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A Developing Crisis



Water and Sanitation For All: A World Priority

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In March 1994, the Netherlands Government hosted an international Ministerial Conference on Drinking Water and Environmental Sanitation under the auspices of the Ministry of Housing, Spatial Planning and the Environment (VROM) and the Ministry of Foreign Affairs. The aim of the conference was to ensure that there would be genuine follow-up to the recommendations set forth in the Freshwater Chapter (Chapter 18) of Agenda 21, the global programme endorsed by heads of government at the United Nations Conference on Environment and Development (UNCED), held in Rio de Janeiro in 1992.

The Noordwijk Conference was supported by a series of six key background papers, and resulted in a Political Statement and Action Programme, which were published in the Conference Proceedings.

To make this information more accessible and more widely available, the Ministry of Housing, Spatial Planning and the Environment is now publishing *Water and Sanitation for All: A World Priority*, a series of three booklets based on the conference papers and other sources. The aim is to encourage policy makers and managers to initiate and maintain follow-up actions in support of the Political Statement and Action Programme and so ensure that the benefits of safe water and adequate sanitation can be enjoyed by all.

This initiative is supported by the following international and bilateral agencies:



United Nations Development Programme (UNDP)



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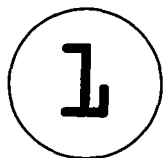
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Water and Sanitation for All: A World Priority



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A Developing Crisis

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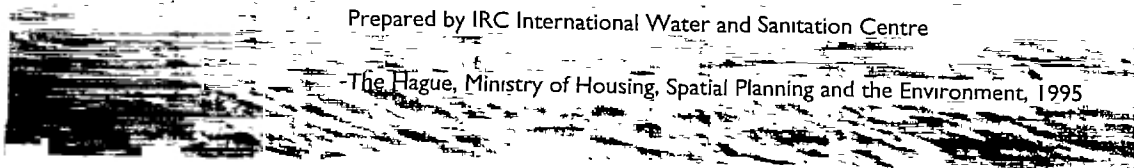






Photo: IBC

We are facing a severe water crisis.

Hans Alders, Minister of Housing, Spatial Planning and
the Environment, The Netherlands.

All quotations featured in the text are taken from speeches and statements to the Noordwijk Conference.

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S U M M A R Y

Access to water is considered a basic human right. But there is simply not enough water to go round. For millions, the shortage of clean water means epidemics, hunger, despair and death; and the developing water crisis has at least as much impact on the environment and other living things.

What is to be done? The 1992 United Nations Conference on Environment and Development - the Earth Summit - adopted a global action plan, Agenda 21, which firmly established that water and sanitation are critical to human and economic development and warned that freshwater resources must be managed with sustainable development in mind. To ensure follow-up to Agenda 21, an international Ministerial Conference on Drinking Water and Environmental Sanitation was organized by the Netherlands Government in 1994.

Water is especially vulnerable to pollution, waste and mismanagement. The most serious source of pollution is human waste, particularly in developing countries. Each year, as many as four million children die because they lack clean water and effective sanitation. The problem is worst in urban areas, where untreated wastewater and unmanaged solid wastes often spread disease and contaminate the rivers and groundwater on which the cities depend. But there are problems too in rural areas, where women often spend endless hours fetching water from great distances for their families. Efforts to provide clean water can only succeed if they go hand in hand with efforts to promote sanitation - yet sanitation often remains a low political priority.

National development plans must start from a clear notion of what water resources are available, and how to protect them. The international challenge is equally demanding; dozens of countries share important water sources, and the threat of future 'water wars' can only be avoided by joint action.

Agenda 21 emphasizes that the water supply and sanitation problems of the world are no longer technical in nature; they are political and educational. The secret of success may lie in social and cultural attitudes, as much as in technological know-how. There is compelling evidence that women's involvement in water and sanitation projects makes a huge difference to their success. Without sanitation and safe drinking water, it is nearly impossible to achieve a general standard of good health. Infants and small children are among the hardest hit by disease. Rich and poor nations alike agree that health services and education for women are the keys to social change and sustainable development. Technology provides a means for change; education provides a motivation. Education is needed to bring understanding of basic hygiene, to help people develop a clear perception of their needs, and to allow local communities to participate in the decision-making process so they have a stake in its outcome.

One problem that governments face is how to assign a fair cost to water services. The costs for all water uses have to be covered if a water supply scheme is to be maintained; but this can only be achieved with the understanding and support of the local community. Planning on the basis of what people want and are willing to pay for means both less expensive projects and more revenue.

Irrigated agriculture accounts for almost 70 percent of the water used every day throughout the world; industry uses about 25 percent, and domestic water accounts for less than 10 percent. Because the amount of water used in irrigation is so enormous, even small improvements in irrigation efficiency would release large amounts of water for industrial and domestic use. Although industry is not the major consumer of water, it is often the major polluter.

There are five main points for governments to keep in mind:

- Fresh water is a finite, vulnerable and endangered resource.
- Access to water is an economic necessity as well as a human right.
- One of the serious threats to fresh water comes from inadequate human sanitation
- The most important contribution a government can make is to create a positive atmosphere to encourage cooperation among all concerned.
- Financial resources are limited, but can be made to go further than they presently do.

Through positive steps such as these, the developing crisis may be averted. Without such a commitment from policy-makers, and without the involvement and support of the people, such efforts are likely to fail. Only through understanding and cooperation can success be ensured. The choice is ours.

RÉSUMÉ

L'accès à l'eau est considéré comme un droit fondamental pour l'homme. Mais les ressources en eau sont tout simplement insuffisantes. Pour des millions d'hommes, le manque d'eau propre est synonyme d'épidémies, de faim, de désespoir et de mort. La crise de l'eau qui est en train d'apparaître aura au moins autant d'impact sur l'environnement et les êtres vivants que sur l'homme.

Que faut-il faire? La Conférence des Nations Unies sur l'Environnement et le Développement — le Sommet de la Terre —, en 1992, a adopté un plan d'action mondial, l'Agenda 21, qui proclame que l'eau et l'assainissement sont des éléments déterminants pour le développement humain et économique, et a recommandé de gérer les ressources en eau douce en visant le développement durable. Pour assurer le suivi de l'Agenda 21, une conférence ministérielle internationale sur l'eau potable et l'assainissement de l'environnement a été organisée par le gouvernement néerlandais en 1994.

L'eau est particulièrement vulnérable à la pollution, aux déchets et à la mauvaise gestion. Le facteur de pollution le plus grave est constitué par les déchets humains, tout particulièrement dans les pays en développement. Chaque année, quatre millions d'enfants meurent parce qu'ils n'ont pas d'eau propre et que l'assainissement n'est pas efficace. Le problème est pire encore dans les zones urbaines, où les eaux usées non traitées et les déchets solides non collectés propagent souvent des maladies et contaminent les rivières et la nappe phréatique dont les villes sont dépendantes pour leur approvisionnement en eau. Mais les problèmes existent aussi dans les zones rurales, où les femmes parcourent souvent de grandes distances pour aller chercher de l'eau pour leur famille. Les efforts visant à fournir de l'eau propre ne seront couronnés de succès que s'ils vont de pair avec la promotion de l'assainissement, mais jusqu'à présent l'assainissement n'est pas vraiment une priorité politique.

Les plans de développement nationaux doivent être basés sur une connaissance précise des ressources en eau disponibles et sur les moyens de les protéger. Le défi au niveau international est tout aussi difficile à relever: des dizaines de pays partagent d'importantes ressources en eau et la menace de futures "guerres de l'eau" ne peut être évitée que par une action conjointe.

L'Agenda 21 souligne le fait que les problèmes d'approvisionnement en eau et d'assainissement dans le monde ne sont plus de nature technique; ils sont du domaine de la politique et de l'éducation. Le secret de la réussite peut résider dans les comportements sociaux et culturels tout autant que dans le savoir-faire technologique. Il est absolument évident que l'implication des femmes dans les projets d'eau et d'assainissement est un facteur considérable de réussite de ces projets. Sans assainissement ni eau potable sûre, il est pratiquement impossible d'obtenir un niveau de santé standard. Les nourrissons et les jeunes enfants sont parmi les plus

duement touchés par les maladies. Les nations riches et pauvres s'accordent à dire que les services de santé et l'éducation des femmes sont les clés du changement social et du développement durable. La technologie fournit les moyens du changement, l'éducation fournit la motivation. L'éducation est indispensable pour aider les populations à comprendre les bases de l'hygiène, à identifier clairement leurs besoins et pour permettre aux communautés locales de participer au processus d'élaboration des décisions, afin qu'elles s'intéressent aux résultats.

L'un des problèmes auxquels les gouvernements doivent faire face est comment fixer un prix équitable pour les services liés à l'eau. Si un système d'approvisionnement en eau doit fonctionner durablement, il faut que les coûts de tous les usages de l'eau soient couverts. Mais cela ne peut se faire qu'avec la compréhension et le soutien de la communauté locale. Planifier en fonction de ce que veulent les gens et de ce qu'ils sont prêts à payer signifie à la fois des projets moins chers et davantage de recettes.

Les besoins de l'agriculture irriguée représentent presque 70 % de l'eau utilisée chaque jour dans le monde; l'industrie en utilise pratiquement 25 % et les ménages consomment un peu moins de 10 % restant. La quantité d'eau utilisée pour l'irrigation est tellement considérable que de petites améliorations de l'efficacité de l'irrigation suffiraient à dégager d'importantes quantités d'eau pour l'industrie et les usages domestiques. Bien que l'industrie ne soit pas le plus grand consommateur d'eau, elle est souvent le principal pollueur.

Les gouvernements doivent avoir à l'esprit les cinq points suivants:

- L'eau douce est une ressource limitée, vulnérable et menacée.
- L'accès à l'eau est une nécessité économique autant qu'un droit pour l'homme.
- L'une des menaces les plus graves pour l'eau douce provient d'un assainissement inapproprié par l'homme.
- La contribution la plus importante qu'un gouvernement puisse fournir est de créer un climat favorable à la coopération entre les parties concernées.
- Les ressources financières sont limitées, mais elles pourraient être élargies.

Des mesures positives telles que celles susmentionnées pourraient enrayer la crise menaçante. Sans l'engagement des politiques et sans l'implication et le soutien des gens, ces efforts risquent toutefois de ne pas aboutir. Le succès ne peut être assuré qu'avec le soutien et la coopération de tous. À nous de choisir.

RESUMEN

Tener acceso al agua se considera un derecho humano básico, pero, sencillamente, no hay suficiente agua para todos. Para millones de personas, la falta de agua potable significa epidemias, hambre, desesperación y muerte, y el aumento del problema del agua tiene cuando menos las mismas repercusiones sobre el medio ambiente y otros seres vivos.

¿Qué puede hacerse? La Conferencia de las Naciones Unidas sobre medio ambiente y desarrollo celebrada en 1992 y conocida por Cumbre de la Tierra, adoptó un plan de acción global, Agenda 21, que establecía sin lugar a dudas que el agua y los saneamientos son esenciales para el desarrollo humano y económico, y advertía de que los recursos de agua potable deben ser gestionados teniendo en mente el desarrollo sostenible. Para garantizar el cumplimiento de la Agenda 21, en 1994 el gobierno holandés organizó una Conferencia Ministerial Internacional sobre agua potable y saneamiento medio ambiental.

El agua es especialmente vulnerable a la contaminación, los residuos y la mala gestión. La fuente más grave de contaminación son los residuos provocados por el hombre, sobre todo en los países en vías de desarrollo. Todos los años mueren hasta cuatro millones de niños porque no tienen agua potable ni unos saneamientos eficaces. El problema es peor en las zonas urbanas, donde las aguas residuales y los residuos sólidos no tratados con frecuencia transmiten enfermedades y contaminan los ríos y las aguas subterráneas de las que dependen las ciudades. Pero también hay problemas en las zonas rurales, donde las mujeres muchas veces dedican horas interminables a acarrear desde muy lejos el agua para sus familias. Los esfuerzos para conseguir aguas limpias sólo tendrán éxito si van de la mano con esfuerzos para promover los saneamientos, pero es muy habitual que los saneamientos sigan teniendo escasa prioridad política.

Los planes de desarrollo nacional deben partir de una noción clara de los recursos de agua de que se dispone, y cómo protegerlos. El desafío internacional es igualmente duro. docenas de países comparten unos recursos de agua importantes, y la amenaza de las futuras "guerras de agua" sólo puede alejarse mediante una acción conjunta

Agenda 21 resalta que los problemas del suministro de agua y de saneamiento que hay en todo el mundo no son ya de naturaleza técnica: son políticos y educativos. El secreto del éxito tal vez esté en las actitudes sociales y culturales, tanto como en los conocimientos tecnológicos. Hay pruebas irrefutables de que la participación de la mujer en los proyectos de agua y de saneamiento supone una tremenda diferencia de cara al éxito. Sin saneamientos y sin agua potable segura es prácticamente imposible alcanzar un nivel general de buena salud. Los bebés y los niños pequeños son los más afectados por las enfermedades. Tanto los países ricos como los países pobres están de acuerdo en que los servicios sanitarios y la

educación sanitaria orientados a la mujer son la clave para el cambio social y el desarrollo sostenible. La tecnología ofrece un medio de cambio, la educación proporciona la motivación. La educación es necesaria para la comprensión de la higiene básica, para ayudar a la gente a desarrollar una percepción clara de sus necesidades y para que las comunidades locales puedan participar en el proceso de toma de decisiones y poder así tener voz en sus resultados.

Uno de los problemas a que se enfrentan los gobiernos es cómo asignar un coste justo a los servicios de agua. Es preciso cubrir los costes de todos los usos a que se destina el agua para que puedan mantenerse los planes de suministro de agua, pero esto sólo se conseguirá con la comprensión y el respaldo de la comunidad local. Planificar teniendo en cuenta lo que la gente quiere y está dispuesta a pagar significa proyectos más económicos y también más ingresos.

Los riegos agrícolas representan casi el 70 por ciento del consumo diario de agua en todo el mundo. La industria utiliza alrededor del 25 por ciento, y el agua para empleo doméstico representa menos del 10 por ciento. Dada la importancia de la cantidad de agua utilizada para el riego, cualquier pequeña reducción en el consumo permitiría destinar grandes volúmenes de agua al uso industrial y doméstico. Aunque la industria no es el principal consumidor de agua, muchas veces es el principal contaminador.

Hay cinco puntos destacados que los gobiernos han de tener en cuenta:

- El agua dulce es un recurso finito, vulnerable y en peligro.
- El acceso al agua es una necesidad económica y también un derecho humano.
- Una de las más graves amenazas que pesan sobre el agua dulce son los saneamientos artificiales inadecuados.
- La contribución más importante que puede hacer un gobierno es crear un ambiente positivo que fomente la cooperación entre todos los implicados.
- Los recursos económicos son limitados, pero pueden aprovecharse más de lo que hoy se hace.

A través de medidas positivas como éstas es posible evitar la crisis que se avecina. Sin el compromiso de los políticos y sin la participación y el respaldo de los ciudadanos, lo más probable es que todos los esfuerzos fracasen. El éxito sólo puede garantizarse mediante la comprensión y la cooperación. La elección es nuestra.

RUNNING OUT OF WATER - RUNNING OUT OF TIME



Photo IRC

W A T E R . . .

Next to oxygen, fresh water is the most important substance for sustaining human life. Like earth, fire and air, it was revered by the ancients and treated by all with respect. Throughout the intervening millennia, human settlements, human activities, and human festivities have celebrated the goodness of fresh water. Today, however, we no longer respect water. Almost imperceptibly, the problem has crept up on us.

Human indifference, human ignorance, and human greed combine globally to waste it, foul it, and divert it, thereby denying it to neighbours and fellow creatures. Now a crisis looms: we are running out of water, we are running out of time.

Access to water – for hygiene, health, sanitation, agriculture and industry – is today considered a basic human right. But there is simply not enough water to go round, and the story is repeating itself in country after country: from the slums of Mexico to the overburdened farms of China, from the irrigated desert of the American southwest to the dead shores of the once vibrant Aral Sea. Not only are we outstripping the planet's limited freshwater stocks, but we are rapidly poisoning the fluid that sustains all life as well.

A mere 1 percent of all water on the planet is readily accessible for use. Of this amount, some 73 percent goes to agriculture, particularly for putting once arid land into cultivation through large-scale irrigation. Another 20 percent goes to industry, and the remaining 6 percent is used for domestic and recreational needs such as drinking and washing.

Such global figures, however, do not reveal the great variations from region to region. Industries in eastern Europe, for example, account for up to 80 percent of the region's use of fresh water. By contrast, industry in Ghana accounts for only 3 percent. Most citizens of Canada can shower every day and drink their fill of tap water, but for untold millions, the shortage of clean water means epidemics, hunger, despair and death. Children are especially vulnerable. According to the United Nations, 40,000 children die every day, many of them the victims of diarrhoea and other side effects of the water crisis.

WHAT IS TO BE DONE?

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Whatever the consequences for people, the water crisis has at least as much impact on the environment and other living things. Fish, birds and countless living creatures are crowded out, marooned or poisoned as industry and agriculture re-route rivers, dry up wetlands, dump waste and otherwise disrupt natural ecosystems. What is to be done? How can we balance the many conflicting interests involved in water allocation? How can we protect the environment? How can we prevent waste and encourage behaviour that supports sustainable use of our water resources? How can we provide an equitable distribution system?

These are some of the questions that make water one of the hottest environmental issues today. Whatever their other differences, world leaders do agree on one thing: that improved water and sanitation services will play a critical role in future human and economic development. But this must not be at the expense of the planet's resource base. Indeed, most agree that we are in the midst of a developing crisis, for the cost of not setting priorities, of not taking action, could mean the loss of life itself.

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Many societies lack the funds or the knowledge to successfully manage and protect their water resources on a continuing basis. By the same token, many societies that are rich in capital and expertise may lack the political will to protect their water resources. The urgency of addressing this situation was clearly recognized by the world leaders who met in 1992 in Rio de Janeiro for the Earth Summit – the United Nations Conference on Environment and Development. World leaders, however, do not pull the levers of political action. They cannot implement policy at the local or national level. What they can do is to suggest certain priorities, map out options and alternatives, even persuade others to join their cause. This is the purpose of Agenda 21, adopted by the Summit as a global action plan. To ensure follow-up to the recommendations of Agenda 21, an international Ministerial Conference on Drinking Water and Environmental Sanitation was organized by the Netherlands Government in 1994.

Major problems discussed in Rio and, more recently, at the Ministerial Conference in the Netherlands included water resources, conservation, population dynamics, public health and sustainable development. All of them are included in Agenda 21. The challenges have been defined; some solutions exist. What remains, however, is to involve each and every one of us in implementing change. What are we waiting for?

THE EARTH SUMMIT SHOWED THE WAY

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The Earth Summit showed us that we must look beyond national interests and agree to some basic changes in the way we treat both underdevelopment and the environment. The broad issues are clear: the developed countries have grown accustomed to life-styles that are consuming a disproportionate share of natural resources and generating the bulk of global pollution. The developing countries, for their part, are consuming irreplaceable global resources to provide for their exploding populations. There are currently forty-five cities throughout the Third World with populations in excess of 3 million people. Eight Third World cities have already exceeded the 10 million mark: Mexico, São Paulo, Buenos Aires, Calcutta, Bombay, Cairo, Shanghai, and Seoul. Both developed and developing countries have as an object lesson the countries of the former eastern bloc, whose past efforts at industrialization have produced some of the most devastating effects on human health and the environment that the world has ever seen.

If the broad issues are clear, so is the solution. We must abandon those practices that are self-destructive in favour of sustainable development. We have the technology – there are excellent techniques for the conservation of water, for the recycling or disposal of wastes, and for the design of efficient handpumps. Delivering clean water at an affordable price, and providing sanitation and access to safe and reliable sources of water for everyone are technically feasible. But do we have the wisdom to change? Do we have the political will? Do we care?

TIME TO ACT

We face two visions of the future. In one, water and sanitation problems are overcome: food is abundant, the threat of disease diminishes and sustainable development becomes possible. In the other, we continue our indifference and neglect: the prospect is conflict, rampant poverty and disease, the destruction of our life-support system. The choice is ours. It is time to act.

We must take action before it is too late.

Eco Matsers, The Netherlands, representing the NGO community.

The Earth Summit was a turning point for those who advocate better management of water resources and sanitation. Two changes in particular brought renewed hope for the 1.7 billion people who presently lack the most basic water amenities – access to clean drinking water and sanitation.

First, the Summit's action programme, Agenda 21, approved by world leaders, firmly established that improved water and environmental sanitation are critical to human and economic development. It suggests that each country set targets to reduce waterborne diseases and to make significant progress towards meeting the water and sanitation needs of people in both urban and rural areas. Similar goals were already part of the International Drinking Water Supply and Sanitation Decade of 1981-1990. Their re-statement is tacit admission that the aims of the Decade, to provide safe water and sanitation for all by the year 2000, could not be met.

Secondly, Agenda 21 is specific in warning that all freshwater resources must be managed with sustainable development in mind. This means that today's strategies for urban and rural development -- whether affecting land use, industry or agriculture -- must take account of the needs of future generations.

THE PROBLEM OF POLLUTION

Water is essential for life, for health, for food and for human development. It is essential for agriculture, for industry and for sustaining the environment. It determines the quality of our lands and the quality of our lives. Yet despite its importance to basic biological processes and the well-being of living things, water is especially vulnerable to pollution, waste and mismanagement. Human beings may always have had an impact on their natural environment; but today's unprecedented population increases – and the scale of attendant problems of urban expansion, waste disposal, soil erosion, poverty and disease – provide an urgency that is new in our history.

One of today's main environmental concerns is pollution – pollution from agriculture and industry, from urban growth, and from water development projects such as dams and reservoirs. If not properly planned

and managed, all these human activities can have devastating impacts on aquatic ecosystems – damaging fisheries, coral reefs, wetlands and watersheds. By far the most serious source of pollution, however, is human waste, particularly in developing countries. Each year, as many as four million children die because they lack clean water and effective sanitation

COMPUTING THE COSTS OF CHOLERA

The economic impact of waterborne disease is dramatically illustrated by the cholera outbreak in Latin America.

In Peru, where the outbreak was most severe, tourism disappeared and it became impossible for Peruvian businesses to export fruit and vegetables onto the world market. These two facts alone cost the Peruvian economy US \$1 billion in just ten weeks. The total economic cost to Peru was more than three times the total national dollar investment in water supply and sanitation improvements during the 1980s.

In neighbouring Chile, earlier concerns about a typhoid epidemic and the need to ensure the acceptability of Chilean fruit and vegetables on the world market, provided an impetus to improve sanitation. By the time the cholera had arrived by Peru, Santiago was effectively treating 95 percent of its sewage. As a result, the cholera did not spread.

The amount of wastewater discharged in the world is expected to double between 1980 and the year 2000. And this is in addition to the two million tons of human excreta which daily pollute the planet's rivers and ground waters. In Latin America, for instance, up to 98 percent of sewage is discharged untreated. In Poland, three-quarters of the rivers are too contaminated even for industrial use. Two-thirds of China's rivers are seriously polluted. Due to pollution, forty rivers in Malaysia are devoid of fish or other aquatic life. In Manila, the capital city of the Philippines, it is estimated that 60 to 70 percent of what flows through the Pasig River consists of untreated sewage. Despite these alarming figures, a recent study found that only half of the projects backed by the World Bank included a sanitation component.

IMMEDIATE CHALLENGES: CITIES TOP THE LIST

Soon, more than half the world's population will live in urban areas. People come from poor rural regions to squat at the edge of megacities, where they must survive without land rights, shelter or basic services. Many poor families pay up to 20 percent of their incomes to private water carriers, with no guarantee that the water they buy so dearly will be free from contamination. The potential for epidemics and waterborne disease is explosively high, just as it was in nineteenth century Europe, when measures to protect water supplies from human pollution were taken only after cholera threatened to decimate the rich as well as the poor.



Photo: IFC

For many cities, how to dispose of the billions of tons of household and municipal waste generated by all their inhabitants is the major obstacle to sustainable development. It is, in fact, a multiple threat. Untreated wastewater and unmanaged solid wastes not only spread disease and create squalid living conditions in crowded shanty town settlements, they also contaminate the rivers and groundwater on which cities depend. In rural areas, too, there are problems. In many villages, the women must spend endless hours fetching water and carrying it home over great distances for family and vegetable patch. Besides the drudgery involved, many women's daily struggle for survival inhibits their access to education, often condemning their children, also, to a life of poverty, disease and exclusion

CHANGE PRIORITIES - CHANGE BEHAVIOUR

Today, the development agencies know that it is not enough merely to provide clean water to those who are without. Efforts to provide clean water only succeed if they go hand in hand with efforts to mobilize communities, technical experts, and policy makers on behalf of sanitation. At the same time, sensitivity to cultural values and social behaviour may be every bit as important as digging latrines or installing water pumps. Yet, despite some recent progress, sanitation remains a low political priority.

BREAKING WITH THE PAST

In western Europe, there is increasing concern about the cost of maintaining a certain quality of drinking water. In eastern Europe, systems are poorly maintained and unreliable. After decades of neglect and non-accountability by public officials, the pollution of rivers and ground water in these countries is nearly irreversible. The Aral Sea, once the fourth largest lake in the world, has shrunk in size by half, and its salinity has tripled since the 1960s -- mostly because the incoming water from feeder rivers was diverted to irrigate cotton and rice crops of dubious benefit.

The International Commission on Irrigation and Drainage estimates that two-fifths of irrigated land across the world is either at risk, or already affected by waterlogging or salination. There is a vicious circle from which no country is exempt: population growth, industrialization and general socio-economic development push up water demands exponentially, even as pollution and dwindling supplies make the costs of meeting future demands prohibitive.

Water should never become cause for discord....
Water must unite people.

Mr. Elias Díaz Peña, Paraguay, representing the NGO community.

In these circumstances, national development plans must start from a clear notion of what water resources are available, and how to protect them. According to some definitions, twenty-six countries in the world already have less water than they need, and another forty nations will join them within thirty years. Two-thirds of Africa already faces the threat of severe water scarcity. The international challenge is equally demanding. Dozens of countries share important water sources. Some of the world's best-known rivers, like the Amazon, the Nile, the Rio Grande, the Zambesi, the Mekong, the Danube, the Rhine or the Jordan, flow along or across several national borders and are potential sources of conflict. The United Nations Secretary-General has warned of water wars and asked the international community to exert collective pressure on recalcitrant countries. Only joint action can prevent conflict while ensuring the protection of the world's most valuable and vulnerable resource.

LESSONS OF THE 1980s: A BLUEPRINT FOR CORRECTIVE ACTION

(2)
During the International Drinking Water Supply and Sanitation Decade (1981-1990), drinking water was made available to 1.2 billion people and 770 million people gained access to safe sanitation. Yet the gap between those having such services and those without remains high and will continue to grow unless there is a change in approach to meet the needs of increasing populations, particularly in urban areas.

More than one billion people still lack safe water, while 1.7 billion (one person in three in developing countries) lack adequate sanitation. These global figures may sound hollow, yet they represent the life and death struggle for water that individuals and communities have to win every day in order to survive. The Water and Sanitation Decade did not meet all its goals, but it did succeed in mobilizing professional water sector specialists throughout the world in an unprecedented concerted effort to find solutions to seemingly intractable problems. The Decade's lessons – the lessons of the 1980s – have been converted into 'principles', 'concepts' and 'approaches', and have emerged in Agenda 21 as part of a blueprint for correcting past failures and delivering sustainable services quickly and cost-effectively.

PEOPLE PLAY THE LEADING ROLE

As Agenda 21 makes clear, the water supply and sanitation problems of the world are no longer technical in nature; they are political and educational. The solutions depend on governments' adopting cooperative approaches to the management of water resources. If governments will implement the necessary changes and try to mobilize social forces as recommended by the sector professionals, there is a chance that the lessons of the 1980s and the soul-searching of the early 1990s will become the success stories of the next generation. The needs are urgent, the time has come for the participants at Noordwijk, and those who hear their call, to respond to the challenge.

ENABLING PEOPLE TO MANAGE THEIR OWN RESOURCES

The lessons are clear: by continuing unchecked along our present path, we can only damage our resource base and risk destroying ourselves. We have a responsibility to future generations – to sustainable development – and that means managing and protecting our water resources.

We have to provide people with what they want and not with what we think is best.

Mr. A. Rüegg, Ambassador to the Embassy of Switzerland, on behalf of Mrs. Ruth Dreifuss, Minister of the Interior, Switzerland.

In one sense, access to fresh water and a safe means of disposing of human waste is no more complicated than installing pipes, wells, tanks and latrines. But this narrow view of progress is inadequate and misleading. It fails to take account of the complexity of human behaviour, and it totally ignores the cultural dimension of social development.

It is estimated that some 30 to 40 percent of water systems in developing countries are broken at any one time, and that a third or more of the piped water in towns and cities is lost before it ever reaches the tap. According to the United Nations Children's Fund (UNICEF), one third of the funds spent at the end of the 1980s were destined to keeping existing schemes going. In the Gorka district of Nepal, Save the Children found that 80 percent of taps in a rural piped water system were dry two years after installation because of broken pipelines or sediment in the tanks. They were a gift from aid agencies. When the taps stopped working, the Nepalese villagers just shrugged and went back to their old water sources.

By contrast, when hand pump caretakers in Malawi were given technical training, and their communities accepted responsibility for looking after the pumps, the breakdown rate fell 75 percent and annual maintenance costs fell from \$140 per pump to \$16. As these examples demonstrate, the secret of success may lie in social and cultural attitudes, as much as in technological know-how.

KNOW-HOW PLUS COMMUNITY INVOLVEMENT: A RECIPE FOR SUCCESS

Only a decade ago, the majority of the children of Lesotho suffered from diarrhoeal diseases spread by contaminated water. There was no effective method of sanitation in most communities and the local citizens accepted this as a way of life.

In 1983, a Technical Advisory Group funded by the United Nations Development Programme (UNDP), UNICEF and the Lesotho Government, was set up to introduce sanitation into a rural water project.

Over the course of a year, the Group got to know the local people and used their input to design and build the equipment. Sanitation 'messages' were integrated into primary health education, taking into account the local customs.

Men and women from the villages were trained as latrine builders and maintenance workers and today, many local people earn their living by building latrines and maintaining the sanitation project.

The success of the project is assured. District sanitation teams, supported by 4,000 village-based health workers, use home visits and community meetings to talk through – and solve – any problems with the system.

Today the young people of Lesotho face a brighter future, one that is not overshadowed by the threat of childhood diseases.

INVOLVING WOMEN BRINGS SUCCESS

In many communities, water and sanitation projects almost never start with a pipe or a latrine. They are more likely to begin with a discussion among the women of the village – about finding an alternative to walking many kilometres each day to fetch water, or about how to remove the stench and filth of raw sewage from their streets. Women's attitudes and interests may be quite different from men's.

There is compelling evidence that women's involvement in the planning and upkeep of water and sanitation projects makes a huge difference to the success of the resulting programmes. Women, after all, are the family providers of health care. If they are motivated and educated about the benefits of hygiene and sanitation, their influence can be decisive. This message must not be lost.

TAKING ACCOUNT OF THE HIDDEN COSTS

People forget that without sanitation and safe drinking water, it is nearly impossible to achieve a general standard of good health. Equally true and equally overlooked is the fact that poor sanitation and polluted water mean high costs to society in terms of economic productivity as well as the loss in human lives.

DISEASE - EXPENSIVE AND SOMETIMES DEADLY

In India, three children die every minute from diseases associated with polluted water, costing the economy 73 million working days each year. Guinea worm disease disables people during the planting season, affecting agricultural production. River blindness typically strikes adults in their thirties and forties when they are most needed as breadwinners or providers.

Although most diseases associated with unclean water and lack of basic sanitation are found in the developing countries, serious illnesses can also occur elsewhere. There have been outbreaks of waterborne hepatitis A in Riga, the capital of Latvia. In Romania, high levels of nitrates in the water have caused an increase in child mortality. In the Russian Federation, 60 percent of the population are exposed to unsafe drinking water, while among the most industrialized nations an estimated 49 percent of the population still have no facility for wastewater treatment.

MUST CHILDREN BE DISPOSABLE?

Infants and small children are among the hardest hit by disease. Not only is this waste of young lives unnecessary, but it actually encourages population growth. Families have fewer children when they are confident that all the children born to them are likely to survive. When infant and child mortality rates are high, there is no incentive to limit family size.



Poverty, population growth and environmental deterioration . . . form a downward spiral in which population growth fuels poverty and environmental deterioration; poverty stimulates population growth and more environmental damage; and poor environmental reinforces poverty and population growth.

Mr. J. Grant, Executive Director, UNICEF.

Concern for high mortality rates, and for the high birthrates in some countries, was one factor behind the 1990 World Summit for Children. A hundred heads of government participated in the conference and were unanimous in support of the Plan of Action, which states:

As today's children are the citizens of tomorrow's world, their survival, protection and development is the prerequisite for the future development of humanity.

The 1994 International Conference on Population and Development, held in Cairo, made a similar point – but with emphasis on better health services and education for women as the keys to social change and sustainable development. On this, rich and poor nations alike are in agreement.

NO TECHNOLOGY WITHOUT EDUCATION

Improving public health touches all aspects of a community. It reduces malnutrition, improves productivity, releases energy for learning, and enhances the prospect of curbing population growth. Yet sanitation schemes often fall short of the mark because they rely too heavily on technology to solve what are also human and cultural problems. Technology is not enough. Education is also needed – to bring understanding of basic hygiene, to help people develop a clear perception of their needs, and to allow local communities to participate in the decision-making process so they have a stake in its outcome. Communities must first understand the nature of waterborne diseases. They must learn that typhoid, cholera, hepatitis A and polio are contracted from water infected by human faeces. On the other hand, malaria, yellow fever and sleeping sickness are diseases that are spread by insects which live or breed in water. Once a community knows how diseases are caused and how they spread, they will support the steps necessary to eliminate those illnesses. Every community wants to see that its children are healthy and happy. Again the message is clear: technology provides a means for change; education provides a motivation. Both are necessary.

WHO PAYS FOR CLEAN WATER?

Once water has been piped or pumped or purified or conserved, it is no longer 'free'. It has a cost. The problem that governments face is how to assign a fair cost to water services. If the price is too high it could sabotage all efforts at improvement and drive people back to muddy pools and impure wells. If the price is too low, it could encourage waste and neglect, not to mention putting the water scheme at financial risk.

. . . people must be trusted to choose . . . those services which they want and are willing to pay for.

T. Serageldin, Vice-President for Environmentally Sustainable Development, The World Bank.

In addition, governments must take into consideration the costs of water used by agriculture, industry and tourism – as well as the needs of a community for its domestic water and sanitation requirements. Clearly, the costs for all water uses have to be covered if the scheme is to be maintained. But how is the community to pay? With money, with labour?

Obviously, even if it is the government's responsibility to propose some answers, solutions must include the understanding and support of the community. Only if the community has agreed to back a particular approach will a water supply or sanitation scheme be well used and maintained, and the costs fully recovered.

GETTING MORE WITH LESS

During the 1980s, governments and donors world-wide invested a total of \$133 billion in bringing new water services to 1.2 billion people and improved sanitation to 770 million. If the approaches of the 1980s were continued, estimates show that it would cost up to \$35 billion a year to bring acceptable water and environmental sanitation services to all people in the foreseeable future. Fortunately, with improved planning, programming and community mobilization, the gap between needs and available funds can be dramatically closed.

For example, when rural communities manage their own water and sanitation services instead of relying on utility-based services operated outside the community, it is usually less expensive and more efficient. Similarly, governments and donors should move away from high-cost mega-projects to more appropriate schemes providing affordable services to those in greatest need. Planning on the basis of what people want and are willing to pay for means both less expensive projects and more revenue. Other aspects of water services which can be improved include better leakage control, more efficient metering and billing, and deferring the expensive development of new sources.

FOOD RIOTS MADE THE DIFFERENCE

Because of prolonged drought and severe food shortages, food riots broke out in the Jhabua district of Madhya Pradesh, India. These riots, in turn, prompted the development of intensive water harvesting techniques.

Local communities constructed stop dams to collect water which would otherwise run off. Then they built farm ponds, known as tanks, to store enough water to irrigate 10 hectares of land. Within five years, the district had 450 tanks and 600 stop dams.

More than 6,000 handpumps were installed, serving 98 percent of the population. As the improved water storage began to replenish the aquifers, previously abandoned water schemes again became feasible. By the end of 1986 the area of irrigated land had doubled and food shortages were a thing of the past.

WATER ALLOCATION: SHARE AND SHARE ALIKE

Because of the intense competition for water, the development of a country's agriculture, industry and tourism depends upon having a fair strategy to meet these conflicting interests for water as well as having equitable pricing policies. Irrigated agriculture accounts for almost 70 percent of the water used every day throughout the world (85 percent in developing countries); industry uses about 25 percent (10 percent in developing countries), and domestic water accounts for less than 10 percent. As competition among these conflicting sectors grows, the need to conserve and to protect available resources becomes ever more critical.

AGRICULTURE: WASTE NOT, WANT NOT

In many countries, ensuring a guaranteed food supply is an important political goal. This usually means that more and more land gets irrigated. In the past, the agricultural sector – farmers – just took water freely from rivers and canals. This may no longer be possible, however, for in recent decades, as agricultural intensity has increased, the amount of water being used has increased dramatically. Unfortunately, most irrigation schemes are intrinsically inefficient, with up to 70 percent of the water never reaching the plants it is intended for because of evaporation and run-off.



Photo: M. Benoit

Another problem with agricultural water use is the pollution it causes. Because water used for irrigation ultimately passes back into the ground, pollution of the water table also increases. The rising levels of fertilizer and pesticides are dangerous to ignore, and they are expensive to clean up. Even the natural organic matter in agricultural run-off can produce undesirable byproducts like chloroform when the water is disinfected for drinking. Because of the high cost of cleaning up pollutants which wash off the land, agriculture is unable to make the same kind of productivity gains seen in previous decades.

• • • The challenge of irrigated agriculture will be now to produce more with less water and land.

Director General, FAO.

In response to the modern approach of integrated water resources management, agricultural water users are now committed to improving the efficiency of water consumption in numerous ways. One way is to switch to less water-demanding crops whenever possible. Also, technological improvements and more rational pricing structures are being used to improve the efficiency of irrigation. Because the amount of water used in irrigation is so enormous, even small improvements in irrigation efficiency would release large amounts of water for industrial and domestic use.

INDUSTRY: LESSONS LEARNED AND WARNING SIGNS

Industrial activity demands that a secure and regular supply of water be available to ensure continuous production. Haphazard water and power supplies can raise manufacturing costs by 20 percent. As a result, some large companies secure their own water, which may in turn deplete drinking water reserves for nearby towns. Countries trying to attract industrial development, jobs and capital may be reluctant to calculate the full cost of supplying water to industry, lest this discourage investment.

Although industry is not the major consumer of water, it is often the major polluter. Industrial wastewater – especially from textiles, pulp and paper – carries with it large amounts of organic waste. Few industrialized countries, east or west, can afford to ignore such problems. Most have already learned the costly lessons of failing to balance industrial growth with appropriate management of water resources. The Rhine River, for instance, which flows through the industrial heartland of Europe, was fouled during the post-war economic boom, and in the 1970s earned the title 'the most romantic sewer in Europe'. Since then, the Rhine Action Plan to clean up the river has led to a significant improvement in the water quality, but it is a long and expensive process. The good news is that it represents a fine example of international collaboration. Cleaning up after-the-fact is possible – fortunately – but it would certainly have been less costly to avoid contamination in the first place. For developing countries that see rapid industrial growth as the key to future prosperity, the warning signs are posted and should be heeded now.

PUTTING WATER FIRST - THE TIME IS RIGHT

Bringing water and sanitation to the top of the agenda is a political opportunity as well as an imperative for protecting health and the environment, alleviating poverty and achieving sustainable development. Experience has shown that there are five main points for governments to keep in mind:

- Fresh water is a finite, vulnerable and endangered resource. Growing populations, rising demand and increasing pollution are contributing to the water crisis in many countries.
- Access to water is an economic necessity as well as a human right. It is the responsibility of everyone to protect and conserve it.
- One of the serious threats to fresh water comes from inadequate human sanitation. Protecting water requires effective sanitation facilities to be in place and to be used. Provision of new facilities must be accompanied by the educational support needed to change human behaviour.
- Because ultimately it is people who solve problems, not governments, perhaps the most important contribution a government can make is to create a positive atmosphere. Such an environment will encourage cooperation among all concerned for sustainable water use.
- Just as water is limited, so are the financial resources needed to solve the world's water problems. These are limited, but can be made to go further than they presently do. One approach would be to move investments away from large-scale, high-cost, water schemes and into programmes that would bring low-cost water and sanitation projects to previously unserved populations. A more equitable distribution of resources would bring about numerous social benefits as well, including better health, higher standards of living, and a greater sense of participation in society.

Fortunately, because of lessons learned in the 1980s, the positive steps that governments take today can ensure continued progress in water conservation and management for decades to come. The developing crisis may be averted.

WHICH FUTURE - THE CHOICE IS OURS

If the lessons learned during the International Drinking Water and Sanitation Decade are ignored, the crisis may be unavoidable: untreated waste would continue to run through our cities and towns, carrying the risk of diseases that could affect millions. There would not be enough potable water for everyone, nor would there be adequate food. Millions could starve. Wars over water rights would erupt, exacerbating all the conflicts already plaguing us as a global community. However, if the lessons

of the 1980s were applied by policy makers on the international, national and local levels – then we could move away from crisis.

This scenario looks much brighter. In the cities, water would be carefully stored and recycled; water systems would be available to all. People would pay an equitable tariff for access to water, and industries and agriculture would pay their fair share. The threat of epidemics would diminish. Schemes for dealing with human waste and sanitation would be in place, and the educational system would see that people appreciated the value of these schemes and were prepared to support and maintain them. In rural areas, communities would understand why it is important not to pollute water sources with human or agricultural waste. Latrines would be symbols of prestige and would become popular. Farmers would understand that good conservation techniques would lower their production costs. Local people would manage and maintain their own wells and pumps.

There is a lot of waste - in terms of waste of water, waste of money, and waste of human resources - and we need to find ways of reducing such waste.

Mrs. Deborah Moore, USA, representing the NGO community.

At the government level, the old divisions and conflicting interests would disappear. An organizing body would meet regularly and amicably to oversee legislative programmes and pricing policies that served the welfare of all. The Cabinet would keep a close eye on how cost recovery programmes were faring. Ministers would look to their environmental colleagues with new respect. Heads of State would encourage individuals and groups to continue to invent and design better methods of conserving water resources.

At the international level, water treaties would be high on the agenda. Countries sharing river sources would understand – and care – that everyone downstream is affected by what everyone upstream decides to do. Countries willing to make equitable agreements would find their international prestige growing.

HOPE FOR THE FUTURE

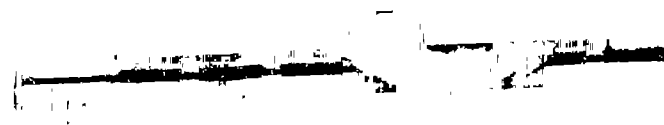
Science and technology can help mitigate some of the effects of people's indifference to and abuse of natural resources. New techniques for the conservation of water and for the recycling or disposal of wastes are being discovered daily.

However, without a commitment from policy-makers for the installation and maintenance of water systems, and without the involvement and support of the people who use the water, such efforts are likely to fail. Only through understanding and the full cooperation of all parties concerned can the success of these schemes be ensured. The choice is ours.

We must take the lessons of the past and apply them to the future
We must cultivate a sense of teamwork and develop integrated
approaches for solving today's complex social and environmental
problems. Only then can we meet humanity's needs and also protect our
natural resources. In this way – together – we will build a future that holds
hope, and water, for everyone



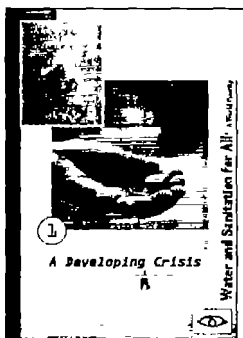
Photo: WHO



This text was prepared by Alison Clayson and edited by J. Stephen Parker of the IRC International Water and Sanitation Centre. It is based on Paper no. 1, *Putting Agenda 21 to Work*, prepared for the Noordwijk Conference Secretariat by Peter McIntyre with additional input by Colin Glennie and supporting inputs from the International Steering Committee for the Noordwijk Conference, and a worldwide network of resource persons and institutions. The original paper was edited by Brian Appleton.

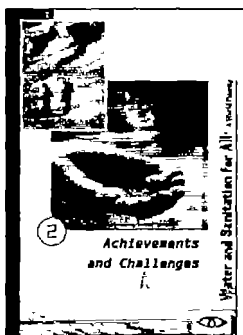
WATER AND SANITATION FOR ALL: A WORLD PRIORITY

This series is based on the six background papers prepared for the Ministerial Conference on Drinking Water and Environmental Sanitation held in Noordwijk, the Netherlands, in March 1994. The series comprises three illustrated booklets, as follows:



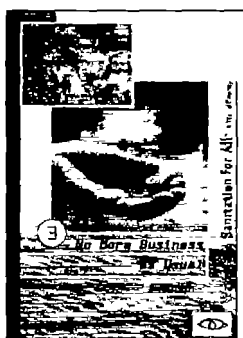
1. *A Developing Crisis*

This is based primarily on background paper no. 1, *Putting Agenda 21 to Work*, and seeks to bring home the urgency of the conference's call for action, the validity of the new approaches proposed, and the scale of the potential benefits if prompt and concerted action is taken.



2. *Achievements and Challenges*

This is a revised version of background paper no. 2, of the same name. It is a scene-setting paper which reviews progress achieved during the International Drinking Water Supply and Sanitation Decade, summarizes analyses of past successes and failures, and links these to the urgent needs recognised by the 1992 Earth Summit in Rio de Janeiro.



3. *No More Business as Usual*

This is based mainly on the remaining four background papers for the Ministerial Conference, namely: no. 3, *Effectiveness*; no. 4, *Finance*; no. 5, *Collaboration*; and no. 6, *Synthesis*; with additional material from other key documents. The aim of this paper is to encourage governments to implement the changes which are needed to ensure that, in future, there will be 'no more business as usual' in dealing with the problems of the water and sanitation sector. It includes the full texts of the Political Statement and Action Programme approved by Ministerial Conference, a brief account of the 'cascade' process by which the original background papers were prepared, and a complete list of the names and addresses of the conference participants and resource persons.



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