The region's authorities has also envisaged ambitious projects to secure water supplies from other basins that could entail the building of a 330 km-long canal to bring water from the Rhône and the laying of 62 km of piping to transfer water from the river Ebre, to the south of Barcelona.

33. Integrated water resource management is a far better alternative. It would enable to reduce the high level of losses from networks and plan water resource allocation better, as the primary sector takes 73% out of the system for a contribution to GDP of less than 2%. Controlling demand would be sufficient to prevent having to deploy extreme solutions.

3. Europe's response: an integrated approach at international level

3.1. Integrated Water Resource Management

34. Integrated Water Resource Management (IWRM) is a concept that appeared in the wake of the international conferences held in Dublin and Rio de Janeiro in 1992. The Global Water Partnership defines it as 'a process which promotes the coordinated development and management of water, land and related resources in order to maximise the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital eco-systems'.[4]

35. In Europe, it has its roots in the Hydrographical Confederations set up by Spain in 1926, the Water Agencies created in France in 1964, the focus on maintaining water quality by the Water Committees in the Netherlands in 1980, and the setting up of international river commissions (such as the International Commission for the Protection of the Rhine in 1950).

36. The natural unit of water resource management is the river basin,[5] as it is on the scale of this territory that management of all water resources is pertinent, irrespective of the size or transfrontier features of that area.

37. The first objective of IWRM is to maintain natural balances where water is concerned, avoiding the drawing of excessive quantities and pollution. At the level of the river basin, every water use at a given point has an impact on a different use downstream. For that reason, all the sectors (agriculture, industry, tourism, shipping, etc.) that generate nuisances for water resources must give due consideration to the impact of their development on those resources. IWRM hinges on the economic accounting of all the respective impacts, passed in an appropriate charging system.

38. The second objective of IWRM is to develop and control mobilisation of the resource, while ensuring fair allocation between the different users. For one thing, experience of drinking water supply and sanitation throughout the world shows that infrastructure development can be made economically viable only by the adoption of a cost recovery policy. Furthermore, if demand for water is to be controlled, the true cost of the exploitation of water resources and its environmental effects must be reflected in the amount to be paid by the user. This makes it crucial to establish a charging system that takes account of the volumes of water consumed and ensures that the bulk of the charges are borne by the entities exploiting the resources.

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4. GWP, 2001.

5. A river basin or catchment area is a zone in which all surface run-off water converges, via a network of rivers, streams and lakes, in the direction of the sea, into which it empties via a single estuary.

39. Opting for an integrated approach raises numerous questions as to which parties are to be involved in decision-making and how. Integrated management can be successful only if all the players concerned (elected representatives, operators, associations of users, etc.) are informed and involved as far upstream as possible in development projects or programmes and involved in the framing of policy.

3.2. Transboundary co-operation

40. Worldwide, states are under no obligation of cooperation forcing them to jointly manage transboundary rivers or aquifers. There are international conventions, negotiated on a case-by-case basis, which are one solution to the problem.

41. Europe has 73 transfrontier river basins.[6] Adopting anIWRM approach at the level of a river basin necessarily requires the bringing together of countries with part of their territory located in that area. Historically, numerous agreements on transfrontier management of water resources have been signed between European countries, examples being the efforts undertaken to prevent flooding in the Rhine and Elbe basins.

42. The setting up of transboundary water resource management usually encounters the difficulty of bringing together the main players and striking a consensus, and the potential benefits of co-operation frequently need emphasising. The political and cultural context is crucial in this respect: geopolitical developments, national water management policies etc. Backing from regional bodies such as the European Union is important to overcome the obstacles.

3.3. Transboundary management of the Danube Basin

43. On the eve of the First World War, the Austro-Hungarian Empire was by far and away the main player in the Danube Basin, but it was dismantled in 1918-1919 and new countries came into being. After the Second World War most of those countries, except Germany and Austria, became members of the Eastern bloc. With the collapse of communism in 1989, the USSR, Czechoslovakia and Yugoslavia were dismembered, and the Danube Basin became the most international basin in the world, with eighteen countries.

44. International co-operation began in 1856 with the Treaty of Paris, which set up a European Commission for the Danube whose role was to guarantee freedom of navigation on the river. Following the Second World War, this notion of "free movement" was superseded by one of "controlled navigation", through the Belgrade Convention in 1948. Up to 1990, the riparian countries of the Danube fell into either the eastern bloc or Western Europe, and their economic levels were highly disparate, which is why bilateral agreements predominated during that period. However, the Danube countries came together in 1986 around the Bucharest Declaration, which set objectives for improving and monitoring water quality.

45. In 1991, following the major political upheavals in central and eastern Europe, the Danube states met in Sofia to establish the Environmental Programme for the Danube River Basin (EPDRB), with the assistance of the international community and the European Union in particular. This undertaking culminated in 1994 in the signing, by all the riparian countries, of a Danube River Protection Convention (DRCP), establishing a framework for integrated water resource management:

– sustainable and fair management of water, giving due consideration to the preservation of resources;

– control of the risks of accidental pollution and extreme events;

– reduction of the pollution burden.

46. The convention was ratified in 1998 and the first meeting of the International Commission (ICPDR) was held in Vienna in October. The Commission's Joint Action Programme (JAP) defines the steps to be taken over the period 2001-2005, to achieve the protection objectives set by the Convention.

47. The most recent political development in the Danube Basin has been the accession of several riparian countries to the European Union.

6. UNESCO, 2002.

3.4. The Water Framework Directive

48. The current framework for water management in the European Union is the result of a thirty year-old political process and an ever more pressing demand from citizens to be able to benefit from a good-quality environment that is safer in terms of public health. The first wave of legislation came in the 1970s, with directives laying down quality objectives related to use. The second phase, in the 1990s, entailed combating the discharge of pollutants in aquatic environments, prompting investments that made it possible to significantly improve water quality.

49. In 2000 the European Union devised a new single working framework: Water Framework Directive (WFD), the Directive establishing a framework for Community action in the field of water policy. The aim of the 27 member states is to achieve good ecological status of water[7] by 2015. This approach is also pursued by the associated and acceding countries, accounting for some 10% of world population.

50. The WFD is an innovative response to the need for an integrated approach. It takes the entire water cycle into account and seeks to reconcile the needs of all water users. It sets result-oriented objectives with the main emphasis on water quality and ecology. It also caters for the need to tackle the problems of flooding and drought.

51. However, there have been difficulties in implementing the WFD. Although the objectives it sets are acknowledged as being realistic, achieving them is proving to be costly and a lengthier process than expected in certain countries.

52. The principles of the WFD are universally applicable. They do not, however, take account of the possible role of water as a vector of social and economic development. The directive disregards certain fundamental aspects of IWRM such as management of demand, efficiency of water use, poverty and gender issues. Given the importance it attaches to the ecological status of water and the high costs it entails, the WFD may be regarded as a "good practice" suited to the highly industrialised countries of Europe but could not be exported in its present form to developing countries.

53. The fundamental principles of the WFD are:

– an approach based on river basins;

– the principles of precaution and preventive action;

– recovery of costs linked to water use;

– the "polluter pays" principle;

– decision-making at the level that is the closest possible to the place of water use or allocation;

– a combined approach to control pollution at source;

– involvement of the public.

54. The WFD obliges member states to produce a management plan for transfrontier basins and to pool resources in devising and applying it.

55. It introduces a socio-economic approach, requiring firstly identification of the uses of water (leisure activities, drinking water supplies, irrigation, industry, etc.) and evaluation of the economic impact of those uses.

56. It requires a report to be presented, answering the following 3 questions at the level of the river basin:

– do current prices cover operational costs and service renewal?

– do polluters pay fines equivalent to the cost of the environmental damage they cause?

– how are the costs apportioned between different economic sectors?

57. The directive includes a requirement of transparency (who pays what and why?) but does not insist on total recovery of costs. For social, economic and environmental reasons, it authorises the maintaining of subsidy and financial transfer machinery.

58. The first management plans will be framed in 2009, and then every 6 years after that.

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7. Water with good ecological status is water that guarantees human health and preserves animal and plant life. In other words, it is water that is free of toxic substances and available in sufficient quantity for all uses.

3.5. Solidarity

59. The requirements of recovering costs and application of the "polluter pays" principle may jeopardise the ability of some users to pay. Solidarity mechanisms are generally set up at different levels to spread or lighten the impact of infrastructure and operational costs on users' bills.

60. At local level, water authorities usually apply the same tariff to everyone in the zone they cover, so that individual users whose water and sanitation services cost more than the average (because their home is further away from the bulk of the community for example) do not pay more than their neighbours. But distinctions are generally drawn between domestic and professional uses, to ensure that the large consumers (industry, agriculture, etc.) pay a higher cost per cubic metre.

61. At national or regional level, charging systems may be set up to harmonise costs between rural and urban areas, or between towns with good infrastructures and those needing rehabilitation. It is commonplace, for example, to apply discretionary levers to water bills, depending on location, the volume consumed, etc.

62. At international level, the European Union has set up important solidarity-oriented investment programmes in the new and future member states.[8] These programmes provide backing for water authorities in those countries to build infrastructures enabling them to comply with European regulations. Official development assistance (ODA), either bilateral or multilateral, is an additional form of transfrontier solidarity.[9]

63. Some devolved initiatives may also be a source of funding for water projects, such as the twinning of towns in different countries or European networks of local authorities such as the Council of European Municipalities and Regions (CEMR).

4. Water in the Maghreb: how is such a rare resource to be preserved?

4.1. The threat of water shortages

64. The situation of the water sector is particularly worrying in the Maghreb. Morocco, Algeria and Tunisia are experiencing water stress as a result of high population growth in the last 30 years, an improvement in the living standards of their inhabitants and economic policies which have marginalised the water issue.

65. It is commonly accepted by hydrologists that countries with renewable freshwater availability of less than 1700 m^3 per head of population per annum are likely to face episodic shortages of that resource or even a chronic shortage if availability falls below 1000 m^3 per head of population per annum[10]. Algeria and Tunisia face a serious threat, with respective water availability of 800 and 480 m^3 per head of population per annum. And even if it has 1800 m^3 of renewable freshwater available per head of population per annum,[11] Morocco is at great risk of being affected too.

66. It is true that the Maghreb countries have made significant progress in terms of access to water supply and sanitation, with a mean coverage of 84% of the population for drinking water and 83% for sanitation.[12] But in the event of a chronic shortage of water resources, the situation could regress.

67. The large volumes used for irrigation mean that agriculture is the main consumer of water (80%), far ahead of domestic users (14%) and industry (6%). These figures reflect inadequacy of drinking water supplies to households and a distinct lagging behind in the development of industry compared with highly developed countries. But above all, they highlight the priority that must be given to rationalising the use of water for irrigation which, alone, accounts for the consumption of 38% of the region's entire renewable water resources.[13]

4.2. Increasing supply, reducing demand

68. With the threat of water stress looming, the countries of the Maghreb have no other choice than to take the necessary measures to increase the supply of water and reduce demand.

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8. Via the "Cohesion fund" for the new Member States and the "Instrument for Structural Programmes for pre-Accession" (ISPA) for potential future Member States.
9. EuropeAid, European Union Water Initiative, EAP Task Force.
10. IDRC 1996.
11. FAO Aquastat 2008 & 2002.
12. OMS & UNICEF Joint Monitoring Programme for Water supply and sanitation 2004.
13. FAO Aquastat 2000.

69. Although renewable freshwater availability is limited, there are ways in which supply may be significantly increased.

70. The first way is to treat wastewater to a sufficient degree for it to be reused in irrigation. For one thing, this is a resource available in increasing quantities as a result of urban development, tourism and industry. Furthermore, treated wastewater contains organic compounds which cover the nutrient requirements of most crops, making it possible to cut agricultural production costs linked to the use of fertilisers.

71. Water supplies can also be increased by making use of brackish water. Programmes to exploit this resource are already under way, accompanied by a research effort aimed at reducing the risks of damage to groundwater and soil linked to salinity.

72. Finally, desalinating seawater is a solution offering the prospect of unlimited water resources. This technique is already used in Algeria (17 million m^3 in 2002), Tunisia (13 million m^3 in 2001) and Morocco (7 million m^3 in 2000), but the high amounts of energy consumed make it very costly and therefore unsuitable as an alternative to freshwater resources.

73. A number of measures that can however be taken to reduce demand for water. In particular, better maintenance of drinking water supply networks would make it possible to substantially reduce the amount of water lost through leakage. Charging systems should be revised to encourage users to save water. Awareness-raising campaigns can further drive home the message of user responsibility. Finally, optimising drainage systems would bring about a significant reduction in the amounts drawn off by agriculture.

4.3. The need for international co-operation

74. Preserving water resources in the Maghreb necessitates the implementation of programmes at the level of the region.

75. Soils in the Maghreb are subject to heavy erosion, particularly when rainfall follows long periods of drought. This soil erosion has grave consequences for the state of water resources: silting of ponded water, disappearance of fertile layers of soil, insufficient recharging of groundwater. The Maghreb countries must therefore introduce a strategic plan to preserve soil and water resources, whose main components would be the reforestation of certain zones, installation of new pondage areas, recharging of water tables and identification of zones suitable for the drawing or dispersal of water.

76. Strategic restructuring of the irrigation sector could result in optimal allocation of water resources, particularly by favouring high added-value crops, which consume the least water. The experience of the Maghreb shows that privatising the sector, or at least increasing the organisational and financial autonomy of its public authorities, naturally leads to more profitable and more economic use of water. In addition, users can be involved in developing and maintaining their irrigation networks, through the setting up of associations of users.

77. In the Maghreb countries, the water sector is organised in such a way that each type of water use (irrigation, drinking water, sanitation) is managed by a central office following strict rules, functioning independently from other offices and attaching very little concern to the profitability of their activity. As each of these sub-sectors are fragmented between independent public monopolies and public authorities pursuing social and political objectives, water sector management is flawed and characterised by substantial over-employment. It would be extremely beneficial to restructure this sector on a decentralised basis, with water services managed at local level by autonomous public authorities or private enterprises.

78. Finally, the Maghreb countries will have to pool their research efforts so that, together, they can develop technological and strategic solutions commensurate with their water resource management problems.

79. All these recommendations call for integrated water resource management. Efforts to find solutions to the problems of the Maghreb countries in terms of water stress and access to water services can therefore draw inspiration from the European international cooperation approach, while benefiting from European Union support.

5. Possible solutions

5.1. Sanitation, a necessity

80. The uncontrolled discharge of municipal wastewater (including industrial effluent and polluted rainwater) impacts on the health of many people and generates heavy economic losses. This practice damages water ecosystems and pollutes the oceans, causing contamination of water supplies and resources. This results in fish dying on a mass scale and a decline in tourism and encourages waterborne and food-contained illnesses, which means loss of income and increases in the costs of health and wastewater treatment.

81. Even today, Europe treats less than 50% of the pollution in its urban wastewater.

82. In the south of the Mediterranean Basin, substantial efforts have been made to make water services available to a large part of the population. This has led to a substantial increase in the problems of water quality linked to discharge of wastewater.

83. In 1991 the European Union adopted the Urban Wastewater Treatment Directive, encouraging national governments, local authorities and industries to attach greater importance to reducing pollution. This directive, focused on performance, decrees that all built-up areas with more than 2,000 inhabitants must have a wastewater treatment system and that, before 2005, all urban wastewater discharged in areas under threat from eutrophisation must be purged of any nitrogen or phosphorus.

84. The directive also calls for progress in sanitation technologies and practices, including improved integration of treatment plants in the environment, better control of run-off water pollution and improvement of existing networks and flood management.

85. The cost of applying this directive was estimated at 12 billion euros of investment finance for the 12 member states. These investment costs are high and the member states are experiencing difficulties in funding them. The European Commission has brought numerous court actions against countries which have failed to attain the objectives set by the Directive: Belgium, Greece, France, Spain and Sweden.

86. In the MENA region, investments in the sanitation sector are generally lagging behind the drinking water supply sector by ten years or so. Public finances are already over-burdened by drinking water provision to be able to fund adequate investment in the collection and treatment of wastewater.

87. In many countries of the Europe and Mediterranean Basin zone, sanitation services are billed at inadequate rates to cover the investments required to preserve the environment and maintain water quality. Experience shows that it is difficult to raise those rates, as users are far less inclined to pay for these services than for drinking water.

88. It is true that sanitation is costly, as we have indicated above. But the cost of a lack of sanitation is actually far higher.

89. Since 1991, capital investment in the controlling of pollution of urban wastewater in the EU has brought considerable benefits for health, tourism and the rehabilitation of water resources. The work carried out has also created jobs, particularly within the service departments and enterprises that have been developed to operate the new infrastructures.

5.2. Good management: a precondition

90. It is essential to adopt a holistic approach to the management of water as a scarce and vulnerable resource and to incorporate sectoral water plans and programmes into general economic and social policy.

91. In Europe, economic activity has led to a substantial rise in the demand for water, while deforestation has increased the frequency and strength of storms, resulting in more frequent flooding and landslips.

92. We must also underline the significant role played by mountains. Mountain ranges are areas of intense erosion and rapid concentrations of water, leading to rising water levels and flooding, with disastrous consequences in the neighbouring plains.

93. For several years, freshwater management has been a major issue, in which a great deal is at stake.

94. Governments therefore need to adopt a co-ordinated approach by developing co-operative arrangements that take account of the various elements of a viable strategy.

95. Intelligent use and coherent management of water are essential if, in the near future, we are to secure universal access to a resource that is vital for humankind.

96. We must therefore act swiftly to achieve a reasonable balance between supply and demand. This calls for suitable infrastructure to permit the optimum use of water and legislation.

97. Every country should have legislation on the sound management of water resources.

6. Conclusions and recommendations

98. Water is the great challenge of our century. Without clean water, human beings have no choice but to die of hunger, thirst or sickness, or else abandon their homes. Access to clean water offers everyone the opportunity to live in dignity.

99. Although three-quarters of our planet is under water, drinking water is in short supply. The very survival of humanity is therefore at stake.

100. In this connection, the Parliamentary Assembly refers also to the commitments entered into by the heads of state and government of the Council of Europe member states in Warsaw on 17 May 2005 to fulfil "everyone's entitlement to live in a balanced, healthy environment" and to improve "the quality of life for citizens" by developing integrated policies in the environment field "in a sustainable development perspective".

101. Recognising access to water as a fundamental human right could therefore be a valuable means of ensuring universal access to an adequate supply of water.

102. To do this it is essential to establish a genuine culture of and international solidarity towards water.

103. In conclusion, the Parliamentary Assembly recommends that member and non-member states of the Council of Europe:

– take steps to ensure that every citizen has access to water and sanitation facilities;

– support and develop research programmes leading to the establishment of water resources databases;

– improve or, if they have not already done so, introduce the governance of water resources and draw up programmes for their effective management;

– establish an information network on the management of water resources, which would also make it possible to gather information on the various activities being undertaken throughout the world;

– decentralise water management systems to make them the responsibility of local and regional authorities, and give the latter the necessary legal powers and financial resources;

– set up information and prevention campaigns, aimed at the general public and, above all, young persons;

– involve users as far as possible by increasing their sense of responsibility;

– take steps to make water sanitation techniques more generally available;

– take steps to improve sewage treatment and study the impact of sewage on the marine environment;

– examine the possibilities of using land after desalination;

– examine ways of making better use of water as a hydraulic and thermal energy source;

– pay closer attention to the role of water in conflicts;

– examine the consequences of climate change on water.

104. The Parliamentary Assembly also recommends that the Congress of Local and Regional Authorities of the Council of Europe ask local authorities to undertake a strict assessment of the water needs of their area and take necessary steps to introduce good practice guides in this area.

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Members of the Committee: Mr Alan **Meale** (Chairman), Mrs Maria Manuela de **Melo** (1st Vice-Chairperson), Mr Juha Korkeaoja (2nd Vice-Chairman), Mr Cezar Florin Preda (3rd Vice-Chairman), Mr Remigijus Ačas, Mr Ruhi **Açikgöz**, Mr Artsruni **Aghajanyan**, Mr Miloš Aligrudić, Mr Alejandro Alonso Nùñez (alternate: Mr Gabino **Puche Rodriguez Acosta**), Mr Gerolf **Annemans**, Mr Miguel Arias Cañete, Mr Alexander Babakov, Mr Ivan Brajović, Mrs Elvira **Cortajarena Iturrioz**, Mr Veleriu Cosarciuc, Mr Vladimiro Crisafulli, Mr Taulant Dedja, Mr Hubert **Deittert**, Mr Karl Donabauer, Mr Miljenko **Dorić**, Mr Gianpaolo Dozzo, Mr Tomasz **Dudziński**, Mr József Ékes, Mr Savo Erić, Mr Bill **Etherington**, Mr Nigel **Evans**, Mr Joseph **Falzon**, Mr Relu Fenechiu, Mr Zahari Georgiev, Mr Peter Götz, Mr Rafael **Huseynov**, Mr Jean Huss, Mr Fazail Ibrahimli, Mr Ivan Ivanov, Mr Igor **Ivanovski**, Mr Bjørn Jacobsen, Mrs Danuta Jazłowiecka, Mr Birkir Jon Jonsson, Mr Stanisław Kalemba, Mr Guiorgui Kandelaki, Mr Haluk **Koç**, Mr Bojan Kostres, Mr Pavol Kubovic, Mr Paul Lempens, Mr Anastosios Liaskos, Mr François Loncle, Mr Aleksei Lotman, Mrs Kerstin Lundgren (alternate: Mr Kent **Olsson**), Mr Theo Maissen, Mrs Christine **Marin**, Mr Yevhen **Marmazov**, Mr Bernard **Marquet**, Mr José **Mendes Bota**, Mr Peter Mitterrer, Mr Pier Marino Mularoni, Mr Adrian Năstase, Mr Pasquale Nessa, Mr Tomislav Nikolić, Mrs Carina Ohlsson, Mr Joe **O'Reilly**, Mr Germinal Peiro (alternate: Mr Alain **Cousin**), Mr Ivan Popescu, Mr René **Rouquet**, Mrs Anta Rugāte, Mr Giacento Russo, Mr Fidias Sarikas, Mr Leander Schädler, Mr Herman Scheer, Mr Mykola Shershun, Mr Hans Kristian Skibby, Mr Ladislav Skopal, Mr Rainder **Steenblock**, Mr Valerij **Sudarenkov**, Mr Laszlo Szakacs, Mr Vyacheslav Timchenko, Mr Bruno Tobback (alternate: Mr Daniel **Ducarme**), Mr Dragan Todorovic, Mr Nikolay Tulaev, Mr Tomas **Ulehla**, Mr Mustafa Ünal, Mr Peter Verlič, Mr Rudolf **Vis**, Mr Harm Evert Waalkens, Mr Hansjörg Walter, Mrs Roudoula Zissi

N.B.: The names of those members present at the meeting are printed in **bold**.

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