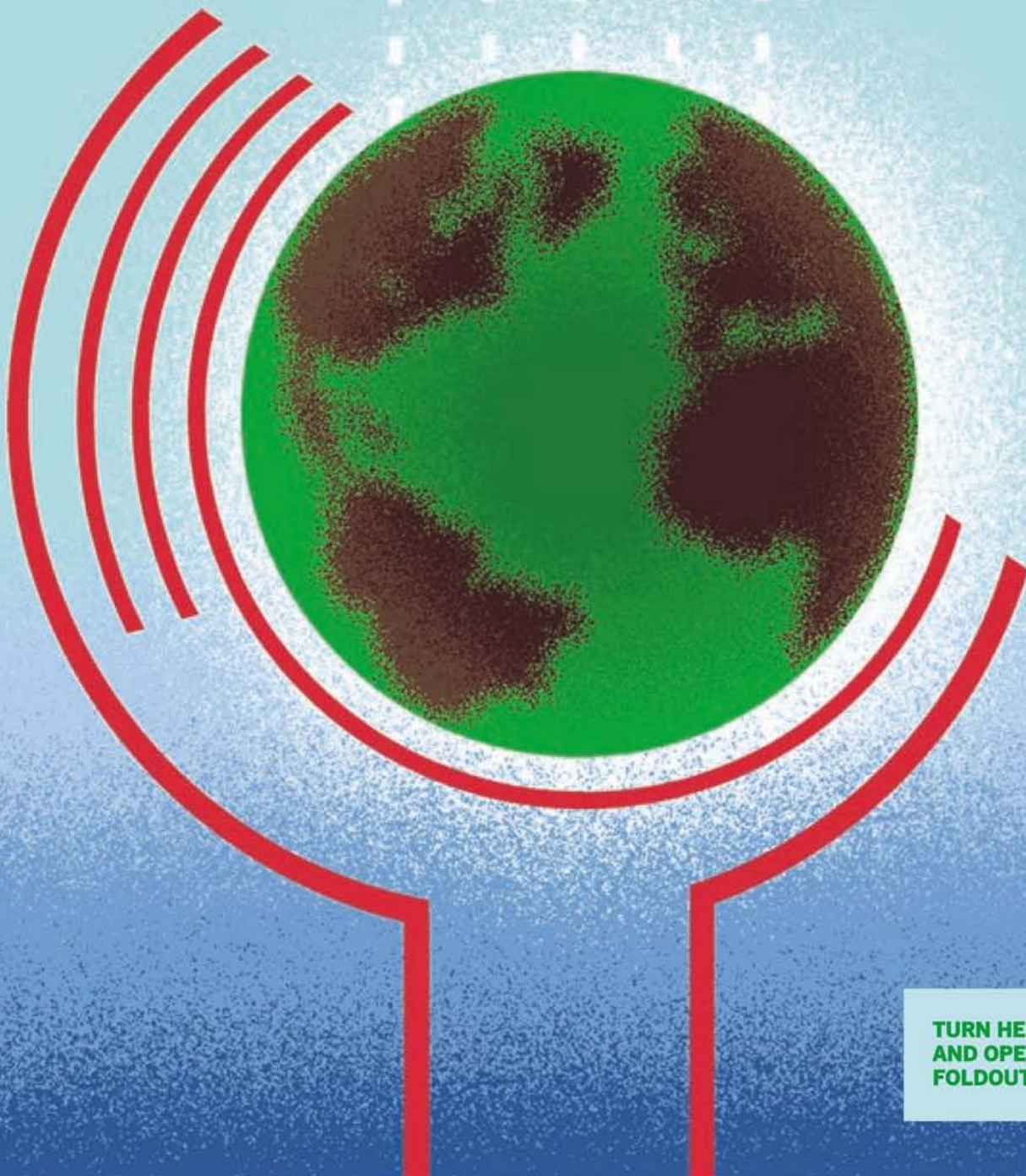


FORTUNE

# TOOLS FOR BETTER LIVING

New devices and ideas are remaking our world.  
Here are **seven brilliant, practical inventions.**



TURN HERE  
AND OPEN THE  
FOLDOUT.



## TOOLS FOR BETTER LIVING

**T**he winner of this year's Nobel Peace Prize is Muhammad Yunus, founder of Bangladesh's Grameen Bank and a pioneer of microfinance. Grameen lends small sums to farmers and entrepreneurs. The idea is to help the poor not by giving them a handout but by giving them financial tools they can use to create wealth.

Tech and other entrepreneurs all over the world—some of them with big companies, others starting out from scratch—have brought something of the same spirit to the innovations on these pages. And however complex the underlying technology, these are all inexpensive devices that help the poorest help themselves.

### REACHING OUT

#### PROBLEM:

Cellphones are too expensive for the people who need them most.

#### SOLUTION:

Cheap, simple handsets.

A few years ago many of the world's poor couldn't get phone and Internet services because telecom companies wouldn't build lines near them. But as wireless networks have spread, the issue isn't access. It's the lack of cheap mobile devices.

Now the semiconductor industry is developing technologies that should help manufacturers make simple phones that wholesale for \$40 or less. (Basic cellphones can wholesale for as much as \$100. Telecom companies often subsidize phones, retailing them to customers at a loss or even giving them away.) Texas Instruments and Qualcomm, for example, have found ways to consolidate

the functions of multiple microchips—the brains of these devices—into a single chip. Motorola, which introduced a sub-\$40 handset two years ago, is about to launch a new

low-cost phone, the MotoFone F3, using TI's chip. Such phones can be a lifeline for entrepreneurs in developing countries. A farmer, say, can get prices for his goods and decide whether to make the trip to market. "There is a correlation between teledensity and the economic well-being of a country," says Sanjay Jha, president of Qualcomm's chip business. —*Stephanie N. Mehta*

FOR MORE INFO Go to [motorola.com](http://motorola.com).



#### MORE IS LESS

Motorola's no-frills MotoFone F3



**DO-IT-YOURSELF**  
Indian women teaching themselves to read with the help of some easy-to-use software

JULIE SCHLOSSER

**For 68 years** Periya Muniammal could not read or write. She used a symbol rather than a signature to sign documents, which had to be read to her. Two years ago her tiny fishing village in southern India received a used computer and literacy software made and provided free by Tata Consultancy Services (TCS), one of India's largest tech-service companies.

The women of the village now gather nightly under a thatched roof around a Hewlett-Packard 1024 monitor. After 35 to 40 hours of lessons, the students are able to read 500 words in Tamil.

The program is the creation of former TCS chairman Faqir Chand Kohli, 82. Kohli's method does not require an accredited teacher, just an instructor who can point and click the computer mouse. In six years more than 90,000 adults have learned to read using TCS technology, and today the program is offered in several Indian languages. In Muniammal's village, more than 50 adults have learned to read. And at 69, she can now sign her name. —*Julie Schlosser*

FOR MORE INFO Go to [totaliteracy.com](http://totaliteracy.com).

### ONE-SHOT DEAL

#### PROBLEM:

AIDS and hepatitis are spread by reused needles.

#### SOLUTION:

A syringe that can't be shared.

Each year 23 million people in the developing world contract hepatitis and 260,000 get HIV from reused syringes, according to the World Health Organization. Twenty-two years ago Briton Marc Koska, 45, saw a solution: a syringe that self-destructs after one use. With seed capital from friends and family, he set about absorbing everything he could about how syringes are used—and misused—around the world.

He reached one important conclusion: "The world didn't need any more factories," says Koska. "If I could go to a factory and get them to convert, I could stop them from making bad syringes and help them make the good." Koska had to design a syringe that could be made with existing equipment and persuade makers to license his design. It was 17 years before his company, Star Syringe, sold its first single-use syringe in 2001.

Today Star Syringe has 16 licenses making and selling 350 million of its K1 devices in 25 developing countries. The K1, says Koska, has helped save more than two million lives. Thanks in part to a nationwide implementation of Star Syringe's needles, for instance, Uganda has cut AIDS infection rates in half since 2003, dropping from one of Africa's highest infection rates to among the lowest. —*John Simons*

#### FOR MORE INFO

Go to [starsyringe.com](http://starsyringe.com).



## WAITING FOR RAIN

**PROBLEM:**

Drought relief can be fatally slow getting to stricken areas.

**SOLUTION:**

Weather insurance.

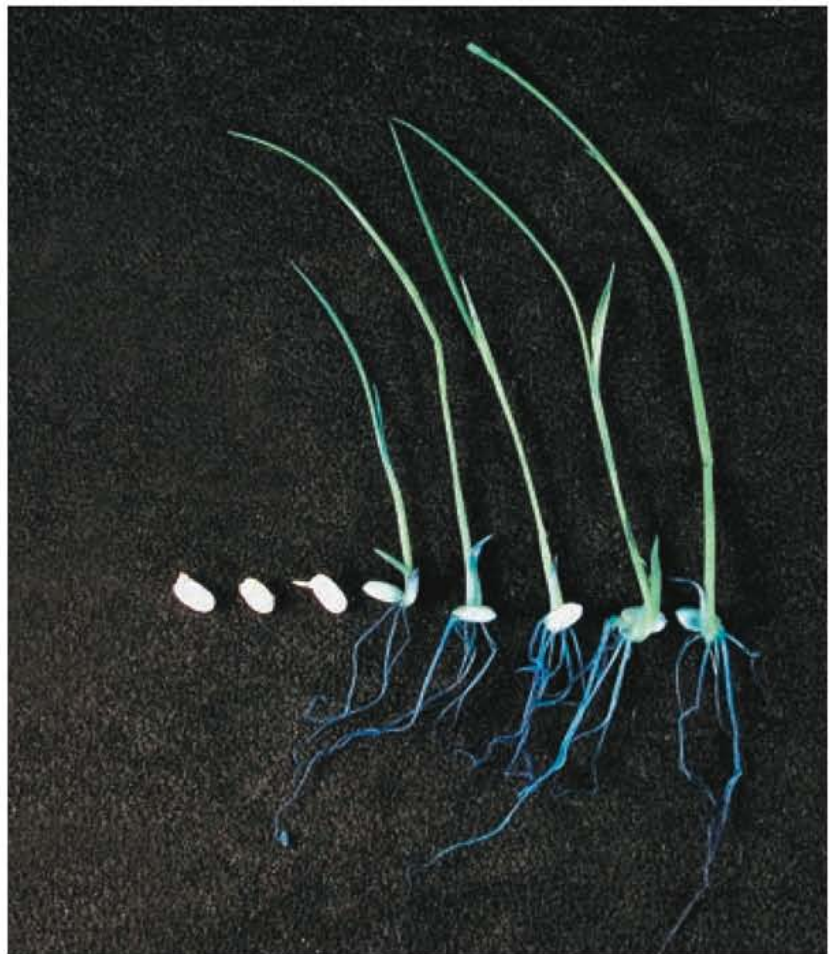
**As an Ethiopian,** Menghestab Haile knows what drought means. Farmers sell everything to buy food. When the rains return, they have no seeds and no tools. Relief doesn't show up until people are starving. The current system "doesn't respond fast enough," says Haile, a food security advisor for the United Nation's World Food Program. To change that, WFP teamed up with French insurer AXA. If rainfall in northern Ethiopia had been below a certain level this year, a \$930,000 premium, funded mostly by the U.S., would have yielded \$7 million, payable immediately to the WFP. This year rainfall has been abundant, so there will be no payout. In Mexico and India, where the World Bank subsidizes insurance for small farmers, weather-related coverage has expanded to more than \$150 million since programs began in 2002. —Stephan Faris

**FOR MORE INFO** Go to [wfp.org](http://wfp.org).



MELESE AMONE—WFP

**DRY SPELL** Parts of Ethiopia are now insured against serious lack of rain.



**BLUE MEANS STOP** Scientists are working to bioengineer crops that will signal soil problems by changing colors, like the roots of these rice seedlings.

## TELLTALE PLANTS

**PROBLEM:**

Farmers unknowingly plant in poor soil conditions.

**SOLUTION:**

Biosentinel crops.

**Winemakers often plant** rosebushes among their grapevines. It's no aesthetic flourish: Vintners watch those roses for early warnings of disease or pests. Biosentinel plants are ge-

netically engineered crops meant to provide the same kinds of warnings for farmers of all kinds. Scientists at the Australian research institute CAMBIA are trying to come up with nonfood strains of rice, whose simple genome makes it relatively easy to manipulate, that will send a signal (e.g., emit a pungent smell or turn color) in response to danger signs. And it's not just the tool (which is still a few years from fruition) that could be revolutionary: CAMBIA founder and biologist Richard Jefferson is in the vanguard of an open-source biotech movement in which innovations are shared instead of locked into patents. "It's not a matter of providing biotech solutions for the Third World," Jefferson says. "It's putting the farmer in the driver's seat." —Jia Lynn Yang

**FOR MORE INFO** Go to [cambia.org](http://cambia.org).