



OUR PLANET

The magazine of the United Nations Environment Programme - February 2009



GREEN ECONOMY

The New Big Deal

OUR PLANET

Our Planet, the magazine of the United Nations Environment Programme (UNEP)
 PO Box 30552
 Nairobi, Kenya
 Tel: (254 20)7621 234
 Fax: (254 20)7623 927
 e-mail: unepub@unep.org

To view current and past issues of this publication online, please visit www.unep.org/ourplanet

ISSN 101 - 7394

Director of Publication: Satinder Bindra
Editor: Geoffrey Lean
Coordinators: Naomi Poulton & David Simpson
Assistant Coordinator: Anne-France White
Special Contributor: Nick Nuttall
Distribution Manager: Manyahleshal Kebede
Design: Amina Darani
Produced by: UNEP Division of Communications and Public Information
Printed by: Phoenix Design Aid
Distributed by: SMI Books

The contents of this magazine do not necessarily reflect the views or policies of UNEP or the editors, nor are they an official record. The designations employed and the presentation do not imply the expressions of any opinion whatsoever on the part of UNEP concerning the legal status of any country, territory or city or its authority or concerning the delimitation of its frontiers or boundaries.

* All dollar (\$) amounts refer to US dollars.

also

- page 3 reflections
- page 10 people
- page 17 awards and events
- page 22 products
- page 23 www
- page 28 verbatim and numbers
- page 29 books

Juan Somavia, Director-General of the International Labour Organization...



... describes the new perspective that green jobs offer amid economic crisis and shows how they should be a crucial element of any recovery plan.

silver lining - page 4

Zhengrong Shi, Founder, Chairman and CEO of Suntech Power Holdings Co. Ltd...



... describes how China is using clean energy as a driver of new economic growth.

solar solution - page 6

Van Jones, President of Green For All and author of *The Green Collar Economy*...



... describes how connecting the people who most need work with the work that most needs to be done is the key to economic growth and recovery.

green collar jobs - page 8

Prof. **Jayati Ghosh**, Professor of Economics and Chairperson of the Centre of Economic Studies and Planning, Jawaharlal University, New Delhi...



... says that the economic crisis offers a unique opportunity for a new deal prioritizing development and resource conservation.

chance for change - page 11

Hal Harvey, President and CEO of ClimateWorks...



... outlines policies that have already been proven to work in combating climate change and creating low-carbon prosperity.

right track - page 14

Girma Wolde Giorgis, President of Ethiopia...



... shares his experience of planting one billion trees with Satinder Bindra, Director of Communications and Public Information at UNEP.

transforming Ethiopia - page 18

Pavan Sukhdev, a senior banker with Deutsche Bank and project leader of UNEP's Green Economy Initiative...



... outlines how the financial crisis could lead to a global Green New Deal for a better and sustainable world.

green breakthroughs - page 20

José Sergio Gabrielli de Azevedo, CEO of Petrobras...



... describes an oil and gas company's prime responsibility for the environment.

challenging commitment - page 24

Janet Ranganathan Vice-President of Science & Research at the World Resources Institute and **Polly Ghazi** its writer/editor...



... outline how to replace sub-prime development with measures that simultaneously reduce poverty and restore natural services.

natural development - page 26

Geoffrey Lean, *Our Planet's* Editor...



... describes Silicon Valley's vigorous pursuit of green profit.

silicon future - page 30

Su Kahumbu, Managing Director of Food Network East Africa Ltd. and a pioneer Kenyan organic farmer...



... describes how chemical-free farming is taking hold in the country and says it is essential for future survival.

organic growth - page 32

Indian social activist, actor and sportsman **Rahul Bose** ...



... describes development as "an opportunity to achieve – for all".

renaissance man - page 34

reflections

by Achim Steiner,
U.N. Under-Secretary-General and
Executive Director, UNEP

Globalisation does not just spread economic ups — and the current deep downs — rapidly across the globe. It can do the same for compelling and transformational ideas. As ministers gather in Nairobi for the Governing Council, two concepts being developed by UNEP are emerging as a powerful antidote to the economic gloom: the 'Global Green New Deal' and a transition to a global Green Economy. Together, they offer a way of overcoming short-term economic woes while setting the stage for sustainable growth in the 21st century, with markets rewarding nations and companies that invest in decent employment, innovation, resource efficiency and creativity.

The President of the Republic of Korea, Lee Myung-Bak, for example, recently announced 36 'Green New Deals' to "ease people's pain and create jobs", featuring such initiatives as creating high-speed railways and big networks of bicycle tracks and providing two million energy-saving 'Green Homes'. Power plants powered by gas from waste and forestry biomass are also planned, as is developing the next generation of hybrid vehicle technologies. The four-year stimulus package will create nearly one million new jobs, contribute to combating climate change and lay the groundwork for further economic growth.

China's \$570 billion stimulus package also includes a Green New Deal. No new factory or project will be permitted if it is highly polluting, or is a heavy consumer of energy or resources. One trillion yuan (\$142 billion) is to be spent over the next three years on such environmental improvements as accelerating forest planting programmes and increasing energy conservation and pollution-control. There will also be preferential pricing aimed at increasing the share of renewables from 8.3 per cent of energy in 2007 to 15 per cent in 2020 and investments to switch commodities and people from road to rail.

Among many other examples, the United Kingdom's stimulus package to create 100,000 jobs includes investments in such climate-friendly projects as solar, wind and wave power, electric cars and improved energy efficiency in homes and offices. Prime Minister Gordon Brown says that: "The environment is not being pushed off the agenda" by the recession, but is "part of the solution".

Importantly, the new President of the United States has made a Green New Deal a key foundation of an economic and employment recovery programme. This aims to promote energy from renewable sources and



energy conservation, including by raising vehicle fuel economy standards and subsidising purchases of plug-in hybrid cars, to 'weatherise' one million homes annually and upgrade the nation's electrical grid. The package will create an estimated five million jobs and deliver much-needed leadership on climate change.

At the Governing Council we look forward to hearing further examples of how countries are embracing a green economic transformation. Collecting and disseminating shining examples of smart market mechanisms and creative financial instruments is one of the central goals of the UNEP's new Green Economy initiative. Next year we plan to publish a guide and tool-kits for both Northern and Southern governments, showcasing the kinds of legal and fiscal changes and reforms that can help accelerate the transition to a more sustainable 21st century global economy. And during this year we also plan to publish policy options on such topics as rural energy and renewables — with others, such as on ecosystem restoration, sustainable transport and urban economies, in the pipeline. These reports draw on a unique partnership we are building with UN organisations and economic and policy think-tanks.

Over the coming months governments will inject hundreds of billions of dollars to stimulate economies. Soon trillions of dollars, now sitting on the sidelines, are likely to be mobilised back into markets by investors. Will this investment go into the old brown economy of the 20th century or the new green 21st century one?

The multiple crises of 2008 and the ones looming — from climate change to natural resource scarcity — require a fundamental re-think and re-focusing of how a globalised world orders its affairs. The Green Economy is an idea whose time has come — and one that seems to be taking root, capturing the imagination of leaders and civil society around the world.

UNEP promotes

environmentally sound practices
globally and in its own activities.

This magazine is printed on 100% recycled
paper, using vegetable-based inks and other
eco-friendly practices. Our distribution policy
aims to reduce UNEP's carbon footprint.

Cover photo © PETER GINTER / Science Faction / Getty Images. A 'Green Economy' is what we want to see. In this time of global financial turmoil, a warming Earth and inefficient energy generation and use, the best path to take, and the one discussed in this issue of *Our Planet*, leads to more jobs, clean energy and a better world for all. The new 'big deal' as outlined in this magazine, offers hope, opportunity and several solutions.

silver lining

by Juan Somavia

The global picture for jobs is grim. Preliminary International Labour Organization (ILO) estimates for 2009 forecast tens of millions of new unemployed people and working poor due to the global financial crisis — with a particularly worrying rise in youth joblessness. The financial crisis has rapidly evolved into an economic crisis and now a jobs one.

Many elements of a global rescue package are being discussed, ranging from short-term bailouts to medium- and longer-term proposals for boosting public expenditure on programmes with strong employment content, increased lending to help to finance growth-supporting expenditures in developing countries, and greater training and promotion of new skills development. An increasing number of economic stimulus packages include the greening of economies and the creation of 'green jobs'.

UNEP's Executive Director, Achim Steiner, has called 'green jobs' the "silver lining of climate change." In the newly deteriorating economic climate, will they prove to be one of the most important elements of the responses to the economic crisis? There is reason to believe that they can and should be a vital and crucial element of any recovery plan.

Our recently published report, *Green Jobs: Towards Decent Work in a Sustainable, Low-Carbon World*, examined green jobs in a global context for the first time. Funded and commissioned by UNEP under a joint Green Jobs Initiative with ILO, the International Trade Union Confederation and the International Organization of Employers, it represents the best available knowledge and forward-looking thinking on how to bolster green job creation in the global economy.

Millions of green jobs already exist. Millions more are in the making. They contribute to preserving or restoring the quality of the environment; help cut consumption of energy, raw materials and water; de-carbonize the economy and reduce greenhouse gas emissions; minimize waste and water pollution; and protect and restore ecosystems and biodiversity.

Energy supply — in particular renewable energy — buildings and construction, transportation, agriculture and forestry will all be particularly important in terms of their environmental, economic and employment impact. Clean technologies are already attracting increasing amounts of venture capital: in some countries this has more than doubled in recent years.

Millions of new jobs have been created in the renewable energy sector worldwide, and the potential for growth is huge in alternative energies, wind, solar and biomass. Already, renewables generate more jobs than oil production and refining, and projected investment could create at least another 20 million more by 2030. And 12 million new agricultural jobs could be created in producing biomass for energy and related industries.

A worldwide transition to energy-efficient buildings would create millions more jobs still, and 'green' existing employment for further millions of workers in construction. Investing in improved energy efficiency in buildings could generate an additional 2 to 3.5 million green jobs in Europe and the United States alone, with the potential for much higher jobs growth in developing countries. Recycling and waste management employ millions worldwide and are expected to grow rapidly in countries facing escalating commodity prices.

Of course, many jobs that are green in principle may not be green in practice. Some because they may cause environmental damage by inappropriate practices, and some because they are inherently dangerous, dirty and difficult. Sectors of concern — especially, but not exclusively, in developing

countries — include agriculture and recycling where work involves low pay, insecure employment contracts and exposure to hazardous materials. These jobs would not constitute what the ILO calls "decent work". And though millions of green jobs already exist, too few are being created for the world's most vulnerable workers living on less than \$2 per day, and especially for the women and millions of unemployed youth who need them the most.


Moving towards a more sustainable development path will involve major changes in all countries' production and consumption patterns. It's a global challenge that will affect enterprises and work places all over the world. The transition has already started. Half of today's 2.3 million jobs in renewables are in the developing world. Moving towards a sustainable low carbon economy can work for the poorest of the poor. The solar panels being installed in rural villages are just one example of this, and there are many more.

But we need to make sure that green jobs are decent jobs, and acknowledge that good green jobs do not come naturally. Millions of workers throughout the world, for example, are involved in recycling discarded computers and mobile phones. Though their jobs may seem green, they are often bad quality ones where the first things to go in the recycle bin are health and safety rules.

New jobs will be created, others adapted, and some will fade out. Mitigating and adapting to climate change will entail a transition to new patterns of production, consumption and employment. Policies have to focus in the beginning on those at the receiving end of this transition so as to keep political will and public support. That means helping to diversify economies, assisting enterprises and workers to adapt, ensuring social protection is in place, and that there are training programmes to fill skills gaps. The best way to make a just transition is by ensuring that those who are most directly involved — employers and workers — have a say in it. We need effective social dialogue to help us grow into a greener economy.

So, are green jobs a viable hope for the world's environmental and economic future in times of sharply lower growth and recession? The answer is decidedly: Yes. Huge opportunities exist to create them through energy and industrialization policies that reduce environmental footprints. They can provide decent work and incomes that will contribute to sustainable economic growth and help lift people out of poverty. They are central to the positive link that needs to be established between climate change and development. Indeed, the major investments to adapt to climate change could provide many new and better jobs for the most vulnerable people.

Green jobs not only have long-term potential for sustainable economic growth, but can help jump-start stalled economies and put people back to work quickly in both developing and developed countries. This is particularly true in retrofitting buildings to make them more energy efficient, in accelerating the extension of public transport, in constructing the infrastructure needed to adapt vulnerable countries to climate change, in shifting to renewable energy and in works undertaken to rehabilitate ecosystems and reforestation.

Some nations have already adopted economic packages that promote green job growth as a short-term way of rebuilding, rewiring and renewing existing infrastructure and facilities to make them more energy-efficient, and as a long-term solution to unemployment and environmental issues. If invested wisely, the resources to overcome the economic crisis could leave a legacy of energy-efficient infrastructure, rehabilitated ecosystems, renewable energy sources, and countries more resilient to climate change. And they could lay the foundation for a greener economic future which is environmentally sound, economically productive and socially sustainable. If ever there was a time for the Green Jobs Initiative to take hold, this is it. 

solar solution

by Zhengrong Shi



Much has been said in recent years about China's supposed reluctance to contribute to the global effort to reduce greenhouse gases and mitigate the impacts of climate change. But, even though it was not a signatory to the Kyoto Protocol, the country has quietly undertaken a wide range of initiatives to become more energy-efficient and to increase its reliance on renewable energy. In many cases these have far exceeded efforts in the developed world. In the process, it has also turned clean technology into a significant driver for new economic development.

The progress of the last few years has mirrored my own personal passion for changing the way we produce energy. I have always been concerned about the detrimental effect of human reliance on fossil fuels. I believe that global warming is our greatest threat, requiring the commitment of governments, companies and individuals to solve it. After spending time in Australia earning my PhD and completing research in solar 'thin film' technology, I came back to Wuxi, China, in response to government incentives to encourage new technology and renewable energy companies to locate there. I have built a world-leading R&D department that focuses on pioneering the most innovative, cutting-edge technology to capture the sun's energy to generate electricity. Through my research, and with my colleagues at Suntech around the world, we are committed — and working very hard — to reduce the cost of solar systems, reach grid parity and make clean solar energy affordable to as many people as possible. Moreover, we have strong internal environmental policies and practices, and our own new factory and headquarters will be 85 per cent reliant on renewable energy.

China is facing enormous energy challenges. Everyone seems to know that we need to increase our energy supply by the equivalent of one power plant per week to support China's economic growth, which is allowing millions of people to enjoy better standards of living. Much less is known of the extent to which China has taken steps to mitigate the impact of that growing energy demand through incentives for greater efficiency and renewable energy. Policies include:

- Cutting energy intensity 20 per cent between 2005 and 2010, saving five times as much CO₂ as the EU's goals.
- Cutting major pollutants by 10 per cent by 2010.
- Setting one of the world's most aggressive renewable energy standards: 15 per cent of national energy from renewables by 2020.
- Setting targets of 300 megawatts of installed solar by 2010, and 1.8 gigawatts by 2020, in the 2007 National Development and Reform Commission Renewable Energy Development Plan.
- Dedicating \$180 billion for renewable energy by 2020.
- Imposing energy efficiency targets for the top 1,000 companies, a measure with greater carbon savings potential than most Western initiatives.
- Establishing building energy codes in all regions and extensive efficiency standards for appliances, which will be particularly important as China continues to grow.
- Targeting new buildings in major cities like Beijing, Shanghai and Chongqing, to achieve 65 per cent greater energy efficiency than local codes require.
- Closing thousands of older, smaller, dirtier power plants by 2010.


China understands the economic development potential in clean energy technologies. Even the noted journalist Thomas Friedman has remarked that "China is going green in a big way," using domestic demand for cleaner energy to build low-cost, scalable green technologies. Suntech Power Holdings —

now the world's largest solar photovoltaic (PV) module manufacturer, with operations around the globe — was just one of dozens of solar companies that realised the opportunity provided by China's energy challenges and the government's strong commitment to provide alternatives. Through favourable tax policies, aggressive government procurement and national targets, China is building a world-class export industry in all parts of the solar value chain, as well as encouraging increased use of the sun's energy at home. It is now the third-largest national producer of solar PV for the global market and may soon become the leader. In short, it realises that green energy is the key to both sustainable economic growth and a more pleasant environment.

Yet China can still do more, and I'm working closely with the Government to set even more aggressive standards to help drive the development of the country's renewable energy resources. The Government is developing a solar building code with Suntech's participation, and is considering a review of the solar targets in the national renewable energy law — the 1.8 gigawatt goal by 2020 is just a fraction of the country's true potential within that timeframe.

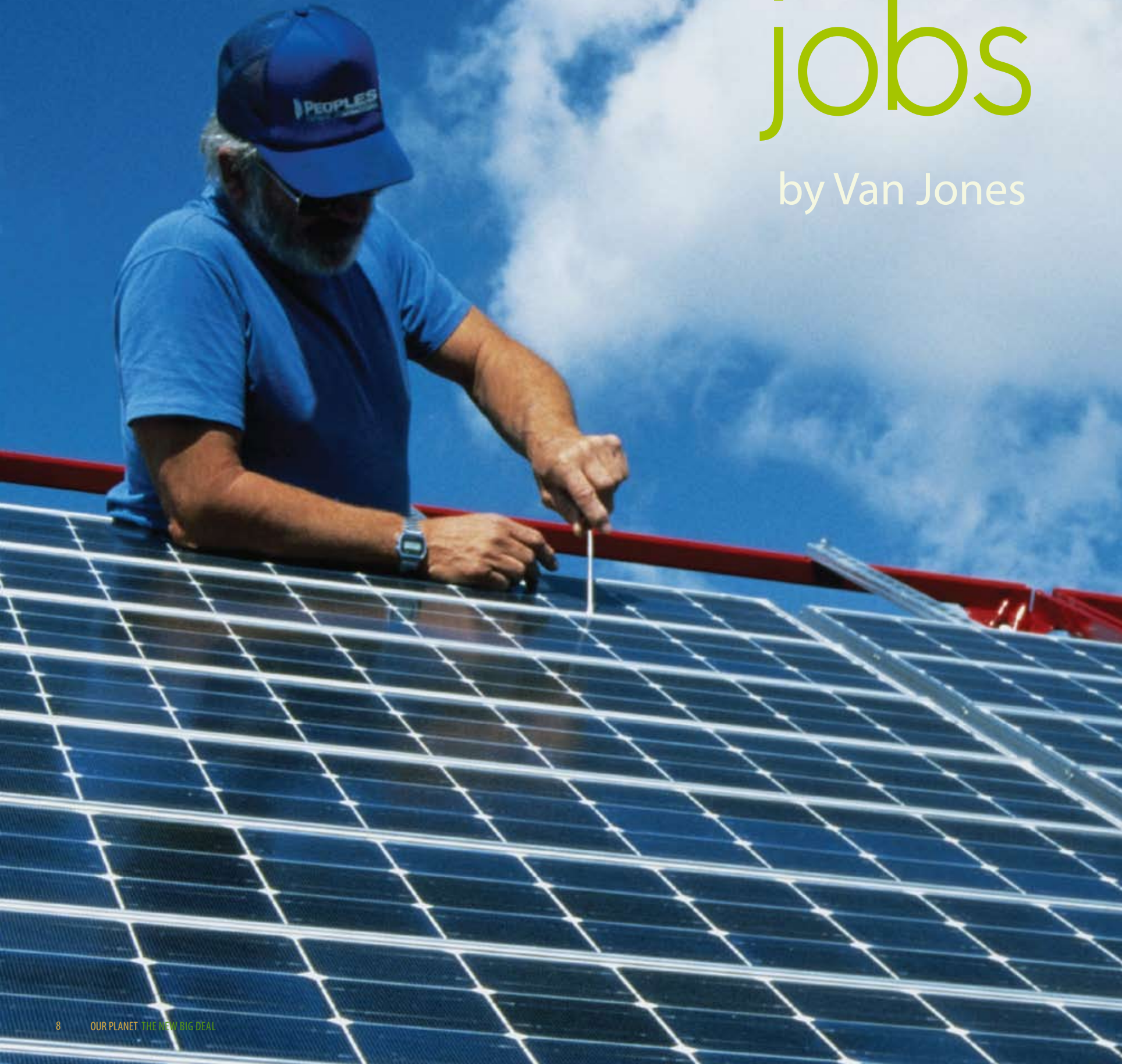
The price of electricity is a key concern both in China and around the world. Like many countries, we understand the power of low-cost electricity to drive economic development: indeed, the United States and the rest of the developed world were able to grow as quickly as they did because of inexpensive energy. But the days of cheap electricity are over — or at least they should be. Any country with highly subsidised electricity tariffs, including China, needs to bring them more in line with the real costs of power, including the costs of the necessary efforts of mitigating carbon emissions and their impacts on the environment. Fairly priced electricity sends a signal to consumers to conserve power and become more efficient in their use of it. As we drive down the cost of solar electricity, we will easily be able to compete against correctly priced electricity from carbon-based sources, unleashing a surge in its adoption both in China and elsewhere.

What is happening in China could happen all over the world. I hope to see other countries, particularly developed ones, match its policies. It is these robust, long-term policy commitments that allow manufacturers like Suntech to grow and to build the economies of scale needed to reduce prices. And visionary leaders like Germany's Hans-Josef Fell, Hermann Scheer and Juergen Trittin, or California's Governor Arnold Schwarzenegger, know they can win clean-tech jobs when they set far-reaching renewable energy goals.

As we embark on the ambitious agenda set for 2009 — and the climate negotiations in Copenhagen at the end of the year — it is critical to understand, particularly in the somewhat reluctant global business community, that pushing ahead with green initiatives, including CO₂ reductions in every country, is the key to long-term sustainable economic world growth. Whether through feed-in tariffs in Europe, direct investments in renewable energy in China or renewable energy standards in United States, each country can contribute towards the common goal of simultaneously turning back the tide of climate change while laying the foundation for healthy economic growth. Personally, I feel a deep responsibility for raising awareness of climate change issues and helping others understand the role that solar energy can play in reducing carbon dioxide emissions and global warming. Working together we can empower people to take up the noble yet pragmatic cause of building a green future for their families and society around the world. 

green collar jobs

by Van Jones



Global warming and global recession require the world to have a new paradigm for development. If we are to ensure both ecological survival and economic success, we need a 'green growth' revolution — centred on expanding green collar jobs and opportunities for all people. Green collar jobs are essentially blue collar jobs, upgraded to better respect the Earth's living systems. Green collar employment is essential in rebuilding human civilization to waste fewer resources and run on clean energy.

The key insight that will enable such a paradigm shift is this: everything that is good for the environment is a job. Solar panels do not install themselves. Wind turbines don't manufacture themselves. Buildings do not weatherize and retrofit themselves. Urban trees, green roofs and community gardens do not plant themselves. All these activities require human labour. Recognizing this simple fact helps to undermine the myth that ecological restoration must always be at odds with economic performance.

The key for a sustainable world economy — and a restored United States one — is to foster activity where positive financial returns meet ecological renewal and rebirth. Hundreds of millions of people worldwide need work. And there is much work that needs to be done. By connecting the people who most need work to the work that most needs to be done, humanity can fight pollution and poverty at the same time.

PhDs — with their scientific discoveries — will be very important in this. But their contributions will matter little without the contribution of the Ph-DOs — those well-trained workers in green hard hats, who will DO the hard work of retrofitting the world's infrastructure and rebooting its energy systems. The global proliferation of such jobs — especially family-supporting career paths in the clean energy sector — must become the cornerstone of a new world economy.

In my own country, the green collar revolution will be critical to the U.S. economic recovery — and its reinvention. Sometimes something really bad has to occur before something really good can happen. As Barack Obama has repeatedly said, this is our decisive moment.

In September, we suffered a financial catastrophe. It tore the economic floor out from under the American people. But then, in November, we witnessed a spectacular political breakthrough. That historic election lifted the ceiling off our people as well. So the floor is gone. And the ceiling is gone. Today, we now are free to fall — or free to fly. It is up to us.

Before the world's most important economy can begin to soar again, we need to understand the cause of our crash. The reason for our precipitous decline in the U.S. is simple: for the past 30 years, both major political parties have promoted economic policies based on three fallacies. The first was the idea that the U.S. economy could go on forever powered more by consumption than production. The second was that we could run our economy based on endless debt and credit, rather than the smart savings and thrift practiced by our grandparents. And the final one was that we could base the economy on environmental destruction, rather than ecological restoration.

Those three fallacies — promoting endless consumption, credit and waste — define an unsustainable economy. The U.S. became the most important economy in the world — not as the biggest producer, but as the biggest consumer. And all countries — especially China — have therefore been

expected to distort their internal economies into export machines to meet our consumer demands.

In recent years, the system got so out of balance that poor countries like China began loaning money to rich America to finance our endless consumer appetites for their products. This was possible because Americans spend too much and save too little. Meanwhile, our sisters and brothers in China save too much and spend too little. As a result, China always has a big pile of cash, available for lending. And Americans always have a big pile of credit cards, looking for someone from whom to borrow. Over the past decade, we built up our entire economy on cheap credit and hocked homes. The crash we are experiencing was inevitable — and it is causing shockwaves around the world.


In future, nobody in China — simply to earn more than one dollar a day — should have to leave her village and cram herself into a smog-choked megacity just to make crap for Americans to buy. There is a better solution for Asia and other developing regions — and for the U.S. too. Each country needs its own strategy to generate employment in wise, locally rooted green economies — powered by homegrown, clean energy. That will require a global U-turn away from the three fallacies and toward their opposites: local production, thrift and ecological stewardship.

As the world's leader (per capita) in greenhouse gas emissions, the U.S. must take the lead here too. Doing so will both be good for the Earth, and lay the basis for the next American economy. As one important step: the U.S. government needs to stop paying the big polluters (through tax breaks and other supports) and start making them pay for dumping megatonnes of carbon into the atmosphere. The dollars generated can be returned to consumers to cushion the blow of any rise in energy and food costs — and can also be invested in mass transit and new technologies.

The government also should help cities weatherize and retrofit millions of buildings. It could establish a massive 'revolving loan' fund, replenished by money that green loan recipients save on energy. And we need to build a national power grid that connects our clean energy power centres to our population centres. We can power our way through the recession by repowering America with clean energy.

The good news, again, is that everything we need to combat global warming is a job, or a business contract or an entrepreneurial opportunity. The entire world must abandon the last century's 'low-road, high carbon' path to economic development. To fight poverty and pollution, all nations must choose a 'high-road, low-carbon' pathway to prosperity.

Of course, the green growth revolution must expand beyond questions of energy and climate. We must also find solutions to the crises in water, food, toxics, over-population, excessive consumption and waste. A clean energy revolution by itself will merely give us solar-powered bulldozers and bio-fuelled bombers, on a crowded and strip-mined planet.

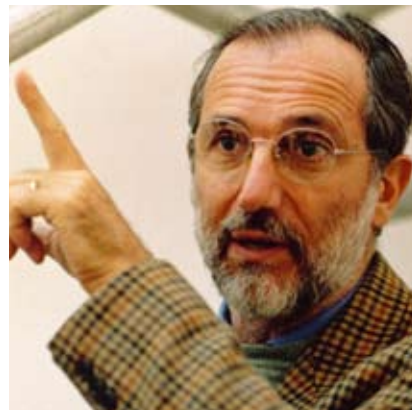
Therefore, the road to true ecological and economic sanity will be a long one. But with vision, courage and leadership, the U.S. can go from being the world leader in pollution to the world leader in solutions. Green collar jobs will give millions of people around the world both a paycheck and a purpose — helping us to save our sister and brother species, as well as our own human family. 

A few weeks before his Inauguration as President of the United States, Barack Obama won the approval of the environmental world by appointing what is being hailed as an unprecedentedly 'green' U.S. Cabinet. Most notably, he created the post of Energy and Environment Coordinator for **CAROL BROWNER**, who was head of the Environmental Protection Agency under former President Bill Clinton. As Obama's 'Climate Czar', Browner's job will be to coordinate the White House's work on climate change across all the different energy, climate and environment entities. Browner



is the longest-serving head of the EPA, with a reputation for toughness that should prove invaluable as she spearheads the new Administration's policy on climate change. The President-elect's other notable green appointments include Steven Chu as Secretary of Energy and John Holdren as Science Adviser. Nobel Prize-winning physicist Chu — who is one of the world's top researchers on alternative and renewable energy — was an early advocate for finding scientific solutions to climate change. Holdren, a professor of environmental policy at Harvard University, has focused on the causes and consequences of climate change and advocates a strong and rapid global effort to address it. Browner, Chu and Holdren will be the cornerstone of Obama's plan to create jobs, achieve energy security and combat climate change. The new team's task will include enrolling the support of Congress for any legislation to cap the U.S.'s carbon emissions, while a new international post-2012 climate treaty will have to gain a two-thirds majority in Senate.

Italian architect **RENZO PIANO** is no stranger to accolades: his buildings — encompassing the iconic George Pompidou Centre in Paris — earned him the Pritzker Prize, considered the 'Nobel of Architecture', in 1998, and he has also won the AIA Gold Medal, the Kyoto Prize and the Sonning Prize. His latest work, the Academy of Sciences in San Francisco, did not just open to rave reviews, it also received top marks from the Green Building Council, which encourages environmentally friendly architecture. The structure's insulation is made of old blue jeans, solar panels provide up to 10 per cent of its energy needs, and it has a 'living roof' that gives off oxygen instead of absorbing heat. "The San Francisco museum is an interpretation of the green revolution on the march," Piano says. "Environmental constraints should not be seen as an assault on freedom. You find that the planet is vulnerable. Does this have to be a crisis?" Piano argues that "architects should be able to interpret the changes of their times and



live with their times" — and indeed, his own workshop in Genoa has a glass roof that lets in the sun for natural heat and light.

DESMOND TUTU — activist, anti-Apartheid hero and Nobel Peace laureate — has always been vocal in his defence of the most vulnerable. Over the last few decades, the South African cleric has used his high profile to fight for the oppressed and to campaign against HIV/AIDS, poverty and racism. His latest cause is the environment: during the UN climate talks in Poznan, Poland, in December, Tutu led a group of singers, writers, actors and campaigners in urging rich nations to



take the lead on climate change. In a letter to the London Times, Tutu and 18 other famous signatories, including broadcaster David Attenborough, actress Scarlett Johansson and singer Angelique Kidjo, said developed nations must "show leadership" in Poznan. The letter, organised by Oxfam, notes that the effects of global warming are hitting the poor the hardest. "Wealthy nations, who are in their advantaged position because of heavy industrialisation, are the most responsible and most able to lead the world in tackling climate change," it says.

European Commission Vice President **MARGOT WALLSTRÖM** is a long-time environmentalist, having left her mark as the EU's Environment Commissioner from 1999 to 2004. The Swede is now leading the 'Road to Copenhagen' initiative alongside Gro



Harlem Brundtland, the UN Special Envoy on climate change, and Mary Robinson, the former UN High Commissioner for Human Rights. The aim of the interactive project is to ensure that business, parliamentarians,

NGOs and individual citizens "have a direct input" into the climate change negotiations leading up to the Copenhagen meeting in December, when governments must agree on a post-2012 climate deal. The website — www.roadtocopenhagen.org — invites open debate and opinion on key issues, including adaptation, technology, finance and mitigation. In June, the organisers will submit "detailed policy inputs" to the negotiators based on all the feedback submitted to the website. A communiqué and issue papers will be submitted to the negotiators in December, just before the meeting.

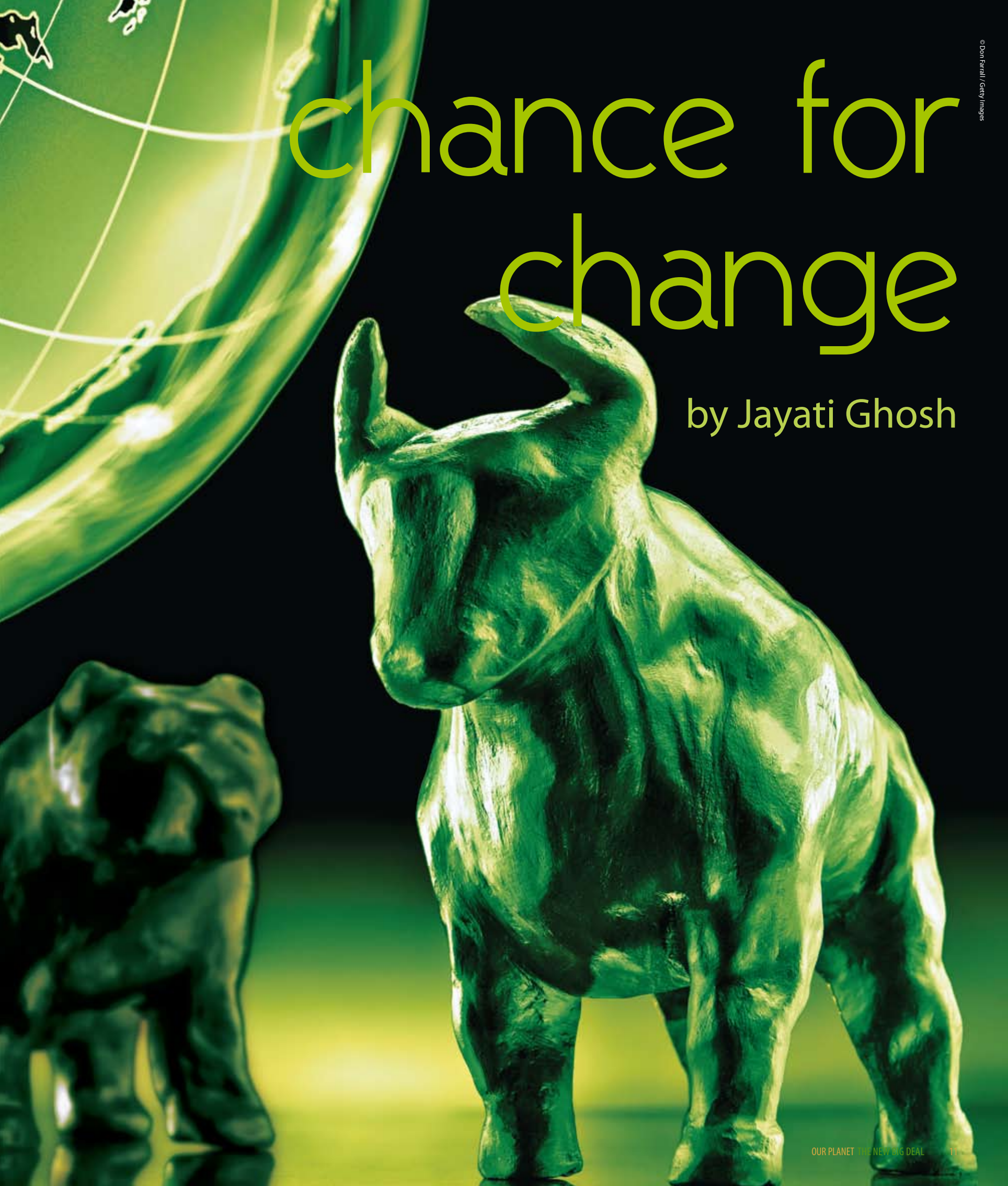
ABIOLA OLANIPEKUN, a Chief Environmental Scientist in Nigeria's Environment Ministry, was awarded the 2008 Special Recognition



Award from the Intergovernmental Forum on Chemical Safety (IFCS) for her "work and leadership in the African region in many of the most important international chemicals management negotiations and processes of the last decade." Over the last few years, she has become widely recognised as a leading voice in many international chemicals management negotiations, serving twice as chairperson of the G77 and China during the intergovernmental negotiations for the Stockholm Convention on Persistent Organic Pollutants. She is also the African Regional Focal Point for the implementation of the Strategic Approach to International Chemicals Management. In 2007, at the 24th session of UNEP's Governing Council, Olanipekun secured a breakthrough decision on the prevention of illegal international traffic in toxic substances.

chance for change

by Jayati Ghosh



It has become a cliché, but it is true nonetheless: every crisis is also an opportunity. Of course, as the global financial crisis unfolds and creates downturns in real economies everywhere, it is easy just to see the downside, as jobs are lost, the value of financial savings of workers is wiped out, and material insecurity becomes widespread. In fact, this global crisis offers a greater opportunity than we have had for some time for the world's citizens and their leaders to restructure economic relations in a more democratic and sustainable way.

Such restructuring is essential, because so much was wrong with the economic boom that preceded the crisis. Everyone now knows that it was unsustainable, based on speculative practices that were enabled and encouraged by financial deregulation. But it also drew rapaciously and fecklessly on natural resources. And it was deeply unequal. Contrary to general perception, most people in the developing world did not gain.

The financial bubble in the US attracted savings from across the world, including from the poorest developing countries, so that for at least five years the South transferred financial resources to the North. Developing country governments opened up their markets to trade and finance, gave up on monetary policy and pursued fiscally "correct" deflationary policies that reduced public spending. So development projects remained incomplete and citizens were deprived of the most essential socio-economic rights. Despite popular perceptions, no net transfer of jobs from North to South took place. In fact, industrial employment in the South barely increased in the past decade, even in China, the "factory of the world".

Instead, technological change in manufacturing and the new services meant that fewer workers could generate more output. Old jobs in the South were lost, or became precarious, while the majority of new jobs were fragile, insecure and low-paying, even in fast-growing China and India.

The persistent agrarian crisis in the developing world hurt peasant livelihoods and generated global food problems. Rising inequality meant that the much hyped growth in emerging markets did not benefit most people, as profits soared but wage shares of national income declined sharply.

So the recent growth was not inclusive. Unfortunately, it is likely that the slump will be only too much so, forcing those who did not gain earlier to pay for the sins of irresponsible and unregulated finance. As economies slow down, more jobs will be lost and people — especially those in the developing world who did not gain from the boom — will face loss of livelihood and deteriorating living conditions.

If we are to prevent this, we need a clear world-wide change in economic strategy. It has several necessary elements.

First, everyone now recognises the need to reform the international financial system, which has failed to meet two obvious requirements: preventing instability and crises, and transferring resources from richer to poorer economies. Not only have we experienced much greater volatility and propensity to financial meltdown across emerging markets and now even industrial countries, but even the periods of economic expansion have been based on the global poor subsidising the rich.

This system has encouraged pro-cyclicality — the unnecessary amplification of swings — in national economies. It has rendered national financial systems opaque and impossible to regulate. It has encouraged bubbles and speculative fervour rather than real productive investment for future growth. It has allowed for the proliferation of parallel transactions through tax havens and loose domestic controls. And it has reduced the crucial developmental role of directed credit, where a proportion of lending is allocated to specific sectors of the economy.

Given these problems, there is no alternative to systematic state regulation and control of finance. Since private players will inevitably attempt to circumvent regulation, the core of the financial system — banking — must be protected, and this is only possible through social ownership. Therefore, some degree of socialisation of banking (and not just socialisation of the risks inherent in finance) is inevitable. This is also important in developing countries because it enables public control over the direction of credit, without which no country has ever succeeded in industrialising.


Second, fiscal policy and public expenditure must be brought back to centre stage. Clearly, fiscal stimulation is now essential in both developed and developing countries, so as to cope with the adverse real economy effects of the current crisis and to prevent economic activity and employment from falling. Fiscal expenditure is also required to undertake and promote investment to manage the effects of climate change and promote greener technologies. And public spending is crucial to advance development in the South and fulfil the promise of achieving minimally acceptable standards of living for everyone. Social policy — the public responsibility for meeting the social and economic rights of citizens — is both desirable in itself and contributes positively to development.

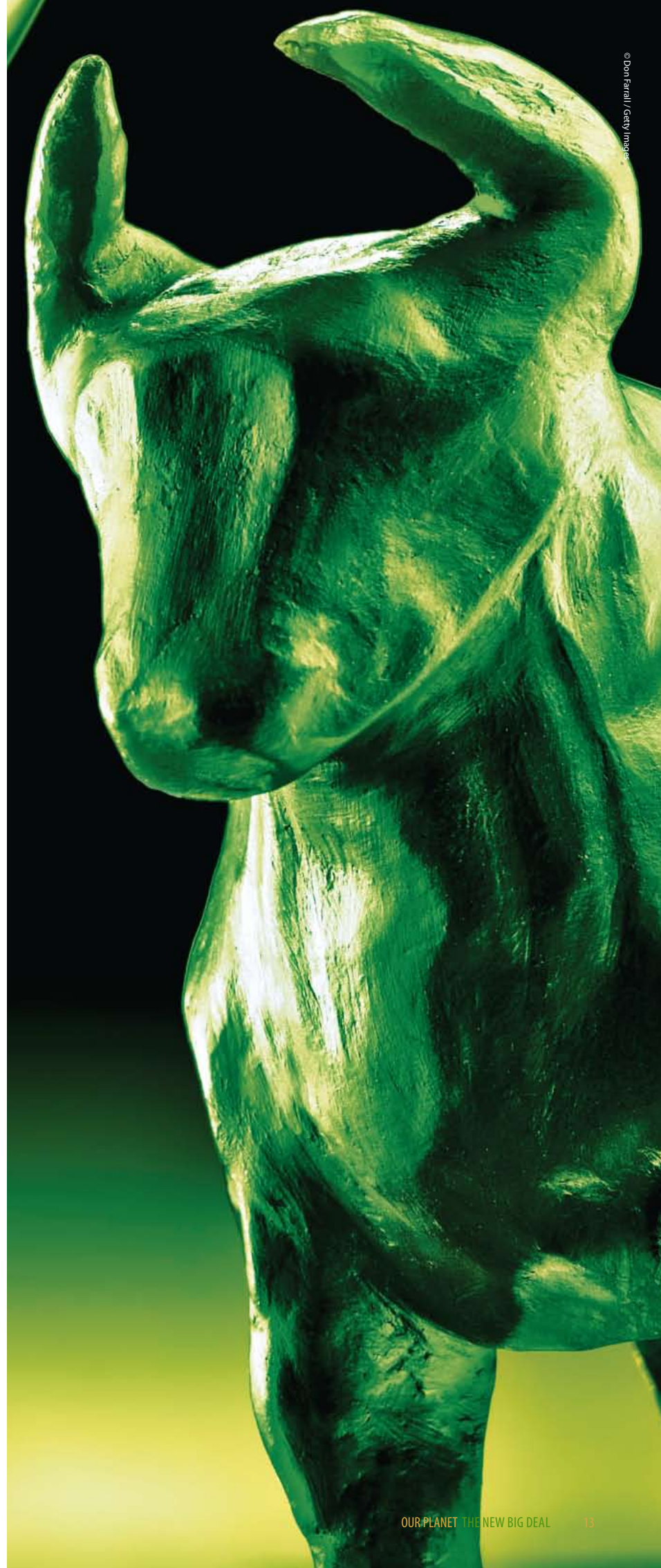
Third, restructuring the world order will have to be based on conscious attempts to reduce economic inequalities, both between countries and

within them. We have clearly crossed the limits of “acceptable” inequality in most societies, and future policies will have to reverse this trend. Globally and nationally, we have to recognise the need to reduce inequalities in income and wealth — and also, most significantly, in the consumption of natural resources.

This is even more complicated than might be imagined, because unsustainable patterns of production and consumption are now deeply entrenched in richer countries — and are aspired to in developing ones. But many millions of citizens of the South still have poor or inadequate access to the most basic conditions of decent life, such as even minimum levels of sanitation, health, nutrition, education and physical infrastructure, such as electricity and transport and communication links. Ensuring their universal provision will inevitably require greater per capita use of natural resources and more carbon-emitting production. So both sustainability and equity require a reduction of the excessive resource use of the rich, especially in developed countries, but also among elites in the developing world. Redistributive fiscal and other economic policies must be specially oriented towards reducing inequalities of resource consumption, globally and nationally.

Fourth, we need an international economic framework that supports all this. Capital flows must be controlled and regulated so that they do not destabilise any of these strategies. Financing for development and for the conservation of global resources must be the top priorities of the global economic institutions, but they cannot continue to base their approach on a completely discredited and unbalanced economic model.

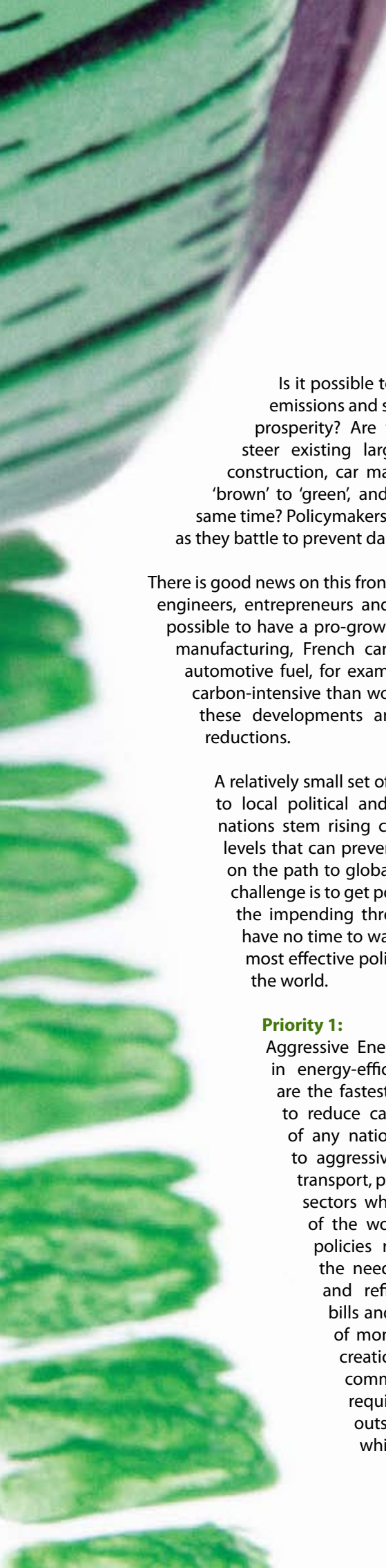
Fifth, since state involvement in economic activity is now imperative, we should be thinking of ways to make this more democratic and accountable both within countries and internationally. Large amounts of public money will be used for financial bailouts and to provide fiscal stimuli, and how this is done will have huge implications for distribution, access to resources and the living conditions of the ordinary people whose taxes will be paying for them. So we must design the global economic architecture to function more democratically. And it is even more important that states across the world are more open and responsive to the needs of the majority of their citizens when formulating and implementing economic policies. 



© Don Farrell / Getty Images

right track

by Hal Harvey



Is it possible to both dramatically reduce carbon emissions and simultaneously achieve low-carbon prosperity? Are there strategies that can reliably steer existing large capital flows — in industry, construction, car manufacturing, and energy — from ‘brown’ to ‘green’, and strengthen the economy at the same time? Policymakers are wrestling with these questions as they battle to prevent dangerous climate change.

There is good news on this front. Around the world, policy makers, engineers, entrepreneurs and investors have proven that it is possible to have a pro-growth low-carbon economy. Japanese manufacturing, French cars, Swedish houses, and Brazilian automotive fuel, for example, are all two to four times less carbon-intensive than world averages. Smart policies drove these developments and achieved the desired carbon reductions.

A relatively small set of such policies — properly adapted to local political and market conditions — can help nations stem rising carbon emissions, reduce them to levels that can prevent climate catastrophe, and put us on the path to global low-carbon prosperity. The great challenge is to get policy design right, and quickly: with the impending threat of abrupt climate change, we have no time to wait. We need an effort to spread the most effective policies quickly and thoroughly across the world.

Priority 1:

Aggressive Energy Efficiency Policy: Investments in energy-efficient technologies and practices are the fastest, cheapest and most reliable way to reduce carbon emissions. The first priority of any national strategy should therefore be to aggressively improve energy efficiency in transport, power, buildings and industry — the sectors which account for the vast majority of the world’s carbon emissions. The right policies reduce energy consumption and the need for new power plants, oil wells and refineries; they cut energy import bills and local air pollution, and save a lot of money. They are also engines for job creation: improving existing industrial, commercial and residential facilities requires skilled labour that can’t be outsourced. Experience has taught us which policies work:

Fuel economy standards for cars and trucks. Existing vehicle technologies enable cars to get 40 miles per gallon (mpg) or better. With volatile oil prices and growing carbon pollution from cars, nations have no excuse for producing cars as inefficient as those of 30 years ago — as the U.S. does today. A firm push to develop technology could easily help tomorrow’s cars get 60 mpg or better. Fuel efficiency standards, with serious, uniform enforcement, make this happen, saving tens of billions of dollars, reducing balance of trade problems, and slashing carbon emissions.

Appliance standards. Setting efficiency standards for home appliances, like refrigerators and lights, and for industrial equipment, like motors and compressors, is a ‘no regrets’ winner. Refrigerator standards have cut U.S. energy consumption for food storage by more than 75 per cent while saving money. Adopting widely popular standards, like those from Europe, helps the appliance industry standardise across markets. Every nation should adopt best practices, creating uniformity in the marketplace.

Advanced building codes. Nations with good, well-enforced building codes cut energy use by more than 75 per cent; as codes continue to evolve with best practices and technology development, this will soon grow to 90 per cent. Buildings last for 100 years or longer — so the dividends from strong codes pay well into the future; this is particularly crucial in nations with fast-growing cities. Lack of codes locks in higher energy costs for tenants and unnecessarily large carbon emissions.

Getting utility regulations right. Electric utilities are responsible for more than half the world’s carbon emissions. Smart regulations make them a major source of capital for large-scale clean energy projects and energy efficiency investments. California has pioneered this; its utilities now invest far more in energy efficiency than the U.S. Department of Energy, with huge savings for customers. Regulators can make utilities the engine of the clean energy economy by giving them incentives to find and profit from opportunities to improve efficiency.

Industrial efficiency best practices. The most efficient cement plants emit half the CO₂ per ton of production of their poorly-designed counterparts. The steel, chemicals, aluminium, pulp and paper industries — some of the world’s most energy-intensive — need to adopt global best practices. Many Dutch companies have signed ‘Benchmarking Covenants’ with their government, pledging to move into the top 10 per cent in terms of energy efficiency by 2012 at the latest. This creates a long-term competitive advantage while slashing energy use.

In each of these cases, market flaws that provide incentives for wasteful energy use were fixed by smart policy design. Once these fixes take hold, markets take over — becoming an innovation engine for low-carbon economic development. The policies save money, build jobs, keep the local economy strong and slash global warming emissions.



Priority 2:

Switching to Clean Energy: Shifting power supplies to clean sources is as important as increasing efficiency. Large, conventional coal-fired power plants that don't capture and sequester their carbon emissions are a major threat to the climate. Early, aggressive government incentives for renewable energy and carbon capture and sequestration technology are urgently needed. Clean technologies that generate electricity without carbon emissions are commercially available and scalable — but need a push from policy makers to break into the marketplace. Again, effective policies exist that will usher in a new generation of clean technologies. Each has been shown to drive cost-effective deployment of wind, solar and other low- and no-carbon sources of energy.

Greenhouse gas performance standards for utilities. These are emissions limits, per kilowatt-hour of produced electricity, applied to all generators. They have been used to control SO₂ and NO_x for years; many states are now applying them to CO₂.

Renewable portfolio standards. Now in force in half the U.S. states, across China and in Europe, these make utilities provide a minimum — and annually growing — fraction of their electricity from renewable sources. The market finds the technologies that can most cost-effectively meet the standards, which have already stimulated a \$65 billion U.S. market for clean energy.

Feed-in tariffs. These offer a guaranteed floor price for electricity from clean, renewable sources. Pioneered in the late 1980s by the small German city of Aachen, they have proved highly effective.


Priority 3:

Smart Urban Planning: The world is urbanizing incredibly fast: already home to 3 billion people, cities are expected to double in size by 2050. There is little hope of low-carbon prosperity if urban growth continues to sprawl over farmland, isolate people's homes from their work and make them rely primarily on automobiles.

Cities can get their planning right with five crucial elements:

- **Density:** Avoiding sprawl is necessary for effective transport solutions.
- **Mixed uses and transit-oriented development:** Locating key services close to homes reduces transport demand giving people what they need near where they live.
- **Fast, clean safe transit.**
- **People-friendly streetscapes.**
- **Green buildings designed and built to avoid waste.**

There are variations on this list, but the basics are clear: well-planned cities centred round people, rather than cars, make all the difference.

All these examples are positive proof that the ingredients of low-carbon prosperity are already well-known and established. Modified for local conditions and broadly adopted, they will avoid hundreds of billions of dollars in unnecessary capital expenditures — in power plants, refineries and roads — while reducing pollution and congestion and saving consumers money. Most important, they will give our children a fighting chance of a climate that can sustain our planet's human and natural diversity. 

awards and events



Earth Day

Earth Day is celebrated every year – primarily in the United States – to ‘create new visions to accelerate environmental progress’. The event was first celebrated by 20 million people in 1970. More than half a billion people participate in Earth Day Network campaigns every year, with thousands of schools and local communities organising educational events, tree planting, clean-ups and recycling drives, among many other events.

www.earthday.net

UN Forum on Forests



Nearly 1.6 billion people depend on forests for their livelihood, and forests provide subsistence and income for about 350 million people. The 8th session of the UN Forum on Forests – a global meeting to discuss ways to best manage forests – will take place in New York from 20 April to 1 May. The Forum’s goal is to promote “... the management, conservation and sustainable development of all types of forests and to strengthen long-term political commitment to this end.” The meeting will be the opportunity to enhance international cooperation and policy coordination on forest-related issues. The issue is particularly topical in 2009 as UN REDD Programme – Reducing Emissions from Deforestation and Degradation – moves into higher gear.

www.un.org/esa/forests/session.html

The World Future Energy Summit, which takes place in Abu Dhabi from 19 to 21 January, brings together 15,000 people for what organisers claim as “the largest meeting of influential figures within the renewable energy industry.” The conference will be attended by influential players, including former British Prime Minister, Tony Blair, Rajendra Pachauri, Chair of the Intergovernmental Panel on Climate Change, British economist Nicholas Stern, environment ministers from France, Germany, Denmark and Switzerland, and chief executives of major energy companies. The agenda covers a range of themes including energy policy, green buildings, ocean power and carbon management. The programme also includes the Zayed Future Energy Prize award ceremony, a \$2.2 million annual prize rewarding individuals, companies and organisations that have made significant contributions to the global response to the future of energy.

www.worldfutureenergysummit.com



World Future Energy Summit

5th WORLD WATER FORUM
ISTANBUL 2009



5th World Water Forum

The 5th World Water Forum – the world’s biggest international meeting on water issues – will take place in Istanbul, Turkey, from 16 to 22 March. The event, which takes place every three years, brings together leaders, policy makers and water specialists from around the globe to discuss water issues and water security. ‘Bridging Divides for Water’ is the overarching theme of this meeting. Other topics will include ‘Adapting to Climate Change’, ‘Water-related Migration’, ‘Preserving Natural Ecosystems’, and ‘Sustainable Financing for the Water Sector’. During the meeting, prizes will also be presented to organisations and individuals who have done exceptional work to address critical water issues.

www.worldwaterforum5.org

IRENA, the International Renewable Energy Agency, created on 26 January, is an initiative of the Government of Germany. The agency aims to “become the main driving force in promoting a rapid transition towards the widespread and sustainable use of renewable energy on a global scale.” Acting as the global voice for renewable energies, IRENA will provide practical advice and support for both industrialised and developing countries. The agency will facilitate access to all relevant information, including reliable data on the potential of renewable energy, best practices, effective financial mechanisms and state-of-the-art technological expertise. The work programme for IRENA will be developed between February and June 2009, and the Director-General and the location of the agency should be decided in June.

www.irena.org



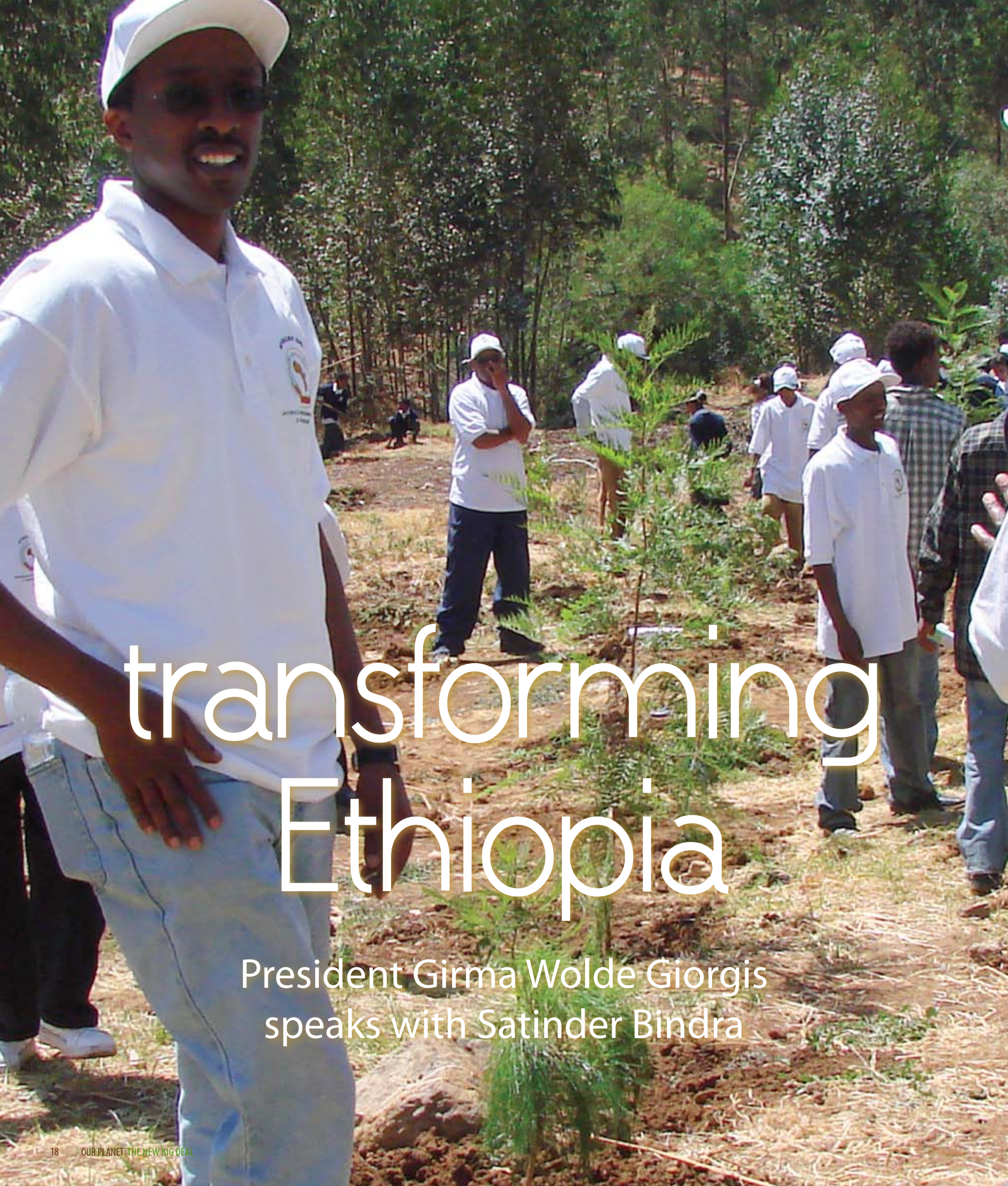
INITIATIVE FOR AN
INTERNATIONAL
RENEWABLE
ENERGY AGENCY **IRENA**



UNEP Sasakawa Awards

The winners of the 2008 UNEP Sasakawa Prize will receive their awards at a ceremony during the UNEP Governing Council in Nairobi on 18 February. The Prize for 2008 went to two projects, Sunlabob Rural Energy Ltd, in Lao PDR, and Practical Action, in Peru, which are bringing solar and hydro power to remote rural communities that lack access to grid electricity, on the eastern slopes of the Andes and in the farthest-flung regions of Lao PDR. The UNEP Sasakawa Prize, worth \$200,000, is awarded yearly to individuals or institutions that have made a substantial contribution to the protection and management of the environment. The winners, who will each receive \$100,000, were chosen by a five-member jury from a shortlist of six projects.

www.unep.org/sasakawa



transforming Ethiopia

President Girma Wolde Giorgis
speaks with Satinder Bindra



It has been 23 years since the world first saw the searing images of the Ethiopian famine. Pictures of emaciated babies on the verge of death and grieving families will remain etched in our collective consciousness for a long time.

Approximately one million people died in the 1985 calamity. Another famine struck in 2000. Both events did produce change, though, with Ethiopian officials realizing that one of the reasons for droughts and famines was the destruction of the country's once healthy forest cover.

A few years ago, under the leadership of Ethiopia's President and dedicated environmentalist, Girma Wolde Giorgis, millions of Ethiopians from all walks of life began planting trees. Ethiopia also signed up as a participant in UNEP's Billion Tree Campaign and, according to President Giorgis, has planted over one billion trees — more than any other nation.

Recently 92-year-old President Giorgis sat down with UNEP's Director of Communications, Satinder Bindra, and explained the critical need for all Ethiopians to continue planting trees.

"When the first drought hit this country, there was a big drive for relief — relief here, relief there. The world reacted to help Ethiopia with food and other things, but then some guys, particularly the Red Cross sector, they thought: why not prevent drought? Why wait for the misery to come? To help people we have to prevent drought instead. What we are out for is to prevent a disaster. The disaster in the country is drought. To mitigate drought you have to have forest. In this country, at the turn of the century, forest cover was around 45 to 60 per cent, which now, we are really ashamed to say, is down to three. So, this must be stopped and we have to green the country."

SB: When you meet the children of this country and when they look up to you for guidance and inspiration, what do you tell them about trees?

"I tell you I have got a very interesting organisation — the scout movement. In the scouting system, from a small kid to adult, every young man is involved, because the future is his. He is planting for his well-being in the future. I think it is felt already by the young people too, because it is the young people whose future is at jeopardy, because the devastation of the forest, if it is not cured — if disaster prevention has not been promoted — it is the younger generation that will be affected, so they have to work hard to make their own future better. That is the idea."

SB: Excellency, we gather you have a tree planting slogan for the country?

"It is 'Two trees per person'. People plant two and more. We now say three. Instead of three they planted 13. We try to give them the guidance, show them the way. Awareness. That is what it is."



© Irada Humbatova / Reuters

SB: What kind of trees are they planting? Is it up to them? Do you provide the seedlings? How does the process work?

"We have stations for seedlings. We are campaigning for indigenous species. It is only indigenous species that can protect the soil and improve the climate and that in the long run will make the country safe."

SB: As an environmentalist though, Excellency, are you confident that this will stop drought? What are your inner thoughts?

"Well, I'm quite confident. It cannot be tomorrow, but it will happen. It takes time. Now already the frequency of drought has decreased. We used to have drought every ten or eight years. This time we didn't have drought for the last ten years, so we hope that the frequency decreases and that drought now hits certain pockets but not all the country."

SB: Excellency, others in the world are also planting trees. When they hear that Ethiopia has planted 700 million trees for its Millennium celebrations and another 300 million now, they find it hard to believe. What response would you like to give them?

"Why is it impossible? We have got 80 million people. If everybody gets up and works this is not impossible at all. And, I am very happy to say that everything is going well."

SB: Excellency, what were the biggest lessons learned during this campaign that you would you like to share with the rest of the international community?

"Give them the guide and the guidance and they do it. Therefore we are successful in our endeavour. And I think that in the other parts of the world, wherever the need is felt like in our country, I think they must have the same way of approaching it. It is not a matter of being ordered; it is not even a matter of mobilization; it is just a matter of awareness."

green breakthroughs



by Pavan Sukhdev

The years 2008 and 2009 will no doubt be written into history as special ones: when the world community was forced to face multiple global challenges ranging from financial meltdown and deep economic recession, to interconnected crises in energy, food and the environment — years which also saw deep-seated political re-awakening and change.

But will today's 'tipping point' take us to a new, better and sustainable world? Or will we merely stimulate the old economy to recover just enough to let us stumble along our unsustainable development paths for a little longer, awaiting a ruder and perhaps final awakening?

There appears to be a dawning realization that the old economic order is seriously stressed, perhaps even breaking down. The war cry 'greed is good' is no longer heard in the markets, and 'nationalization' is no longer an evil to be avoided at all costs. People even speak of 'limits to growth' without being dismissed as antiquated Malthusians. There is a sense that the messages that environmental science and environmental economics have been publishing for decades are finally being picked up and read, not just by the public, but by political leaders.

The scale of the challenge has evidently not been lost on the world's leadership, if the economic stimulus packages being strung together to prevent the financial crisis from turning into an all-out global economic rout are anything to go by. Almost two trillion dollars have already been committed to shoring up the creaking global financial system. Another two trillion dollars of fiscal stimulus is being lined up — by over a dozen developed and developing country governments across the globe — to help their economies to stave off what threatens to be the worst economic recession since the early thirties. Australia has just seen its worst plunge in Job Ads, an employment indicator, in thirty years. The U.S. has just seen its worst weekly payroll statistics in over a quarter century.

What is not so well known is that around 20 per cent of the \$2 trillion of stimulus packages is investment to 'green' our economies. It takes the form of investments in, and incentives for, renewable energy, energy efficiency, materials efficiency, clean technology, waste mitigation and an increasing focus on sustainable use and restoration of nature-ecosystems and biodiversity. The questions are: will all this work, is it enough, and is it the best use of public money? And what can 'greening' do for the world economy, for employment and for poverty?

Put simply, greening could save the world's economy from another prolonged period of serious recession, massive job losses and worsening poverty, and create an economy in which growth is truly sustainable. This is what UNEP's Green Economy Initiative sets out to prove.

Take clean energy, for example. Globally, 2.3 million workers are already employed in renewable energy technologies. By 2030, it is estimated that investments in them could create more than 20 million jobs globally, including 2.1 million in wind energy, 6.3 million in solar photovoltaics and 12 million jobs in biofuels-related agriculture and industry. By comparison, total employment in oil and gas and the oil refining industries is just over 2 million jobs. The numbers speak for themselves.


Are businesses already 'greening' their products and looking towards a new world? The smartest are already doing so. As part of General Electric's 'ecomagination' campaign, their engineers worked out how to transform one of the oldest and most powerful forms of transport into an energy-efficient marvel: the hybrid rail locomotive. Take a 4,400 horsepower locomotive, add lead-free rechargeable batteries (a 1,000 pound molten-salt cell) and a fuel-efficient diesel locomotive, and you end up with quite a package.



Every time the engine brakes, energy is transferred into the batteries (rather like the hybrid Toyota Prius) providing an extra 2,000 horsepower to use when needed. The result? Fuel consumption down 15 per cent, emissions down a remarkable 50 per cent compared to locomotives operating today. And the best part? The first of the locomotives goes into operation next year.

But how about poverty? Can 'greening' or renewable energy help solve the problems that the Millennium Development Goals have targeted, and which we are still struggling to achieve? Here is an answer wrapped in an example: Grameen Shakti, a company launched by Nobel Peace Prize laureate Professor Muhammad Yunus' pioneering microfinance Grameen Bank organization in Bangladesh. It has been working a quiet renewable revolution in the country since 1996, selling and financing solar photovoltaic panels and greening the energy supply of over 8,000 homes in Bangladesh every month. Women who buy these panels become village electricity distributors, selling their solar electricity to neighbouring homes at no more than the monthly cost of kerosene, their normal fuel. Grameen Shakti's CEO, Dipal Barua, has a vision of greening energy use, bringing the women of Bangladesh out of poverty and ill-health, and converting a million homes from health-damaging kerosene stoves to solar electricity by next year.

But are 'green' investments in stimulus packages enough? And are the enabling conditions in place for a new era of green growth? These questions are central to the Green Economy Initiative. To address them, it has organized itself around the key sectors of green investment — renewable energy and rural energy, clean technology, materials and waste management, sustainable cities, biodiversity-based business and ecological infrastructure. Its first paper, on a global Green New Deal will be out in a few months. It will guide policy makers on the opportunity that investment in greening represents: a deployment of public funds that can not only restore economic and employment growth, but do so in a way that is sustainable into the distant future, representing perhaps the best available return on investment for public funds.

But will the world have to wait for political will to emerge, and for coordinated policy action to take place for sustainable growth to begin? Perhaps not. "There is already a green economy breaking through what's breaking down," as Lawrence Bloom, chair of the Green Economy Initiative's sustainable cities' sector group puts it. Our hope is that the successful models we already seen will be given the opportunity to scale up and succeed the world over. Our vision is no less than a world society in harmony with nature, thriving on a truly global green economy. 

products

Wash your hands of it all



In a South African township, a hand-washing device called the Mahlangu hand-washer is combating the spread of disease. The ingenious design involves converting the cap of an empty bottle into a homemade tap. The cap is pierced and then a long, skinny cone made from a readily available material like cork is inserted. One end of a length of wire is pushed through the cone, and the other is wound around a weight, like a stone, to nestle in the palm of the hand. The bottle is held above the hand facing downward, and when the weight is pushed up, the water is released and trickles down the wire toward the weight. Used carefully, a one-litre bottle can perform up to 60 hand-washes.

kudzulife.blogspot.com/2008/12/mahlangu-hand-washer.html

Organic Gum

Chewing gum, which is made of synthetic chicle, sugar and flavouring, doesn't just give you cavities – it also sticks to the pavement, costing millions in street cleaning. Now a small cooperative in the Mexican rainforest is bringing back the original chicle processing skills to make the Chicza Rainforest Gum, a certified organic chewing gum. The chicleros, as they are called, preserve the rainforest while getting the white sap from the trees. "We don't kill the trees like farmers do when they clear land to grow corn or graze cattle," they say. "We leave a wound, it's true, but eight years later it is healed and producing chicle again." The other bonus is that the gum is biodegradable and starts to break down right after chewing.

www.chicza.com



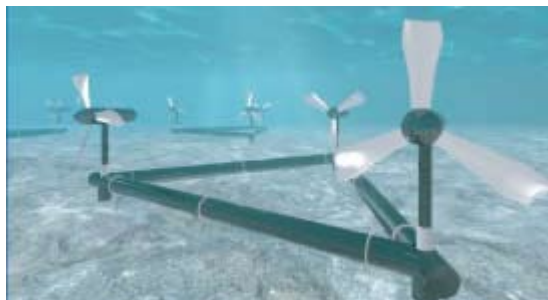
Fashionable footwear



Eco-friendly fashions seem to be getting more hip and elegant. Take the new range of boots by industrial design student turned shoe-designer Camila Labra, for example. Made almost entirely of plastic shopping bags, these durable ankle boots are not only waterproof – their slouchy ankle-length design is also in tune with the latest shoe trends. Labra insists that no-one will be able to tell the difference between a pair of these boots and leather ones. The line of boots is named Dacca after Bangladesh's capital Dhaka, one of the cities in the world suffering most from plastic bag pollution.

www.botasdacca.blogspot.com

Marine turbines



Although the tides around the U.K.'s coasts have the potential to provide up to a quarter of the nation's electricity without any carbon emissions, the stormy seas have made it difficult for any electricity generating project to succeed. However, a Welsh renewable energy company has now teamed up with ship propulsion experts to design a new marine turbine which they believe is far more robust. Cardiff-based Tidal Energy Ltd. will test a 1 megawatt tidal turbine off the Pembrokeshire coast at Ramsey Sound, big enough to supply around 1,000 homes. Their DeltaStream device, invented by marine engineer Richard Ayre while he was installing buoys in the marine nature reserve near Pembrokeshire, will be the first tidal device in Wales and is set to become fully operational in 2010.

www.tidalenergyltd.com/

Saving water

Today you decided to take a shorter shower. But how much water did you save? Don't know? Then the Econa water saving device could be a smart investment. This bluetooth information transfer device aims to make consumers more conscious of their water use at home. The product's user-friendly visual and graphic design enables the consumer to keep track of water use over an extended period. The main control unit even has programmable software and a USB port that allows you to upload the information to your computer.



'Lifelight' for Rwanda



Renewable energy lanterns have just hit the Rwandan markets as an alternative to the old, polluting and potentially dangerous kerosene lights currently being used in the country. The technology behind the Lifelight is primarily LEDs (Light Emitting Diodes) which provide an impressive amount of light for their size, efficiency rating and non-toxic nature. The lantern can be charged by either sunlight or on its own patented wind-up technology, and is designed to last for years with minimal maintenance and cost.

<http://www.freeplayfoundation.org/lifelight.html>



The Green Economy: Useful Links

This page contains links to websites from governments, international organisations, non-governmental organisations, businesses, media, and other groups from around the world to help you research issues related to the green economy. We have compiled these links from our own review of the vast amount of information available on the Internet to help you to find the most relevant sources for your research. *Our Planet* magazine does not, however, endorse the viewpoints of any of the groups to which we link, and we cannot guarantee the accuracy of the information posted on these sites. Rather, we hope to provide you with a broad range of opinions and perspectives.

www.unep.org

www.unep.org/greeneconomy/ – In October 2008, UNEP and leading economists launched the Green Economy Initiative (GEI). The GEI, which will initially run for a period of two years, has three key elements: the Green Economy report that will provide an overview, analysis and synthesis of how public policy can help markets accelerate the transition towards a green economy; the Economics of Ecosystems and Biodiversity (TEEB), a partnership project focusing on valuation issues; and the Green Jobs report, published in September 2008, that looks at green employment trends.

www.unep.org/labour_environment/features/greenjobs-initiative.asp – The Green Jobs Initiative was launched by UNEP in 2007 in partnership with the International Labour Organisation (ILO), the International Employers Organisation (IEO) and the International Trade Union Confederation (ITUC). The initiative supports coherent and concerted policies to build a green economy with green jobs and decent work for all.

www.unep.org/labour_environment/index.asp – UNEP's Labour and Environment initiative aims at strengthening the role of international labour communities in areas related to environmental development and sustainable development.

www.unep.org/urban_environment – The Urban Environment Unit aims to integrate the urban dimension in UNEP's work, including areas such as air pollution, coastal areas, waste, biodiversity and climate change.



new energy

www.suzlon.com/

Under the energetic leadership of its founder and CEO, Tulsi Tanti, Indian energy company Suzlon has become the fifth largest supplier of wind turbines in the world.

www.newenergymatters.com

New Energy Finance Limited is a specialist provider of financial information and services to investors in renewable energy, low-carbon technologies and the carbon markets. Services include the New Energy Finance Briefing, the New Energy Finance Desktop — which is the world's largest database of clean energy investors and transactions — and other reports, analysis and forecasting.

www.suntech-power.com

Suntech's innovative technologies are helping to make solar affordable for people around the world.

www.kpcb.com/initiatives/greentech

Kleiner Perkins Caufield & Byers is a venture capital firm that is investing in Greentech innovation and entrepreneurs. KPCB is also allied with Generation Investment Management and its chairman, former U.S. Vice-President Al Gore, who has become a KPCB Partner.

www.solarcity.com/

Californian solar energy provider SolarCity, founded in 2006, was the state's number one provider of residential solar power in 2006 and 2007.

www.firstsolar.com/

First Solar is one of the world's fastest growing solar module manufacturers. The company is developing the latest solar technology and says it is helping drive the cost of solar electricity to rates comparable with traditional fossil fuel-based energy sources.

Green growth

www.thegreeneconomy.com

This e-zine for value-minded executives features news, ideas and articles on the sustainable market economy.

www.energyblogs.com

The Energy Blog allows users to engage in dynamic conversations on the global power industry.

www.forceforgood.com

This online community aims to drive business as a force for good. Recent entries include 'Tomorrow's Green Economy', which analyses green business and notes that revenues in industries tackling climate change now exceed those of software and biotech combined.

<http://esa.un.org/un-energy/>

The UN-Energy website aims to promote UN system-wide collaboration in the area of energy with a coherent and consistent approach, since no single entity in the UN system has primary responsibility for energy.

www.climate-works.co.uk/about/about.html

Climate Works helps organisations reduce their energy demand, cut their emissions of carbon dioxide and plan for and adapt to climate change. It works to develop better and more effective policies on energy and climate change, low- and zero-carbon buildings, and more energy — and carbon-efficient ways of working.

www.europeangreencities.com

This network disseminates knowledge and experiences on sustainable urban housing technologies to stimulate market development and to help speed up innovation.

www.ideas4development.org

Ideas for Development is an international blog meant to stimulate debate on development issues. It brings together a range of leaders on development and sustainability, including Rajendra Pachauri, the chairman of the Intergovernmental Panel on Climate Change, Pascal Lamy, the Director-General of the World Trade Organization, and UNEP Executive Director Achim Steiner.

www.eea.europa.eu

The European Environment Agency (EEA) is an agency of the European Union whose task is to provide sound, independent information on the environment.



challenging commitment

by José Sergio Gabrielli de Azevedo



Sustainability is challenging for all society, and especially for business. At Petrobras, our commitment to sustainable development is a fundamental driver of our corporate strategy. We emphasize three key pillars: integrated growth, profitability and social and environmental responsibility.

Making the company an international benchmark of corporate social responsibility is an important challenge in the 2020 Petrobras Strategic Plan. It is aligned with our stakeholders' great expectations about the contributions of business to economic growth with social equality and environmental preservation.

As Brazil's largest company — and one of the world's major oil and gas ones — Petrobras acknowledges and assumes its prime responsibility for the environment. Striving for sustainable development is a historic commitment of the company, and it has recently led to important improvements being integrated in our corporate governance.

The company is a signatory of the UN Global Compact and is committed to its ten principles, focusing on human rights, labor standards, respect for the environment and anti-corruption. So in undertaking business and activities to conform to these principles, we seek to guarantee integrated management in social responsibility for corporate action committed to ethics and transparency with our stakeholders.

Social Responsibility has been a corporate function since 2007 when Petrobras established a policy and specific guidelines on the issue. It established a set of short, medium and long term performance targets and indicators to make it possible to monitor strategic social and environmental actions and evaluate their results through such methodologies as the Balanced Scorecard. This also applies to the company's overall strategic planning.

Petrobras strives for eco-efficiency, investing in research and technology to enhance the environmental performance of processes and products. The company is constantly developing groundbreaking solutions to minimize waste of resources and operational impacts.


It also invests in renewable sources of energy so as to master the environmental challenges of the 21st-century and diversify sources of primary energy. This puts it in the international forefront of companies with potential to operate in the area, and thus contribute to mitigating the effects of global warming. The company is increasing investments in biofuels to meet worldwide demand for alternative fuels and has recently created a new subsidiary — Petrobras Biofuel — which aims to be lead in Brazilian biodiesel

production and to increase its share in the ethanol business, mainly focusing on international markets.

The 2020 Strategic Plan emphasizes climate change and environmental pressures. One of the defined management challenges is to reach levels of excellence in the energy industry by reducing the intensity of greenhouse gas emissions in processes and products, and thus contribute to business sustainability and to mitigating global climate change. The company's target is to prevent the emission of 21.3 million tons of CO₂ equivalent by 2012

Highlights of our environment-related actions include monitoring ecosystems; restoring impacted areas; managing natural resources, air emissions, effluents, and waste; and being ready to act in emergencies. The main lines of action of the Petrobras Environmental Program are conserving fresh and saltwater bodies and their biodiversity. The program sponsors projects with common objectives for promoting consciousness in communities about the rational use of water resources and maintaining and restoring landscapes to help the water cycle function, as well as promoting management and conservation of species and threatened off shore environments

Preserving the Amazon rainforest is another strategic priority for the company. It launched the Petrobras Center of Environmental Excellence in the Amazon (CEAP) in 2007, combining frontline technology and scientific knowledge for sustainable development in the region so as to prevent and reduce risks caused by industry's intervention. It facilitates the company's partnerships with more than 30 institutions, including universities, research institutions, governmental agencies, nongovernmental organizations and economic agents — seeking integration and cooperation for enhancing regional socio-environmental action. CEAP operates through reducing risks associated with the operations of the oil industry through 30 projects. These comprise collecting data, information and samples on ecosystems and human populations; monitoring and assessing oil exploration impacts on the Amazon; preparing HSE management procedures — including managing potential impacts on biodiversity — and helping to define environmental and support projects for the social development of the region.

Engagement with our different stakeholders is an ongoing dynamic process based on dialogue and co-participation. A highlight is the formation of alliances and networks between the company and its civil society partners in taking systemic actions, including in synergy with public policies. Actions committed to sustainable development are part of the business management of Petrobras, and we consider them strategic both for the company and for society. 



© Karen Kasmauski / Getty Images

natural

development

by Janet Ranganathan and Polly Ghazi

The world's twin economic and ecological crises share striking parallels. Both are driven by a short-term-profit mentality and a value system that encourages us to live beyond our means. Both result in mismanagement of valuable assets. And both are characterised by misaligned economic and financial incentives.

Sub-prime mortgages were the initial culprit in the financial crisis. In the ecological parallel, it could be called 'sub-prime development' — development that undermines nature's capacity to provide people with essential goods and services.

We depend on natural ecosystems every day — for fresh water and food, shelter, building materials and medicines. Yet no less than two-thirds of all ecosystem goods and services have been degraded worldwide by humanity's increasingly heavy footprint. Dams, built to increase power supply to cities and irrigation to croplands, undermine rivers' capacity to support fisheries or sustain the wetlands that provide water filtration and flood protection. Expanding food and biofuel production drives tropical deforestation, releasing carbon stored in trees to contribute to climate change.

The Brazilian Amazon, for example, was once 'blue chip stock', providing generous returns to its citizen 'shareholders' by continuously recycling carbon dioxide into oxygen, cleaning air and regulating regional and global climate. But now this irreplaceable asset is devalued, with one fifth of its area lost to loggers, farmers and ranchers.

The rural poor are especially vulnerable to nature's decline. Three-quarters of the two billion people subsisting on less than \$2 a day live in rural communities that depend on natural ecosystems for sustenance and livelihoods. Climate change will hit them hardest: The Intergovernmental Panel on Climate Change (IPCC) predicts, for example, that by 2020 up to 250 million more Africans will face water shortages. If sub-prime development persists, the poorest will pay — first with their livelihoods, and then with their lives.

This need not happen. Just as robust financial sector reform is possible, alternative development models can reduce or even reverse ecological degradation while addressing rural poverty.

The *World Resources Report 2008*, the World Resources Institute's flagship biennial publication presents such a development model. *Roots of Resilience: Growing the Wealth of the Poor* argues that, in many developing countries, scaling up community-driven nature-based enterprise can provide a firm foundation for combating poverty and increasing resilience to climate change. It draws on many case studies where this has improved ecosystem health while increasing household income.

The Bangladesh government, for example, granted poor villagers ten-year leases over wetlands and the rights to manage the polluted, over-fished waterways on which they depend. Elected community organisations introduced harvesting restrictions, and fishing families, assisted by NGOs and donors, used micro-credit loans to start new livelihoods. Within six years many wetlands had recovered and 180,000 people were enjoying an average one-third rise in household income and a 140 per cent increase in fish catches. The government now plans to extend this model to all inland fisheries and is piloting the approach in the forestry sector.

Over the border in India, community-based efforts to restore degraded watersheds have led to similar success. Villages across 600 watersheds in three states — mentored by the Watershed Organisation Trust, a national NGO — have planted trees and employed simple soil and water conservation techniques to protect water supplies and increase crop cover. In Darewadi, Maharashtra, the village that pioneered the model, agricultural employment has grown from between three and four months a year to nine to 10 months, six new crops have been introduced and farm wages have doubled.

And in drought-plagued Niger, where livelihoods and food security are closely intertwined, a simple, cost-effective practice of farmer-managed tree regeneration has produced a 're-greening' revolution. First piloted by international NGOs and donors, the practice of regenerating trees from stumps and then harvesting their fruits, leaves and wood has spread spontaneously over the past decade. By 2007, up to half the country's farmers were involved, about 200 million trees had been regenerated and over 4.5 million people were reaping the benefits.

The World Resources Report 2008 identified three common elements required for such ecosystem-based enterprises to succeed: community ownership of local resources (which fosters self-interest in the success of the enterprise); community support networks; and technical assistance from intermediary organisations, including government agencies and NGOs. With them, poor communities can unlock the wealth potential of ecosystems and support broader rural economic growth.


How do we make such development initiatives — investing in nature while reducing poverty — more commonplace? Donor governments and international institutions should:

Build capacity in national governments, multilateral development banks and bilateral development agencies to make the connection between ecosystems and poverty. The joint UNEP/UNDP Poverty-Environment Initiative, for example, could provide material on mainstreaming the links between poverty reduction and the environment into national policy making, budgeting and implementation. An Intergovernmental Panel on Biodiversity and Ecosystem Services, as recently proposed by UNEP, could increase the scientific knowledge base linking ecosystems and human well-being.

Incorporate investments in ecosystem service restoration and maintenance into existing development strategies. Viewing ecosystems as a development asset rather than something to be protected from development, could enable developing countries and donors to pursue more robust climate change and development strategies. Governments' climate adaptation plans, for example, could explore the cost-effectiveness of investing in such ecosystem services as water regulation, flood protection and erosion control as an alternative to man-made structures. Donor-led agriculture development plans for sub-Saharan Africa could incorporate an ecosystem service approach and help avoid a repeat of the high environmental and social trade-offs that accompanied the 1960s Green Revolution in Asia.

Strengthen the role of local communities in managing ecosystems. Communities have a vested interest in restoring ecosystems services on which they depend, yet poor citizens often lack legal rights to access them. Development agencies can empower rural communities to participate in decisions concerning ecosystems through policy loans that promote decentralising natural resource management to representative institutions. Governments pursuing decentralisation policies should ensure that authority is transferred to institutions that have the capacity to manage resources sustainably and are representative of and accountable to local people.

Much of the knowledge and many of the tools needed to relieve poverty while protecting ecosystems are already at the disposal of the development community, including the World Bank, UNEP and UNDP. A concerted effort is now needed to put them to use and overcome vested interests in maintaining the current sub-prime development model that benefits a few at the expense of many. As on Wall Street and in other global financial centres, changing such interests is likely to be the most challenging part of the needed reforms. It will require a sea change in attitudes, policies, institutions and behaviour.

The World Resources series is produced collaboratively by the United Nations Environment Programme, the United Nations Development Programme, the World Bank and the World Resources Institute. 

verbatim



© AFP/Gallo Images

“Courage and confidence is needed to seize the moment and opt for renewables and tough efficiency measures. New voices are needed to speak up and convince our leaders on the basis of solid arguments combined with number crunching.”

Lalita Ramdas, Board Chair of Greenpeace International

“A rising carbon price is essential to ‘decarbonise’ the economy, i.e., to move the nation toward the era beyond fossil fuels. The most effective way to achieve this is a carbon tax (on oil, gas and coal) at the well-head or port of entry. The tax will then appropriately affect all products and activities that use fossil fuels. The public’s near-term, mid-term, and long-term lifestyle choices will be affected by knowledge that the carbon tax rate will be rising.”

James Hansen, the head of NASA’s Goddard Institute for Space Studies, in an open letter to US President-Elect Barack Obama and his wife Michelle

“When I am President, any Governor who’s willing to promote clean energy will have a partner in the White House. Any company that’s willing to invest in clean energy will have an ally in Washington. And any nation that’s willing to join the cause of combating climate change will have an ally in the United States of America.”

US President-elect Barack Obama

“The question about green growth is not whether we should go down that path. We have no choice but to go that way.”

Lee Myung-bak President of the Republic of Korea

“We are now in the middle of a financial crisis and at the beginning of an economic downturn. But that doesn’t mean that climate change will slow down.”

Yvo de Boer, UNFCCC Executive Secretary

“I am very worried, but what can we do? We are not contributing to global warming but we feel its effects. I am scared there will be no snow and ice in these mountains within the next 15 years.”

Himalayan villager, Rinjin Dorje Lama on watching the ice and snow retreat from around his home.

“If you compare wind and solar technologies versus coal, it’s much more labour intensive by a factor of two or three. So if you’re interested in creating jobs, you have to look at efficiency and renewables.”

Andrew Simms, policy director at the London-based New Economics Foundation

“The use of renewables earns revenue, reduces carbon footprints, diminishes dependency on fossil fuels, saves foreign exchange on petroleum products and ultimately enables sustainable development.”

Liz Thompson, former Barbados Minister of Energy and Environment

numbers

60 million

number of indigenous people who depend upon the forest lands that REDD considers most threatened. — *California Indymedia*

50

Percentage by which Mexico hopes to cut greenhouse gas emissions by 2050. — *AP*

30

Percentage by which China aims to increase its coal production by 2015 to meet its energy needs. — *AFP*

20

Percentage by which the EU aims to lower its carbon dioxide emissions below 1990 levels by 2020 – the EU also aims to source 20 per cent of its energy from renewables by the same date. — *Reuters*

150

Projected sea level rise in centimetres by the end of the century, according to the US Geological Survey — *The Guardian*

150 million

Investment in dollars planned by two Chinese companies to build the largest solar power plant in the world in China. — *Reuters*

70

Percentage increase in greenhouse gas emissions worldwide since 1970. — *Christian Science Monitor*

17.4

Percentage of global carbon dioxide emissions emanating from deforestation and forest degradation. — *FAO*

44.9

Percentage increase in sales of hydrated ethanol in Brazil from 2007 to 2008. — *AFP*

500,000

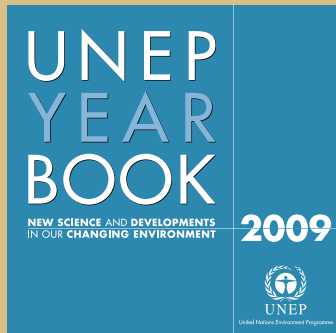
Number of people employed in Brazil in the recycling and waste management sector. — *UNEP*

1,370 billion

Annual U.S. dollar value of the global market for environmental products and services. This is projected to rise to \$2,740 billion by 2020. — *UNEP*

books

The UNEP Year Book 2009

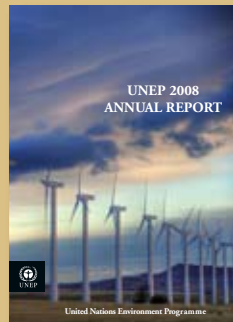


The UNEP Year Book 2009 presents selected new scientific findings and events from 2008 that are likely to shape important environmental issues and trends in the coming year. The content relates to UNEP's six thematic priority areas and contains a cross-cutting thematic discussion of the cumulative effects of pressing environmental issues and problems. Climate change is linked to ecosystem stress, resulting in loss of sequestered carbon, ecosystem degradation and increasing human

vulnerability to more frequent climate-related disasters. Other cumulative effects include intensive agricultural practices and mismanagement of harmful substances leading to ecosystem damage; agricultural resource inefficiencies that combine with changing climate to erode soils and contaminate water resources; and climate change-related ice melt that releases hazardous substances into rivers and ecosystems.

UNEP 2008 Annual Report

Providing an overview of UNEP's activities in 2008, this report looks at a broad range of activities carried out by the organisation as it follows its mandate to provide environmental leadership and promote sustainable development. Highlights of the year include rapid progress on UNEP reform process, the launch of the Green Economy initiative, and renewed impetus under the slogan 'Unite to Combat Climate Change' towards an inclusive, comprehensive and ratifiable deal at the climate conference in Copenhagen in 2009.



Kenya: Atlas of Our Changing Environment

Through the use of satellite data, photographs, graphics and site-specific case studies, this 200-page atlas highlights environmental change in Kenya. It looks at the country's mountains, forests, water bodies and national parks, chronicling the evolution of the country's environment over the last few decades and the ecological challenges and opportunities facing the country.



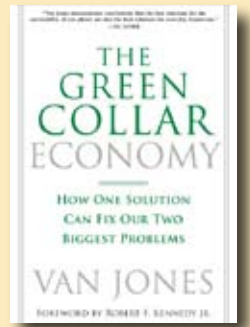
UNEP Final Environmental Assessment of the Beijing 2008 Olympic Games

This report assesses the environmental legacy of the Beijing Games as part of UNEP's work to advise the Olympic organisers on how to green the Olympics. It looks at the green measures taken by the organising committee and evaluates how much they improved the environment of the Games, as well as helping to green Beijing and its region. The report makes recommendations on how to use the lessons learned from the Games to further improve the environment in Beijing and China. It also makes recommendations to the International Olympic Committee on strengthening the environmental aspects of their work for future Olympic Games.

The Green Collar Economy — How One Solution Can Fix Our Two Biggest Problems

Van Jones (HarperOne, 2008)

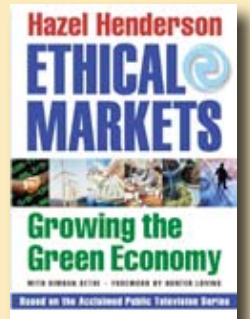
In this book, *Our Planet* author Van Jones says the 'investment' wave of environmentalism can solve the two major challenges the U.S. currently faces – socio-economic inequality and huge ecological problems. He argues that if industry players want to take advantage of growing consumer demand for green solutions, they will have to follow principles of inclusiveness as well as conservation and inventiveness to create "broad opportunity and shared prosperity" for citizens at all levels of society.



Ethical Markets — Growing the Green Economy

Hazel Henderson, Simran Sethi (Chelsea Green Publishing, 2007)

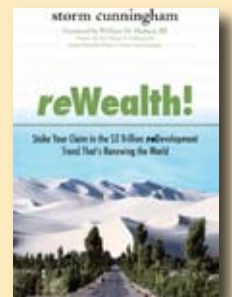
This book takes an inside look at the rapidly booming green economy and argues that the transition to a sustainable future is possible with existing technologies and conceptual models. Using a mix of statistics, analyses and interviews with entrepreneurs, environmentalists, scientists, and professionals, the authors illustrate the highly successful growth of green businesses around the world.



reWealth!

Storm Cunningham (McGraw Hill, 2008)

Storm Cunningham looks at the ways in which entrepreneurs, investors, professionals, and community leaders can revitalise communities and the planet. By renewing what has been developed and repairing the damage that has already been done, we can all restore nature's assets.



Global Warming and Climate Change — Ten Years after Kyoto and Still Counting

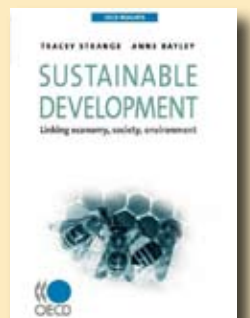
(Science Publishers, 2008)

Through an analysis of the international climate change negotiations, this book argues that in the coming years it is politics – not policies – that will determine the way forward as we try to tackle global warming. The authors provide a wealth of scientific facts on climate change and its impact on human health, along with in-depth analyses of key areas like adaptation.

Sustainable Development – Linking Economy, Society, Environment

(OECD, 2008)

This report by the Organization for Economic Co-operation and Development provides a succinct examination of the concept of sustainable development: what it means; how it is impacted by globalisation, production and consumption; how it can be measured; and what can be done to promote it. As global inequality and climate change become mainstream concerns, the report asks our generation's key questions in crisp, clear and accessible terms.



w w w . u n e p . o r g / p u b l i c a t i o n s



silicon future

by Geoffrey Lean

It made its name with the silicon chip, but is likely to become even better known for the silicon cell. For the flat expanse of former orchard land at the southern end of San Francisco Bay, known worldwide as Silicon Valley, is gearing up to follow its world-transforming information revolution with an even greater one in renewable energy.

Many of the entrepreneurs and venture capitalists behind the Internet's astonishing expansion are now focusing on clean sources of power, especially the sun. So are iconic companies like Google. Recent years have witnessed the return of the buzz, bullishness and boundless confidence of the dot com boom.

John Doerr — dubbed “the most influential venture capitalist of his generation” as a partner in the Valley’s Kleiner Perkins Caufield and Byers — called that “the greatest period of legal wealth creation in history.” He should know: he helped finance such startups as Netscape, Amazon and Google, making well over a billion dollars. But by May 2007 he was predicting even greater things. “Remember the Internet? Green tech is bigger,” he told a top Silicon Valley conference. “This could be the biggest economic opportunity of the 21st century.”

Last May his firm, which had already invested \$200 million in such technologies, established a \$500 million Green Growth Fund to help develop them. Other Valley venture capitalists have also opened their cheque books wide. In 2007, says Brian Fan, Director of Research at the Cleantech Group, a research and strategy firm based in San Francisco, a staggering \$6 billion in venture capital was invested in green technologies worldwide, and about 40 per cent of it came from California.

That sum he adds, had almost quadrupled from \$1.4 billion in 2004. And it shot up again to \$8 billion in 2008, despite the credit crunch. The financial crisis and the plummeting oil price will take a toll, Cleantech admits, but it predicts a fall only to \$7 billion in 2009, with further rapid growth ahead.

Financial giant Merrill Lynch concurs. “We are more bearish short-term but more bullish long-term following our visit to the Valley,” it concluded in a mid-December report on clean technology, adding that it was “attracting senior management teams, many from the IT industry, who bring a sense of urgency and creativeness to energy problems.”

Firms on the ground are more positive still. “The fact that we are in this ugly economy is going to be good for the whole world” says Brian Halla, Chief Executive of top silicon chip company National Semiconductor, explaining that the crisis will force people to find innovative ways of producing energy. T.J. Rodgers, the CEO of Cypress Semiconductors adds: “I have every confidence that Silicon Valley is going to solve the energy problem.”

Russell Hancock, CEO of Joint Venture: Silicon Valley Network — an alliance of business, government, academia and communities — agrees with both of them. “The global climate crisis is an opportunity to grow the economy like we haven’t seen since World War II,” he says. “Promoting the development of new technologies for alternative energy is the nation’s best path to economic recovery because it will create whole new clusters of green collar occupations. Who is poised to lead this revolution? Silicon Valley.”

Dot com giants are out to justify such confidence. Google founders Sergey Brin and Larry Page have invested heavily in green energy start-ups, and their company is increasingly doing the same through its philanthropic unit, Google.org. They have set out to make renewable energy “cheaper than coal,” investing “hundreds of millions of dollars in breakthrough projects.”

Vinod Khosla, one of the founders of the pioneering Sun Microsystems in the early 1980s, is also investing heavily in renewables, as is Robert Metcalfe who invented the ethernet system used to link up computers in local networks. And Elon Musk, co-founder of PayPal, has invented an electric sports car.

Musk is also at the centre of what may prove the first big breakthrough, as chairman of the rapidly expanding SolarCity, California’s biggest solar installer, and as a big investor in First Solar, a pioneer of ‘thin film’ panels. These harvest the sun’s energy with a fine layer of a semiconducting material, such as silicon. Companies developing them say that they can produce 100 times more energy per gram of material than conventional solar cells, at a fraction of the cost.

“You can measure in months, not years, how far we are away from being able to produce solar power at prices competitive with fossil fuels”, says a bullish Alan Salzman, chief executive of VantagePoint Venture Partners, with \$4 billion of assets under management. Flisom, a Swiss thin film manufacturer, believes that within ten years the sun will produce electricity at half the price of coal, natural gas or nuclear.


Further funds are going into developing the technologies for solar power stations in sunny areas. In October, Governor Arnold Schwarzenegger opened a pioneering 5 megawatt plant in Bakersfield, north of Los Angeles. Built by Ausla, another of John Doerr’s start-ups, it will power 3,500 homes, generating electricity from steam produced by using mirrors to concentrate the sun’s rays on water pipes. Much bigger ones are planned soon.

Vinod Khosla, another big investor in Ausla, says similar power stations covering less than 150 square kilometres could enable the United States to cut its greenhouse gas emissions in half. He is also devoting much of his attention to developing second generation biofuels which avoid competing with food supplies by producing ethanol from, for example, corn stalks and other plant wastes or grasses like switchgrass. He predicts there will be six ways of producing such ‘cellulosic ethanol’ at prices competitive with petrol within four years.

Electric cars, which also have received much of their impetus from the Valley, are similarly close to breakthrough. Alan Salzman predicts that 2009 will prove a “watershed” with several big carmakers announcing production of “hundreds of thousands” of them.

Renault has already announced a wide range of electric vehicles for 2011. It is working closely with yet another former top IT entrepreneur — Shia Agassi, once a Vice President of the software giant SAP — who has developed a revolution in driving and car ownership, modelled on the marketing of mobile phones. Electric cars, like handsets, would be sold at heavily subsidised prices, or even given away free, in return for contracts to buy the electricity to drive them, Motorists would buy miles rather than minutes, giving them the right to use hundreds of thousands of recharge points and to have flat batteries replaced. Israel, Denmark, San Francisco and Hawaii have already signed up to the system.

World-saving it may all potentially be, but the Valley’s overwhelming motivation is profit. (“We are ruthlessly single-minded about our job, to make a lot of money for our investors,” says Doerr). It is after the vast \$6 trillion energy market, vastly bigger than IT and with a much more predictable demand.

But in the process Silicon Valley may indeed help beat climate change and the energy crisis, and satisfy the world’s yearning for clean power and a sustainable future. In which case it might return to the name it enjoyed when still covered with orchards — The Valley of Heart’s Delight. 



organic growth

by Su Kahumbu

Agriculture in Africa is becoming an increasingly high-risk business for millions of small-scale farmers across the continent. They are subject to ever increasing costs of inputs, to soil degradation, to changing weather patterns, to cultural practices that result in reduced plot sizes, to conflict, to lack of land tenure and lack of information.

Yet, despite all this, our farmers are expected to produce enough food not just to feed their families, but to supply a surplus for the national basket — those who are not themselves food producers depend on their efforts for survival. We simply do not give our farmers the right support or respect while expecting them to produce commodities that are, after all, more important than oil for human survival.

My introduction to the world of organic produce began on the day my mother became violently ill when caught in the drift of a toxic chemical we were spraying on our tomatoes. As a mother of two young children myself, I began to question the logic and dangers of feeding my girls with crops carrying such toxins. Months of research and experimentation later, I began to produce a variety of crops following organic principles.

Trial and error ruled my days for years as I became totally absorbed in the challenges and toil of the career that had found me. But I cannot describe the inner satisfaction in working so close with nature, almost as one with it. I began to discover the intricate synergies that exist between our crops, insects and diseases — and between our livestock and ourselves.

My new-found passion led to a budding business which I called Green Dreams Ltd., founded in 2000, under which we branded and sold our products on the local market in Nairobi. As demand for our products increased, we began to develop an outgrower scheme, providing access to premium markets for hundreds of small-scale organic producers all over Kenya.

On a national level, the Kenya Organic Agriculture Network was founded in 2004, networking all the country's stakeholders in the organic industry. This rapidly led to the development of both national and private sector supporting structures. We now have a Kenyan set of Organic Guidelines as well as two certification bodies.

In 2006 we started our own shop in Gigiri on the outskirts of Nairobi, selling local organic products and sourcing others from the East African region. Since then, we have developed a further five small outlets in the city, including a shop-in-shop concept in a supermarket chain. Farmers are paid premiums of between 25 and 150 per cent for their products and we insist that all organic products we market are certified. We have even helped young people in Kibera, East Africa's largest slum, to establish an organic farm among its shanties and rubbish-strewn land.

I eventually left my farm last year to concentrate on other areas of my business. But over eight years had we successfully produced not just organic fruit and vegetables and fruit, but eggs, pro-biotic yoghurts, goat and cow's milk, goats, beef and free range chickens

Developing our supply chain is naturally the most important aspect of our business, and it takes us into the fields across East Africa. We also encourage, teach and help producers to venture into affordable value addition, such as solar drying and the making of preserves.


The recent increase in agricultural input costs has led to the failure of crop production and an increase in poverty for many commercial farmers. But this has not been the case for their organic counterparts who produce their own soil and plant fertility solutions and pest and disease control inputs.

Government decisions to subsidise fertilizers and pesticides are not a sustainable option for farmers or for fragile ecosystems. We can solve the problems of sustainable food production if we educate farmers about organic production methods. I believe we can do this on a continent-wide scale using the technologies and networks now available across Africa. I wish to see Government spending in this area of development, together with television, radio and newspaper, extension programmes and documentaries dedicated to organic production and value addition.

I also believe we must support our farmers with information and access to affordable technologies that can help them become less labour intensive and reliant on rain-fed production. Organic farming is fun and rewarding though very labour intensive. Most of our farmers in East Africa are elderly. If African farming is to be sustainable, we need to encourage young people with technologies that will reduce hard labour and increase incomes, knowledge transfer and skills through adding value.

Drip irrigation and shade nets can be used very effectively in small plots and so can a small Chinese tractor. Affordable micro-finance should be made available to help farmers buy them, and a local hire service could be created for the tractors to minimise costs. Adding value will increase farmers' income and create viable sustainable businesses.

We also need to recognise and remove regional trade barriers, such as occur when regional standards are not harmonised: this is about to take place in East Africa. Another problem is that African organic producers face huge costs for international certification. As a result, large traders pay for certification and so maintain custodianship of the certificate. The farmers are thus deprived of ownership of the organic status of their products and become no more than raw material suppliers at the bottom of the value and income chain. So we need to lobby for international acceptance of our African local and regional organic standards.

Africa is burdened with an overwhelming increase in human illness. To add to the scourge of HIV, TB and malaria, relative newcomers like hypertension, diabetes and cancer are invading our lives at an alarming rate. The wealth of any nation ultimately relies on its work force, the people. Given the challenges mentioned above, can Africa really afford to produce foods that add to the human toxic load? Or should it adopt organic agriculture as a means of survival? 

RAHUL BOSE

He has been called “the Sean Penn of Oriental cinema”, but the comparison, by Maxim magazine, does not do Rahul Bose full justice. Yes, the Oscar winning star of *Mystic River* and Bollywood's top alternative actor are both also successful directors and have a history of social activism. Yes, too, both rushed to help straight after a disaster — Penn to New Orleans after Hurricane Katrina, where he helped physically to rescue people; Bose to the Andaman Islands on the day after the Boxing Day tsunami. But the Indian has made the more sustained commitment to recovery, has become a prominent campaigner against climate change and for sustainable development, and is an international sportsman to boot. Which makes him, perhaps, the 21st century equivalent of Renaissance Man.

Time Magazine calls him “the superstar of Indian arthouse cinema” who has “emerged as the front man for everything experimental, new and different in Indian cinema with a string of alternative hits to his name.” At 41 he still plays for India's national rugby team as he has done ever since its first international event in 1998. And in 2007 he became the first Indian to be appointed an Oxfam Global Ambassador.

In all, he has been working with the development charity for five years on issues ranging from women's rights to climate change, from tsunami relief to health and education. “For me,” he told *Our Planet*, “development is a petty dour term for a happier world, a world with more peace, more compassion so that people can spend a life of quality with their loved ones. While economic growth is today the world's most prominent indicator of development, of what use is it without education and health, without peace and good governance, without clean water, germ-free food, permanent housing and an opportunity to achieve – for all”.

He first became involved in social activism after the Hindu-Muslim violence of the 2002 Gujarat riots but adds: “Nothing I have ever done has been a cerebral calculation. It has always been an emotional response to circumstances around me. Then I have let my cerebral judgment (whatever little I have) kick in.”

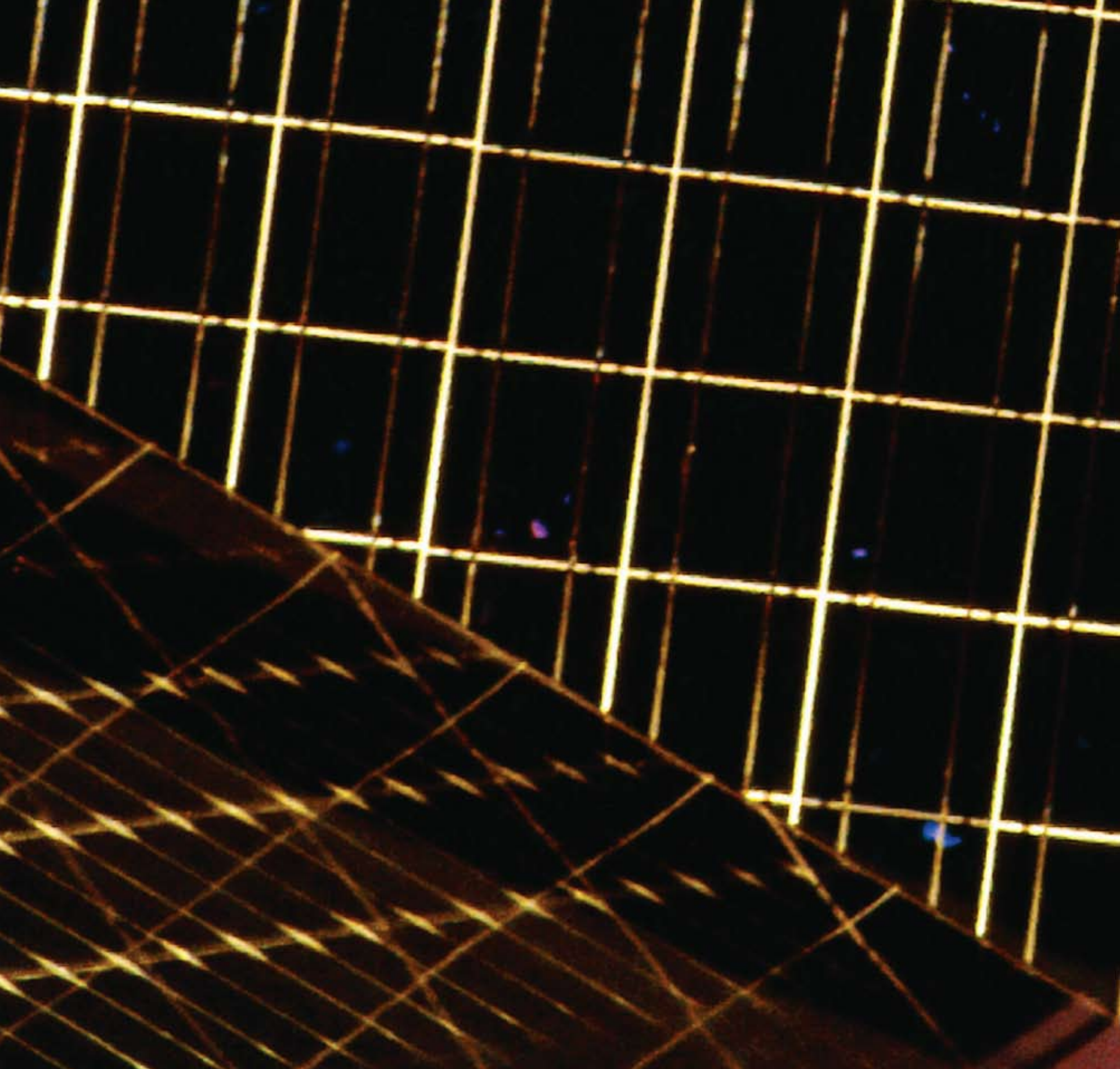
Born in Calcutta in 1967, Bose started his acting career, aged six, with the lead role in his school play. He also took up rugby and won a silver medal for boxing at the Western India Championships. He wanted to go into show business straight after college, but had to settle for advertisement copywriting. In 1994 he got his first big break with a part in the enormously successful film ‘English, August’. He has since appeared in more than 25 films, winning several awards. And he wrote and directed ‘Everybody Says I am Fine’, the first English-language Indian film ever to be released in U.S. cinemas.

He has also been recognised for his activism, receiving a prestigious Karamveer Puraskar award in 2007 for his work after the tsunami and for starting The Foundation, an anti-discrimination NGO. He went back to the Andaman Islands 23 times, providing vehicles, mobile phones and relief materials, and working on watershed management. Last year he joined a celebrity appeal to the G8 summit to increase aid in the face of the world food crisis, and joined a similar bid, coordinated by Oxfam, to persuade leaders of rich countries to take action on global warming.

SE

"Climate change is not just an environmental issue, but one with severe socio-economic implications" he says. "It can, and will, erode development gains by the poor and could hamper the achievement of many of the Millennium Development Goals. The Indian subcontinent is a disaster-prone region. Poverty and lack of development makes the impact of these disasters worse — and poor people are the worst affected.

"Rising temperatures and changing patterns of rainfall affect our food production. The government and the private sector need to invest in adapting to climate change so that people don't lose their crops and their livelihoods." GL



www.unep.org/ourplanet