

“The world is facing rapid and unprecedented GLOBAL CHANGES, including population growth, migration, urbanization, desertification, drought, degradation and land use, economic and climate change.”
— a final communiqué from the recent 5th World Water Forum.

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Water, Water, Everywhere

Water is the world's most valuable single natural resource and there is potentially enough for everyone. So why do millions of people around the world have to spend their entire working day searching for water and even then do not have enough for their crops and livestock, for personal hygiene and often have to watch their children die from water related disease? JICA is trying to help.

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There is a global water crisis and many experts predict that as the world's population continues to grow, the situation will probably get worse. Facts and figures behind the current situation and future trends.

10 Focus

Saving The World's Heritage

Much of the world's heritage is under threat from wars, climate change, poverty, human encroachment and even simple theft. But from Egypt's new Grand Museum to preserving the unique flora and fauna of the fabled Galapagos Islands, Japanese experts, technology and funding are all playing a role in preserving this priceless storehouse of treasures.

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Publisher: Juro Chikaraishi
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Editor: Raymond Wilkinson

Art Director: Vincent Winter Associates

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Shinjuku Maynds Tower, 2-1-1 Yoyogi, Shibuya-ku
Tokyo 151-8558 JAPAN

TELEPHONE: +81-3-5352-5311/4

FAX: +81-3-5352-5032

INTERNET: <http://www.jica.go.jp>

Comments: jicagap-opinion@jica.go.jp

Cover Photograph: Ethiopia—Praying for rain
WFP/Sven Torfinn



The Japan International Cooperation Agency (JICA) is the world's largest bilateral development organization, operating in some 150 countries to help some of the globe's most vulnerable people.

“JICA for years has trained scientists and other experts in many fields connected with CULTURAL PRESERVATION.”

PEOPLE AROUND
THE WORLD SPEND THEIR
ENTIRE DAY SEARCHING
FOR, CARRYING AND
STORING WATER



*Millions of people are without safe water and sanitation
and **a child dies every 17 seconds** from related diseases*

WATER IS THE WORLD'S MOST VALUABLE individual natural resource. But while it is often taken for granted in industrial nations, it is literally a matter of life and death in developing countries.

In North America and Japan people use 350 litres a day and it takes as much as 16,000 litres to produce just one kilo of beef for the dinner table.

In contrast, nearly half the world's population

live in squalor on as little as 10 litres per day (the UN recommends a minimum of 50 litres per day) and between 5-10 million people die each year from related diseases, including one child each 17 seconds.

In a perfect world there would be enough of this resource....water...for everyone.

But with a burgeoning global population, the uneven geographical distribution of water supplies, the increasing demands of agriculture and industry and



Chad:

The daily search for water, firewood and survival.

THE GOAL: WATER FOR EVERYONE



Indonesia:
(bottom) Planning
new irrigation
projects.
Sudan: (below)
Building wells for
returning refugees.
Burkina Faso:
(below right)
A new village well.

climate change, the world's water crisis is becoming more acute each year.

In the last 50 years freshwater withdrawals from all sources have tripled globally while water tables in such countries as China, India and the United States are falling rapidly. By 2030 nearly half of the world's

Life' decade, the 5th World Water Forum, the largest conference of its kind in the world, was held in Istanbul, Turkey in March to try to identify what it called "the 100 most pressing water related issues of our time."

Nearly 33,000 policy makers, water specialists and grassroots workers, including a strong delegation from the Japan International Cooperation Agency (JICA) and the Japanese government, attended the meeting which was not designed to establish specific targets or projects but instead to point a general way forward in tackling the vast inequality of global water resources and making better and more efficient use of dwindling reserves.

"The world is facing rapid and unprecedented global

changes, including population growth, migration, urbanization, desertification, drought, degradation and land use, economic and climate change," a final conference communiqué said.

It set out a series of non-binding recommendations including the need for greater technical and political cooperation to help ease disputes over water, measures to address natural calamities such as floods and water scarcity, curbing increasing water pollution and related spin offs such as widespread disease and better management of resources.

The UN report, Water in a Changing World, noted however that though many countries had

population will live in 'water-stressed' countries. From 24 to 700 million people are expected to be displaced because of water scarcity according to the recently published U.N. report, Water in a Changing World.

War Over Water

As the situation in areas like Darfur has already highlighted, struggles for diminishing natural resources such as water can lead to full-scale war, increased global death tolls and the destruction of health, education, industrial and environmental systems.

Halfway through the United Nations 'Water for

NUMBERS

- An estimated **1.1 billion people** have no access to clean drinking water.
- Another **2.8 billion** are without adequate sanitation.
- **5 to 10 million people** die each year from water-related diseases.
- An estimated **5,000 children** die each day from water borne disease.
- In the US and Japan, people use **350 litres of water** per day.
- In sub-Saharan Africa people consume **10-20 litres** per day.
- Agriculture accounts for **70% of all fresh water** consumption; it could rise to 90% in the next few years.
- It takes 2,000-16,000 litres of water to produce **1 kilo of beef**.
- It takes 800-4,000 litres of water to produce **1 kilo of wheat**.



Nearly half the world lives on the edge of squalor because of the lack of water.

already passed legislation to protect their water sources "these reforms have yet to have any noticeable effect, because action is too often confined to the water sector alone while the key decisions about water are taken outside the water sector. For decisions to be effective, they need to involve decision makers from all sectors."

Japan's Role

Japan for many years has been involved in projects to help the hundreds of millions of the world's most vulnerable people who enjoy little access to safe water and basic sanitation needs.

Cumulatively Tokyo has allocated \$16.7 billion in yen loans for water-related projects, 84% of that amount to Asian countries. A further \$1.8 billion was given as grant aid, 31% to Africa.

JICA invested \$981 million in technical assistance water projects. The world's largest bilateral agency has concentrated on four main areas of water development: providing safe and stable water supplies,

enhancing flood control to protect lives and property, conserving the water environment and promoting integrated water resource management.

The ongoing global financial crisis has already had a worrying impact on water development with many projects abandoned or stalled and Japanese experts in Istanbul emphasized the need to meet this new emergency by boosting local and private investment worldwide.

JICA senior special advisor Kazushi Hashimoto told one panel there were three requirements to ensure adequate local water financing: a strong and appropriate management system, effective monitoring and an efficient financial mechanism. He highlighted one project in the Philippine capital of Manila which is operated by the private sector as a model which could be replicated in other countries.

Senior special advisor Yuji Okazaki expressed the need for 'seamless' assistance between emergency aid and more long-term help to victims following earthquakes, other natural disasters or war. Often in

Afghanistan: Fresh water for the first time (left).

Vietnam: Too much water; regular flooding (above).

Middle East: Making the desert bloom (bottom).





PHOTOS COURTESY OF THE WORLD FOOD PROGRAM

Cambodia:

Repairing the country's water system (below).

Papua New Guinea:

Planning an integrated water system (right).

Egypt: Harnessing the Nile river (below right).

such circumstances, a major gap develops between the two types of aid, endangering recovery and reconstruction. JICA is part of Japan Disaster Relief (JDR), a system designed to offer immediate help including doctors, nurses, rescue teams and emergency aid in the wake of natural calamities.

Senior JICA advisor Takeshi Naruse highlighted one particular JICA project—the so-called Corridor for Peace and Prosperity—designed not only to

improve water resources and agricultural development but also to promote closer cooperation and understanding in the troubled Middle East region between Israel, Jordan and Palestine.

The overall strategy is part of Japan's commitment to meeting by 2015 the UN Millennium Development Goals which include improving access to water for the world's poor and strengthening their 'human security' — a concept which empowers and protects



Cambodia:

New capital water system (left).

Papua New Guinea:

A new filtration plant (below).



Facts & Figures

The UN says that a person needs a minimum of 50 litres of water a day for drinking, washing, cooking and sanitation.

There is more than enough water available, in total. To meet those needs and provide universal access to that basic minimum by 2015 it would take less than 1% of the amount of water used today.

However, for a variety of reasons including a burgeoning global population, increasing demand by people, industry and agriculture, changing climatic conditions and the uneven spread of water resources, **the world is facing a water crisis.**

Freshwater withdrawals tripled globally in the last 50 years and are increasing at a rate of 64 billion cubic meters a year.

At any one time, half of the world's hospital beds are occupied by patients suffering from waterborne diseases. Nearly 90% of all diseases are caused by unsafe drinking water, inadequate sanitation and poor hygiene.

Water tables are falling in scores of countries including China, India and the United States. In seven states of the U.S. more than 80% of all historic wetlands were filled by the 1980s.

There are approximately 260 river systems worldwide, many of them crossing national boundaries. The struggle for water can lead to political and military tensions and sometimes, as in the case of Darfur in the Sudan, outright war.

Global water consumption rose sixfold between 1900 and 1995, more than double the rate of population growth. The global population is expected to increase further from 6.5 billion to 9 billion by 2050.

Desalinization is one of the ways to reduce the impact on freshwater supplies, but the process is extremely expensive, costing 81 cents per cubic meter in the United States to 49 cents in Singapore.

Wastewater treatment is effective but capital intensive. Reduction in groundwater

over drafting or a radical change in lifestyles such as using less water or eating less beef are all politically sensitive.

Local, low tech and cheap solutions such as wind and solar power to distill water are all being tested.

A main objective of the UN Millennium Development Goals is to halve the proportion of people without sustainable access to safe drinking water and sanitation by 2015.

JICA is involved in a series of different projects around the world to help alleviate the water crisis. These range from maintaining or drilling new water wells in rural areas, improving farming and irrigation techniques both to save water, use it more efficiently and improve crop yield; improving health facilities to reduce widespread waterborne disease; training local officials in everything from water management techniques to irrigation and plant maintenance.

Sources: UN and World Bank

vulnerable people by involving them more closely in both the planning and execution of grass-roots projects in such areas as water, health and education, thereby making them more effective and responsive to local needs.

No Safe Water

More than one billion people do not have access to clean drinking water and another 2.6 are without adequate sanitation. To help overcome that problem JICA has helped construct thousands of wells and sanitation systems in communities from Asia to Africa to Latin and South America.

Ethiopia, for instance, faces one of the most difficult situations in the world and more than 40 million people do not have access to safe water. JICA has worked with government authorities to exploit its groundwater resources to provide more and safer water for personal and agricultural use.

In Zambia's capital of Lusaka, community projects have provided better sanitation facilities, including safe toilets, and medical assistance to tackle such basic but killer problems as diarrhea. In the hinterland of Myanmar hundreds of wells have been sunk in remote villages to provide safe water.

Since 1993 when JICA drew up a master plan for the water supply system of the capital, Phnom Penh, the agency has been renovating water facilities and providing grant aid to rehabilitate Cambodia's water system including the region surrounding the world-famous Angkor Wat temple complex.

Kenya's Nyando River basin is constantly hit by flooding and to help prevent such natural disasters in future, JICA began to draw up a flood control

plan in 2006. In the Nakuru region of Kenya it is working to improve environmental management near the spectacular flamingo reserve.

JICA has developed master plans for 22 major river basins in Indonesia to support integrated water resources management. The government subsequently established water resource infrastructures in 14 regions with the assistance of yen loans.

In China JICA has provided policy recommendations for developing a basic legal framework of a water rights system and helped to reinforce water resources management systems.

Japan for many years has been involved in projects to help the world's most vulnerable people who enjoy little access to safe water.

Agriculture accounts for around 70 percent of the world's fresh water and in related projects, JICA experts have helped Egypt to make more efficient use of the Nile River waters and small-time rice farmers in Timor-Leste improve local irrigation schemes.

Since 1998 the organization has dispatched nearly 3,000 experts across the globe to participate in water projects. Additionally, some 11,657 local nationals received training both locally and in Japan.

Ensuring that everyone gets adequate access to a basic and safe water supply will continue to be an increasingly urgent challenge for decades to come. ■

*The threat comes from war, climate change, poverty, human expansion and theft. JICA employs **a series of different approaches** to help safeguard sites.*

The concept of what constitutes ‘cultural heritage’ has been vastly expanded... but so have been the types of programs being used to protect it.

Saving the World's Cultural and Natural Heritage

Preserving Egypt's History

IT IS PROBABLY THE LARGEST EVER movement in history of some of the world's most valuable cultural icons. An estimated 100,000 treasures from Egypt's Pharaonic era are being moved, piece by piece, to a new 'Grand Egyptian Museum' being built in the shadow of the Giza Pyramids. When it opens after 2011, the

complex will reputedly be the largest archaeological museum in the world with a multiplicity of aims—to help conserve and restore many of the treasures and provide a spectacular shop window for millions of additional tourists to view priceless articles, some of which have never been seen before in public.

Japan is providing an estimated \$300 million in soft loans towards the overall \$550 million cost and JICA experts have been involved in the design of the conservation and restoration center, developing a basic museum database and training local conservationists.

While perhaps the largest ongoing

single project, the Grand Museum is only one of a myriad of worldwide programs designed to preserve the world's most valuable heritage, a term which itself has undergone a dramatic metamorphosis in recent years.

In the past 'cultural heritage' had meant for most governments and organizations buildings, monuments

and their sites, but now it has been vastly expanded to include natural wonders such as oceans and forests and even endangered populations.

Multiple Threats

Many of these priceless treasures are under threat from wars, climate change, poverty, human encroachment

and simple theft.

Egypt, for instance, has had neither the human or financial resources to adequately preserve the history of the Pharaohs. The country's exploding population has overwhelmed another, less well known, part of its civilization, Cairo's wonderful Islamic monuments.

During the recent invasion of Iraq, one of the largest casualties of war was the looting and destruction of that country's historical heritage. Chinese peasants, among others, for centuries have stolen parts of that country's Great Wall for the mundane task of building their own simple homes.

In 2003, a 6.6 magnitude earthquake killed tens of thousands of people in Iran and devastated one of the world's most unique cities, Bam, a 2,000-year-old center built exclusively from mud brick, clay, straw and palm tree trunks.

The world's largest and most diverse rainforest, the Amazon, is under threat from human invasion and climate change as is Africa's Congo River basin.

Ever since a young biologist called Charles Darwin sailed into the Galapagos Islands in 1835 and discovered some of the world's most unique flora, fauna and sea life, the region has been world renowned. But the United Nations has now put the islands and surrounding marine park on its own 'endangered list.'

Some low-lying islands in the Pacific, until recently among the most idyllic places in the world, are also literally sinking under mountains of manmade garbage amidst what scientists are calling 'the world's largest garbage dump', a veritable ocean of waste floating from near the Californian coast almost as far as Japan.

Combating Destruction

If the concept of what constitutes 'cultural heritage' has been vastly expanded, so have been the types of programs and methods now being used to protect it.

Typically, of course, experts may spend years salvaging and then restoring monuments to a little of their former glory as Japanese experts and volunteers have been doing at the beautiful Mayan ruins of Copan in the Central American state of Honduras.

But the global effort encompasses many other related activities.

JICA for years has trained scientists and other experts in many fields

Jordan: Dead Sea Highway



Egypt: Pharaoh Ramses II

Education for local communities, particularly students, government and other officials, plays a key role in JICA's approach.



Egypt: A new museum complex



Iran: Bam Ruins



Myanmar: Drilling Near Pagan Ruins



Philippines: Cordilleras Rice Terraces



Myanmar: Splendor of Pagan Ruins

Vietnam: Japanese Bridge, Hoi An



Indonesia: Prambanan Temples complex



Cambodia: Angkor Wat



Tourism plays a curious role... helping to sustain heritage sites...but also causing many of their problems.

Honduras: Preserving Mayan ruins



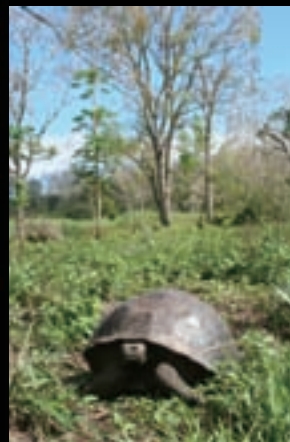
Vietnam: The Citadel, Hue City (left); Rebuilding Hoi An Town



Tourism, even in the remote Galapagos Islands has jumped tenfold in two decades.



Saving the Amazon River basin



Galapagos Islands:
Protecting the flora and fauna

connected to cultural preservation.

It has provided finance and expertise to build restoration centers or museums such as the one at Giza, the Chavin National Museum in Peru, the Kharakhorum Museum in Mongolia and Jordan's Dead Sea Panoramic Complex which overlooks the lowest spot on earth and has been the scene of some of the most momentous events in history.

The latest equipment and technology, provided by Japan, are helping in restoring Bam in Iran, excavations at ancient Carthage in Tunisia and in Central Asia in such areas as Khiva, Bukhara, Shakhrisabz and Samarkand and in Mexico.

The Cordilleras terraced rice fields in the Philippines have been placed on UNESCO's World Heritage Sites endangered list because the destruction of surrounding woodlands is in turn threatening the terraces. JICA has teamed up with a Japanese non governmental organization (NGO) and local agencies not only to preserve the rice fields themselves but also to try to alleviate poverty among the local indigenous peoples.

In Myanmar, the landscape surrounding the estimated 2,800 monuments at Bagan dating from the 10th century has been steadily degraded and JICA is replanting forests and providing drinking water to impoverished local communities—

projects which will not only raise their standard of living, but in the long term ensure the survival of the heritage site itself.

Protecting the Amazon

With the help of remote sensing and satellite imagery provided by JICA, Brazilian authorities hope to halt the ongoing destruction of the world's greatest and most important tropical rain forest, the Amazon, which has been losing some 18,000 square kilometers of land annually, an area some nine times the size of Tokyo.

Near Cambodia's Angkor temple complex, Japanese experts are working with provincial officials on a blueprint for environmentally friendly, sustainable community development.

Part of Angkor's problem is the influx of hundreds of thousands of tourists annually which has resulted in one million tons of human waste water being dumped in the soil each year and the helter skelter construction of new facilities to meet the visitor demand.

Tourism plays a curious role in the battle to preserve the world's heritage. Tourism dollars undoubtedly help sustain both the heritage sites and local communities. But overwhelming visitor numbers are also the cause of many of the problems, as at Angkor.

JICA has tried to strike a balance between the two. Vietnam's ancient capital of Hue was heavily damaged in

1968 during the Vietnam war, but as parts of its famed citadel undergo renovations, the agency is strengthening its tourism infrastructure.

Further down the coast, Hoi An and its famed 17th century Japanese bridge have been inundated with tourists and river pollution and Japanese experts and volunteers have been working to preserve the bridge and the town's beautiful homes and shops.

Tourism, even in the remote Galapagos Islands has jumped tenfold in two decades and other Japanese experts are involved in a five-year project to protect the islands' 70,000 square mile marine reserve, second only in size to Australia's Great Barrier Reef.

Other Pacific islands are being overwhelmed by growing mountains of garbage which local authorities are unable to get rid of and Japan has introduced 'the three Rs'—reduce, re-use and recycle.

In these and many other programs, education for local communities, particularly students, government and other officials plays a key role in JICA's approach. Its belief is that in the long term these local groups rather than outside experts will be responsible for safeguarding the world's most valuable cultural sites, but they will do so only when they fully understand both their financial and historical value and the best ways to protect them. ■