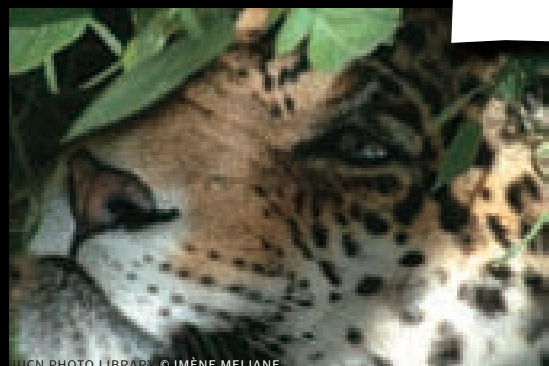


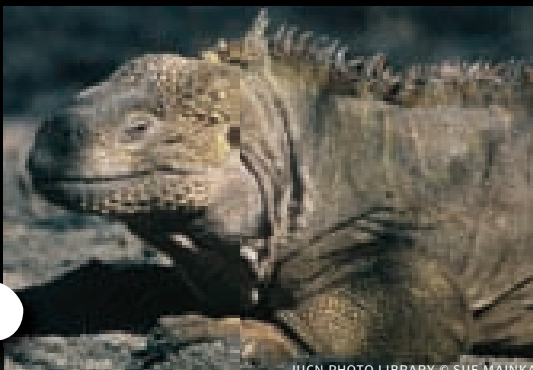
Beautiful Earth...



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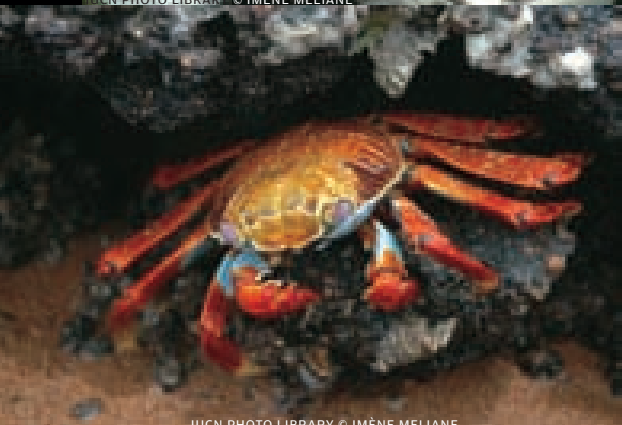
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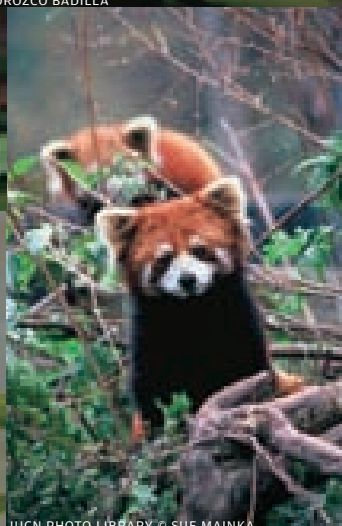
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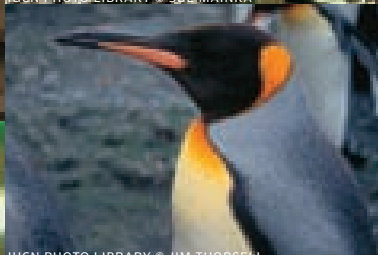
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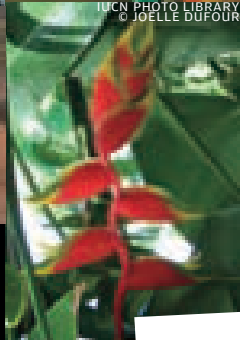
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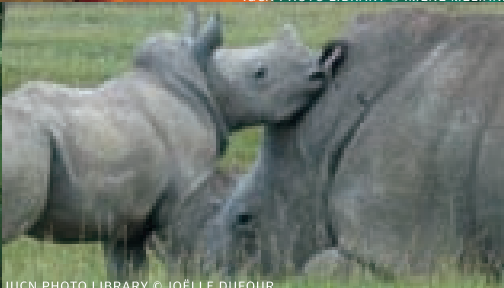
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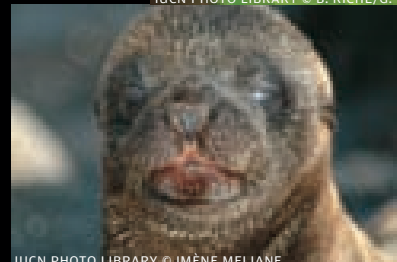
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...Endangered →

**Mount Kilimanjaro:
Receding Ice Caps.
Endangered Wildlife.**

The World at Risk

Flora and fauna are disappearing at an alarming rate. Bold action is needed.



As the unusually harsh winter snows and storms retreated from the central European steppes earlier this year, a terrible slaughter was uncovered.

NEARLY 12,000 BEAUTIFUL SAIGA ANTELOPES were found dead, possibly from a bacterium, pasteurellosis, which can attack an animal's immune system, at a time when the entire species is literally fighting for its very existence.



Uncontrolled poaching following the collapse of the Soviet Union had already wiped out 95% of the remaining population, putting the antelope on the so-called Red List of Threatened Species released by the International Union for the Conservation of Nature (IUCN), even before this latest setback.

Thousands of miles further south, but at approximately the same moment, it was announced that a

tiny bird species on the Indian Ocean island of Madagascar, the rusty grebe or the Alaotra grebe *tachybaptus rufolavatus*, had become officially extinct following the introduction of alien carnivorous fish into lakes around which it lived.

The world's biodiversity—a collective term meaning the totality and variety of life on earth—is in crisis. *(Continued on page 8)*

The Amazon – Helping the World Breathe

A spectacular space view
of destructive forest fires in the
Amazon basin

JICA has worked actively with Brazil for several years on earlier forestry projects and in this case, experts from the Forestry and Forest Products Research Institute of Japan (FFPRI) and The University of Tokyo are working with their Brazilian counterparts.

The basic research is divided into two broad components. Using simple muscle-power and human observation, more than 1,000 monitoring spots are being established throughout the Amazon and at each site trees will be counted, measured and the amount of carbon dioxide each contains will be calculated.

At the other extreme of investigative techniques, satellites and other sophisticated equipment will be able to fill in any missing blanks and provide a detailed overview of the forests.

Together they should provide the most comprehensive data ever compiled on how much carbon dioxide the basin contains which will also highlight how much CO₂ is not being released into the atmosphere fueling even further climate change and environmental degradation.

It is literally a race against time. One hectare of the forest may contain 750 types of trees, 1,500 other plants and what one report calls some of the “strangest looking, largest and smallest, loudest and quietest, more dangerous and least frightening animals on earth.”

But already around 20% of the Amazon forests have been destroyed and a further 2.7 million acres are being lost each year.



The Amazon
River basin

South America's Amazon river basin is the most important eco-system in the world.

Its 2.5 million square miles sprawl over nine nations. The basin contains two-thirds of the world's fresh water, more than 50% of the globe's remaining rainforests and, combined with the adjacent Andes mountain range, it accounts for half of all the world's flora and fauna.

The region also acts as a giant lung for the planet, absorbing vast amounts of carbon dioxide and recycling it to produce 20% of its oxygen needs. Effectively, without the Amazon and even as vast tracts of forest are being destroyed daily, the world would choke to death.

JICA and Brazil's National Institute for Amazon Research (INPA) and National Institute for Space Research (INPE) in May launched an ambitious four-year project, using both the most sophisticated satellite and other technology and the most rudimentary techniques involving arduous journeys by foot and human observation, to discover just how this system works.

It promises to be the most comprehensive project of its kind ever undertaken.

Project researchers will be able to accurately plot how the Amazon forest as a whole, and how individual tree and plant species, are reacting to changing climatic conditions; at the end of four years how

much carbon monoxide the entire ecosystem contains, and from the accumulated data they will hopefully be able to predict future trends.

The information will be vital in the highly complicated and sensitive area of ongoing international negotiations which are trying to establish a system of obligations, responsibilities, rewards and penalties in such areas as climate change.

Under one mechanism known as REDD (reducing emissions from deforestation and forest degradation), for instance, nations which use their forests to

help mitigate global climate change could receive financial and other benefits. But to substantiate their claims

states would need the kind of accurate information which will be provided by the new project.



Taking the heartbeat
of the Amazon

(Continued from page 5)

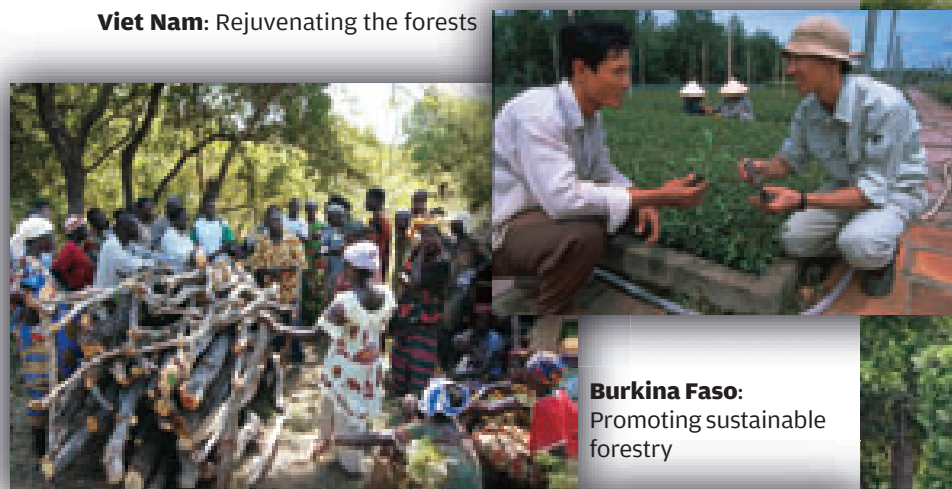
The U.N. Convention on Biological Diversity (CBD) estimates there are some 13 million species of which only 1.75 million have thus far been tracked and described.

And to be sure, new species are being uncovered all the time. In an area of Indonesian New Guinea, sometimes described as the 'Lost World', several new mammals, a reptile, an amphibian, 12 insects and a new bird were recently discovered. In the rain forests of the West African state of Gabon new species have been found in recent years (see story on page 10).

Facing Extinction

BUT 17,315 MAMMALS, birds, plants, insects, coral, fungi and other species are currently threatened with extinction according to the IUCN. The number of so-called 'hot spots' or particularly endangered re-

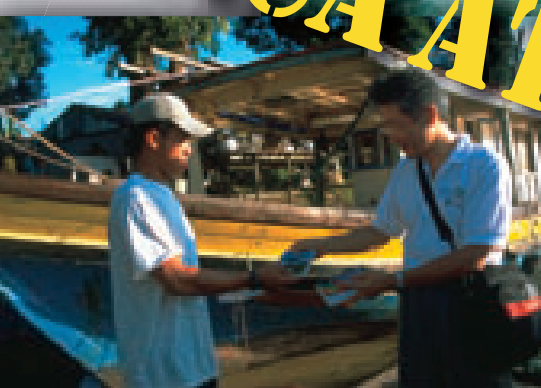
Viet Nam: Rejuvenating the forests



Burkina Faso: Promoting sustainable forestry



Palau: Protecting the world's dwindling coral reefs



Malaysia: Protecting Borneo's biodiversity



DANGER



gions are spread across the globe from California to the Caribbean, South America, the Mediterranean and Africa's Congo basin, from the Himalayas to Japan, where the famed snow monkeys are threatened, and into the Pacific region.

The rate of species extinction since 1600 was, until recently, 50-100 times the historical rate tracked by scientifically analyzed fossil records. Alarmingly this extinction rate is now expected to accelerate to between 1,000-10,000 times the natural rate by 2020.

For the first time in history, according to Ahmed Djoghlaif, executive secretary of the CBD, "experts are talking about a human-generated mass disappearance of species."

According to the recently published Global Biodiversity Outlook, natural systems that support human activity are at risk of further rapid degradation and collapse unless there is "swift, radical and creative action to conserve and sustainably use the variety of life on earth."

This year, 2010, was declared the International Year of Biodiversity, an opportunity to raise awareness about the importance of biodiversity for life on earth, what has been done to safeguard it and a chance to focus on new action.

A special high-level meeting of the U.N. General Assembly is planned for September, followed four weeks later by a biodiversity summit in the Japanese city of Nagoya (the 10th Conference of the Parties,



Kenya: A stark warning
Space: The threat of natural disaster

Mexico: Human waste and wildlife

More than 17,000 species are faced with imminent extinction

Preserving a Hidden Eden



Humpback whales sport thunderously in the pristine ocean waters.

Hippopotamuses wade in the shallows of some of the world's

most spectacular beaches. Forest elephants can be spotted on the edge of the nearby rainforest which is home to gorillas, panthers, rare birds and plants and where ancient trees twist themselves into unimaginable shapes.

The west African state of Gabon is little known to the larger international community, but to aficionados and

.....
Children learn importance of legal logging (top);
Children re-enact Japanese fairy tale with volunteer teacher

environmental specialists it is sometimes called an unknown or hidden Eden.

At a time when many areas of the world are suffering from adverse climate change, environmental degradation and biodiversity loss, Gabon is a rare exception, having avoided the worst excesses of wrenching change.

Indeed, in the last 10 years 50 new species of butterflies, 100 plants, three birds, one monkey, 15 new lizards and snakes, 10 frogs and 100 fish have all been identified, according to Lee White, the director of the country's

Gabon is a rare exception to widespread environmental degradation

parks system.

Gabon is a 'lucky' country. When ancient ice sheets covered the region only a few forest areas and their flora and fauna escaped—two of them in Gabon. When oil was discovered the country escaped the



For the past eight months Yoshiko Fukushima from Kanagawa Prefecture has been working as a Japanese volunteer (JOCV) with local schools teaching environmental education—the importance of protecting the region's natural heritage particularly for the time when the

environmental ravages visited on nearby countries such as Nigeria. As much as 80% of Gabon remains forested.

Most importantly perhaps for biodiversity preservation, the human population is small, an estimated 1.5 million people in an area the size of France.

To be sure Gabon faces difficulties. Animal poaching is increasing. Illegal logging has been around for years. Despite its oil wealth, the parks system is seriously underfunded. Infrastructure is currently inadequate to develop serious eco-tourism.

JICA is involved in a series of projects, both in Gabon and other countries comprising the Congo River basin, to help protect a region second only to the Amazon in its biodiversity.

In the case of Gabon education is key. Along the southern coast, Gamba is an important oil center but is also in the heart of a vast forest and coastal ecosystem.

oil runs out.

She has helped form local clubs, helps run their activities and on a particular day recently was encouraging youngsters to re-enact an old Japanese tale about a child and a turtle—particularly resonant here because Gabon is globally famous for its leatherneck turtles.

Further north, the 4,910 square kilometer Lope national park is a UNESCO world heritage site, not only because of its abundant wildlife but because ancient artifacts and paintings have established that the forests here have been continuously inhabited for 400,000 years.

But today there is friction. Local communities are poor, without basic amenities such as running water, transport or much opportunity to eke out a modest livelihood. The forest has been their natural provider but there is inevitable conflict over hunting animals for food or cutting trees for farmland.

Utako Aoike from Kobe City is also



Volunteer and Lope Park director (above); **Poor villages** create friction with surrounding wildlife (left)

working with local schools—"We want the children to help educate their parents"—to try to restore a traditional balance.

"We are teaching them the importance of protecting animals, but also about pollution, the ebola virus, health issues, garbage etc." she said. "At the same time we try to promote and respect the traditions and culture of the people."

It is clear there is now an awareness that biodiversity cannot be protected by government diktat but that the local communities must be persuaded and co-opted into the battle to preserve some of the world's most beautiful and rare

or COP 10) which will elaborate a new vision for 2050, set new targets and develop a new strategy to address biodiversity loss.

The year will end in Japan, at Kanazawa, with a ceremony marking the beginning of the International Year of Forests, 2011.

Essential, Not Sentimental

BIODIVERSITY PROTECTION, a rather forbidding scientific phrase, is not the sentimental protection of a rare antelope or bird, but encompasses the basic functions of earth itself and governs the well-being

and future of the human population which, ironically, has largely triggered the latest crisis.

"The extinction of individual species, but also habitat destruction, land conversion for agriculture and development, climate change, pollution and the spread of invasive species are only some of the threats responsible for today's crisis," according to the IUCN.

Consider: coral reefs provide food, jobs and recreation for more than 500 million people, yet 70% of reefs have already been destroyed or are now threatened. When Cyclone Nargis slammed into Myanmar in 2008 an estimated 140,000 people were killed. A

major contributing factor to the high death rate was the systematic and widespread destruction of protective mangrove forests around the country's coastline (see page 13).

About 80% of the world's biodiversity is found in the kind of tropical forests wonderfully illustrated by Henri Rousseau's painting on the cover of this magazine. The forests are a veritable 'supermarket' for the world yet 13 million hectares are disappearing each year.

More than US\$4 billion generated annually in tourist and other revenues in southern Africa could

disappear as the region's wildlife dwindles.

An international commitment to achieve a significant reduction of biodiversity loss by 2010 had not been met, according to Ahmed Djoghlaif, but the Global Biodiversity Outlook suggested further deterioration could be overcome if effective and coordinated action is urgently taken to reduce the multiple pressures being imposed on biodiversity.

Biodiversity and Poverty

IN A NEWS RELEASE, the Convention on Biodiversity said the continued loss of flora and fauna could

JICA has increasingly focused its attention on links between biodiversity and helping the world's poorest people.

not be viewed as an issue separate from the core concerns of society.

It noted that realizing objectives “such as tackling poverty and improving the health, wealth and security of future generations will be greatly strengthened if we finally give biodiversity the priority it deserves.”

These are key targets for the Japan International Cooperation Agency (JICA), which has increasingly

focused its attention on links between biodiversity and climate change issues and helping hundreds of millions of the world’s poorest people—the so-called bottom billion—to improve their lives.

Between 2000-2008 the agency was involved in 73 technical cooperation biodiversity projects, in grant aid and 28 yen loan programs, allocating some US\$2.4 billion to activities promoting forest moni-



Making luxury cosmetics from the shea tree



Learning to harvest wild coffee from the forests

Coffee Comes Home

Coffee is second only to water as the most popular drink in the world. It is second only to petroleum as the largest item of international commerce. The beverage provides a living for an estimated 100 million people and is worth an estimated US\$30 billion to producing countries.

Despite this global status coffee had a humble beginning, being discovered and harvested in the highlands of Ethiopia centuries ago by local goat herders and villagers. In a remarkable twist of history coffee is now playing a central role in helping preserve the very forests and the livelihoods of local peoples in the area where it was first discovered—and in the process helping to protect the country’s biodiversity.

Ethiopia is one of the world’s oldest countries but with an exploding population of an estimated 75 million people, 90% of the forests which once covered the land on the Horn of Africa have already been chopped down and the rest are under threat.

Since 2003 JICA has been working with local authorities to help preserve the last

great area of forests in the southwest of the country. The key to success is to persuade local communities to harvest the bounty of the woodlands as they have traditionally done, but in ways which also maintain the integrity of the forests themselves.

Targeted villages have been organized into WaBuBs, which in the local Oromo language means Forest Management Associations. The associations have both rights and obligations—receiving agricultural training and the official right to harvest and sell both timber and non-timber forest products but also acting as guardians of the forest—preventing the further spread of farmland and destruction of trees and managing the bounties of the forest in a responsible manner.

Coffee grows wild in the forest—indeed it needs the higher tree cover for growth—and it is an important source of revenue for the 6,000 farmers who have trained in the program. Because the process is now carefully controlled and monitored, the Ethiopian coffee has gained ‘fair trade’ status which allows it to be sold at a premium price and into

key world markets, including Japan.

Another traditional treasure, the shea tree, is helping poor farmers in the West African state of Burkina Faso to halt the destruction of that country’s forests, protect its biodiversity and raise the standard of living of local communities.

Ethiopia and Burkina Faso are among the world’s poorest countries. They have suffered from the effects of climate change—being responsible for virtually none of the global warming but suffering environmental degradation from its effects. In the case of Burkina Faso that has resulted in unpredictable rainfall patterns, desertification and drought.

Villagers in one area of Burkina Faso have now been organized into Groupements de Gestion Forestiere, or forest management groups, with similar aims and obligations to the WaBuBs of Ethiopia.

Among the forest products they are harvesting responsibly, in addition to timber, honey and fruit, is seed of the shea tree whose fat is used as the basis of expensive cosmetics such as so-called shea butter and is now marketed in fashionable stores from Tokyo to New York.

Mangrove forests – living life on the edge

When Cyclone Nargis slammed into Myanmar in 2008 it became the country’s worst recorded natural disaster. An estimated 140,000 persons were killed, some 2.5 million injured or displaced and the country is still struggling to recover from the catastrophe.

For centuries, Myanmar’s vast mangrove forests had provided a protective shield against such natural disasters as well as providing bountiful harvests of fish, building wood and charcoal to local communities. But the ongoing destruction of around 60% of the forests had left the country open to the full fury of Nargis’ 130 mile per hour winds and 12 foot high waves.

Some 40 million acres of mangrove forests straddle the earth’s tropical and sub-tropical regions, but though they provide millions of people with a livelihood, help protect against coastal erosion and, as in the case of Myanmar, protect coastal communities, they have often been misunderstood, abused and even feared because of their

lands already destroyed and one in six of the estimated 70 remaining species in grave danger according to the U.N. a race is now on to save the remaining mangroves worldwide.

JICA is involved in several projects. In

world’s largest remaining mangrove forests. But the wetlands have been seriously degraded and JICA has been working for several years with the government, first to establish a national nerve center for mangrove oversight, the Mangrove Information Center, and continue with ongoing activities including training local personnel, both in Indonesia and in Japan, environmental education, the establishment of mangrove monitoring systems and ongoing research.

Halfway across the world, Mexico’s Yucatan peninsula is internationally recognized as an ‘important wetland’ for migrating



The amazing world of the mangrove forest

Reviving Myanmar’s mangrove forests



often brooding appearance.

National Geographic magazine graphically described the forests: “Mangroves live life on the edge. With one foot on land and one in the sea, these botanical amphibians occupy a zone of desiccating heat, choking mud and salt levels that would kill an ordinary plant within hours. Yet the forests mangroves form are among the most productive and biologically complex ecosystems on earth.”

Cyclone Nargis provided a deadly wakeup call—but with 20% of global wet-

lands already destroyed and one in six of the estimated 70 remaining species in grave danger according to the U.N. a race is now on to save the remaining mangroves worldwide.

JICA is involved in several projects. In

Nearby Indonesia is home to the

birds and nesting areas for pink flamingos and marine turtles. But there too its mangrove forests are being destroyed, the area despoiled by overfishing and awash with three tons of waste daily from nearby communities.

JICA is working with Mexican authorities to revive the mangroves, find alternate means of waste disposal and new but sustainable fishing possibilities and provide environmental education to local people and tourists.



Mexico’s endangered mangroves

Schoolchildren and nature's grandeur

toring systems, sustainable forest management, coral reef protection, tree planting and local livelihood improvement.

Current JICA projects include mangrove programs in Mexico, Myanmar and Indonesia (*see page 13*); using satellite technology in forest protection in the Amazon and Indonesia, exploring ways to enable wild animal populations and human settlements to co-exist in Gabon, China and Costa Rica; the impact of climate



change on forests in Viet Nam; and ensuring both the preservation and sustainable use of forests and their resources in Ethiopia, Burkina Faso and Viet Nam.

Each year JICA invites more than 8,000 trainees from developing countries to attend a myriad of short and longer term courses in Japan, many of them linked with biodiversity and climate change.

It is also encouraging and working closely with

private companies.

At a recent seminar on the issue Shinji Yoshiura, director general of JICA's Yokohama International Center, said the Year of Biodiversity "represented an excellent opportunity to focus on the issue and JICA is accelerating its collaborative works with other partners" such as the IUCN and the International Tropical Timber Organization (ITTO).

According to scientific research up to 30% of all known species may disappear before the end of this century, according to Yoshiura, and "the main cause is due to human intervention. The ability of eco-sys-

tems to meet the needs of future generations is now seriously—perhaps irreversibly—at risk."

JICA's overriding aim, he said, was "to build sustainable societies with the right balance between the natural environment and human activities."

JICA President Sadako Ogata said: "For JICA the key to our activities is to strike a balance between a community's legitimate needs, at the same time preserving the very diversity of the world which will ensure people the brighter future they want. Human progress and biodiversity should be mutually supportive, not destructive." ■

Drilling for water **kazusabori** style. Helping rural communities and elephants



The elephant is probably the most instantly recognizable symbol of the world's wildlife.

An awesome creature dating from the Eocene era 50-60 million years ago, weighing in at around 6 ½ tons, the largest living mammal reaching heights of 11 feet and living from 60-70 years, the elephant is also at the center of the struggle between man and his environment to save the world's

biodiversity.

Early in the 19th century there were perhaps 27 million elephants worldwide. Today that figure has dwindled to several hundred thousands, the elephants increasingly victim to poaching and latterly the encroachment of human activity on their habitat.

A modest project by a Japanese non-governmental organization, the International Water Project (IWP), to drill boreholes for Masai villagers living in the shadow of Africa's highest mountain, Kilimanjaro, highlights how intertwined development projects designed to help struggling communities have become with efforts to protect the wider global biodiversity, in this case the threatened African elephant.

Supported by JICA, a husband and wife team heading IWP have been sinking a series of boreholes in Kenya's Loitokitok area since 2005 using a method known as kazusabori, pioneered in Japan around 1870.

The system's great value is its



simplicity and cheapness according to IWP director Hisayo Ohno. All that is needed are several steel, iron and aluminum pipes, a simple flap valve and the raw muscle power of local villagers. All materials are generally obtainable even in rural areas. Training and maintenance are relatively simple and the cost of each well is around one-third of other methods used in developing

countries, according to Ohno.

Loitokitok has been ravaged by drought since 2005. Masai women watching one new well being sunk recently said last year they had lost most of their animals—cows, goats and sheep—and females had to spend most of their day fetching water from far away water points. Intercommunal strife had increased, as had the struggle between

the pastoralist Masai and increasingly thirsty elephant herds for scarce water supplies.

But as more boreholes are sunk in Kenya and perhaps in other semi-arid countries, rural villages will be assured of a continuous and safe supply of water, and the struggle between settlements and other species such as the elephant will also benefit.

JICA aims to build sustainable societies with the right balance between the environment and human activities.

Japanese engineer supervises construction of a new well (far left); **Masai village women** look on approvingly at well construction (left); **Drawing safe drinking water** for the first time

JICA's WORLD

Publisher:

Noriko Suzuki
Office of Media and Public Relations

Editor:

Raymond Wilkinson

Art Director:

Vincent Winter Associates

JICA's WORLD

is published bi-monthly by JICA

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Cover: "Tropical Forest with Monkeys," by Henri Rousseau; John Hay Whitney Collection, image courtesy of the National Gallery of Art, Washington D.C.

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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.