International Rivers and Lakes

A Newsletter prepared jointly by the Department for Economic and Social Affairs, United Nations, New York and the Economic Commission for Latin America and the Caribbean, Santiago, Chile

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The editor encourages contributions of news items for an exchange of information with interested readers.

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I. Virtual Water: The Solution To Water Shortage?[1]

In a global economy, where water is a major constraint, traditional alternatives to increased water supplies and direct water allocations may need to make a place for institutional and trading devices which facilitate access to water resources products, and not necessarily to water itself. Thus, the most efficient alternative for water-short countries may be to enter into long-term trading arrangements to secure agricultural commodities and not water itself. These policies may release resources to lessen the dependence of local populations on agricultural activities, therefore lowering water requirements. Water substituting strategies require integrated water policies and international trading arrangements. They also require specific alternatives in order to negotiate with entrenched agricultural interests.

Dry-season water shortages are plaguing every major city in South Asia; droughts have nearly dried up the Shire River in Malawi; groundwater reserves in Bahrain have been overdrawn so much that aquifers will need another 1,400 years to recover. And the year 2025 could see an unwelcome first, global water supply equaling demand.

From Asia to sub-Saharan Africa, policy makers and experts are sweating over a solution to water shortages. They have looked at many options -- dams, reservoirs and expensive reallocation systems to transport water from one region to another.

The time may have come to look at the concept of 'virtual water'-- water which is embedded in key water-intensive commodities, such as wheat, and is available in the global trading system.

Professor Tony Allan of the Water Issues Group at the School of Oriental and African Studies in London says in his project report, *Virtual Water: A long-term solution for water-short Middle Eastern economies,* "The major indication of the scale of the water deficit of an economy is the level of its food imports. The reason for this is that water used in the agricultural sector exceeds by ten times the water used by the industrial and municipal sectors combined."

Allan believes the answer to water shortages is not to improve the technical and productive efficiency. He says, Economic systems, not the evidently inadequate hydrological, may be the key to a solution."

It takes 1,000 cubic metres of water to grow a ton of grain. Therefore, importing a ton of wheat is equivalent to importing 1,000 cubic metres of water. Taking this as a means of measurement, says Allan, more water 'flows' into the Middle East each year as 'virtual water' than flows down the Nile into Egypt for agriculture. Currently, the international wheat trade is highly subsidized by the United States and the European Union and is therefore a very effective way for countries which are arid and wealthy to surmount their water shortage problem.

[1] From: http://www.oneworld.org/panos/news/mar198_2.htm. Report by Marwan Asmar and Alex Whiting for Panos Features.

This is not to suggest a straightforward oil-for-water barter. Allan thinks countries in the Middle East should try and industrialize their economies, as Israel has done, in order to finance grain imports. Industry uses less water than agriculture; reducing the amount of water used in agriculture by importing food leaves more water for other uses.

These alternatives may be easier said than done. Ian Robinson, Director of the Centre for Arid Zone Studies at the University of Wales, points out problems with the idea: Saudi Arabia made the conscious decision to become self-sufficient in grain production because of the threat that the US would use food as a weapon. As a result they are pumping water at great expense from aquifers which at some point are going to run out.

Robinson adds, "Grain is a commodity which can be easily managed and moved internationally, making it a fundamental component of food aid, but climatic changes will influence the production of wheat worldwide." The price can be manipulated by large companies; changes in the world market, caused by a country such as Russia or China either becoming self-sufficient or buying up large quantities, will all affect the price. Instead of looking at industrialisation as the way out, income-poor Middle Eastern countries such as Jordan are experimenting with other innovative ways to harness water. Dr. Al-Nammari, a Jordanian economist, claims that it would be catastrophic to completely rely on grain imports. He argues that such a view is absurd and causes dependency.

No one denies that the Middle East faces chronic water shortages; so that some commentators predict the next war in the region will be over water.

About 65% of the rivers in the Arab world emanate from outside the region and the water issue has become highly politicised. The situation is worsened by population growth; Jordan's population for instance, is growing at a high rate of 3.5%.

The region's population is expected to grow from 260 million in 1996 to about 290 million by 2000. Mr. Jamal Mathloum, an Egyptian writer on strategic affairs, says the region's water resources were estimated at 244.6 billion cubic metres in 1994. By 2000, the Middle East will need 347.5 billion cubic metres, causing a 'water deficit' of 1.3 billion cubic metres.

In Jordan, Water Minister Dr Munthir Haddadin is among many who recognise that there is a crisis brewing. If you divide the renewable water resources in Jordan by the population, the per capita share would be 170 cubic metres per year; Haddadin says: "You need 100 cubic metres per capita for domestic consumption and 20 for industry, which leaves 50 for agriculture." However, reluctance to depend wholly on imports for its food requirements has led to a situation where Jordan uses more water than it should on irrigation. Jordan produces 30% of its food requirements and imports the remaining 70%. Dr Elias Salameh, a hydrology expert from the University of Jordan, says this kind of water use cannot be sustained in the long run.

"We have to live with our scarcity and adapt our agricultural production accordingly. We have to introduce new advanced irrigation techniques, and we have to grow crops which add revenue to the country," he says. Such crops could include olive trees, tropical fruits and vegetables. He adds that wheat and dry farming are fine in appropriate regions, but in the highlands, were there is increased loss of non-renewable water resources it is more expensive to produce locally than to import.

There are also problems associated with water quality. In the case of underground aquifers, for instance, whenever the water table drops, it turns into brackish water -- a salty substance which is neither good for agriculture nor for industry. However, this can be desalinated at half the cost of desalinating sea water. According to Mr. Ismael Hashim, a water engineer at Hydrotech International, Jordan has enough brackish water to last it the next 100 years.

II. Subject: Environmental probes derailed by NAFTA nations[2]

This article was written by Mr. Barrie McKenna in the 18 May 2000 issue of Toronto's Globe and Mail.

Washington -- Overruling NAFTA's environmental watchdog for the first time, Canada and Mexico have blocked probes into allegations that Ottawa is failing to enforce the country's environmental laws.

The Montreal-based Commission for Environmental Co-operation (CEC) said yesterday that it has deferred an investigation into the impact of Alberta's Oldman River dam on fish habitat and that it will not look into air pollution caused by Quebec hog farms.

The decisions follow voting on Tuesday by officials of Canada, the United States and Mexico -- the three partners in the North American Free-Trade Agreement (NAFTA)-- on whether to proceed with the cases.

Environmentalists immediately condemned the decisions as proof that the CEC, which urged investigation of the complaints last year, lacks independence and credibility.

"The CEC was set up to be the environmental watchdog of NAFTA," complained Stewart Elgie, a Toronto lawyer with the Sierra Legal Defence Fund. "This decision . . . undermines the most important part of the NAFTA environmental side agreement -- the power to investigate whether a country is failing to enforce its environmental laws."

He and other environmentalists said the decisions, reached nearly three years after the complaints were lodged, send the message that appealing to the CEC is a waste of time.

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[2] From: http://csf.colorado.edu/elan/2000/msg00590.html Barrie McKenna, 18 May 2000 *Globe and Mail* (Toronto, Canada).

"These investigations were short-circuited by political decisions in the three countries," said Denis Bergeron, director of the Centre Québécois du droit de l'environnement, which initiated the hog-farming complaint. "It puts the governments in the position of being judge and defendant."

But Ms. Janine Ferretti, the Canadian who heads the CEC, said it was too early to pass judgment on the five-year-old agency. She insisted that the CEC has done its job, but that all final decisions rest with the three governments.

"This is the public's tool and the public can come to their own conclusions [about whether it is working]," she said bluntly.

She noted that the CEC has recommended looking into five complaints, only two of which have been voted down. (The CEC also said recently that it would investigate allegations of pollution at a lead smelter in Tijuana, Mexico.)

The decision to defer any investigation of the Oldman River project was made unanimously by the CEC council, which is made up of the environment ministers of the three NAFTA countries.

The United States voted to pursue the case involving air pollution by Quebec hog farmers, but was outvoted by Canada and Mexico.

III. Why exactly does the NAFTA CEC (Commission for Environmental Co-operation) exist?[3]

The following analysis of the policies put forth by the Commission for Environmental Co-operation, was written by John Newcomb and appeared in the 23 May 2000 issue of Toronto's Globe and Mail. *The views expressed are those of the author and do not necessarily reflect the views of the United Nations.*

Who decides when environmental standards have been violated?

Traditionally, the decision has been a matter of national sovereignty, save when the violation spilled (often literally) into someone else's living space. Now, with concerns over global warming, ozone depletion and species loss, a number of international treaties have sprung up.

Among the strangest is an environmental side accord to the NAFTA. The ostensible reason it was adopted was a fear, particularly in the United States, that a lack of environmental standards in Mexico would entice regulation-weary businesses to relocate there. This would not only increase the degradation of the Mexican environment, but also put pressure on NAFTA's other two trading partners to dilute their own

[3] From: http:csf.colorado/2000msg00608.html, by John Newcomb, 23 May 2000 *Globe and Mail* (Toronto, Canada).

environmental standards to hold on to fleeing industries. The side accord was seen as a way to avoid this "rush to the bottom."

The accord also gave private citizens and organizations the right to bring complaints that countries were violating their own environmental laws before the Commission for Environmental Co-operation (CEC), headquartered in Montreal.

Given the CEC's association with NAFTA, one would have thought petitioners would first be required to demonstrate that the alleged violations were definitely related to trade issues -- to show that non-enforcement of existing laws (the agreement says nothing about non-existent laws) was based on a conscious attempt to gain a NAFTA trade advantage.

This is not the case. The CEC's list of objectives is a grab bag of nine extremely generalized environmental virtues. Thus, almost any environmental issue, whether or not it has international trade implications, has become a fair subject for a CEC complaint. When the commission was recently asked to judge whether the process governing the approval of roadways being built over streams in Northern Alberta was in violation of the agreement, not a single trade issue was mentioned.

Moreover, while empowering the CEC to investigate countries that violate their own laws, the signatories gave the Commission no power to remedy any such breaches. Rather, the CEC first decides whether a complaint has merit -- a decision made by a majority vote of representatives from the three signatory countries -- and then the commission staff produces a statement of facts: This is what people complained about, this is what the government responded, this is what we found.

It is not clear to anyone what follows from this exercise, or why environmental groups would go to all the effort of presenting a complaint to the CEC when, even if their claim were accepted and reported on -- and only one has been -- there would be zero consequence for any wrongdoing. It looks as if, frustrated in their efforts in national venues, environmentalists are willing to accept even the hollowest of moral victories in multinational ones.

In some sense environmentalists can't be blamed for overevaluating the CEC's importance. The commission promised too much at its birth. Its field of inquiry strayed too far from the low and basic concerns of the NAFTA signatories.

If the Commission is to have any effect in the world, its charter should be rewritten so that environmentally linked trade violations are central to the complaint process. If that were the case, one might even be able to tie misbehaviour to some unpleasant consequence -- say, a fine.

IV. An Alliance for Global Water Security in the 21st Century[4]

The following are excerpts from an address made by U.S. Secretary of State Madelene Albright at an event sponsored by the World Resources Institute and National Defense University in recognition of Earth Day, 10 April 2000, Fort Lesley J. McNair, Washington, D.C.

The US Army War College was founded here in 1903, and the cornerstone laid by Theodore Roosevelt, our first conservationist President. But not even TR drew then the connection that this University does now between the defense of American security and the protection of the world environment. We also know that regional conflicts pose a major threat to international stability, and that competition for natural resources can contribute to political extremism and civil strife. As we have seen in Africa, Haiti and the Balkans, environmental problems slow recovery from conflict, and make the transition to stability that much harder.

Beyond this, there is an even more basic connection. Our citizens cannot be secure if the air we breathe, the food we grow and the water we drink are at risk because the global environment is in danger. The Clinton Administration came to office understanding these linkages.

In the thirty years since the first Earth Day, we have enacted sound laws and taken strong measures to clean our water, clear our air, preserve our wildlife and pluck the poisons from our land. These labors have been rewarded; our nation's environment is healthier than it was a generation ago. But it still somehow seems, as the Queen in Alice's Wonderland said, that "it takes all the running [we] can do, just to stay in the same place."

Our diplomatic efforts on behalf of the environment are wide-ranging, from deserts to the Arctic, from the seas to the sky. But there is one issue that underlies them all, and that is water -- the world's most indispensable resource. And water will be the main focus of my remarks today. I have chosen this topic because, although water is often thought of in very local terms, it is certain to be among the principal global environmental challenges of the 21st Century.

Of every two major rivers and lakes on the planet, one is seriously sick. On every continent, freshwater ecosystems have been harmed. And half the world's wetlands have disappeared. Moreover, studies show that the squeeze on water resources will tighten as populations grow, demand increases, pollution continues, and global climate change accelerates.

As competition for water intensifies, further disagreements over access and use are likely to erupt. Unless properly managed, water scarcity can be a major source of strife, as well as a roadblock to economic and social progress. My intent today is not however, to depress, but rather to mobilize; to heighten public awareness; and issue a call for action. The world has the capacity, and increasingly the will, to create water

[4] From: The Office of the Spokesman, U.S. Department of State.

security for all. Obviously, we cannot amend the laws governing the hydrologic cycle. The costs of tapping new water supplies are high, and few of us are skilled at the rain dance. But there is much we can do, by keeping clean water clean; valuing fresh water appropriately; and encouraging those who share water to implement best practices together. These facts were highlighted at the World Water Forum, which convened in March 2000 in The Hague. Present were representatives from nearly 130 countries and NGOs from across the globe. They joined in declaring that "every person, everywhere, should have access to enough safe water at an affordable cost."

Achieving that lofty standard is a challenge with many components, each requiring group effort. Within the United States Government, the State Department chairs an interagency water team. More than ten Departments and agencies participate. The skills and expertise of each are absolutely essential, but our team is only a part of a far larger group. We work with partners that include global and regional institutions such as the UN Development Programme, the World Bank and the Organization for Security and Co-operation in Europe (OSCE). We also rely on the knowledge and dedication of NGOs such as the World Resources Institute, the World Wildlife Fund and many other groups. Together, we must address the water crisis in three ways.

The first is technical, because our problems result far less from how much water we have, than from how much we waste. For example, agriculture accounts for 70% of global water use; yet irrigation systems squander as much as three out of every five gallons pumped. Better technologies, such as drip irrigation systems, and improved measurement and forecasting, can reduce water use substantially while still getting the job done. The result is more crop per drop; a better payoff for the farmer, and a smaller environmental cost. In this connection, the United States Agency for International Development (USAID) has invested $20 billion in water resources management over the years. Its projects have helped bring safe water to millions. They have enabled farmers to nourish their fields and grow food for their families, and they have helped local leaders implement irrigation techniques that conserve water and reduce erosion.

USAID has also promoted the concept of seeking community input and support for water management. This is crucial because, whatever the official policy, water is consumed locally. Unless individuals understand their own stake in preserving water supplies, and how their own actions affect that stake, management efforts obviously will fail. Also using water wisely requires good technology, and it requires good economics. Whether you have enough water depends in part on your attitude towards it. A leading magazine recently highlighted a pair of villages in India, one among the wettest places on Earth, the other plagued by drought. In the village where water seems plentiful, it is not valued, and shortages are frequent. In the village where rain comes as an unexpected gift, water is conserved, and shortages are rare.

This illustrates the lesson that, in many societies, water is wasted because it is under priced. Direct and indirect subsidies are common in both developed and developing countries. These subsidies are often built into investments that serve primarily those who are already well off. For example, the residents of many urban shantytowns can only obtain fresh water from peddlers, at a price far higher than that charged by local utilities.

I do not intend to suggest today that there is only one right way to price and allocate water. Social and other considerations -- including needs of the poor -- must be taken into account. Nonetheless a system that reflects the full cost of treating and delivering water--and that enforces the collection of bills and requires polluters to pay -- will get far more value from the resource than a system riddled with subsidies. As the World Water Forum concluded, incentives must be found for more water-related investments and technology.

Using the right techniques, and developing sound pricing policies can help a nation get the most out of its water resources. But it cannot guarantee water security. As is common, those resources extend across national lines. There are more than 300 shared river basins and aquifers in the world, and two out of every five people rely upon them. These people are dependent not only on what they do themselves, but also on the practices of their neighbors who live up the river or across the lake, or who draw water from the same underground source.

And this is where the third element – diplomacy -- comes in. Experts tell us that water management is best done on a watershed or basinwide basis. This requires all who have a stake, whether in or outside government, to join in developing approaches tailored to regional needs. We have learned this in our own backyard, through the approach taken to cleaning up some of the 150 rivers and streams -- including the Anacostia and Potomac -- that spill into Chesapeake Bay.

We have also learned it in relations along our borders. Earlier this century, US and Canadian diplomats forged the International Joint Commission to resolve disputes over waters from the Gulf of Maine to the Gulf of Alaska. More recently, we have worked through our International Boundary Waters Commission with Mexico to fight pollution and provide for the fair allocation and the use of the waters we share. Our efforts have been far from perfect. We have made many mistakes. But we are learning, and the experience gained may help in resolving comparable issues overseas. And when I meet with both the Canadian and Mexican foreign ministers, as we do in a trilateral session, we do discuss how we can solve these problems together. But there are other issues that we need to deal with overseas. A good example is in the Middle East, one of the world's most environmentally stressed areas -- stressed in other ways also, but environmentally stressed-areas -- where the United States chairs a working group on water resources. Its purpose is to encourage technical cooperation, and bring parties together with donors for the purpose of increasing water security for all. This approach could well serve as a model for other parts of the world. Certainly, the need for greater cooperation exists in many regions.

In Central Asia, the former Soviet Republics inherited from their Communist predecessors a legacy of ecocidal practices. The two river systems of the Aral Sea Basin are sorely degraded. Improvements will depend on multilateral cooperation and the proper integration of technical and political resources. I hope to explore these issues with the local leaders.

In Southeast Asia, the Mekong River Basin is the primary source of economic survival for nearly a quarter billion people. But pollution, poorly placed dams, and flooding may prevent the area from realizing its

potential. A stronger political commitment from within the region, and better coordination from without, would improve the Mekong River Commission's ability to address these issues.

The longest river in the world is the Nile, whose waters flow through half a dozen countries in Central and Northeast Africa. Within the past year, these countries have made significant progress in working together. This is good, because an agreement governing the development and management of basin resources would go far to reassure potential donors and combat the poverty that burdens much of the local population.

Earlier this year, torrential rain produced floods that devastated Mozambique and other parts of southeast Africa. But the main worry in most of the continent is not having too much water, but rather too little. And some of the horrendous pictures recently of drought-affected Africa prove the point.

More Africans lack access to safe water now than a decade ago. Almost half the people on the continent suffer from water-related disease. The result is economically crippling and, from a humanitarian standpoint, flat out unacceptable. The African Development Bank declared recently that the lack of integrated management for most of the continent's 54 transboundary water bodies is a potential threat to regional stability. The Bank approved a new plan for water resources management and pledged to help riparian countries work together, and the United States will back this effort.

More broadly, in recognition of Earth Day and the spirit of the World Water Forum, I am proposing a global alliance for water security in the 21st Century. I have in mind not an alliance such as NATO that is limited to certain countries and comprised of governments alone but, rather, a less formal alliance open to all who comprehend the urgency of working together to conserve transboundary water, manage it wisely and use it well.

These are the right objectives, and we should help those striving to achieve them region-by-region, day-by-day. While core decisions can and must be made by local leaders and communities, the United States is prepared to help create a more favorable environment. First, we will seek allies willing to work with us in regions where serious transboundary water problems exist. Politically, we will promote cooperation and dialogue aimed at solving problems and creating trust.

Technically, we will build capacity and identify options for improving conditions on the ground. We will spur training in water management techniques, and encourage water engineers to forge relationships across national lines. We will support early warning and other means for reducing tensions and increasing confidence. We will promote the development of water sharing agreements and institutions capable of implementing them. In so doing, we will be patient as well as urgent; for although the stakes are high, creating truly effective regional arrangements can take years, even decades. We must all be committed to a long-term effort.

Second, we will be inviting representatives from key donor countries to Washington in early summer to talk further about how we can better help others deal cooperatively with regional water issues. Our focus will be on supporting nations that show a willingness to develop and implement constructive strategies. Our

goal will be to assure that donor assistance is not haphazard and at cross purposes, but rather coordinated and complementary.

Third, we will strongly support efforts by the World Bank and private foundations to see that investments in water-related projects reflect and encourage sound management practices.

Fourth, with the support from Congress, the State Department is contributing $2 million to start a new fund within the UN Development Programme to improve regional water management. Our goal is to bring the parties together to discuss and resolve transboundary water problems, and we encourage other countries to contribute, as well.

And, finally, we will seek to develop a more regular and mutually productive dialogue with the scientific and academic communities on water-related issues. Like so many of our current foreign policy challenges, progress depends on skills and knowledge that span many sectors of our society. A development expert can tell us what will work technically; an economist what may work financially; a diplomat what is practical politically. Put them all together, and we can move forward. Leave one out, and we will stand still. Overall, the goals of our alliance must be: to dramatically improve the management of transboundary water resources; eliminate water as a source of regional instability; and use cooperation on water as a basis for bringing nations together on other issues.

Our countries will benefit from this alliance through the easing of regional tensions, the emergence of stronger trading partners, and the evolution of a healthier world environment. And our citizens will be enriched in knowing that people everywhere are conserving and valuing water. From history's dawn until today, wells and streams, rivers and lakes, have meant life. Every great civilization has grown up around water. From the Ganges to the Mississippi, the Amazon to the Zaire, the history of rivers is the history of us. And there is no more unifying or naturally democratic force.

V. Canada and the U.S. make plans to restore the Great Lakes[5]

In April 2000, Canada announced the release of comprehensive, bi-national plans to protect and restore Lakes Erie, Michigan and Superior. The Lakewide Management Plans (LaMPs) address problems in the entire ecosystem of each lake, rather than focusing on polluted hotspots.

The LaMPs outline the environmental status of each lake, highlight successes, identify problems, and propose solutions. Because of the evolving nature of the lakes, the plans will be updated every two years. The release of these three LaMPs coincides with the release of the Update of the Lake Ontario Lakewide Management Plan and the Lake Huron Initiative Report.

5 From: jnewcomb@unic.ca. Chicago, Illinois, 27 April 2000 (ENS).

The plans were developed jointly by the United States Environmental Protection Agency (EPA), Environment Canada, other federal agencies, and state, provincial, local, and tribal governments, in partnership with representatives of universities, environmental groups, industry, and business.

"The plans are essentially snapshots of what we know about each lake at this time. It has become apparent that we cannot solely rely on traditional regulatory activities to solve the lakes' complex problems," said EPA regional administrator Francis Lyons. "Effective solutions will require a broader approach. In fact, some activities will be accomplished more effectively at the community level by private citizens and local governments, while others will require more international cooperation."

The Great Lakes provide drinking water to more than 25 million people in the U.S. and Canada. While there has been a reduction in pollutants entering the lakes over the last 30 years, complex problems remain.

Each lake has its unique concerns, but certain problems affect all the lakes – contaminated sediments, exotic species, and airborne pollutants. Many of these problems originate outside the Great Lakes basin. Pesticides blow in from thousands of miles away. Exotic species such as zebra mussels stow away in the ballast water of ocean going ships docked in far away ports. The ships then dump this ballast water and the exotic species it contains into Great Lakes.

Proposed solutions are as varied as the problems they attempt to solve. There are ongoing attempts to control critical pollutants in wastewater discharges and clean up local hot spots. New solutions include: ballast water controls; use of new air pollution models to identify emission sources; pesticide clean sweeps; control of urban and agricultural runoff; and promotion of private stewardship of the environment.

The plans identify the environmental consequences of shoreline development, including loss of wildlife habitat, and loss of wetlands that help filter pollutants in storm water runoff before they reach the lakes.

The LaMPs were initiated as part of the Great Lakes Water Quality Agreement between the United States and Canada to restore and maintain water quality in the Great Lakes. Protect Lake Ontario, the Lake Ontario LaMP 2000 report, will be available this fall.

Public meetings will be held throughout the Great Lakes Basin to discuss the plans. Public and agency comments are being accepted on the Lake Erie documents.

Executive summaries of the plans for Lakes Erie, Michigan and Superior, the Lake Ontario Update, and the Lake Huron Initiative Report are available on EPA's Web site at:

<http://www.epa.gov/glnpo/gl2000/lamps> and
<http://www.ens.lycos.com/ens/apr2000/2000L-04-27-06.html>.

VI. International Joint Commission recommends protecting Great Lakes Basin waters[6]

The International Joint Commission (IJC) has provided a blueprint for protecting the waters of the world's largest freshwater ecosystem, the Great Lakes Basin, from the potential impacts of water removals and consumptive uses. In its Final Report on Protection of the Waters of the Great Lakes, the IJC recommends that Canadian and U.S. federal, provincial and state governments should not permit the removal of water from the Great Lakes Basin unless the proponent can demonstrate that the removal will not endanger the integrity of the Great Lakes ecosystem. The proponent would also have to demonstrate that: there are no practical alternatives to the removal; sound planning has been applied in the proposal; the cumulative impacts of the removal have been considered; conservation practices have been implemented; the removal results in no net loss of waters to the area from which it is taken (and, in any event, no greater than a 5% loss in the process, the current average loss within the Great Lakes Basin); and that all waters are returned in a condition that protects the quality of and prevents the introduction of alien invasive species into the waters of the Great Lakes Basin.

The report also recommends that, in order to avoid endangering the integrity of the Great Lakes Basin ecosystem, the governments should not approve any proposal for a major new or increased consumptive use of water from the Great Lakes Basin unless full consideration has been given to its potential cumulative impacts, and unless effective conservation practices are implemented, sound planning practices applied, and that all waters returned meet the objectives of the Great Lakes Water Quality Agreement. Moreover, the report recommends that governments apply a number of specific conservation measures to significantly improve efficiencies in the use of water in the Great Lakes Basin, including the setting of water prices at a level that encourages conservation.

Because there is uncertainty about the availability of Great Lakes water to meet all ecosystem needs, including human needs, over the long term, the report concludes that water should be managed with caution to protect the resource for the future. It also concludes that international trade law obligations, including the provisions of NAFTA and GATT, do not prevent Canada and the United States from taking measures to protect their water resources and preserving the integrity of the Great Lakes basin ecosystem so long as there is no discrimination against individuals from other countries in the application of those measures.

The final report responds to the request made by the governments of Canada and the United States in their 10 February 1999 Water Uses Reference for recommendations for the protection of the Great Lakes. The IJC obtained data and information from a variety of sources, including 20 public hearings.

[6] From: Sunday 2 July 2000 Transboundary FOCUS -- Spring 2000, Volume, 25, Issue 1.

VII. Major breakthrough for water quality and management in Europe[7]

On 29 June 2000, the Environment Commissioner for the European Union Ms. Margot Wallström welcomed the agreement reached between the European Parliament and the Council of Ministers on the European Commission's proposal for a Water Framework Directive. She stated: "Today's agreement is a major breakthrough for European water policy. After more than three years of negotiation we now have a Directive reforming European water legislation and setting out a new approach to water management. Although the negotiations were tough, they were conducted in a constructive and positive atmosphere. I welcome the efforts made on all sides to reach this agreement which will have important implications on water quality not just in the short-term, but also for future generations."

Goals of the Directive include:

- Protection of all surface waters and ground waters in their quality and quantity with a proper ecological dimension;
- Emissions and discharges to be controlled by a combined approach;
- Introduction of water pricing policies;
- Integrated river basin management across administrative and political borders with co-ordinated programmes and measures;
- Strengthened public participation and a sound basis for reporting.

Content of the new Directive

The Directive is the final result of a long and fruitful consultation on the future direction of European Union water policy set up in response to requests from Council of Ministers and the European Parliament. The first step in the consultation was the Commission's Communication on European Union Water Policy, adopted in February 1996, which was based on the principles for environment policy of the Treaty and on the 5th Environment Action Programme, "Towards Sustainability", and which after a detailed analysis of the current state of water policy, recommended the making of a Water Framework Directive.

Consultation with the Council of Ministers, the European Parliament, the Economic and Social Committee, the Committee of the Regions and a broad circle of interested parties, particularly water users, showed widespread support for this policy from the beginning and resulted in the agreement reached in June.

The agreed Water Framework Directive has a common approach, common objectives and principles, common definitions and basic measures. It is designed to prevent further deterioration and to protect and enhance the quality and quantity of aquatic ecosystems. By doing so it also contributes to the provision of a supply of water in the quantities and qualities needed for sustainable development.

Its key objectives include:

[7] From: Ms. Pia Ahrenkelde-Hansen; Brussels, 29 June 2000.

- The focusing of environmental water policy on water as it flows naturally through river basins towards the sea;
- Consideration of both surface and groundwater, taking into account the natural interaction between them both qualitatively and quantitatively;
- The objective of achieving good status of all waters 15 years after adoption of the Directive, where
- Good surface water status requires a rich, balanced and sustainable ecosystem and that the established environmental quality standards for pollutants are respected;
- In addition, some pollutants will be identified for cessation or phase out of discharges, emissions and losses within a timetable of 20 years;
- Good groundwater status requires that abstractions and alterations to the natural rate of recharge are sustainable in the long term, and that environmental quality standards for pollutants are respected;
- Designation of "protected areas" with special requirements. These comprise areas identified in existing European Union legislation (for instance for bathing waters), areas intended for drinking water abstraction, and any additional identifications in national legislation.

Quality and quantity

The objective of good status of water, taking into account both qualitative and quantitative aspects, is an ambitious and demanding goal, but is a necessary step if the European Union is to ensure the sustainability of water consumption and use. The measures taken will ensure at the same time a high level of environmental protection and a secure supply of high quality water for human consumption and economic purposes.

Practical operation

These fit together into a logical five-step process. (1) The characteristics of the area are catalogued; (2) The environmental stresses are identified; (3) Measures to achieve all existing environmental objectives, and any supplementary measures needed to achieve good status, must be designed and implemented; (4) Progress is monitored; (5) The measures are revised if necessary. This process is repeated at least every six years.

Management plan for whole river system

As required by the first principle above, these measures are coordinated for each river basin within a "River Basin Management District", and are set out in a River Basin Management Plan, which will cover a six year implementation period. This is issued for consultation with all interested parties in draft form a year before it is adopted. The proposal also establishes a network of water professionals who will be able to compare and contrast working methods and exchange information and ideas. Thus the Directive sets in place the procedures for ensuring coordination and transparency of measures. For protected areas under existing or national legislation, the Directive will ensure that their water needs are satisfied within the overall

water policy, but will not impose any new obligations. For surface water abstraction areas, quality standards must be set and observed.

Action at local level will be encouraged within overall framework In accordance with the principle of subsidiarity, the proposal focuses on establishing the right conditions to encourage the efficient and effective protection of water at the local level. Member States and competent local authorities are thus confirmed as the main actors, putting into place most of the mechanisms and measures to ensure an adequate protection and use of waters. The proposal also provides for the overall coordination of water policy at European Union level, and will in particular ensure the coordination of emission controls and environmental quality objectives in a so-called "combined approach". Furthermore, it provides a mechanism for identifying where further action is necessary in the form of a "feedback mechanism" through which local authorities can inform national and European Union authorities of issues which need resolving at a higher or cross-sectoral level. The resulting cross-sectoral strategies will also provide a strong mechanism for improving the dialogue among the policy areas concerned - whether they be agriculture, industry, energy or regional policy.

Costs and benefits

The costs of the proposal will vary depending on the national and local water status, the extent of any previous action taken, and thus the local and regional need for further action to achieve the objective. But the major part of the costs incurred for the achievement of good water status will follow from existing obligations rather than from this specific initiative, which aims primarily at ensuring a better coordination within and between Member States. The proposal's benefits are that it will lead to a more rational protection and use of water, to reduced water treatment costs, to increased amenity value of surface waters and to a much more coordinated administration of waters. The ultimate benefit, of course, is that the sustainability of water use will be ensured.