

POSTER WORLD RIVERS • WATER FOOTPRINT

NGM.COM | APRIL 2010

NATIONAL GEOGRAPHIC

A SPECIAL ISSUE

Water

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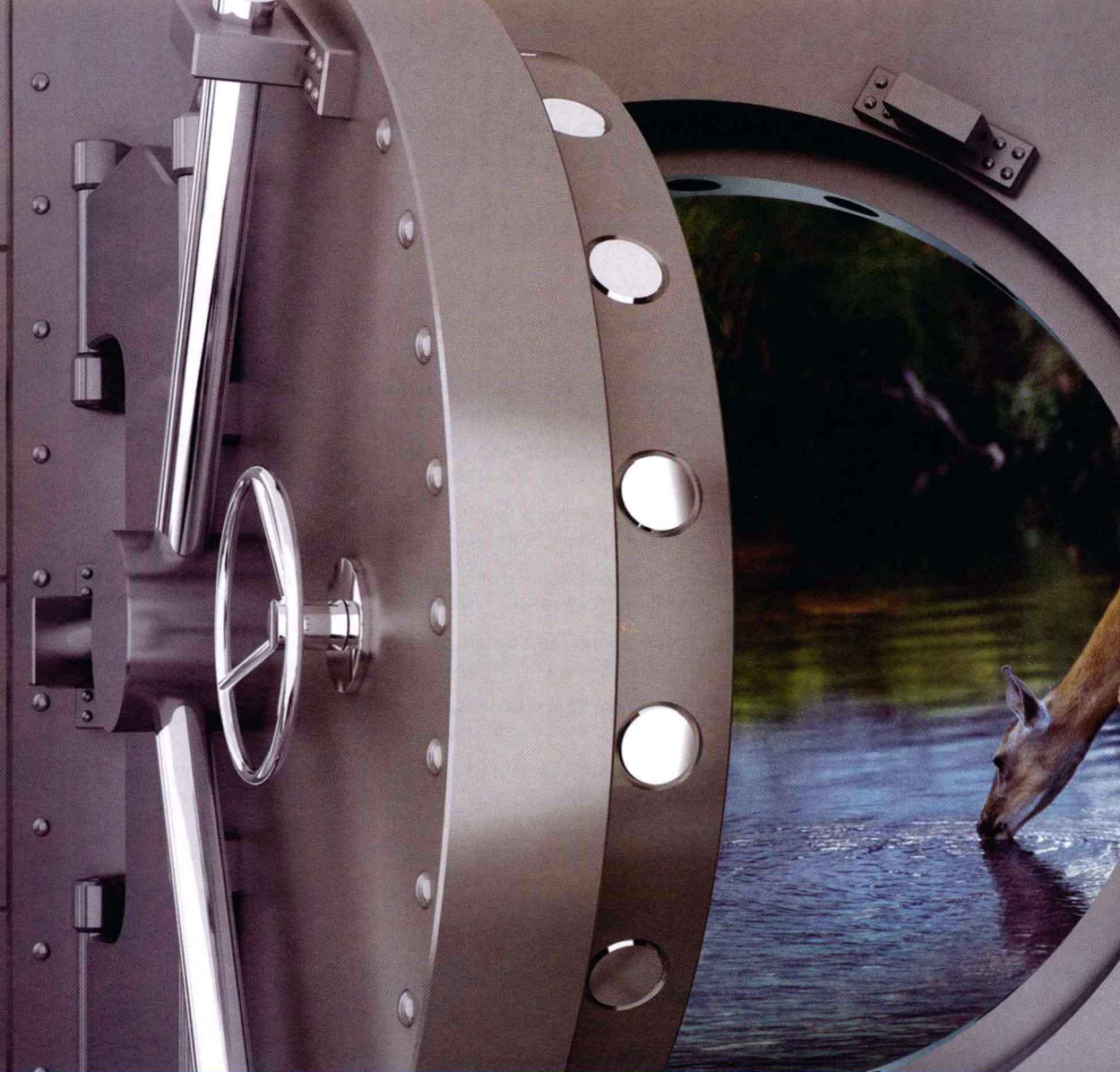
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At Royal Bank of Canada, we have a long-standing commitment to environmental sustainability. Water has become an integral part of that commitment, as it is fundamental to the sustainability of all life. However, the water challenges facing the world represent a serious humanitarian crisis in developing nations, as well as a growing economic challenge for all nations. That's why we created the RBC Blue Water Project™, a \$50 million grant program to support charitable organizations around the world that foster a culture of water stewardship.

Create a blue water future.

NATIONAL GEOGRAPHIC

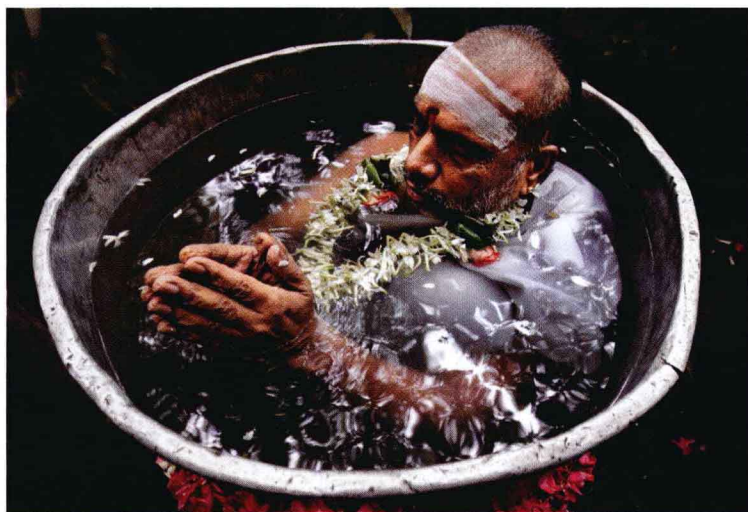
APRIL 2010 • VOL. 217 • NO. 4

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Special Supplement: World Rivers/Water Footprint



PAVANISH KAKADE, AP IMAGES

The power of water is evident in this Hindu ritual. Last August a holy man in Mumbai immersed himself for four hours to pray for rain.

RBC Blue Water Project™

Since 2007, RBC has committed almost \$21 million in grants to over 200 of the best organizations worldwide working to help protect fresh water; here are some examples:

IMAGINE H2O | www.imagineh2o.org

Imagine H2O is committed to turning water problems into opportunities. This program serves as a launch pad for water innovation by helping entrepreneurs turn great ideas into great businesses. With the help of RBC, Imagine H2O hosts an annual prize competition that offers cash prizes and a business incubator to promising water entrepreneurs. Through these annual competitions, Imagine H2O is creating a global ecosystem for water innovation that unites entrepreneurs, investors, governments and social enterprise.

NATIONAL GEOGRAPHIC | www.nationalgeographic.com/freshwater

The RBC Blue Water Project is a founding partner of the National Geographic Freshwater Initiative, a multi-year project that coordinates across sectors to inspire, educate and empower individuals and communities to conserve freshwater and the extraordinary diversity of the life it sustains. RBC is extending its relationship with the National Geographic Society by sponsoring additional fresh water education programs throughout 2010.

ONE DROP FOUNDATION | www.ONEDROP.org

RBC's inaugural Visionary Grant was to the ONE DROP Foundation, an organization established by Cirque du Soleil® founder Guy Laliberté. The RBC Blue Water Project grant allows the organization to support initiatives that improve water access and increase education about the value and vulnerability of the world's freshwater resources. This includes \$1 million to help provide access to water and sanitation to the people of Haiti and rebuild small water and sanitation infrastructure damaged in January's devastating earthquake.

JAMES RIVER ASSOCIATION | www.jamesriverassociation.org

The RBC Blue Water Project grant helps JRA build awareness and rally citizens from Richmond, Virginia to the Allegheny Mountains to protect America's Founding River from polluted runoff.

UPPER CHATTAHOOCHEE RIVERKEEPER | www.chattahoochee.org

The RBC Blue Water Project is helping fund "No Time To Waste," an outreach campaign that will educate citizens about the causes of metro Atlanta's ongoing water crisis and what they can do to conserve water, be energy efficient and promote sustainable land use.

DONORSCHOOSE.ORG | www.donorschoose.org

It is increasingly common for teachers to spend their own money on classroom materials, especially in rural and disadvantaged inner city communities. The RBC Blue Water grant helps public school teachers all across the United States obtain classroom supplies for projects dealing with water.

To learn more about the various projects RBC supports, visit rbc.com/bluewater.

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RBC
Blue Water
Project™

NATIONAL GEOGRAPHIC

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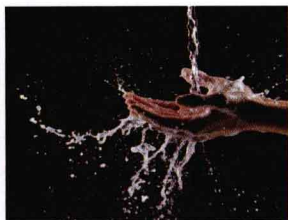
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GEOGRAPHY

Journey to the Bottom of the Spigot

In every country, there's a different story about how water reaches the faucet.



HEALTH

Wash Away Germs

Scrubbing with soap for at least 20 seconds could save millions of lives.

SPACE

Water's Out There

The closer we look, the more water and ice we discover beyond Earth.

TECHNOLOGY

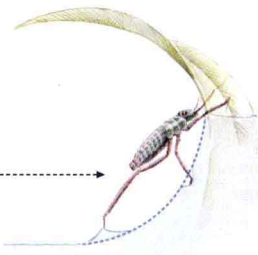
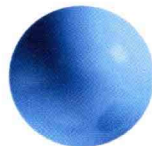
Big Dipper

The world's largest pool has white sand, sailboats, and 66 million gallons of water.

SCIENCE

Up a Slippery Slope

The same energy that clumps cereal together in milk helps a bug scale a watery curve.



THE BIG IDEA

Get the Salt Out 32

Desalination plants will soon add billions of gallons a day to the drinking supply.



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Flashback

GeoPuzzle

On the Cover

Drops spritzed from a spray bottle landed on Formica for their close-up.
Photo by Mark Thiessen

Special Thanks

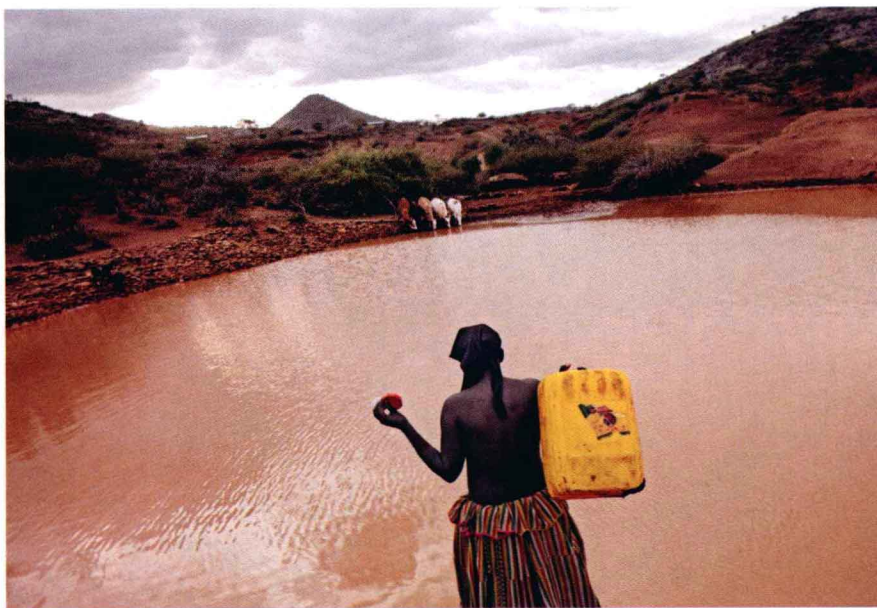
The magazine thanks the Howard G. Buffett Foundation, the Honorable Marilyn Ware, and the members of the National Geographic Society for their generous support of this issue. It is also grateful to the many NGOs and experts who shared their frontline knowledge of the water crisis with us.

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WHO'S HUNGRY FOR CHANGE?

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In Shakana, Ethiopia, Halike Berisha must fill her water jug from a contaminated reservoir.

As a chemical compound, nothing could be simpler than water: two atoms of hydrogen joined to one of oxygen. From a human point of view, simplicity fades. Though water covers our world, more than 97 percent is salty. Two percent is fresh water locked in snow and ice, leaving less than one percent for us. This “precarious molecular edge on which we survive,” as Barbara Kingsolver says in this month’s special issue, will only grow more precarious. By 2025, 1.8 billion people will live where water is scarce.

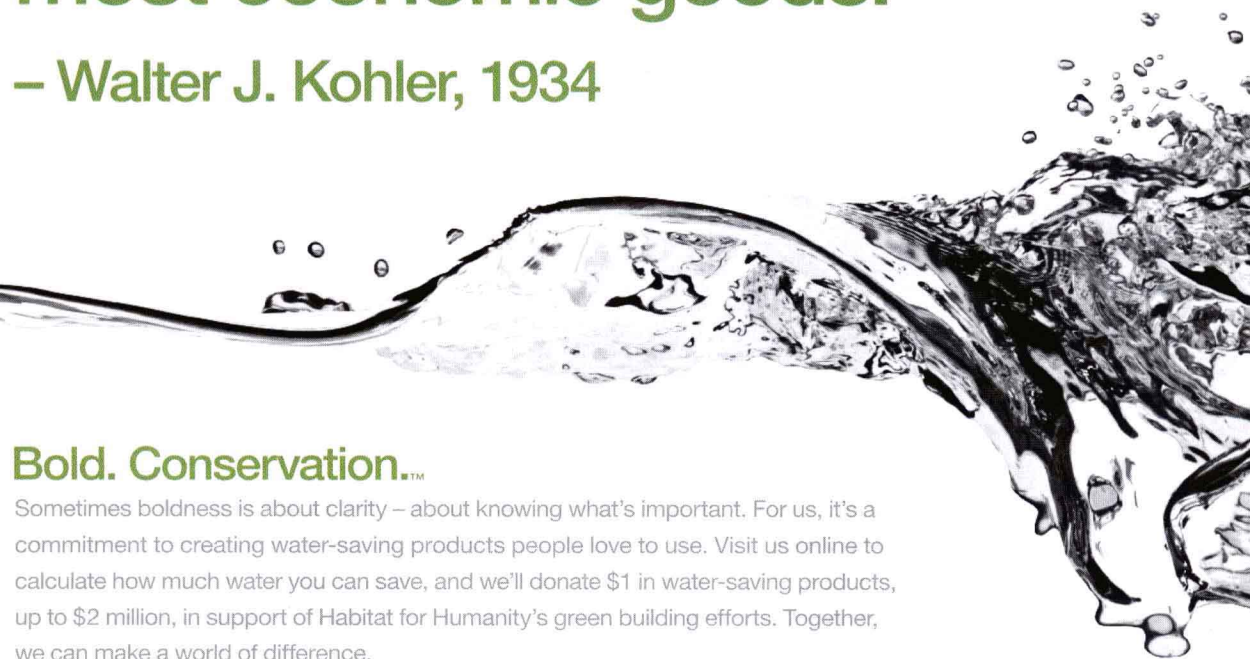
In the pages to come, we bring to life the drama behind that statistic. And this is only the start of a larger commitment, at the magazine and throughout the National Geographic Society, to explore the world of water. To that end, the Society recently named Sandra Postel its first National Geographic Freshwater Fellow. As a researcher, lecturer, and writer, Sandra has worked in the field of sound water management for 25 years. The initiative she heads will not only educate; it will “reshape how people and communities think about, use, and manage fresh water. It will provide the tools to enable individuals, corporations, and communities to become part of the solution,” Sandra says.

Through the National Geographic website we’ll provide information, interactive tools, and success stories. We’ll raise awareness through films, books, and presentations. Our goal is to lead a far-reaching effort to meet the challenges posed by this precious and finite resource.

PHOTO: LYNN JOHNSON

So-called “free goods” such as sunshine and fresh air may be of more real worth than most economic goods.

– Walter J. Kohler, 1934



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Sambar Deer (*Rusa unicolor*)

Size: Head and body length, 162 - 246 cm (63.8 - 96.9 inches); shoulder height, 102 - 160 cm (40.2 - 63 inches); tail, 25 - 30 cm (9.8 - 11.8 inches) **Weight:** 109 - 260 kg (240.3 - 573.2 lbs) **Habitat:** Ranges from thorn and arid forests to deciduous and evergreen forests **Surviving number:** Unknown; populations declining



Photographed by Lee Dalton

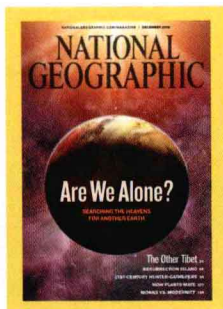
WILDLIFE AS CANON SEES IT

Picky? Not at all. The sambar deer's diet encompasses many varieties of plant, over 100 in India alone. This is one key to the deer's great adaptability, allowing it to live in a wide range of habitats at varying elevations. Depending on where it is, it may stick to foraging in small family groups or congregate in numbers of up to 100. But populations have been in serious decline in recent years due to habitat loss, over-hunting

and poaching. This decline is a huge problem not only for the deer, but also for the tiger that depends on it as prey. Deer eats plant; tiger eats deer. But how much longer will this natural cycle last?

As we see it, we can help make the world a better place. Raising awareness of endangered species is just one of the ways we at Canon are taking action—for the good of the planet we call home. Visit canon.com/environment to learn more.

Canon



December 2009

Worlds Apart

Good to know that scientists are searching for life out there. But I keep hearing of probes shot into space beeping our coordinates in hopes that some other life-form will discover us. Assuming that some of those life-forms have more advanced technology than we do (and some less) and some of those life-forms are more benevolent than humans (and some more vicious), do we really want to be bleating into space, "We're here! We're here!"

MARGARET READ MACDONALD
Kirkland, Washington

Your artist's rendering of the Milky Way spiral brought a smile to my face, as it recalled a favorite poster from the 1970s that first brought the cosmos into perspective for me: a similar graphic with an arrow pointing to an insignificant branch of the spiral along with the notation, "You Are Here."

DAVE ARNOLD
West Branch, Iowa

The Other Tibet

Calling Xinjiang "the other Tibet" may appear to be accurate, but it is in fact misleading. Although China's

primary interest in Tibet and Xinjiang is the protection of national sovereignty, Xinjiang is different from Tibet in two ways. First, Xinjiang has resources that make it truly valuable for China. Second, it is caught in a political-religious quagmire that associates Uygur nationalism with Muslim terrorism and al Qaeda. Xinjiang is not another Tibet. Tibet is a more publicized and easier to understand Xinjiang.

FELIX DE ROSEN
Cambridge, Massachusetts

If the Uygur people cannot be neatly classified as religious extremists, then neither can the Han Chinese be classified as opportunists seeking to exploit the Uygurs' native land. The Han migrants were lured west by the promise of food and clothing. It is unfounded to accuse these laborers settling the north of Xinjiang of estranging Uygur culture for their own interests. On a separate note, it's ironic to see restricted economic opportunity in spacious and flourishing Xinjiang. Much of the space is impassable desert.

JOYCE YANG
Rockville, Maryland

Comparing Xinjiang's deadly ethnic violence to the Tiananmen Square massacre is misleading. Many of those killed in the Xinjiang violence were Han Chinese, yet we cannot hear their side of the story in your article. It is as if they never existed. And praising the Uygur thugs who killed innocent civilians as freedom fighters is laughable. The Uygurs may have their legitimate grievance against some policies of the Chinese government, just as

some people in the Middle East may resent U.S. foreign policy. But there is no difference between attacking people in a marketplace using "rusty swords" and flying an airplane into a tall building. They are both terrorist acts.

SHU WU
Overland Park, Kansas

The Uygurs had my empathy until I reached page 48 of your story. The picture of Uygur men with fighting dogs sickened me. Gandhi said that a nation's greatness is judged by the way it treats its animals. The Uygurs may be oppressed and marginalized, but that doesn't excuse their mistreatment of animals.

DEBRA J. WHITE
Tempe, Arizona

In the article, street cameras are said to "reinforce Chinese control." The fact is, many cities in China have this kind of camera. Just as cities in the United States have surveillance cameras. Do these reinforce U.S. control?

CHUNZENG WANG
Presque Isle, Maine

Corrections, Clarifications

December 2009:

Geography: Sign Language

The correct meaning of sign No. 6 is "No dogs allowed, even leashed."

Health: Fighting the Flu

The time line should have referred to the 1963 quarantine as the last federal confinement.

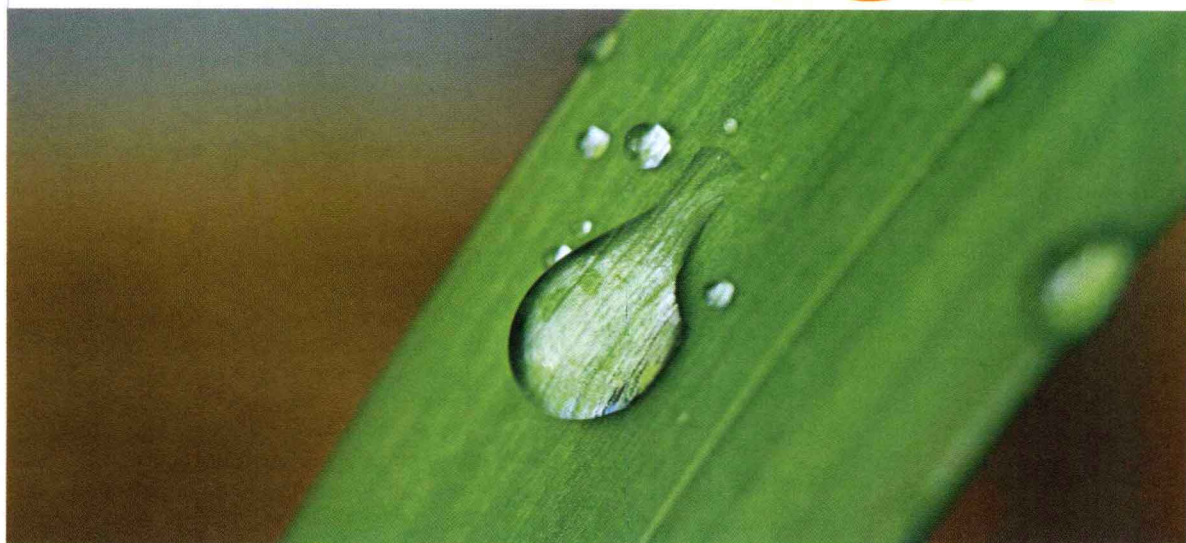
Monks of Mount Athos

Page 142: The animal in the photo is not a mule. It's a donkey.

Email ngsforum@ngm.com

Write National Geographic Magazine, PO Box 98199, Washington, DC 20090-8199. Include name, address, and daytime telephone. Letters may be edited for clarity and length.

How can we squeeze more food from a **RAINDROP?**



Farming feeds the world, but it depends on vital natural resources. Just consider this: irrigation for agriculture consumes 2/3 of the world's fresh water withdrawals.

Experts have concluded that agricultural output will need to double by 2050 to feed a growing world. We'll need to get more from each drop of irrigated water.

We'll also need to do more with the solution nature already provides: rain.

The challenge for farmers is squeezing the most out of unpredictable rainfall. That requires putting the latest science-based tools in farmers' hands, including advanced hybrid and biotech seeds. Our goal is to develop seeds that significantly increase crop yields and can help farmers use 1/3 less water per unit produced.

Producing more. Conserving more. Improving farmers' lives. That's sustainable agriculture. And that's what Monsanto is all about.

**Non-irrigated
agriculture
produces 60%
of the world's
food. It will need
to do more.**

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LETTERS

The Hadza

Not long after reading the article on the Hadza of Tanzania, I heard John Lennon's "Imagine" on the radio, and several similarities struck me. Lennon sings of a new world where there is no religion, no countries, no possessions, greed, or hunger, everyone sharing the world and living life in peace. The Hadza people have little religion and are unaware of the rest of the world, let alone separate countries. They have few possessions and don't worry about famine. Everyone shares the land, living in peace with other tribes. It makes one wonder if Lennon channeled his possible African ancestors while writing the song.

ANDREW SHARO
Wayne, Pennsylvania

My heart goes out to the Hadza. It is sad that people who are hurting no one have little choice of how to live because some more powerful people now want their land. How many humans alive today still know how to knap a stone tool or start a fire with a stick in 30 seconds? Western culture and resource use, which many now believe to be unsustainable, has been adopted by most of the world. Maybe it would be wise, just as a sort of insurance policy, to leave the Hadza alone. We may never need the kinds of skills the Hadza still possess in order to survive another 10,000 years. But what if we did?

GAIL STUMPF NSENTIP
Fort Bragg, California

The Hadza are our past, and we are, on a technological time line, the latest advanced human society. During our travel in time from there to here, I wonder when, if ever, our ancestors had the optimal balance of health, security, comfort, and the "Hadza effect." No doubt this effect is imprinted in all humans; it has just gotten buried in all of our schedules, time crunches, emails, etc. While modern societies have minimized what seemingly plagues the Hadza, your excellent article (and those