G8

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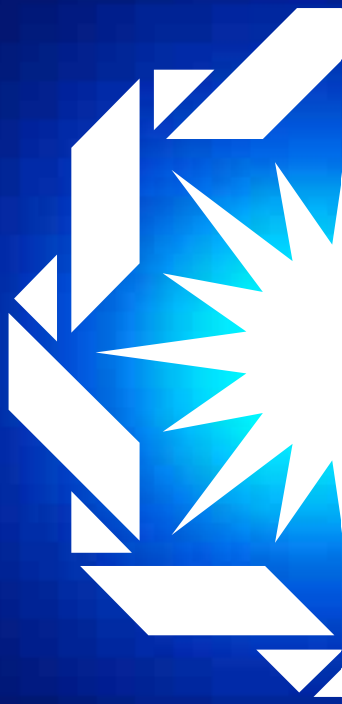
HOKKAIDO TOYAKO **SUMMIT 2008** 7–9 JULY 2008

In co-operation with G8 Research Group

THE INTERNATIONAL BANK OF AZERBAIJAN



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The International Bank of Azerbaijan is the leading financial institution in Azerbaijan and the region, and an important factor in both Azerbaijan's integration into the world economy and the revival of the country's banking sector.

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- Our **national service network** comprises 36 branches, over 90 service divisions, more than 600 ATMs (market share of **47.4**%) and 2,500 POS-machines (market share of **51.1**%)
- The number of **corporate customers** increased from 31,301 in January 2007 to almost **64,000** in January 2008. The number of **individual customers** increased from over 421,000 in January 2007 to more than **550,000** in January 2008.

Forests are the key

By Eric C Bettelheim, Executive Chairman, Sustainable Forestry Management Ltd

Tropical and sub-tropical forests are the key to a global deal on climate change. As well as being home to half of all species on Earth, tropical forests are the life support system for a fifth of mankind and deforestation accounts for over 20% of the climate change problem. It is now clear that if tropical forests continue to be destroyed, mankind simply cannot achieve stabilisation of the climate by mid-century no matter what else it does. Their crucial importance was finally recognised by the international community at Bali, and it is time to deal with them.

The developing world must benefit

A new treaty must be practical, equitable and global. It must end the exclusion of the entire developing world - over 100 countries - from meaningful benefit from the carbon markets. As almost all of these economies are dependent on forests and agriculture, these sectors must be fully valued and credited for their storage of carbon. Logging and the conversion of forests to agriculture - for food and bio-fuels - can only be offset if the carbon of standing forests is worth more to these countries and their growing populations than the available alternatives. Including them in the carbon credit trading system is the only practical and effective way of doing so.

Discrimination against the poor must end

The impacts of climate change fall most heavily on the rural poor of the developing world. The costs of climate change, social, economic and environmental, can now be seen to exceed the benefits of unconstrained growth. The calculation that it is equitable and advantageous for the developing world to avoid any limits on economic growth is no longer tenable. To include tropical forests in the carbon markets system may also have seemed a diversion from the fossil fuel economy or just too complicated. Those arguments too, can now be seen to be misconceived. The only path to avoiding continued deforestation and environmental degradation is sustainable development throughout the developing world.

What needs to be done

A new treaty requires the consent of all developing countries. Fortunately there is a congruence of interest between giving full value to the storage of carbon in biomass and crediting it in the compliance market. Industry needs time to develop, commercialise and distribute new technology; in that interval it needs low-cost compliance credits. Sequestration of carbon in the forests and rural landscapes of the developing world is by far the cheapest available source of such credits in the short to medium term. Giving full value and integrating forest and land-use carbon credits into the compliance system is the rational response for both rich and poor. This mutually beneficial outcome requires assistance in capacity building. The necessary resources should come from an international facility focused on making all developing countries ready to receive private sector investment, which is the only realistic source of the massive funds required over the coming decades.

A new treaty must also recognise that each affected country faces different circumstances and is at a different point in its development. The sovereignty of each country's decision making must be respected within an overall framework. Broad principles of regulation should be adopted but centralised, detailed regulation must be avoided. That is what led to the current inequity and to market failure in the forest and land-use sectors. We must learn from such mistakes. If we are to open the door to a truly global solution to climate change we must begin with the forests; not leave them to the last.

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Cover image: A young girl in the aftermath of cyclone Nargis, which devastated the Irrawaddy Delta region of Burma in May 2008

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Sponsored features

G8 Summit 2008 welcomes the participation of:

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Fight malnutrition for development

Every G8 meeting delivers new agreements, promises and actions. However, this time we are looking at the summit to also deliver on a promise that was made long ago.

Governments agreed on a concerted attack on chronic malnutrition and deficiency diseases - in 1974.

Still, 34 years later, chronic malnutrition is rampant. It leads to the death of 3.5 million children every year, limits the growth of 178 million children more, and undermines the health and productivity of 2 billion people worldwide. It is an ongoing tragedy that can be prevented.

We have to fight malnutrition to reduce death and disease, and its high economic costs. We can only achieve the Millennium Development Goals if we improve nutrition.

Even better, fighting malnutrition is proven to be one of the best investments to reduce poverty and stimulate economic growth. Governments, the private sector and civil society can deliver large-scale, cost-effective interventions and fortified products that make people and economies healthier and stronger.

It is time to give healthy nutrition - as a condition for human existence, growth and productivity - the political attention of the G8 and the wider international community it deserves.

And it is time to make the commitments to and investments in large-scale, concerted actions that ensure the poor and vulnerable, especially women and children, gain access to healthy foods.

Marc Van Ameringen
Executive Director
GAIN - Global Alliance for Improved Nutrition

www.gainhealth.org

Welcome

Yasuo Fukuda, Prime Minister of Japan

At July's G8 Hokkaido Toyako Summit, world leaders will discuss the world economy, environmental concerns, African development and other pressing issues that must be tackled.

Global warming is a huge challenge, and humanity has no time to lose. The international community must urgently strengthen efforts to resolve this issue. In this endeavour, Japan has proposed the Cool Earth Promotion Programme.

"Global warming is a huge challenge, and humanity has no time to lose"

As chair of the G8 Summit, I will work towards establishing a framework with fair and equitable emissions targets in which all major emitters participate.

I look forward to welcoming world leaders to Toyako, an area rich in natural beauty, and having fruitful discussions that pave the way to a better world.

Prospects for the 2008 Hokkaido Toyako G8 Summit

Financial instability, trade, climate change, Africa and nuclear proliferation will top the agenda of an institution debating its own processes and architecture

By Professor John Kirton, Director, G8 Research Group

On 7-9 July 2008, the leaders of the world's most powerful market democracies will assemble in the northern Japanese mountain resort of Lake Toyako, Japan, for their 34th annual Group of Eight (G8) Summit. In the chair will be Japanese Prime Minister Yasuo Fukuda, attending and hosting the Summit for the first time. Also coming to their first Summit will be British Prime Minister Gordon Brown and Russian President Dmitry Medvedev. It will be the second Summit for French President Nicolas Sarkozy; the third for Canadian Prime Minister Stephen Harper and German Chancellor Angela Merkel; and the fourth for José Manuel Barroso, President of the European Commission. It will be Italian Prime Minister Silvio Berlusconi's sixth, and the eighth and last of President George W Bush of the United States.

For the fourth straight year the G8 heads will meet the 'Outreach Five' (O5) leaders of China, India, Mexico, Brazil and South Africa. Also attending will be the leaders of Australia, South Korea and Indonesia from democratic Asia; leaders from several African democracies; and the heads of a number of multilateral organisations – those most relevant to the Summit's agenda this year.

To help prepare the Summit, the G8 leaders' personal representatives have held a full slate of four preparatory meetings since January 2008. There has also been an unusually dense web of G8 meetings of ministers: for finance on 9 February in Tokyo, 11 April in Washington, DC, and 13-14 June in Osaka; for development on 5-6 April in Tokyo; for labour on 11-13 May in Niigata; for environment on 24-26 May in Kobe; for justice and home affairs on 11-13 June in Tokyo; for energy on 7-8 June in Amori; and for foreign affairs on 26-27 June in Kyoto, just before the Summit's start. There was also a meeting of G20 environment and energy ministers of the Gleneagles Dialogue on 14-16 March in Chiba, and, unusually, the fourth Tokyo International Conference on African Development (TICAD IV) on 28-30 May in Yokohama. At the senior official level, the Heiligendamm Process, a structured dialogue of the G8 and O5 members on investment, innovation, development and energy, has now started in a promising way. But only at Toyako will all the G8 leaders be present, at the peak of a Summit system designed, above all, to let heads of state and government provide real leadership.

At their Summit the G8 leaders will confront challenges all too reminiscent of those which inspired the G8's birth in 1975. In finance, a contagious global financial crisis is afflicting credit and currency markets, affecting global growth and inflation, and assaulting an international financial system still centred on the International Monetary Fund, dating back to 1944 and struggling to cope with today's globalised world. In energy, world prices for oil have surpassed (in real terms) the previous peaks from the oil crises of 1973 and 1979, placing a new premium on energy conservation, efficiency, alternatives, renewables and

> *"G8 leaders will confront challenges all too reminiscent of those which inspired the G8's birth in 1975"*

Trees line the tranquil Lake Toya in Shikotsu-Toya National Park, Hokkaido, where the 2008 G8 Summit is being held

30 years ago, this may have ruined a picnic.

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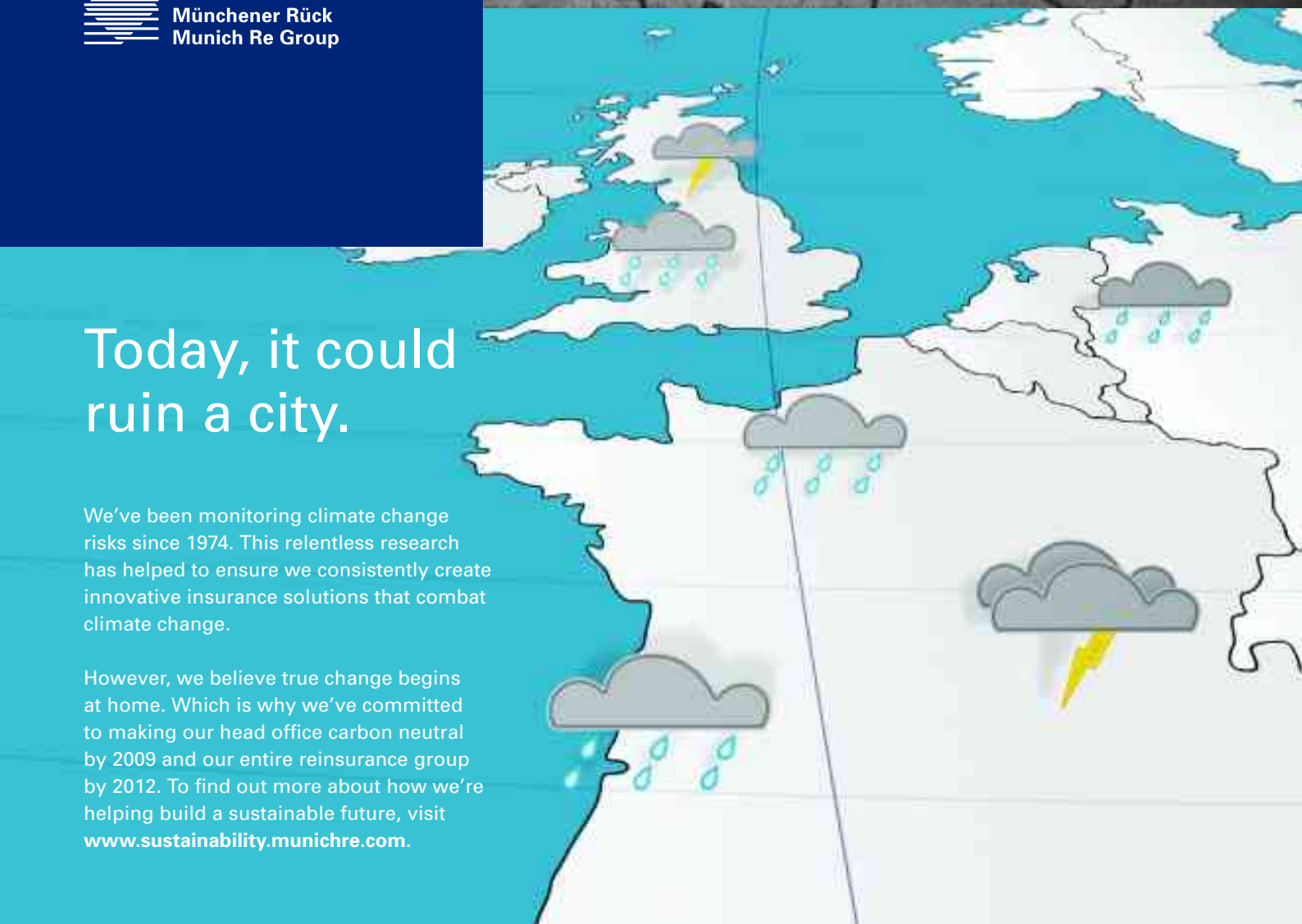

Today, it could ruin a city.

We've been monitoring climate change risks since 1974. This relentless research has helped to ensure we consistently create innovative insurance solutions that combat climate change.

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climate change control. In development, newly interlinked global food, energy and climate crises compound the challenge of bringing the benefits of globalisation to Africa, the one region of the world that has largely been left out. In the political-security sphere, nuclear proliferation in Iran, North Korea and elsewhere again command centre-stage, as they did in the wake of India's nuclear explosion in 1974. In the broader Middle East, war is still taking lives on Israel's borders, in Iraq and in Afghanistan where terrorists still kill at will. Here, as elsewhere, democracy itself is endangered in fragile states, while other closed countries in the world await its arrival for the first time. It is a compelling call for action from a G8 whose founding mission is to protect and promote open democracy, individual liberty and social advance worldwide.

At the Toyako Summit the G8 is confronting these challenges head-on. Well before Japan assumed the chair at the start of 2008, it set as Summit priorities the world economy; climate change and environment; and development and Africa. It subsequently added nuclear nonproliferation as the centrepiece subject in the political-security sphere. These choices reflect a promising combination of iteration and innovation. The world economy returns G8 leaders' attention to the topic that dominated the early years of the Summit, long before Russia joined in 1998. But economic and financial issues were delegated to G7 finance ministers during the past decade, including at last year's Summit when the current global financial crisis was starting to erupt. Climate change and African development

"The second priority theme of climate change is likely to be the make-or-break issue"

continue to be the G8 leaders' focus, as they were at Gleneagles in 2005 and Heiligendamm in 2007, as well as energy and health, which were key issues at St Petersburg in 2006. Nuclear nonproliferation, a classic political-security subject, has made it into the Summit host's planned top-tier for the first time.

The G8's world economy agenda begins with the dynamics of globalisation, as they are currently and dramatically being felt in the areas of finance, energy, investment and food. Here the focus is on stimulating the world economy in response to the current slowdown, asking if more fiscal injections are appropriate, or if the recent reductions in interest rates and internationally co-ordinated injections of central bank liquidity have already generated too much inflation in too many parts of the globe.

A second concern is coping with the contagious credit crisis that started with the sub-prime mortgage problem in the US, but has caused a much wider array of credit markets to freeze around the world. Here G8 attention centres on the causes and transmission channels of the crisis; on the role of mortgage lenders, commercial and investment banks, hedge and private equity funds, rating agencies and insurers; and on what regulatory and supervisory measures should be taken, nationally or internationally, when and by whom.

Also prominent on the G8's economic agenda is trade, where the badly overdue Doha Development Agenda of multilateral trade liberalisation is in big need of a boost. Equally important is investment protectionism, including the need for internationally harmonised rules for the ever wealthier and more internationally active sovereign wealth funds. Attention extends to innovation and intellectual property rights, corruption, corporate social responsibility, natural resource management, and energy security, where world oil prices spiking to new highs threaten to imperil global growth and the political fortunes of most G8 and O5 leaders back home.

The second priority theme of climate change and environment has long been identified by host Prime Minister Fukuda as the top priority. It is likely to be the make-or-break issue by which the success of the Summit as a whole is judged. The first task is to have all G8 members and their O5 partners accept the ominous scientific findings of the most recent Intergovernmental Panel on Climate Change and subsequent reports; to recognise that climate change imperils both the global environment and world economy; and to agree that major measures on the part of all major emitters are required right now. They then need to define the essential framework for a 'beyond Kyoto' climate control regime – one that is effective, inclusive, and based on binding targets accepted by all countries that count. To do so, they must conclude their hard bargaining on long- and medium-term targets and timetables, and agree on the contribution that Japan's bottom-up sectoral approach can make.

While the G8's European and Pacific powers have long been divided on the issue of climate change, both sides are showing flexibility now. Moreover, the O5 powers, led by China, are also moving to help the Summit arrive at a meaningful deal. Part of the solution lies in agreeing on technology development and transfer, forestry, carbon sinks and biodiversity, funding for technology and adaptation, and linkages to the Summit's work on development, Africa, food and health. Also relevant is the role of various negotiation fora, notably the UN process, the Gleneagles Dialogue due to end this year, and the Major Emitters Meeting of 16 countries, whose first summit will constitute the concluding climate change session of the G8 Summit this year.

The third priority centres on subjects that also build on the G8's recent momentum and add a new emphasis. The framework for the Summit's discussions will be the 2002 G8 Africa Action Plan. G8 leaders will hold an accountability session to review how well they have fulfilled their commitments made in 2002 and since, starting with their most high-profile promise: to double aid to Africa by 2010. They will also review and

Heads of state and international organisations at the Heiligendamm G8 Summit, 2007

"G8 members differ about how far, how fast and in what way the G8 should further integrate its now established O5 partners"

support the progress Africa is making towards good governance at the national and regional levels. Another major focus will be on how well the G8 and the world are doing at the halfway point towards the Millennium Development Goals established in 2000, and due to be achieved by 2015. At Toyako, pride of place goes to education and especially health, starting with HIV/AIDS, malaria, tuberculosis, polio and the Global Fund, and expanding to embrace health systems and their workforce. Also prominent will be the response to the food crisis in both its short- and medium-term dimensions, and the close links of development with climate change, biodiversity and trade.

Beyond this already ambitious agenda is the Summit's de facto priority of the authority of the nuclear non-proliferation regime. This is a subject of particular importance for Japan, as the only G8 member which has experienced first-hand the horrors of a nuclear attack and which lives so close to a new, unpredictable nuclear power – a totalitarian North Korea that invaded South Korea in 1950, shot a missile over Japan more recently, and is evidently exporting nuclear material to other non-democracies such as Syria. Also of concern is a nuclear-committed and non-transparent Iran that is supporting insurgents and terrorists, and a precarious nuclear-armed Pakistan that could still fall further into al-Qaeda and Taliban hands. A central challenge for G8 leaders is preventing these groups from moving easily from their sanctuaries in Pakistan to terrorise and kill innocent civilians and the soldiers of many G8 members now fighting for freedom in Afghanistan. Also important are strengthening the G8's successful 2002 Global Partnership to reduce weapons and materials of mass destruction in Russia, and confronting the conflicts in Haiti, Zimbabwe, Kosovo, Myanmar and Tibet.

Perhaps the greatest challenge for Toyako is the architecture of the G8 Summit as an institution itself. Already a centre of global governance that many national governments, intergovernmental organisations and civil society want to be part of, the G8 has responded at Toyako by inviting an unusually large number of participants to join the G8, in ever-changing combinations, through the Summit's three days. But G8 members differ about how far, how fast and in what way the G8 should further integrate its now established O5 partners, or even make them full members of a new G13, as France's Nicolas Sarkozy and Britain's Gordon Brown have publicly proposed. G8 leaders must decide whether to extend the Gleneagles dialogue beyond 2008 and how to steer the Heiligendamm Process, which will issue an interim report to the Summit in 2008 and a final report in 2009. And for 2010, the G8 during the past decade has made 23 ambitious commitments to be reached in eight areas, including reducing greenhouse gas emissions.

The greatest drama and defining test of Toyako in 2008 will thus be whether it can move a reluctant United States and the major economic powers of China, India, Brazil, Mexico and South Africa towards binding targets for controlling climate change in the years ahead.

TDR: meeting global challenges in health research

TDR-sponsored research collaborations have paved the way to global or regional elimination campaigns in five tropical diseases

TDR, a co-sponsored programme of UNICEF, UNDP, the World Bank and WHO (www.who.int/tdr), has led three decades of global research achievements on neglected tropical diseases – working with public and private partners worldwide. TDR-sponsored research collaborations have paved the way to global or regional elimination campaigns in five tropical diseases including: leprosy, onchocerciasis, Chagas disease, lymphatic filariasis and visceral leishmaniasis.

Today, TDR is working with partners to foster an effective global research effort on infectious diseases of poverty in which developing countries play a pivotal role. TDR is active at policy level and in academia, as well as in laboratories and in the field. The Programme's implementation research collaborations are improving delivery of critically needed primary health care in rural communities and clinics in a manner that strengthens health systems and improves coherence of services. Further upstream, global and regional TDR research partnerships promote innovation and improved capacity for research leadership in developing countries.

The recent World Health Assembly resolution (WHA 61.21) approving a *Global Strategy and Plan of Action for Public Health, Innovation and Intellectual Property* highlights the importance being placed today on research and capacity building to support the needs and priorities of developing countries.

As one relevant effort, TDR has spearheaded a set of global networks and public-private partnerships for drug and diagnostics innovation for infectious tropical diseases lacking the usual market incentives to drive private sector investment. These north-south innovation networks already are delivering quality lead compounds. Presently, TDR is supporting the establishment of a new *African Network for Drug and Diagnostics Innovation (ANDI)*, with the goal of creating a sustainable platform for R&D innovation in Africa.

Above: Community drug distributor Cleophas Bakari administers treatment to a family in Garbechede, Nigeria as part of a recent TDR multi-country trial of community-directed interventions for river blindness, malaria, and TB, co-sponsored with the African Programme for Onchocerciasis Control (APOC).

Below: A researcher at Thailand's National Center for Biotechnology and Genetic Engineering (BIOTEC), a TDR collaborator.

WHO/TDR/Craggs

Many experts in developing countries believe that in order to sustainably generate affordable drugs, diagnostics, and vaccines for neglected diseases there is a critical need to make committed investments in R&D and in manufacturing and distribution chains centered in developing countries – where the diseases are most widespread. The new African network will help promote African-led R&D innovation by building capacity, developing infrastructure, and supporting collaborations that deliver affordable new tools, including those based on natural products and traditional medicines. ANDI's founding meeting will convene on 6-8 October 2008 in Abuja, Nigeria.

For more information on TDR, contact Jamie Guth (guthj@who.int)

For details on TDR's innovation activities/ANDI contact: Dr Solomon Nwaka (nwakas@who.int)

TDR: from field to policy forums in health research

Through its **Stewardship** activities, experts and stakeholders worldwide interact to identify research priorities, including through a new knowledge platform (www.TropIKA.net).

TDR's **Empowerment** functions support the development of research leaders in disease endemic countries, through institutional grants and career development/training.

Other TDR research collaborations aim to:

- Engage African communities in research on better delivery of critical primary health interventions, for example home management of malaria and community-directed distribution of essential drugs and health products (e.g. bednets).
- Support multi-country trials of new and improved drug treatments for malaria, TB/HIV, river blindness and other neglected diseases that simultaneously build capacity in rural hospitals.
- Improve syphilis, malaria and TB diagnosis in rural clinics in initiatives that also build policy interest and commitment to national control efforts.
- Improve vector control strategies and support elimination campaigns through research into specific neglected diseases.

World Health Organization

Special Programme for Research & Training in Tropical Diseases (TDR) sponsored by UNICEF/UNDP/World Bank/WHO

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Noble Carbon operates from a global network of offices in Ireland, Germany, Switzerland, the United Kingdom, Canada, and China and is a member of the publicly listed Noble Group Limited (SGX NOBL). Noble Group is a world leader in supply chain management involving commodities such as cotton, grains, coffee, coal, steel, aluminium, clean fuels to name a few. Noble Carbon is able to leverage its global reach through the more than 80 offices in 40 countries of Noble Group.

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The Green Economy: momentum is building

Delivery on the Bali Road Map – and a deal at the climate meeting in Copenhagen in 2009 – will require solid commitment from governments. The international agencies and the private sector are showing the way

By Achim Steiner, UN Under-Secretary General and UNEP Executive Director

Slowly but surely, the key elements of the emerging 'Green Economy' are coming into view, as the transition to a low-carbon world begins to get underway. Financial institutions, energy companies, local authorities and organised labour are having to engage with the reality of climate change – and are recognising the enormous opportunities which combating that phenomenon will present. Hundreds of billions of mainstream and venture capital dollars are starting to flow into the new economy. Trillions more are waiting to be injected. On one reading, therefore, the situation as the G8 Group of nations meets in Japan is an encouraging one.

But the last few months have also brought more worrying signs. Question marks are again appearing over the willingness and determination of governments across the political and developmental spectrum to set the ground rules and frameworks that will secure the transition to a low-carbon economy.

The Bali Road Map, agreed at the 11th hour in Indonesia at the last Climate Convention meeting in December, now needs to be navigated up to and at the climate meeting in Copenhagen in late 2009. But recent gatherings, including that of the Climate Convention in Bangkok, have been more a cause for concern than an opportunity for celebration. Six months into the Bali Road Map, and with just 18 months to go to Copenhagen, far too many countries appear to be idling in neutral rather than changing up to a higher gear. Indeed, some seem to have gone into reverse.

This is regrettable, because the case for decisive action is compelling. It is not as if governments have suddenly had access to new scientific data suggesting that climate change will not, after all, melt the world's glaciers, lead to a dangerous rise in sea levels, displace millions of people, trigger more crop losses or extend the reach of infectious diseases. In fact, such an optimistic scenario is, if anything, looking even more improbable: almost all the scientific reports since Bali give even more cause for concern. New estimates indicate that sea levels could rise by up to 1.5 metres by 2100, and new data indicates that glaciers are melting far faster than had previously been supposed.

We are also clearer than ever about the costs of inaction. These have been starkly laid out by Lord Stern of Brentford (see interview on page 28) and by the Intergovernmental Panel on Climate Change (IPCC). The Stern Review estimated that failure to act would inflict upon the world economy additional costs of at least 5 per cent of global GDP each year. Conversely, the IPCC recently put the price tag of effective action at a perfectly affordable level: somewhere around 0.1 per cent of global GDP per year over 30 years.

This generation and future ones will not forgive any back-pedalling by governments now – not least when the instruments for transforming the planet into a sustainable world for 9 billion people are so self-evidently within our grasp.

"This generation and future ones will not forgive any back-pedalling by governments now"

One of these instruments is the mobilisation of finance to meet the climate challenge. This has been a defining development of the last 12 months or so. Initiatives and investments by the private sector and multinational agencies are proliferating in anticipation of a credible climate agreement being brokered in Copenhagen in 2009. For example, earlier this year the

Drought hit Anhui Province in East China

Green Exchange was established in New York to trade carbon credits or UN-approved certified emission reductions. It has the backing of financial institutions such as Credit Suisse, Merrill Lynch and JPMorgan. Meanwhile, carbon markets continue to expand – in Chicago and Singapore, for example. A new report for the INSEAD-European Business Summit estimates that $4.5 billion has now been put into so-called clean-tech venture capital funds in the United States, compared with $1.5 billion in Europe. And the new Adaptation Fund, launched this year, will help vulnerable developing countries to climate-proof their economies. The fund is financed by a 2 per cent levy through the Clean Development Mechanism of the Kyoto Protocol. It is estimated to generate between $80 million and $300 million for adaptation activities between 2008-2012 – not enough, but a start.

UNEP has been heavily involved in many groundbreaking finance initiatives. The breadth of these activities and the progress that is being made was recorded at the 2008 meeting of UNEP's Governing Council, which took place alongside the Global Ministerial Environment Forum in Monaco in February. The highlights included:

- Some 300 financial institutions, with assets of $13 trillion, have now signed up to the Principles for Responsible Investment, which were facilitated by UNEP's Finance Initiative and the Global Compact in 2006.
- Total transactions in the renewable energy sector surpassed the $100 billion milestone in 2006 and reached nearly $160 billion in 2007.
- In collaboration with the United Nations Foundation and Shell Foundation, UNEP has helped two of India's largest banking groups – Canara Bank and Syndicate Bank – create a credit market for helping rural villages to finance the purchase of solar lighting systems. Some 100,000 people in southern India have benefited and the initiative is now self-financing, with 20 banks involved. The programme was awarded the prestigious Energy Globe Award in 2007.
- In Tunisia a similar initiative has created a credit market for bank financing of solar hot water systems. More than 20,000 systems have been financed, increasing annual market volume by more than 700 per cent since 2004.
- UNEP and partners such as the United Nations Development Programme and the World Bank are building the capacity of some 30 developing countries to access the carbon markets for financing climate-friendly infrastructure.
- These multi-million dollar initiatives, including ones under the Nairobi Framework, fall under the umbrella of the CD4CDM programme (Capacity Development for the Clean Development Mechanism) – the largest initiative of its kind.
- With funding from the Global Environment Facility (GEF), UNEP and the World Bank are just about to launch the African Rift Geothermal Facility (ARGeo). The $17 million project will underwrite the risks of drilling for steam and in doing so build the confidence of the private sector to build geothermal power stations in countries from Kenya up to Djibouti. Africa's geothermal potential is estimated at 7,000 megawatts.
- UNEP and GEF's Solar and Wind Resource Assessment Partnerships have 'found' 10 million megawatts of solar and wind energy in 26 developing countries in Asia, Africa and Latin America. This will facilitate public and private sector development.
- With $20 million in GEF and UN Foundation support, UNEP is also working with the Asian and African Development Banks to leverage private sector financial flows towards clean energy entrepreneurs. More than 50 entrepreneurial businesses specialising in clean energy technologies and services have been financed to date in Africa, Brazil and China.
- Partnerships with the insurance sector are leading to new weather derivatives and other instruments that help renewable energy developers to manage project risks, such as low wind-speeds and uncertain biomass fuel supply.

One of the most encouraging by-products of transition to the Green Economy is the generation of new ('green') jobs. UNEP is compiling research on this emerging phenomenon in collaboration with the International Labour Organization (ILO) and the International Congress of Trade Unions (ICTU). There are now more people employed in the renewable energy industries than there are in the oil and gas industries – 2.3 million, compared with 2 million. For example,

"There are now more people employed in the renewable energy industries than in the oil and gas industries"

Hansen, a wind-power gearbox manufacturer owned by the Indian company Suzlon, is building a new factory in Coimbatore that will supply up to 3,000 gearboxes and employ 800 people. A second factory just built in Tianjan, China, will employ 600 people. Meanwhile, the Indian city of Delhi is introducing new eco-friendly compressed natural gas buses, which will create 18,000 new jobs.

Just as we now talk of 'green jobs', so too can we talk of 'green innovation'. The need to find more carbon-efficient alternatives for many of the materials and processes used in everyday life is driving cutting-edge research, which holds out the prospect of more climate-friendly solutions. Take three disparate examples: data centres, cement and biofuels.

It may come as a surprise to some, but data centres worldwide consume about 120 billion kilowatt-hours of electricity annually. Collectively they produce around 2 per cent of global CO^2 emissions – equal to those from aviation. Many data centres are also difficult places in which to work: they are so hot that only a fraction of the people who could work there are prepared to do so. A solution may be at hand: one of the world's big computer companies is working on micro-filaments that will run water through computer chips, pass the

liquid through a heat exchanger, and use the harvested heat for local homes.

Global production of cement and its transportation meanwhile emits between 5 to 10 per cent of global CO^2 emissions. As with the computing industry, current trends suggest a continued increase in such emissions – with all that that spells for the scale of climate change. But the future of cement may look quite different: engineers and scientists are now looking at other ways to produce it. Substituting natural wastes such as sugar residues and rice husks for some of the cement is one avenue. Other researchers are looking at human bone. Cement and bone are molecularly similar, yet it takes temperatures of 1,200°C to make cement while bone is made by the body at 37°C.

Research also proceeds apace into alternative forms of biofuels. Centres in Kenya and the United States are trying to isolate the enzyme that termites produce to dissolve woody wastes into sugars. It could become the basis of a new and perhaps less controversial second-generation biofuels industry.

Progress is being made on other fronts, but there are many hurdles to clear and obstacles to overcome in the greening of the global economy. These include trade rules that impede the spread of clean technologies, and the preferential subsidies provided by governments to fossil fuel industries. We need to be as bold in our approaches to policy-making as we are being innovative in the development of new technologies and processes. But, if we look at the overall picture, we see enough encouraging developments to shift into top gear and start delivering on the Bali Road Map.

Some countries are already going the extra mile. The obvious question is: why not all? To help mobilise a wider and ongoing response to climate change within the international community, UNEP has launched the Climate Neutral Network. The objective of the Network is to support the negotiations under the UN Framework Convention on Climate Change. Five countries – Costa Rica, Iceland, New Zealand, Norway and Monaco – are the founding participants. They have been joined by several companies and cities, all of whom see a promising economic future in becoming low- or zero-emission economies.

For those governments who are in two minds about their future course of action, the comments of Roberto Dobles, the Environment Minister of Costa Rica, are worth pondering: "Costa Rica seeks to be climate neutral in 2021. Because even though our emissions are small, we believe there is a common yet differentiated responsibility. The successful economies of the future will be those that are decarbonised and climate-friendly. We are not part of the problem. But we will be part of the solution."

Solar energy is used to pump water in a village in Mauritania, Sahara Desert

America Will Step Up.

As the debate in Washington has intensified over climate change legislation, much of the focus has turned to costs and the potential impacts on the economy. It is no longer a question of "if" Congress will act on climate change but "when." As this realization has sunk in and legislation has advanced in the Senate, details have become important and questions of fairness and equity have been raised. Climate change is the most complex environmental issue the U.S. Congress has ever faced and its careful deliberation is a testament to how seriously it takes its obligation.

Duke Energy has been in the forefront of the debate – working with our elected representatives, environmental organizations, the business community, our regulators and our customers to craft legislation that moves to reverse the growth in greenhouse gas emissions in the most cost-effective manner possible. A successful piece of legislation will address both the environmental and economic concerns that have brought us to this critical place in time.

We have a sense of urgency and a bias for action. The scientific evidence is apparent. The political will has coalesced. The responsibility to save our planet for our children and grandchildren is humbling and compelling. And, the opportunity to move from the 19th Century Industrial Revolution-based carbon economy to a 21st Century Decarbonized Economy is breathtaking.

America must step up, first by passing legislation limiting greenhouse gases and, then, by engaging as a full partner with the rest of the world in negotiating and ratifying the successor to the Kyoto Accords. There can be no fence-sitters or drop-outs in Copenhagen. We cannot afford to divide the world between "developed nations" and "developing nations." While the levels of commitment may vary among the 192 nations in the world, everyone must do something.

Americans love to lead. We like to think it's in our national DNA to be first – a trait we know not everyone in the world understands or necessarily appreciates. But, in climate change we haven't led. We haven't even followed, and that's unfortunate. And hard as it may be to acknowledge this, America has to "earn the right" to lead. For a while, we will have to follow, learning from the accomplishments and missteps of other nations who have moved forward. But, make no mistake: Once America puts its shoulder to the wheel, we will be a full partner in what must be an international imperative to attack the causes of global climate change.

It all starts with technology. The climate bill Congress passes must promote the development and commercialization of new technologies that will be the planks on the bridge to a low-carbon economy.

Decarbonizing our energy supply means accelerating the commercialization of carbon capture and sequestration technology, introducing more renewables, providing greater incentives for energy efficiency and thoughtfully bringing nuclear energy back into the generation mix.

It means introducing new smart meter technology that will transform the grid into an energy efficiency machine by becoming the platform and infrastructure for even more advanced technologies, products and services. Smart meters have another benefit: They connect you to your customer, giving them the knowledge, the power and the incentive to reduce their energy consumption and, by extension, their carbon footprint.

A decarbonized electric sector can address emissions in the transportation sector. We see plug-in electric vehicles in the not-so-distant future replacing gasoline-guzzling, carbon-emitting internal combustion engines. Plug-ins will lead to better batteries and advanced storage capabilities that can dramatically lower costs.

These are the opportunities of a decarbonizing world – technologies and innovations we can't even imagine yet just as manned flight was only a dream at the dawn of the Industrial Revolution.

Even though legislation has not yet passed, America is already in the game. There may be no carbon price signal yet, but Americans are talking about the climate and they are taking the small individual steps they can to respect the environment. Businesses are discovering energy efficiency is good for their bottom line. And environmentalists and business are working together through the United States Climate Action Partnership to help Congress deal with the difficult details that must be worked out.

We congratulate the G8 leaders meeting in Hokkaido for, once again, making climate change a preeminent issue at the summit. We encourage them to provide the thoughtful leadership the world needs to address this most pressing challenge.

Climate change: towards a global deal

An interview with Lord Stern of Brentford, IG Patel Professor of Economics and Government at the London School of Economics and Political Science; author of The Stern Review of the Economics of Climate Change

You recently said that the review you produced 18 months ago probably underestimated the degree of risk posed by climate change. Why?

It now appears that emissions are growing more rapidly than we had assumed. Also, the absorptive capacity of the planet is less than we thought. Oceans and forests are taking up less of our carbon emissions than we had thought, so carbon stocks are rising. The levels of stocks have a direct relation with temperature increases, meaning that there is a higher probability of large temperature rises than we had anticipated. Global warming is occurring faster than predicted, and the effects on people and communities will therefore be more devastating. All the elements in the chain are showing a greater degree of risk.

How do we quantify that risk?

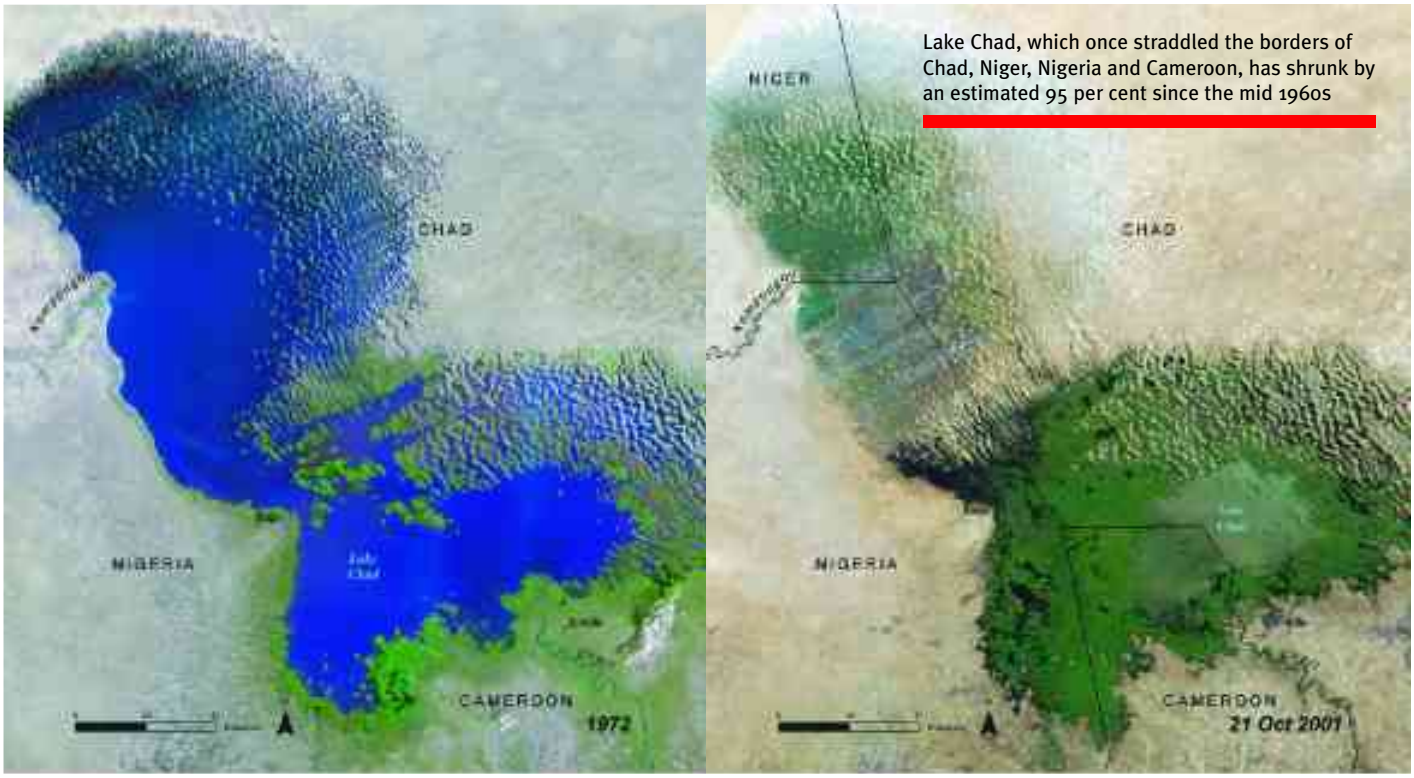
We need to understand that we're not just talking about minimising the risk of the worst-case scenario. We need to address all levels of risk. The 'business as usual' scenario would mean an increase in CO^2 equivalent (including all greenhouse gases) from 435 parts per million (ppm) now to more than 750ppm by the end of the century. At that level, we would face a 50/50 risk of the temperature increase being either side of 5°C – so we are looking at a high probability of a devastating outcome. Such a world would look dramatically different from the world we know. It would be a world of swampy forests – as it was 30-50 million years ago. We would see massive movements in population, accompanied by serious conflict – as has always been the case with such movements. Everybody would be affected. But if we manage to stabilise at 500ppm, then that 50/50 probability comes down to just 3 per cent.

"Everyone has to work towards these targets. There is no room for free riders"

So how do we minimise the risk?

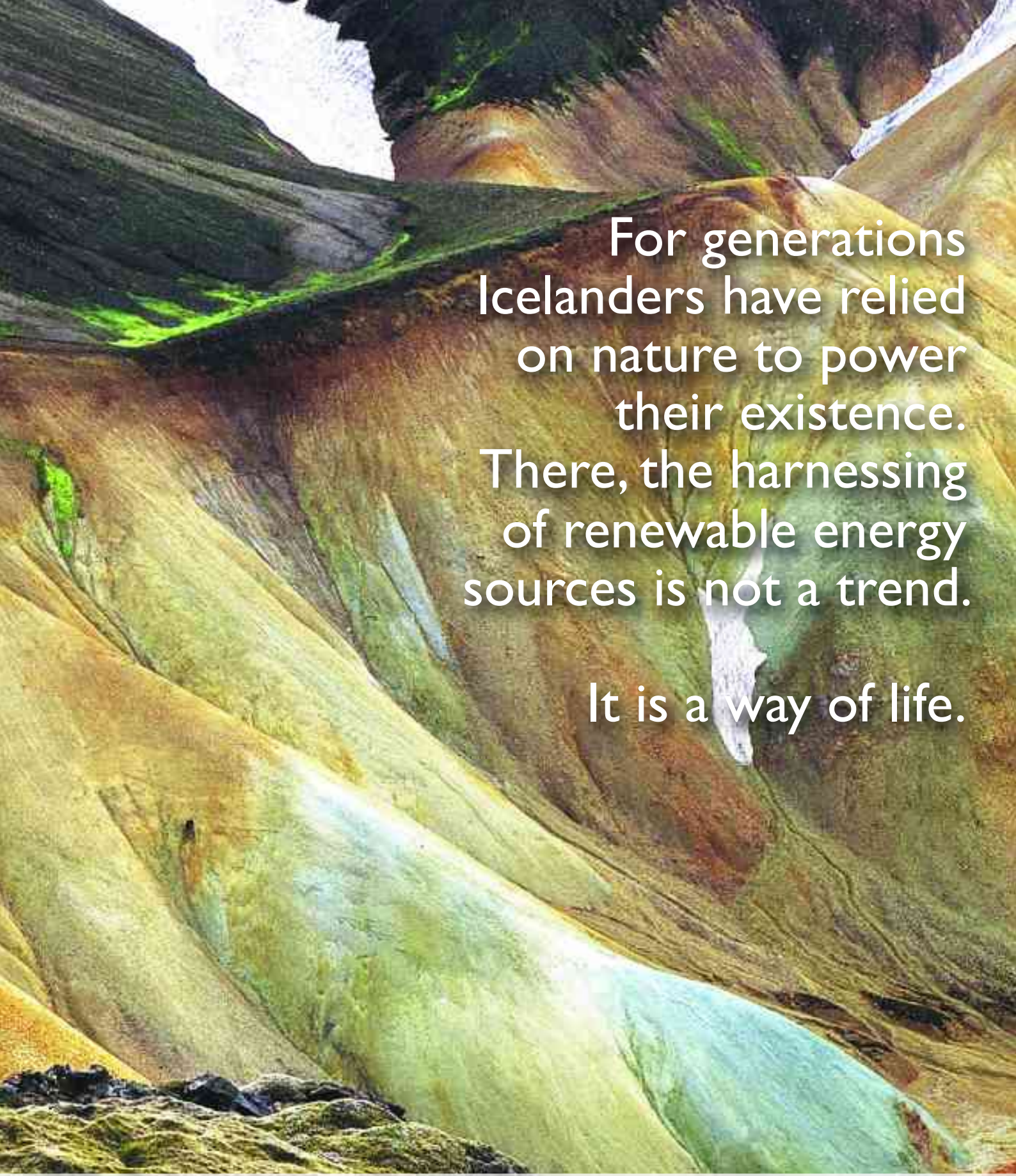
In the short term, through improved energy efficiency and by tackling deforestation. At the same time, into the medium term, we need to develop new technologies for producing electricity and for transport. To stabilise at 500 parts will mean cutting emissions by 50 per cent in total by 2050. As the world's population is likely to increase from 6 billion now to 9 billion by 2050, we will need to get down from the 7 gigatonnes (Gt) of CO^2 equivalent we are producing per capita now, to 2 or 2.5Gt by 2050. Bear in mind that the United States, Canada and Australia are now producing more than 20Gt per capita, and Europe and Japan something between 10 and 12Gt. That means that if it is to get to 2-2.5Gt, the EU must cut its emissions by 80 per cent. The target set by the G8 at Heiligendamm last year was 50 per cent cuts for the world by 2050, and the EU has set itself a target of 20 to 30 per cent cuts by 2020. California's target is 80 per cent, and so is Clinton's and Obama's. McCain has said 65 per cent, but he has a solid environmental track record in the Senate.

Note that everyone has to work towards these targets, because it's unlikely that any countries will come in significantly below. There is no room for free riders – everybody must get there. Anybody who is going to come in above the targets will have to explain why that should be the case. Ethically, this is tough on the developing economies. It only looks at flows, not at



Lake Chad, which once straddled the borders of Chad, Niger, Nigeria and Cameroon, has shrunk by an estimated 95 per cent since the mid 1960s

Deforestation is contributing to the rise of carbon stocks



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history – and some of us have been experiencing our industrial revolutions since 1850. But pragmatically this is probably the best we can do.

What kind of policy instruments are we talking about?

I mentioned action on energy efficiency and deforestation. At the same time we need to invest in the newer technologies for electricity and transport. Our starting point is that we need to get close to zero-carbon electricity, and close to zero-carbon road transport. We can actually see the technologies that will do this: we are not waiting for some new thing to come along. We need to create the right incentives to get people to move away from carbon-emitting, bearing in mind that it costs a bit more to emit without carbon than it does with carbon. A carbon price of $30-$40 per tonne would provide a real incentive to switch to low-carbon electricity. But in other areas we will need regulation where markets don't work so well – for example in insulating buildings. And we will probably need regulation for cars. You can get a price of $30-$40 a tonne through taxation or carbon trading: they have different pros and cons.

Some element of carbon trading will be very important, for two reasons. First, it gives you greater certainty about the quantities, and it's the quantities that cause the problem. Secondly, it allows financial flows to developing countries, and that incentive to them to come into the deal is going to be very important. We should welcome and support their growth, but for all of us, and particularly for them, it needs to be low-carbon growth. In 2050, 8 billion of the 9 billion people will be in the currently developing countries. So the challenge is to help the developing countries to low-carbon growth – absolutely not to low growth. This involves financial flows and sharing, and it involves rich countries demonstrating how it can be done. We need five or ten years of developing these strongly, and then we can ask developing countries to accept targets. In the meantime, we should all be planning how to get to the 2050 targets. To do this, the Clean Development Mechanism needs radical reform so that it embraces the right technologies, including carbon capture and storage, which it doesn't do at the moment. At a carbon price of $30-$40, carbon capture can be economic.

> *"The challenge is to help the developing countries to low-carbon growth – absolutely not to low growth"*

The other big issue is deforestation. Forests have to be protected by the countries where the trees stand; rich countries have a huge responsibility to help them. This is urgent: it has to be co-ordinated and on scale, so that the problem doesn't just get pushed around. It will involve public funds – maybe $10 billion a year, which is not large in a world economy of

Advances in technology are helping to tackle climate change, such as this electric car

$50 trillion. Then there is adaptation, which has to be integrated into development policy. As a minimum, we need to deliver on the 2002 Monterey commitments on finance for development, on the G8 Gleneagles commitments of 2005, and on the EU commitment to reach 0.7 per cent of national income for development aid by 2015.

Do we have the right political structures to engage properly with India and China in the climate change discussion?

We should be looking to India and China and the other developing countries to be coming up with the ideas and the proposals. We've got to act together and the big players have got to put their ideas on the table. It shouldn't just be the US and Europe putting across their ideas and having these batted back: we need real collaboration and I believe India and China are really starting to focus on this now. The dynamics will change as they start to take a lead.

Are you an optimist?

I'm more optimistic than I was a year and a half ago. The change in understanding and commitment in 2007-2008 has been quite remarkable, starting from Bush's State of the Union speech in January last year, then the EU Summit in March, the G8 Summit at Heiligendamm, the IPCC Report and then Bali. We have seen climate change become a big issue in the French presidential elections, in Australia and in Spain, where Zapatero took a strong position. We had the Chinese action plan before Heiligendamm and India's action plan is expected before this year's G8 Summit. The engagement has been strengthening around the world; the big challenge now is to translate commitment into action. So I'm a lot more optimistic, but we have to move fast.

Climate change: the role of renewable energy and energy efficiency in sustainable development

By Joseph C. Brandt, President and CEO, ContourGlobal.

In the climate change debate, renewables, including solar / photovoltaic and biomass / biogas energy, get a lot of attention, while much coverage is afforded to the new, sexy potential of technologies such as offshore wind and wave / tidal power. However, not enough coverage is given to probably the quickest, easiest and most cost-effective way to reduce emissions – energy efficiency.

On the supply side of energy efficiency, the segment which struggles most for attention, but is probably the most deserving of consideration, is co-generation, or combined heat and power ("CHP"). CHP has historical roots in "inside-the-fence" energy provision to heavy industries and also in countries which employ municipal district heating. Only in more recent years has the technique been championed in other countries, for instance the UK, as a reliable route to energy efficiency in all sectors.

ContourGlobal has developed (or is developing) and owns and operates biomass, hydroelectric, district heating and waste-heat recovery energy plants on three continents to date. Through our "Solutions" business line, we are taking the opportunity to contribute towards industrial energy efficiency with like-minded partners. In December 2007, ContourGlobal signed an Energy Services Master Agreement with Coca-Cola Hellenic Bottling Company ("CC Hellenic") to develop, construct, own and operate CHP plants at CC Hellenic facilities across Europe and Nigeria. We have committed to supplying CC Hellenic's energy needs for 15 years per site.

The innovative aspect of this transaction is that, in addition to electrical and thermal energy, the ContourGlobal plants will supply CC Hellenic with chilled water and capture CO_2 for industrial purposes. This is essentially "quad-generation". The benefits, including for the environment, are manifold. ContourGlobal's quad-gen plants can achieve energy efficiencies in excess of 80%. In addition to the projects being key to its corporate social responsibility under- takings, CC Hellenic will derive energy cost savings, increased energy reliability and out-sourcing of energy provision. The project will also result in a reduction in emissions of at least 40% per plant. This represents a significant reduction in carbon footprint, as quad-gen effectively displaces energy separately required by boilers (gas-fired), chillers (electric-driven) and purchased electricity and CO_2 (both in terms of its production and transportation to the bottling facility sites).

ContourGlobal uses this renewable resource to help address Brazil's power shortfall

Given the environmental and cost benefits, it is clear that the world should have more tri-gen and quad-gen projects. However, this is not always obvious from an investment perspective. The operation, and hence economics, of CHPs are driven by heat demand; there is often a requirement to sell "over-the-fence" (or "spill") a substantial amount of electricity onto the grid. If the tariff to be received by a generator is not high enough there is a significant disincentive to CHP development, and thus energy efficiency. In recognition of this, several countries have incentive schemes to encourage co-generation. However, such benefits are often difficult to avail in practice, invariably because the qualification criteria are unclear / complex, the application process is arduous, the requirements for permitting and grid connection are bureaucratic, and/or incumbent utilities are unwilling parties in terms of network access – especially where there may be questions over who is responsible for the costs of connection and new substations.

Critical to easier and more efficient CHP development around the world is greater focus on the practicality of getting schemes on-line. Of most importance are simple permitting; straightforward procedures for obtaining feed-in tariffs and other incentives; and directing incumbents to connect CHPs and ease network access. Implementation of these measures would greatly encourage CHP development and constitute the quickest, easiest and most cost-effective means to emissions reduction.

Achieving emissions reduction and cost benefits through quad-gen

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Space is stimulating innovative responses to climate change

Europe is leading the way with the 'Global Monitoring for Environment and Security' (GMES) initiative

"Will those responsible for decisions in the field of climate change at the global level listen to the voice of science and knowledge, which is now loud and clear?" This question was posed by Rajendra K. Pachauri, Chair of the Intergovernmental Panel on Climate Change (IPCC), last year while accepting the Nobel Peace Prize.

"Global warming could adversely affect some communities' access to clean water and sufficient food; could lead to unstable health conditions; and threaten ecosystem resources security of settlements," Pachauri added.

Climate change was also discussed during last year's G8 Summit in Heiligendamm, Germany. As reported by German Chancellor Angel Merkel: "This is without a doubt a challenge for all mankind, one that we have often discussed. The most recent scientific studies have mercilessly reminded us that we must act fast to significantly reduce greenhouse gas emissions, in order to limit global warming to 2°C."

The challenges of addressing climate change grow day by day, as more and more evidence surfaces from scientists recording its impacts across the world – from the Arctic to the tropics, from droughts and floods to hurricanes. This incontestable reality, echoed in increasing public and media awareness, is daily confirming climate change as an issue of global importance that no politician or citizen can afford to ignore.

To respond to these challenges Europe has launched the 'Global Monitoring for Environment and Security' (GMES), a joint initiative of the European Union (EU) and the European Space Agency (ESA).

Such monitoring capacity can be used in numerous ways to benefit both Europe and the international community: flood control analysis, early detection of drought and desertification, early warning of severe weather, prevention of illegal fishing, analysis of maritime and littoral pollution, crop analysis, monitoring of civil conflicts and, above all, the production of high-resolution maps in near-real time succession to support emergency operations such as humanitarian aid efforts. It thus offers both commercial and public policy applications.

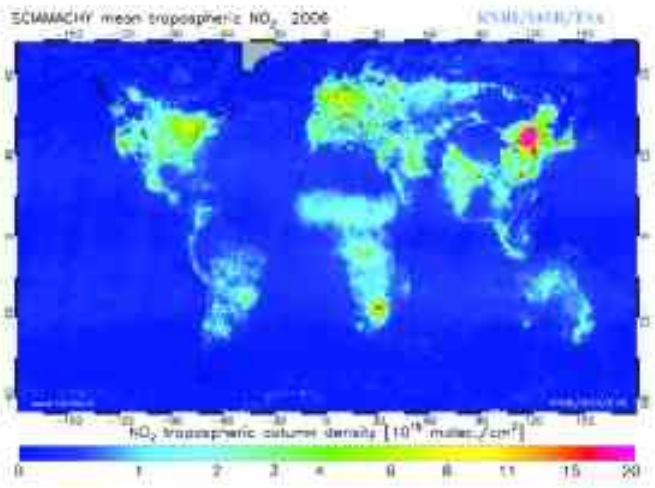
Antarctic ice shelf disintegration underscores a warming world

ESA / M. Braun, Bonn University, Centre for Remote Sensing of Land Surfaces

The Wilkins Ice Shelf is a broad plate of permanent floating ice on the southwest Antarctic Peninsula, about 1600 km south of South America. During 28/29 February 2008, an area of about 400 sq km disintegrated into large and small icebergs within 24 hours. As a result of the collapse, the remaining shelf of about 14 500 sq km is now only supported by a 6 km strip of ice. Ice shelves on the Antarctic Peninsula are squeezed by extraordinarily rising surface air temperatures and a warming ocean, making them important indicators of climate change. This Envisat ASAR image shows the Wilkins Ice Shelf the day of its partial break-up on 29 February.

Global 2006 NO2 pollution map

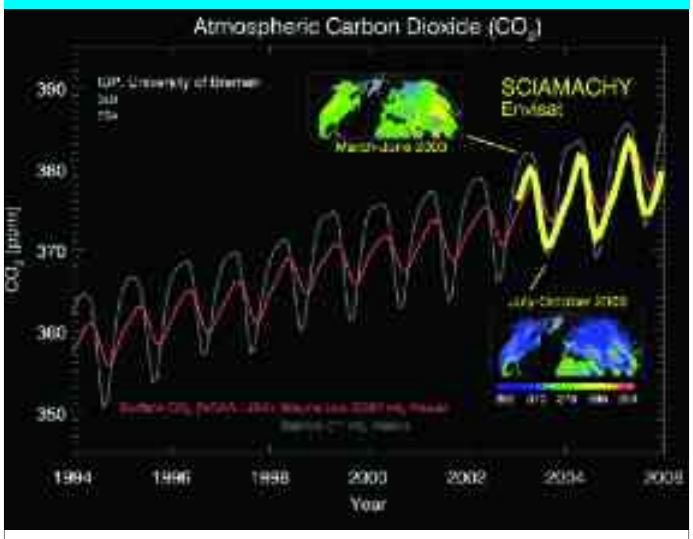
KNMI/IASB/ESA



Mean nitrogen dioxide (NO_2) pollution map for 2006, measured by the Scanning Imaging Absorption Spectrometer for Atmospheric Chartography (SCIAMACHY) instrument aboard ESA's Envisat satellite. NO_2, a mainly man-made gas, can cause lung damage and respiratory problems in the case of excess exposure. It also plays an important role in atmospheric chemistry, because it leads to the production of ozone in the lowest part of the atmosphere – the troposphere.

CO2 measurements in the Northern Hemisphere

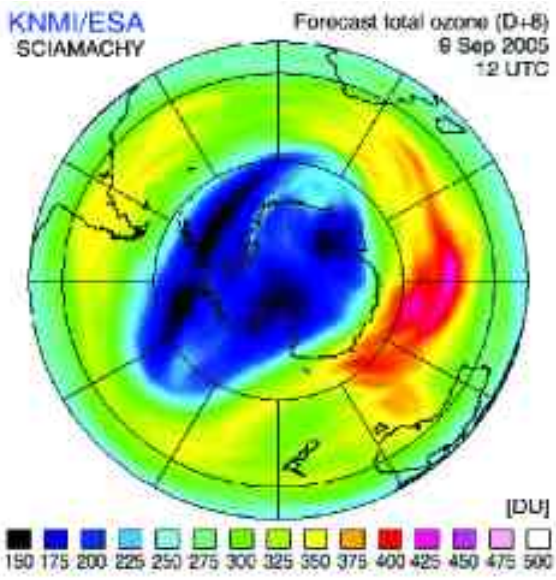
ESA / DLR / IUP, Univ. Bremen.



Carbon dioxide (CO_2) measurements over the Northern Hemisphere obtained at the Earth's surface (thin lines) from Envisat's SCIAMACHY instrument (thick yellow line and two northern hemispheric maps). This figure highlights the natural fluxes of CO_2 which, unlike man-made CO_2 fluxes, operate in both directions – taking up atmospheric CO_2 during spring and summer when plants grow, but releasing most or all of it again later in the year, when the plants decay. This results in higher atmospheric CO_2 concentrations in the first half of the year, followed by lower CO_2 during the second half of the year, with a minimum around August.

2005 Antarctic ozone hole measurements

KNMI/ESA



The seasonal depletion of stratospheric ozone in a large area over Antarctica has been inferred from satellite images and Dobson Spectrometer measurements.
The ozone hole occurs during the Antarctic spring, from September to early December, as strong westerly winds start to circulate around the continent and create an atmospheric container. Within this 'polar vortex', over 50% of the lower stratospheric ozone is destroyed during the Antarctic spring.
The near-real time total ozone columns, derived from observations by Envisat's SCIAMACHY instrument, are used as input to a data assimilation programme that provides near-real time and forecast ozone field values for monitoring purposes.

European response to environmental change: GMES

GMES will be the European contribution to the Global Earth Observation System of Systems (GEOSS), aiming to establish a global environmental monitoring system to deliver European monitoring capabilities from space and in-situ observation systems. It is a concerted attempt to produce policy-relevant information, bringing together data and information from a wide variety of sources and making it available to those who need it most. ESA is responsible for developing and implementing the space component with the corresponding ground segment.

ESA and the European Community are already working on initial operational services to support the implementation of European policies. These services are already serving a wide range of users on an operational basis.

While co-ordinating the access to existing national and European missions, called Contributing missions, ESA is filling the gap in operational remote sensing by developing a set of new satellites, called Sentinels. They will be the first series of dedicated operational satellites to meet the Earth observation needs of GMES users.

- The Sentinel-1 constellation is a pair of synthetic aperture radar (SAR) imaging satellites that will ensure continuity of C-band SAR data and build upon heritage and experience with the ERS and Envisat satellites, as well as maintaining key characteristics such as stability and accuracy of data products and significantly improving revisit frequency and coverage.
- A pair of Sentinel-2 satellites will routinely provide high-resolution (10–20 m) optical images globally with frequent revisits tailored to the needs of GMES land and emergency services. Sentinel-2 aims to ensure continuity of SPOT- and Landsat-type data, with improvements to allow service evolution.
- A pair of Sentinel-3 satellites will provide global near-real time ocean, ice and land monitoring and will continue observations by ERS, Envisat and SPOT/Vegetation.
- Sentinel- 4 and -5 will be dedicated to monitoring atmospheric trace gases from geostationary and low Earth orbit, respectively.

The structure needed for effective funding and managing of the GMES capacity has been established. ESA and the EU are co-funding the space component. So far, about EUR 1.5 billion has been invested. ESA is responsible for the implementation of the space segment and the related ground infrastructure, while the European Commission is in charge of implementing the services component and leading GMES overall.

Besides new observation systems, the keeping and use of long term archives is important. ESA maintains archives that go back 30 years and new data are added daily. In response to the requirements expressed by the Global Climate Observation System (GCOS), ESA plans to reprocess its data periodically with the latest scientific algorithms and contribute to the production of Essential Climate Variables (ECV).

Inaction on climate change, according to Sir Nicholas Stern, former chief economist of the World Bank, would essentially reduce global GDP by at least 5% annually, while mitigation, by contrast, would use about 1% of global GDP annually.

Similar figures are quoted in a study carried out in 2006 by the Global Development and Environment Institute at Tufts University. This study reveals the severe economic consequences of doing nothing in which case “annual economic damages could reach US$20 trillion by 2100”. Importantly, the study found that the cost of mitigation would be about a quarter the cost of doing nothing.

The case for implementing GMES rests on the nature and scale of the benefits to be realised. These include strategic, political and economic benefits, based on more effective policy definition and implementation. Without GMES, Europe cannot respond to global challenges such as environmental monitoring and better understanding of the impact of climate change.

About ESA

The mission of the European Space Agency is to shape the development of Europe’s space capability and ensure that investment in space continues to deliver benefits to the citizens of Europe. By co-ordinating the financial and intellectual resources of its members, it undertakes programmes and activities far beyond the scope of any single European country.

ESA has 17 Member States: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxemburg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom. Canada has a long-standing cooperation agreement.

About the author

Josef Aschbacher is the Head of the GMES Space Office at the European Space Agency in Frascati, Italy. He has PhD and MSc degrees in natural sciences from the University of Innsbruck, Austria, and has accumulated more than 20 years of experience in Earth observation programmes, most of which within ESA and the European Commission.

www.esa.int

Cutting emissions: why markets hold the key

An interview with Henry Derwent, President and CEO, International Emissions Trading Association

How exactly can market mechanisms be used to tackle climate change? And are current carbon-trading schemes large enough to make a difference?

The size of the change in the global economy necessary to put a halt to man-made climate change is enormous. The incremental costs to global GDP are a small proportion of the total, particularly if the sort of growth that we have become used to continues over the next decades. But, in absolute terms, the cost of the difference in investment in low-carbon technologies and activities, rather than the business-as-usual approach, is many hundreds of billions of dollars a year.

It is highly unlikely that governments will be able to cover these costs by collecting and distributing taxpayers' money, and it would probably be highly inefficient for them to do so. It is essential to create an economic incentive for the myriad players in the industries concerned that will encourage them to seek out the lowest-cost emissions reduction opportunities. A market mechanism, offering the possibility of profit – or at least the avoidance of loss – in competition with others in the market, is the obvious way to do that.

Already – after five short years since the start of trading on any significant basis – the European Emissions Trading Scheme is the core mechanism of the bloc of countries that has collectively made the biggest contribution to achieving the targets of the Kyoto protocol. The speed of increase in trading volumes, driven predominantly by that scheme ($64 billion in 2007, more than twice the previous year), makes it a phenomenon of the world's financial

markets, even if its total size is still comparatively small in their terms.

What are the key components of an efficient emissions trading regime?

The essential base-requirements are a system of measurement and monitoring that gives confidence that a unit of emissions reduction is what it says it is; and an enforcement or penalty system that means that those who do not meet their obligations face penalties that they would prefer to avoid.

To be efficient, an emissions trading scheme should be large enough and involve enough players for the forces of competition to be larger than any single player. It should aim to cover a wide variety of different circumstances and enable the discovery and comparison of many different opportunities for emission reduction. Generally, the larger the market the better, and the more intermediaries and risk-takers are attracted into the market, the better the market as a whole should operate.

On the whole, all players should pay the full economic cost for emissions reduction allowances and there should be no artificial constraints on prices that blur the market's function of setting a price and giving vital signals to investors about the increased worth of low-carbon investment. However, where a price for carbon is first introduced, and to enable players to get used to a previously free asset now being priced, some compromises may be necessary.

Don't we need full disclosure of carbon emissions – at least from the world's biggest corporations?

A cap-and-trade emissions trading scheme requires full disclosure by participating companies of the emissions covered. (The regular flow of this information is an important part of the rules that make such a scheme run smoothly.) There is no necessary connection between this and the full disclosure by companies of their carbon emissions inventory across all their activities worldwide; but the knowledge that these emissions have an actual or potential price and, therefore, constitute a source of value or a source of risk, is having its effect on the reporting practices of companies and on what investors expect of those companies.

This trend is converging with the growing feeling that, irrespective of strictly financial or risk considerations, there is a social responsibility for companies to come clean about their contribution to climate change. Each of these motives tends to reinforce the other, and the result is an inexorable growth in the number of companies that choose full disclosure.

Are we within sight of a credible validation and verification regime?

The United Nations Framework Convention on Climate Change has created an excellent validation and verification regime, obliging countries to report on changes in their greenhouse gas inventory and on progress towards their Kyoto targets. They have also created a very thorough scheme for validating and verifying the results of emissions reduction projects classified under the Kyoto project mechanisms. The establishment of the rules, the authorisation of verification agents, and the assessment of projects, methodologies and other cases take place in an open system where the principles of transparency and peer-review are treated with great respect.

Countries, or groups of countries introducing emissions trading schemes, make their own rules for validating the emissions reductions claimed by companies or by various public sector organisations. Domestic political pressures, combined with compulsory reductions

"It seems very likely that carbon caption and storage will have a very important role at least for a generation or two"

from an emissions trading scheme in pursuit of a national Kyoto target, help to ensure that claims of reductions are robust and credible.

Where emissions reductions are claimed outside these formal 'compliance-based' systems, they are voluntary; but in the face of public or shareholder pressure to show that some credible standards have been met, a number of serious assessment and certification methods have sprung up which provide assurance that 'voluntary' does not mean less credible.

Can carbon capture and storage (CCS) ever be made economic?

CCS is not economic outside a regulatory regime or normative system that puts a value on carbon reduction. Unlike renewable energy technologies that produce priced energy (even if at a higher cost than conventional fossil fuel), CCS on its own produces nothing – indeed CO^2 capture reduces fossil fuel combustion efficiency. Nevertheless, fossil fuels from which the carbon is captured and sequestered can definitely be economic at an appropriate carbon price.

Given the very widespread nature of current and future fossil fuel resources, the amount of energy needed to power development in many less developed countries, and the practical difficulties in expanding renewable and other low-carbon energy sources fast enough to be consistent with greenhouse gas stabilisation goals, it seems very likely that CCS will have a very important role, at least for a generation or two. To help bring the price down sufficiently quickly, to the point where the market will reflect these factors, some significant public sector support, with demonstration and deployment, is going to be needed.

Wouldn't it be useful to have a dedicated global market for investments tackling climate change?

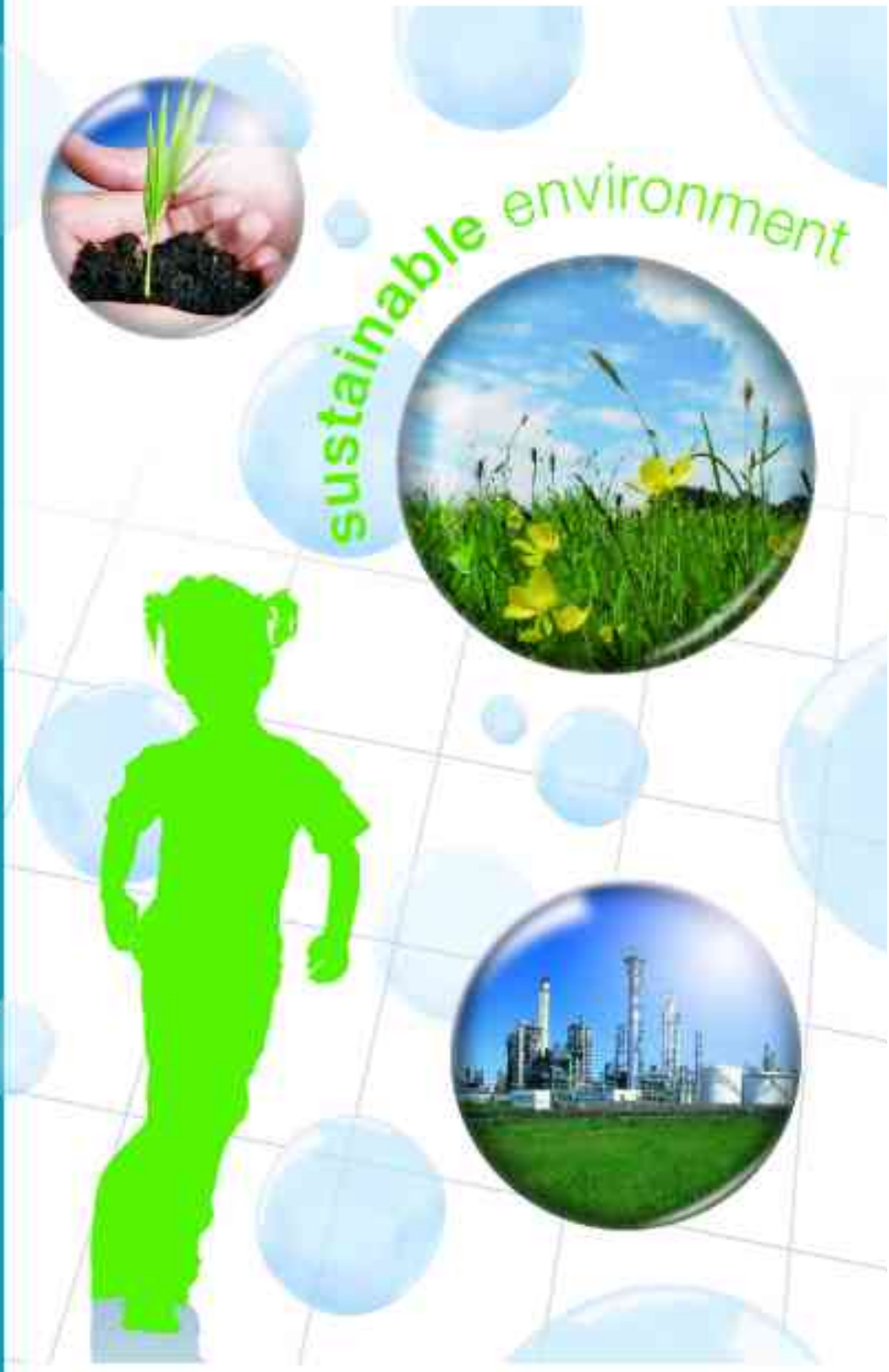
The good news is that we have such a market already. It's not just that a carbon price in an emissions trading system is good for giving an extra boost for energy efficiency and promoting the choice of lower-carbon over higher-carbon fuels for burning – perhaps its primary value lies in shaping investment choices positively.

However, since these choices involve commitments and capital asset lifetimes of many decades, the investors need to have confidence that the price of carbon in their jurisdiction is a permanent feature and will increase significantly over time. It will be much easier to engender that confidence when a new set of international targets, applied more widely than before, is put in place after the end of the first Kyoto Commitment Period in 2012.

What message would you like to send to G8 leaders gathering in Hokkaido Toyako?

The message that follows from the previous point: commit to a long-term target and shorter-term arrangements that will produce the sort of worldwide confidence that there is a real and continuing economic reason to undertake low-carbon investments. Investors need to make their decisions secure in the knowledge that the world is no longer going to tolerate the free squandering of an irreplaceable asset.

AIR LIQUIDE™



Air Liquide's continuous innovation…

…helps industry to reduce its environmental footprint

Major technological contributions:

- New energies and fuel desulfurization (hydrogen)
- Resource valorization and emissions reduction (oxygen)
- Carbon capture and sequestration (carbon dioxide)

…is driven by a global Research & Development network

- 8 research centers around the world
- 920 researchers, 25 nationalities
- 10 000 patents

With 40,000 employees in 72 countries, Air Liquide is a world leader in industrial and medical gases and related services.

Air Liquide is committed to sustainable development and helps to protect life. Founded in 1902, Air Liquide has successfully developed a long-term relationship with its shareholders built on trust and transparency and guided by the principles of corporate governance.

Sales in 2007 totaled 11,801 million euros, with sales outside France accounting for almost 80%.

Innovate for life

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Reducing carbon dioxide emissions using innovative technologies

Energy issues are at the heart of the worldwide economic and political debate today. Fossil fuels will run out in the foreseeable future and their combustion generates a large amount of CO_2, the most common greenhouse gas. Air Liquide is an active partner in several large-scale research projects in Europe and in North America, testing processes that use oxygen (so-called "oxy-combustion") to minimise carbon dioxide (CO_2) emissions from industry. Some of the projects also involve testing technologies that capture CO_2 from the exhaust gas after combustion.

Oxy-combustion for clean energies

Oxy-combustion is a promising solution for reducing the intensity of CO_2 emissions from traditional industrial activities such as coal-fired power plants, blast furnaces and cement plants. Using oxygen (instead of air) for the combustion of coal or other fuels, results in exhaust gases of relatively pure CO_2 that is ready for capture, storage or direct use (e.g. for enhanced oil recovery). Air Liquide provides oxygen, engineering and combustion expertise, as well as equipment for the safe and efficient handling of the oxygen used during testing.

In Europe, Air Liquide is a partner with TOTAL in the Lacq Project in southern France, which aims to demonstrate the feasibility of CO_2 capture and storage in depleted natural gas fields. The project involves the revamping of an existing 30 MW boiler, so that it can be used for oxy-combustion. In addition to providing proprietary burners for the project, Air Liquide will supply TOTAL with oxygen (some 240 tonnes per day) from an on-site unit.

In North America, at the Babcock & Wilcox Power Generation Group, Inc. (B&W PGG) Clean Environment Development Facility in Alliance, Ohio, B&W PGG and Air Liquide successfully operated a 30 MW unit in full oxy-combustion mode (a world record thus far). After the next phase of testing, which will use different types of coal (sub-bituminous, lignite and Powder River Basin coal) and novel plant designs, Air Liquide and B&W PGG intend to implement the technology at a larger demonstration plant where more than one million tonnes of CO_2 could be captured in a single year.

These partnerships demonstrate our commitment to make cleaner energy a reality. Globally, oxy-combustion will become an indispensable technique for reducing CO_2 emissions from coal and other fuels combustion.

Making the steel industry more environment-friendly

Today, growing steel production, usually based on carbon, generates important quantities of CO_2 worldwide. Concerned aout the environmental implications, the world's leading steel producers are participating in research programmes aimed at reducing CO_2 emissions by 50% by the year 2050.

Air Liquide innovation is helping industry reduce its environmental footprint

In Luleå, in Sweden, Air Liquide has just realised a world first, on the MEFOS site (Metallurgical Research Institute). The Group has developed, built and tested a pilot plant enabling the CO_2 to be separated from blast furnace gases, while at the same time recovering residual gases.

This work is being carried out within the context of the European ULCOS project (Ultra Low CO_2 Steelmaking), coordinated by ArcelorMittal and involving leading European steel producers. Air Liquide is actively involved in this project. Air Liquide technology, combined with a recycling blast furnace, contributes to reduce the carbon's consumption and hence the resulting CO_2 emissions, and also, to obtain the needed pure CO_2 to be stored underground. These tests have demonstrated the feasibility of the process and confirmed the improved energy efficiency of the blast furnace. The second phase of ULCOS will include an industrial-scale demonstration from 2010.

Air Liquide is constantly innovating to enable its customers to improve the efficiency of their processes and reduce their polluting emissions. Today, the Group spends 60% of its Research and Development budget on projects contributing to preserving life and the environment. Tomorrow, half of the Group's growth will come from applications linked to the environment.

www.airliquide.com

AIR LIQUIDE

Aircraft emissions and global warming

The environmental impacts of air travel are vigorously debated. What are the facts telling us? What should be our operative assumptions?

By Charles Miller, Air Travel – Greener by Design Group

The debate over aviation's environmental impacts, and the measures needed to address them, divides and confuses in equal measure. The issue, while intense at EU, and particularly UK, level, is viewed with some bemusement by other G8 members, for whom aviation as an instrument of economic growth is more important.

Policy-makers have become used to vigorously promoted claims by non-governmental organisations of significant environmental impacts, countered by the industry's reassurance that it is improving its efficiency. Neither tells the complete truth. Before discussing policy options, it is therefore important to do some 'myth-busting' about flying and climate change. Five assertions in particular merit closer scrutiny:

"Aviation is the fastest-growing source of greenhouse gas emissions."

G8 governments, the public and the media will frequently rehearse this statement. In reality, it embodies a fundamental flaw. Let us say that aviation emits 10 million tonnes of CO^2 and power generation emits 500 million tonnes. If aviation emissions increase by 1 million tonnes and power stations add 10 million tonnes, the former has grown five times faster in percentage terms, but in volumetric terms – which is what counts – power generation outstrips aviation by 1,000 per cent. Growth from a low base will always appear more impressive, and percentages should be viewed with care.

Few of those who put forward the assertion bother to check its accuracy. In fact, there is no up-to-date comparison that establishes a ranking of fast-growing emitters. The Stern Report cited aviation as the second fastest-growing sector – without telling us which is the first. Furthermore, over the past year we have seen a host of different claims – for example, that IT, accounting for 3-4 per cent of global carbon (compared to Lord Stern's figure of 1.68 per cent for aviation's share of total greenhouse gases), will "fly past aviation" (Global Action Plan; McKinsey); that, at 5 per cent, cement is "the single biggest material source of carbon emissions in the world... If demand doubles and the best you can do is to reduce emissions by 30 per cent, emissions still rise very quickly" (Professor Julian Allwood, Cambridge University); and that shipping's emissions are double those of aviation and are forecast to increase by 125 per cent by 2020 (BP Marine). It's just a question of what one chooses to believe.

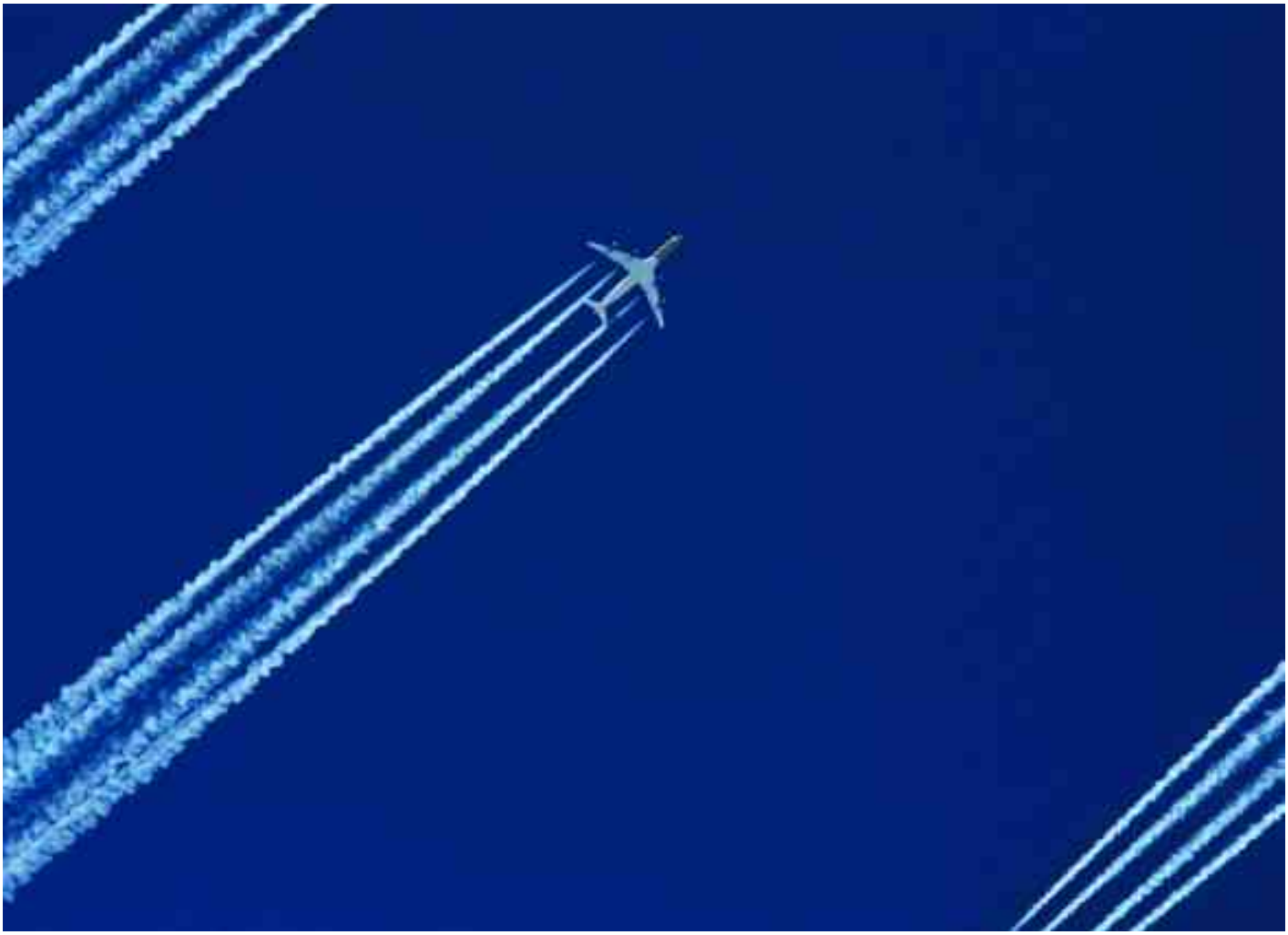
"Aviation's emissions must be multiplied by up to five times to calculate their climate change impact."

This popular claim has led to the assertion that aviation accounts for up to 15 per cent of current anthropogenic impacts and that it could be responsible for up to half by 2050. In fact, the International Panel on Climate Change cites the most recent estimate of radiative forcing (a multiplier of 1.9 times) to conclude that the current figure is in the region of 3 per cent (range 2-8 per cent), although there is significant uncertainty over the interaction of flights and cirrus cloud formation. And that does not mean 1.9 times greater than the other emission sources. They are all subject to a radiative forcing effect: road transport, for instance, is estimated to be around 1.5 times.

"Aviation growth will account for the entire carbon budget of (add state/region of your choice)."

Apart from the frequent confusion between passenger and flight growth – the former is normally cited but it is the slower-growing latter that counts – this widely promoted claim is a good example of agenda-driven

> *"In volumetric terms – which is what counts – power generation outstrips aviation by 1,000 per cent"*



Historic and projected CO^2 emissions, by source, for UK aviation and other major emitting sectors (measured in million tonnes of carbon)

	1990	2004	2005	2020	2030	2050
Road transport	29.91	32.61	32.76	36.21	34.92	34.02
Domestic	21.71	24.41	22.66	21.21	23.43	26.93
Power generation	66.11	58.01	56.76	49.11	-	-
Business	34.31	30.61	-	33.21	24.77	26.77
Aviation (domestic and international)	4.65	9.74	10.36	14.95	17.75	17.55

References
1. *UK Climate Change Programme 2006*, DEFRA. 2. *Energy and CO^2 Emissions Projections*, DTI July 2006 (end user figure modified by a factor of 0.84). 3. *UK Energy and CO^2 Emissions Projections*, DTI July 2006 (end user figure modified by a factor of 0.57). 4. *UK Inventory 2004*. 5. *Aviation and Global Warming*, UK Government White Paper 2004. 6. *The Global Atmosphere*, DEFRA e-Digest Statistics January 2007. 7. *Energy CO^2 Emissions Projections*, DTI July 2006 (end user figure modified by a factor of 0.53).

(Because of uncertainties surrounding the future generation mix, no projections exist for the power sector beyond 2020.)

research. It is possible to use available data to show both that aviation growth will counterbalance savings by other sectors and the reverse.

If the UK government's climate change strategy target of a 60 per cent reduction in CO^2 across polluting sectors by 2050 over 1990 levels were applied to the four most significant CO^2 sources (road transport, business, power generation and domestic consumption), their aggregate 1990 level of 152 million tonnes of carbon (MtC) would have to reduce to 61MtC. Compared to the other listed sectors, aviation is the fastest-growing source of CO^2 albeit, as we have pointed out, any change from its relatively low base will look significantly larger in percentage terms than the same change in emissions from much larger sectors. However, to reverse the argument, if the four combined sectors missed their target reduction by more than 7.9 per cent, the shortfall would be greater than projected aviation emission growth between 2005 and 2050. Were they to miss the 2050 target by more than 19.2 per cent, the shortfall would be greater than all aviation emissions in 2050. The assumption that aviation emissions will offset savings elsewhere does not appear to tally with the official UK forecasts, which indicate that road transport CO^2 will grow by 13.7 per cent and domestic CO^2 will increase by 23.9 per cent between 1990-2050.

We make this point purely to demonstrate that data can be exploited to support several conclusions.

"Aviation's tax exemptions encourage emission growth; it should cover its external costs."
This claim covers two inconvenient truths. The level of 'subsidy' offered by the tax-exempt status of aviation fuel and tickets looks impressive, but its advocates never compare it with the tax concessions, infrastructure and operating subsidies given to comparable mass transport modes, rail and buses, both of which dwarf aviation. And while the generic principle of covering externalities is a good one, it is really only valid in sectors where paying for impacts can contribute to ameliorating them – for example, discharge of pollutants into rivers. There is as yet no means of cleaning up the damage left by aviation, and taxes or charges are likely only to benefit finance ministers rather than the environment – unless they influence the industry's performance.

That seems unlikely. On the basis of our current assessment, there is little or no evidence to support the assumption that taxes would accelerate the development and use of lower pollution aircraft (which for the world's short-haul carriers do not yet exist), or force airlines to cut flight numbers unless they were levied at rates previously unheard of. Most of the studies used to estimate price/demand/emission sensitivity contain basic flaws or are years out of date. The experience of the US, where domestic carriers are starting to reduce capacity in response to an unexpected increase of more than 100 per cent in fuel costs, is unlikely to be replicated elsewhere in the G8, where business models are more robust – and even in the US market growth is expected to slow, not stabilise or reverse under such pressure.

"Aviation has reduced its emissions per passenger."
This is the airlines' response; but they fail to mention that projected market growth will cancel out the industry's undoubted improvements.

"Most of the studies used to estimate price/demand/emissions sensitivity contain basic flaws"

None of the arguments above excuses aviation from a duty to avoid making a mess. The lessons for policy-makers, and possible workable solutions, are four-fold:

1. Understand the dynamics of the aviation industy. This will show that even in an economic downturn, airlines have many courses open to them before they reduce flights and offload valuable slots. Treat simple economics with suspicion.

2. Understand the potential of known technologies and the factors inhibiting their adoption. In our assessment, projected and highly feasible developments in engine and low-drag airframe design, coupled with a range of operational improvements (some of which are in train), could stabilise aviation's emissions by 2035 and reduce them thereafter to near-2000 levels, even if demand grows as forecast. However, manufacturers face an enormous opportunity cost in reducing the life of current and planned models in favour of more efficient designs. The market may provide a stimulus if the cost of fuel continues to rise, but governments could also impose new regulatory standards. This could be done at regional level: for example, the EU could codify the 2020 targets set by its Advisory Council for Aviation Research of a 50 per cent cut in CO^2 per passenger kilometre and an 80 per cent cut in nitrogen oxide (NOx) for new aircraft, compared with 2000 levels. Alternatively, standards could be strengthened by using the (admittedly snail-paced) processes of the International Civil Aviation Organization, whose current NOx standard, which has been effective in setting a 'meet or beat' target for engine manufacturers, could be converted into a CO^2/NOx standard that would require aircraft to meet much tougher emission targets, with the sweetener of generous write-off assistance.

3. Understand the long lead-time for changes to be implemented. Cars can be redesigned in five years. Airliners need much longer – frustrating for politicians working within electoral cycles. So new standards should be signalled two decades in advance. Short-term measures such as ill-considered taxes may inhibit investment in new technologies.

4. Understand that one-size-fits-all solutions may fail to take account of market maturity. Chinese passenger demand, for example, is growing at 14 per cent a year. But, Airports Council International forecasts European movement growth to average only 1.5 per cent annually from 2005 to 2025 – roughly in pace with efficiency improvements.

Depending on the level of long-term economic growth (the strongest driver of passenger demand), redesigned aircraft, more efficient operations and tougher emission limits may not fully arrest and reverse aviation's pollution; but that should not be a signal for ill-considered, politically-driven measures that may deter the adoption of more effective solutions.

A fuel that's moving the world in the right direction

Premium-quality, lower-emissions fuels – these are the fuels that lie at the heart of Neste Oil's product development effort. It may sound simple, but it is a challenging goal. We want to become the world's leading producer of renewable diesel fuel. Sustainably. Driven by our values of responsibility, cooperation, innovation, and excellence.

People like to say the world is getting smaller all the time. Distances are not getting any shorter, though, however much we might like to think they are. Mobility is more important than ever before in today's world, whether we are talking about people or products. Fast-growing countries, such as China and India, need increasing amounts of energy. To meet our growing energy needs, new solutions that are better for the environment are essential.

Although the number of poor around the world is still very large, more and more people every year now have the opportunity to enjoy better living standards. This process is also giving them the chance to travel more and travel greater distances. Reducing traffic in an absolute sense, therefore, is an unrealistic goal. At the same time, we need to react rapidly to climate change. Neste Oil believes that cleaner fuels that impose less of a burden on the environment offer an important way forward. NExBTL renewable diesel is one such fuel.

Neste Oil began the development of renewable diesel because the conventional biodiesels on the market are simply not good enough. NExBTL diesel is produced from vegetable oil and animal fat using a method derived from conventional refining that results in a consistent product regardless of the inputs used. In fact, it is the cleanest diesel fuel produced from renewable raw materials anywhere, and the cleanest diesel fuel, period. And that is good news for both the environment and vehicle engines.

The chemical composition and consistent quality of NExBTL renewable diesel is a major benefit. Conventional biodiesel is very different from fossil diesel, which means that it can only be blended in small quantities. As NExBTL diesel is a hydrocarbon, in the same way that fossil diesel is, it can be used at 100% content or blended at high concentrations and still perform at its best in today's engines, with no modifications needed.

NExBTL diesel can also be tailored for use at low temperatures, down to -30 °C. Thanks to its hydrocarbon composition, it can be stored for long periods without impacting its quality. In use, NExBTL renewable diesel's greenhouse gas emissions over entire lifecycle are 40-60% lower compared to fossil diesel. Tailpipe emissions are also significantly lower.

Of all fuels, diesel is the one that is expected to grow the most in the future, which is why we at Neste Oil have decided to focus on renewable diesel. The fuel economy and excellent and steadily improving performance of diesel cars is making them increasingly popular. NExBTL diesel is a premium-quality fuel that is perfect for making engines run more efficiently and generate lower levels of emissions.

Always room for improvement

Palm oil is currently the competitive raw material for producing renewable diesel, in terms of emissions, availability, and price. This view is also shared by the IFEU – Institute for Energy and Environmental Research in Germany, and by the EU in their most recent studies. Neste Oil is aware, all the same, of the challenges associated with increasing palm oil production. Which is why we are doing our utmost to promote sustainable cultivation methods and efficient land use. Neste Oil was also the first oil company to join the Roundtable on Sustainable Palm Oil.

There is no need to cut down rainforest to produce palm oil, as there are large areas of other land that can be used in Southeast Asia. We at Neste Oil only work with producers that are committed to following the principles of sustainable developments in their operations and to continually improving their performance. We work closely with our partners and monitor development closely too. This is very much part of our commitment to a more sustainable future.

We at Neste Oil also believe that there is always room for improvement. Edible vegetable oil is the most important raw material available today for producing renewable diesel, but our aim is to exit the food chain as soon as possible. Which is why we are continually studying the opportunity for using wood-based biomass and other nonfood raw materials. We believe that gasification and Fischer-Tropsch synthesis are technologies that will play an important part in the future.

We will start testing wood residues as a possible raw material for renewable diesel in 2009 at a pilot plant that we are building with forest products producer, Stora Enso, at Varkaus in Finland. We are already testing oil from the jatropha plant, which is a non-food crop and thrives even in difficult environments. We have high hopes of this and other research work, and of the opportunities for the future that they could bring. Learn more about what we are doing on our website at www.nesteoil.com.

Rising to the challenge

ORYX GTL leads the way in synthetic fuel technology, using a range of feedstocks, including gas-to-liquids (GTL), to produce ultra-clean, low-emission, high-performance fuels.

In an increasingly energy-hungry world, some forecasts[1] predict demands may escalate as much as fifty percent by 2030. Transport fuels account for approximately twenty percent of the total figure and demand in this sector is expected to increase proportionately. Coupled with this increase in demand is the need for cleaner and more environmentally responsible fuels delivering equal, if not superior, performance. Those accepting the challenge to improve environmental performance whilst delivering reliable and secure sources of energy have a difficult challenge to rise to and a tricky balancing act to maintain.

The energy industry has its part to play in developing options for the future, and the first fruits of its efforts are already apparent. In amongst the range of biofuels and alternative energy technologies is a technology with its roots in the early twentieth century but which has been adapted for the twenty first century in a way which is both exciting and commercially viable. That technology is synthetic fuel technology which can use a range of feedstocks, including biomass (BTL), coal (CTL) and natural gas (GTL), to produce ultra-clean, low emissions, high performance fuels.

Of these three options, GTL, or Gas to Liquids, is the most commercially advanced, with over two hundred thousand barrels per day of production capacity now operational or under construction on two continents. The bulk of global production capacity is centred in Qatar with the 32,000 bpd ORYX GTL plant, which is co-owned by Qatar Petroleum and Sasol of South Africa and is now operational, and the 140,000 barrel per day Pearl plant which is currently being built. Through these projects and in combination with its LNG capabilities, Qatar has a gas development profile unmatched by any other gas producer. Qatar's gas industry features the most sophisticated range of gas monetisation options and technologies to be found anywhere in the world and, on the basis of this portfolio, Qatar is spearheading a cleaner global energy future. Nowhere is this more apparent than in the development of GTL diesel.

GTL diesel is characterised by extremely low-sulphur levels (almost zero), and very low levels of aromatics. This translates into very low tailpipe emissions. In tests carried out by DaimlerChrysler[2], a thirty percent reduction in particulate matter was recorded, as was a ninety percent reduction in both carbon monoxide and hydrocarbon emissions. Even when blended in a fifty-fifty mix with a standard Euro diesel, reductions of twenty percent for particulate matter, fifty-five percent for carbon monoxide and forty percent for hydrocarbons were achieved. These reductions have significant implications for improving air quality, reducing acidification and smog. The inherent qualities of GTL diesel also provide an economic option for refiners to blend with lower quality products to raise the overall quality of the fuel pool.

The performance profile of GTL diesel has now been established through a range of tests and demonstrations by companies involved in the GTL industry. Additionally, GTL

The Oryx GTL plant in Ras Laffan, Qatar

diesel does not require extensive investment in new or specialised distribution or drivetrain technology. Synthetic fuels have the lowest market entry cost of any of the alternative fuels and do not require vehicle manufacturers to take significant commercial risks trying to pick technology winners. Also, there is no need to spend significant amounts reassuring the customer about reliability. The customer understands what diesel is and GTL diesel and its synthetic cousins sit easily within that technology as a top of the range product. It is worth noting too that tests carried out by DaimlerChrysler show that, if an engine is optimised for GTL, further emissions reductions and performance improvements than those noted above can be achieved.

So far much of the work done on GTL fuel and what it can achieve has focused on passenger vehicles; however, visitors to South Africa have long been flying in planes which use a blend of synthetic fuels and Sasol recently became the first company worldwide to receive international approval for 100% synthetic jet fuel produced at its Secunda operations in South Africa. This groundbreaking approval holds broader implications as it paves the way for the broader use of synthetic fuels in aviation. Jet fuel derived from Sasol's technologies that may be submitted for sanction in future include the Oryx GTL plant in Qatar. While a life cycle synthesis study on GTL carried out by Fivewinds in 2004[3] showed that CO_2 emissions were comparable to a modern refinery, there may be a major benefit, although work is at a very early stage, in reduced particulate and sulphur emissions at altitude. Since the presence of these pollutants at altitude could have a magnifying effect, reducing them is a high priority and synthetic fuel may give an opportunity to do this chemically without incurring a weight penalty for the aircraft.

GTL synthetic jet fuels are currently being developed to meet international standards and Qatar Airways has one of the youngest, fastest-growing and most fuel efficient fleets in the world. Qatar is thus superbly placed to take a leadership role, doing in the skies what it has already done on land and delivering a cleaner transport future for everyone.

1 EIA International Energy Outlook 2007

2 Effect of GTL diesel fuels on emissions and performance

3 Gas to Liquids Lifecycle Assessment Synthesis Report, Fivewinds, Aug 2004

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Tackling energy challenges in the G8 and beyond

Meeting the target of a 50 per cent cut in emissions will require nothing less than a third industrial revolution and a sea-change in the way we use and produce energy

By Nobuo Tanaka, Executive Director, International Energy Agency

Renewable energy sources such as this geothermal power station at Wairakei, New Zealand, will play an important role in lowering carbon emmissions

The world faces collective energy challenges that threaten the security of energy supply, economic vitality and the protection of the environment. Soaring energy prices, growing demand, increasing greenhouse gas emissions: these are all symptoms of an unsustainable path. But how do we change course?

Since G8 leaders invited the International Energy Agency (IEA) to contribute to the 2005 Gleneagles G8 Plan of Action on Climate Change, Clean Energy and Sustainable Development, the Agency has undertaken a range of work assessing the challenges and identifying steps to overcome them. The IEA presented recommendations to the G8 Summits in St Petersburg (2006) and Heiligendamm (2007). In anticipation of the 2008 G8 Summit in Hokkaido, we present further findings, providing additional guidance for policy-makers in G8 countries and beyond.

Energy production, transformation, handling and consumption account for the majority of greenhouse gas emissions. About 92 per cent of these energy-related emissions are CO^2. Changing the way energy is used will be key to stabilising CO^2 emissions. IEA analysis in the World Energy Outlook (WEO) and in Energy Technology Perspectives (ETP) shows the magnitude of the challenge. Assuming global economic growth averages 3.3 per cent between now and 2050, our present trajectory would lead to more than a doubling of global energy-related CO^2 emissions. Energy supply security for oil, gas and even coal will worsen rapidly if energy demand continues to grow at current levels.

"Energy efficiency trends in IEA member countries in the past ten years have been poor"

The 2007 WEO and the 2008 ETP provide scenarios aimed at keeping temperature increases below 2.4°C, requiring rapid stabilisation of greenhouse gas emissions into the atmosphere in the next two decades, followed by marked and rapid declines thereafter. By 2050, global CO^2 emissions need to be reduced to half their current levels. On this basis, ETP estimates that emissions could be brought back to roughly current levels in 2050, using technologies that are already known, at a cost of no more than $50 per tonne of CO^2 saved. But to achieve a 50 per cent reduction requires technologies that are still under development and that would cost from $200 to $500 per tonne of CO^2 saved. The additional total investment required is around $45 trillion, or 1.1 per cent of average annual global GDP over the period.

No single form of energy or technology can provide the full solution by itself. Given projected demand and existing technologies, fossil fuels will continue to account for a large portion of the energy mix, so the development and deployment of carbon capture and storage (CCS) is crucial. Nuclear energy and renewables will also play important roles, particularly towards 2050.

Actions in developed countries alone will not be enough, bearing in mind that less than one-third of 'business as usual' global emissions in 2050 are expected to be from Organisation for Economic Co-operation and Development (OECD) countries. The very large electric power capacity additions planned in emerging countries, such as China and India, threaten to lock in CO^2 emissions for the future, unless low-carbon options are adopted.

There should be no doubt: meeting the target of a 50 per cent cut in emissions represents a formidable challenge. We would require immediate policy action and technological transformation on an unprecedented scale. It will essentially require a third industrial revolution, or an energy revolution, which would completely transform the way we produce and use energy. It will also entail painful adjustments.

We must start by improving energy efficiency in all sectors of the global economy. Energy efficiency has the greatest potential for CO^2 savings and the lowest – in many cases even negative – cost. And results can be delivered soon. But IEA analysis of recent energy efficiency trends shows that performance in member countries in the past ten years has been poor, about half the rate of improvement in previous decades. A fundamental turn-around is needed.

The IEA submitted 16 energy efficiency recommendations to the G8 Summits in St Petersburg and Heiligendamm and will present another nine to the Hokkaido Summit, covering altogether 25 fields of action across seven priority areas: buildings; appliances; lighting; transport; industry; power utilities and cross-sectoral activity.

Aggressive implementation of this package can lead to huge and transformative changes to global energy and CO^2 profiles. The IEA estimates that if implemented globally without delay, the proposed actions could save around 8.2 gigatonnes (Gt) CO^2/year by 2030. This is equivalent to around one-fifth of global reference case CO^2 emissions from the energy sector in 2030.

The IEA estimates that, by implementing mandatory energy efficiency performance requirements for buildings and promoting passive energy buildings, 1-1.7Gt CO^2/year could be saved globally by the year 2030. Similarly, the technical potential in industry from applying best available technology, best practices, and optimising system/life-cycle choices could improve energy efficiency by between 18 and 26 per cent, leading to reduced CO^2 emissions of 1.9-3.2 Gt/year. And in the transport sector, the potential for cost-effective efficiency improvements of up to 50 per cent has been identified in the medium term. Capital stock turnover rates make it imperative to start immediately reinforcing efficiency policies worldwide in buildings and in industry. Credible long-term CO^2 incentives are needed and the cost of new, promising efficiency technologies must be reduced further. Lowering of non-economic barriers is imperative for all sectors.


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Energy indicators are an essential statistical tool for measuring national and international performance and for analysing trends and potential. IEA indicators research has already shown that significant savings are available in the industry sector. The analysis is being refined and extended to buildings, transport and power generation. Available data is limited, however, in many parts of the world and must be reinforced to facilitate informed policy-making.

After energy efficiency, the power sector shows the next greatest potential for reducing CO^2 emissions. Power station emissions can be reduced to almost zero using a combination of CCS, nuclear power, and renewables.

Coal is particularly important because it is abundant and the lowest-cost and most accessible energy source for some of the most dynamic developing economies. Our global analysis shows that by retiring the least efficient coal power-stations, upgrading middle-ranking plant, ensuring that all new plant is state-of-the-art, and improving operating and coal preparation standards, CO^2 emissions reductions of some 1.7Gt/year can be achieved. But CCS is needed to achieve very large reductions in coal power-station emissions. We recommend that governments act now to commission,

"Carbon capture and storage is needed to achieve large reductions in coal power-station emissions"

by 2010, at least 20 fully-integrated industrial-scale demonstration projects worldwide, to make CCS available for broad deployment by 2020. Any developer of a new fossil fuel power-station should consider what might be required for retrofit with CCS.

Our global study of the performance of mechanisms for the deployment of renewables shows that only a few countries have implemented effective support policies; that a wider international spread is needed; and that there is a large potential for improvements in policy design. In particular, policies should be stable and tailored to specific technologies, taking account of their level of maturity. Incentives should decrease over time to promote market competitiveness.

Achieving very large reductions in CO^2 emissions will require the development of innovative technologies and large reductions in the costs of existing technologies. Government-funded R&D has an important part to

This former coal-fuelled plant in Germany now produces two-thirds of its energy from waste

play, working in association with industry. However, both public- and private-sector spending on energy R&D have been declining; public spending is about half the level of 25 years ago.

ETP identifies the key areas – power generation, buildings and appliances, transport and industry – where further development is essential in order to achieve ambitious targets for CO^2 reduction. In addition, a target of reducing CO^2 emissions by 50 per cent by 2050 would require substantial progress in the mass deployment of radically new non-fossil-fuelled vehicles. Advanced biofuels, hydrogen fuel cells and electric vehicles are all possible options. And at this stage it is hard to tell which technology, or combination of technologies, will prevail. However, they all require extensive research, development, demonstration and deployment to improve performance and reduce costs.

In the IEA baseline scenarios, OECD countries account for less than one-third of global CO^2 emissions in 2050. To ensure a sustainable energy future, all economies, especially major ones (including China and India), must play their part. The IEA energy technology network provides a global framework in which experts share views and consult on future collaboration. Most major developing countries already participate. Through the IEA Networks for Expertise in Energy Technology initiative, the IEA and Brazil, China, India, Mexico and South Africa are working together to deepen this collaboration. The IEA has also launched initiatives to increase technology collaboration with the private sector.

"Governments now need to consider how they can more closely co-ordinate their efforts at international level"

Governments now need to consider how they can more closely co-ordinate their efforts at international level. Proposals for an International Partnership for Energy Efficiency Co-operation, to review and monitor the overall impact of national policies for enhanced energy efficiency, are already under discussion. In addition, stronger co-ordination is needed of enhanced national R&D, demonstration and deployment initiatives to bring forward innovative energy technologies. In ETP, the IEA proposes global 'roadmaps' for the development and deployment of 17 key energy technologies. These roadmaps need to be developed further, together with the energy technology programmes of all the major economies, and in close consultation with industry to achieve closer international co-operation on the development of key technologies. What is clear is that the longer action is postponed, the more difficult it will be to achieve our goal. The need for action is urgent: the next five to ten years will be crucial.

Our environmentally efficient technology is installed and working in thousands of power stations around the world. So, in partnership with our customers, we're already building a cleaner energy industry. You have the will. We have the way. Join us.
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Leading by example

Philips offers responsible choices according to Rudy Provoost, Executive Vice President and Chief Executive Officer Philips Lighting

Not so long ago, environmentalism was seen as a special interest of a few well-meaning and dedicated individuals, but not something to attract much attention in the mainstream. Today, the environment is front page news. Indeed climate change is one of the most important issues we face as a global community, and energy consumption presents a major challenge. Politicians, businesses and individuals – we all have to take up our responsibility. At Philips, we lead by example.

Since our company was founded in 1891, our mission has been to improve the quality of people's lives. And for more than 30 years we have had programs and policies in place to minimise the environmental impact of our products and processes.

We launched our latest action programme – EcoVision4 – in 2007 to sharpen our focus on energy management. With EcoVision4 we committed to:

- Generate 30% of total revenues from Green Products over the next five years (up from 15% in 2006);
- Double our investment in Green Innovations to EUR 1 billion by 2012; and
- Further increase the energy efficiency of our operations by 25% by 2012.

We are well on our way, with Green Products accounting for 20% of total Philips sales in 2007, compared with 15% in 2006. All three Philips sectors – Healthcare, Lighting and Consumer Lifestyle – contributed to this 33% increase, with total Green Product sales totaling EUR 5.3 billion in 2007, compared with EUR 4 billion in 2006.

Consider the numbers

Lighting accounts for 19% – or nearly one-fifth – of all electricity used in the world. That's because much of the lighting currently installed is technology that dates back a century. With this old inefficient lighting, 95% of the energy is wasted in heat, with a mere 5% generating light.

As the world's leading lighting supplier we can have a big impact on energy efficiency and the resulting carbon dioxide emissions. Since we invented the energy-saving compact fluorescent light bulb in 1980 we have continued to develop energy-efficient lighting solutions that offer significant savings in energy, expense and CO2 emissions.

If new, efficient lighting technologies were adopted globally, the world could achieve an energy saving of 40%. This would save EUR 106 billion in energy costs per year. This is equivalent to 555 million tons of CO2 emissions per year, along with 1.5 million barrels of oil and 530 medium-sized power plants.

Selling these lighting solutions is not only good for Philips, it's also good for people and the planet.

People, whether acting personally or professionally, can make intelligent choices about their electricity use. Changing to more energy-efficient light bulbs or consumer appliances is one of the simplest measures every home, place of work, school or factory can take to make a contribution.

We have underlined this with asimpleswitch.com. Launched just before the Live Earth in July 2007, this website is designed to start a global movement to promote easy ways to switch to low-power lighting, demonstrating that individual collective action can have a huge impact.

Lighting can make a positive environmental contribution in many ways. Adopting energy-efficient lighting can clearly help,

The Bosphorus Bridge in Istanbul has been illuminated using Philips LEDs and luminaires (complete lighting fixtures). The installation consumes 50% less energy than previously required.

but using innovative lighting techniques to beautify environments can also have a positive benefit on the spaces in which people live and work, contributing to their well-being and sense of safety and security.

Energy-efficient solid state lighting

Solid state lighting is highly energy-efficient, offering opportunities for major savings in for instance city beautification projects. LEDs, for example, are small, safe and very robust. More importantly, they can have lifetimes of up to 50,000 hours each – far more than other types of lamps.

There is much more to come, especially as we work towards removing the incandescent light bulb that has been the mainstay of lighting for over 100 years. New technologies, like LEDs, compact fluorescents and energy-efficient automotive lighting, could reap energy-saving benefits of, on average, 40% and in some cases, 80% less consumption.

"If new efficient lighting technologies were adopted globally, the world could achieve an energy saving of 40%"

Rudy Provoost
Executive Vice President and Chief Executive Officer, Philips Lighting

Beyond lighting

Of course, we also focus on energy management in our Consumer Lifestyle products.

We have made several advances in addressing power consumption, for example by greater use of innovations like dimming backlights and ambient light sensors in our FlatTVs, or the application of LED lighting technology.

We are also very active in addressing the controversial issue of standby power. People wonder about those big TVs with little red standby lights that never turn off, yet they want this feature. So we found ways to minimise its environmental impact. Ten years ago that same red light used 8 or 9 watts of standby power. We've brought that down to 0.15 watts in the majority of the TVs we are introducing in 2008. In fact, if you were to leave one of our current TVs on standby for a year, the electricity cost would be less than one Euro.

And we are uncompromisingly driving sustainability in all aspects of product creation – from packaging and easier disassembly for recycling, to rechargeable batteries that last 20% longer without charging.

Furthermore, we will help make those choices easier with a logo clearly identifying products that offer a significantly better environmental performance than their competitors or predecessors.

The road ahead

We are working to further strengthen the energy-efficient and Green Product approach at both our Healthcare and Consumer Lifestyle sectors, leveraging our experience in Lighting.

Energy efficiency lies at the heart of our business. It's one of the practical ways we deliver on our brand promise of "sense and simplicity."

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The structures we need

Effective institutions are as essential as ambitious targets and political will if climate change is to be tackled successfully

By Nick Butler, Chairman, Cambridge Centre for Energy Studies

The response to climate change is complex. Success will depend on a combination of carefully targeted programmes working in support of a common goal. The development of effective institutional structures to manage, oversee and link those programmes is essential.

For the moment, until the negotiating process is complete, the authoritative remit clearly rests with the United Nations Framework Convention on Climate Change (UNFCCC). Initiatives to advance the process of agreement may come through other groups, including the G20 and the G8, but it is the UNFCCC that brings together all the parties whose agreement and active support is required.

However, completion of those negotiations will transform the requirement. The key, thereafter, will be delivery, as any agreement reached is translated into detailed plans of action. Given the scale and complexity of the issue, there will be a need for clear overall management of the process once any agreement has been reached.The areas requiring such management will include:

- tracking and monitoring of emissions with the aim of establishing a comprehensive and accurate database, gathered through a simple but effective reporting system;
- development of distributed targets within any overall objective, along with timetables and milestones;
- deployment of a new and more extensive Clean Development Mechanism (CDM), building on the work of the CDM Executive Board;
- establishment of the trading element of any cap and trade system, building on the European and other existing trading mechanisms;
- supervision of resource deployment, for instance in respect of technology transfers, taking forward the work of the UN Expert Group in that area;
- monitoring and verification of delivery against the commitments being made;
- co-ordination, and in some cases the channelling of funding in science and technology, for instance in support of work on carbon capture and storage (CCS);
- development of an improved understanding of the potential local impacts of climate change and the

design of an international programme in support of the adaptation measures necessary;
- regular evaluation of national and international programmes.

What matters most is that across all the elements where some form of governance is required, simple, common principles are applied to ensure that an overall system is created that matches the particular needs of the issue, including, most importantly, the need to draw together all parties from their very different starting points into a single common process.

Four principles must shape those institutional arrangements if sustained progress is to be delivered.

First, the governance structure must be designed to build trust around new and largely untested programmes of action. Firm commitments to cap and trade systems, agreements to limit deforestation, acceptance of major programmes to share technology with emerging economies, and an extension of the CDM all entail substantial transfers of resources from one country to another. Such transfers, which are likely to grow over time, will require processes to establish credible data, to verify delivery of the promised actions, and to confirm that the resources are being used as intended. Proposals to extend the use of CCS will equally require firm evidence to confirm the integrity of the storage systems. Monitoring and verification are by their nature intrusive processes, but given the scepticism already surrounding some examples of carbon trading, their development is essential if public acceptance of the financial transfers necessary to achieve a sustained reduction in emissions is to be won and then maintained.

Secondly, the process must allow for change in response to advances in knowledge and shifts in circumstances. Even on the bold assumption that agreement is possible within the next two years between all the major global economies, including the major developing countries, much will remain uncertain. There are significant deficiencies in the data. Atmospheric science continues to advance. So, too, does the science and engineering around the potential ways forward, including sequestration and the development of lower carbon sources of energy supply. In many areas we are still at the experimental stages in the development of new technology. Economic circumstances could alter the level of emissions and the geographic distribution of their source. The physical realities are also changing, including, perhaps most dramatically, the rapid reduction in the volume of sea ice in the Arctic.

Any one of these factors could require adjustments in the targets set and in the scale and pace of the responsive measures. A rigid agreement, which could only be changed through a process of exhaustive negotiation, would be inappropriate.

In reality, of course, full participation in the initial agreement is likely to be limited to a 'coalition of the willing' – making even more important the creation of structures that can adjust to incorporate additional participating countries over time. The most recent report

published by Lord Stern, for instance, argues that the developing countries should accept targets for reducing emissions by 2020[1]. They will clearly only do so if the system they are joining is effective and equitable.

Thirdly, there must be a careful balance between those elements of any agreement that are centralised, and those that are devolved to local decision. The setting of aggregate targets, and the distribution of those targets across countries and through time, are political decisions that can only be achieved at the international level. The mechanics of delivery, however, can and should be left to local determination, reflecting local economic and physical circumstances. This element of decentralisation should also be used to encourage innovation and technical progress. Targets are essential, but prescriptive solutions should be avoided: one size need not fit all. The international institutional arrangements to manage the transition to a low-carbon economy will be unique and, given the nature of the problem, potentially highly complex. Such complexity could undermine or, at best, seriously delay the process of agreement.

The fourth principle for the design process is therefore a degree of pragmatism. Instead of constructing a vast and costly new organisation, the initial agreements should be delivered, where possible, through existing structures, building incrementally on accumulated experience and knowledge.

For the immediate future, the task will be to build on the skills already established in existing international institutions, including the UNFCCC itself. On the science of climate change, the Intergovernmental Panel on Climate Change has achieved a remarkable degree of credibility and trust over the last two decades. That work should continue. The WTO has the skills and experience to establish detailed agreements on the development of open markets in low-carbon technology and can also oversee the trade implications of a new agreement to reduce emissions which, if mishandled, could provide the excuse for a new wave of protectionism. The Food and Agriculture Organization could manage any agreement to limit deforestation.

"Targets are essential, but prescriptive solutions should be avoided. One size need not fit all"

One important contributor to the process will be the International Energy Agency (IEA), which has extended its capabilities beyond its initial crisis management role and is now an authoritative source of data and projections. The scope of the IEA's work has moved well beyond its original Organisation for Economic Co-operation and Development base, reflecting the changes in the world's energy economy over the last 30 years, and the Agency has become an authoritative and respected commentator on the energy markets of China and India. The IEA's original focus on oil has broadened to include all the other forms of energy supply. Giving the Agency a role in the overall management of the climate change agenda would involve widening the IEA's current membership and giving the organisation a new remit. But the case for such a change is a powerful one, not least as no other international institution holds analytical skills in the energy area. The IEA could, for instance, provide the platform and secretariat for the proposed International Partnership on Energy Efficiency Co-operation.

Beyond this group of intergovernmental institutions there exists a mosaic of non-governmental groupings, ranging from the scientific academies of the G8, to the trading markets whose experience can help establish a cost-effective mechanism for achieving reductions at the lowest practical cost; to the network of cities that are focused on the local impact of climate change; and to the business community, which will, in practice, be the vehicle for delivery of any global objectives that are set.

For the central co-ordinating organisation, the challenge will be to develop mechanisms to tap the knowledge and experience that already exists within the international institutions and beyond. The role is one of leadership and co-ordination of the complex mix of incentives and penalties that will transform the carbon-based energy system on which we have come to depend over the past 200 years.

At Gleneagles, in 2005, the G8 was instrumental in raising the profile of the climate change challenge. The G8, working with the wider networks provided by the G20 and comparable groupings, could now initiate the process of designing the institutional structures that will be required. The decisions on that design should be part of the dialogue under the UNFCCC in the run-up to the Copenhagen meeting next year. But work should begin now, and the initiation of such work would confirm the G8's important catalytic role in the climate change debate.

[1] *N Stern,* Key Elements of a Global Deal on Climate Change, *London School of Economics, April 2008*

BIOENERGY'S ROLE IN A GLOBAL STRATEGY FOR CLIMATE CHANGE MITIGATION

THE GLOBAL BIOENERGY PARTNERSHIP IS WORKING TOWARDS SUSTAINABLE SOLUTIONS FOR ENERGY SECURITY IN A LOW-CARBON WORLD

A global strategy is required to stabilise greenhouse gas emissions in the short to medium term, one that involves radical changes in our energy technologies and the "carbon intensity" of our economies. Considering that $22 trillion will be spent on the global energy system in the next 20 to 30 years (IEA estimate), policies must be put in place now to ensure that those investments take account of the urgent need for climate change mitigation. Bioenergy offers a "carbon neutral" solution that can be implemented immediately and the Global Bioenergy Partnership (GBEP), with the backing of the G8, is working to capture its full benefits and avert negative environmental, social and economic impacts.

Biofuels are expected to make a significant contribution to energy needs in coming years. In order to integrate this growth with the demands of food and environmental security, sustainability principles need to be identified and agreed upon. This shift towards bioenergy will redraw the global energy map as products are exported from the tropics, where there is the greatest potential for biomass production, to major world markets. This diversification will have important ramifications in terms of energy security and the economic role of developing countries but also poses a serious challenge to the fossil fuel economy.

In this context, a sustainable, global biofuel market needs to evolve. Policy measures will be needed to support trade, potentially including a "certificate of origin" for bioenergy and a classification of "sustainable bioenergy" under WTO rules. Research into innovative technologies for the production of fuel from lignocellulosic materials should be stimulated and supported.

The Global Bioenergy Partnership (GBEP) is an international initiative established to implement the commitments taken by G8 + 5 Countries in the 2005 Gleneagles Plan of Action and was invited by the 2007 G8 Heiligendamm Summit "to continue its work on biofuel best practices and take forward the successful and sustainable development of bioenergy". The GBEP's partners now comprise 12 countries – including all G8 nations, Brazil, China, Mexico and the Netherlands – international organizations and institutions such as FAO, IEA, UNCTAD, UNDESA, UNDP, UNEP, UNIDO, United Nations Foundation, World Council for Renewable Energy (WCRE) and European Biomass Industry Association (EUBIA). A further 10 countries are participating as observers along with the European Commission, European Environment Agency (EEA) and the World Bank.

In November 2007, the GBEP Report was published – *A Review of the Current State of Bioenergy Development in G8 + 5 Countries* – and presented at the 20th World Energy Congress in Rome. It gives an overview that helps identify where there is common ground in policy priorities and opportunities for international cooperation, as well as providing guidance on what still needs to be done for a sustainable development of bioenergy. In light of this, a GBEP Task Force has been set up to tackle the question of sustainability and provide a reference point in the formulation of national policies and international co-operation programmes. Progress is also being made by the GBEP Task Force on the harmonization of different methodologies for calculating the reduction in greenhouse gas emissions brought about by biofuels for transportation and solid biomass. A methodological framework should be ready by March 2009 and will be a key component in encouraging the development of the most "virtuous" technologies.

Read more about GBEP at www.globalbioenergy.org.

GBEP
Global Bioenergy Partnership

WORKING TOGETHER FOR SUSTAINABLE DEVELOPMENT

Towards full-scale deployment of carbon dioxide capture and storage

As global consumption of fossil fuels continues to rise, carbon capture and storage (CCS) is widely considered to be a technique that could limit the carbon dioxide (CO_2) emissions caused by the burning of such fuels. CCS captures the CO_2 from large CO_2-emitting point sources such as coal-fired power stations or other industrial sources, transports it to a suitable storage location, and then places and stores it below ground in depleted oil & gas reservoirs, deep saline formations, or unmineable coal seams.

Adapting technology — from the oilfield to carbon storage

For almost ten years, Schlumberger has been developing technologies and processes specific to CO_2 geological storage, through dedicated internal research efforts that leverage more than 80 years of experience in subsurface operations in the oil and gas industry. These developments include technologies such as formation characterisation and monitoring measurements, advanced modeling capabilities, and new well construction materials.

The development of Schlumberger CCS technology has been driven by direct involvement in a number of projects worldwide that have helped to prove the readiness of both the methodology and the technologies for storage project implementation. Many of the technologies employed have been directly adapted from proven oilfield operations, while others have required new development.

Developing new technology — research in practice

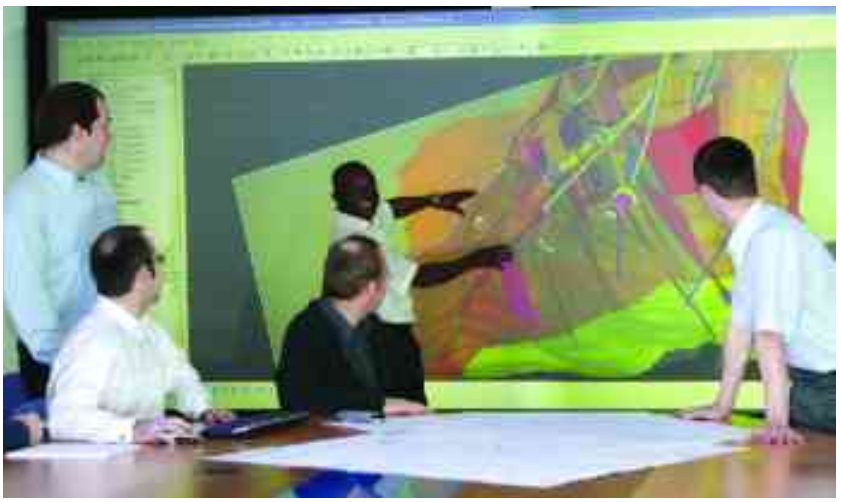
Schlumberger contributes to a number of collaborative research projects, working in partnership with academia, institutions, and other industries to improve the understanding of storage-induced processes and to test CCS-related technologies.

For example, the company joined the FP6 European project CO_2SINK in 2006. This research project is investigating the possibility of storing CO_2 in an underground saline formation in Ketzin, Germany, and includes studying the effects induced by injection. Accurate description of the subsurface structure and properties was essential, with Schlumberger supplying the oilfield technology that enabled the necessary geological, petrophysical, mineralogical, and geomechanical analyses.

Schlumberger is also a founding member of the CO_2CRC Otway Pilot Project in Australia—that country's most advanced storage project. Starting early 2008, 100,000 tons of CO_2 will be injected into a depleted oil and gas field at a depth of 2 km. This 40 million dollar project is supported by 15 companies and 7 government agencies and involves researchers from Australia, New Zealand, Canada, Korea, and the USA. Schlumberger is a member of the project operating company.

Demonstrating technology — integration along the chain

But deployment of successful technology is dependent not only on its development, but also on its successful demonstration. In support of this objective, Schlumberger has become part of several projects where the value of CCS technology can clearly be established.



More than 50 people from 11 nationalities work for Schlumberger Carbon Services on a number of projects around the world. They are specialized not only in oilfield technologies, but also in a number of other areas key to CCS operations.

The Petrel* suite of software applications allows the detailed geological modeling of the subsurface—from the storage formation reservoir horizon to the surface—needed for optimization injector and monitor well design.

*Mark of Schlumberger

Schlumberger has contributed to more than 15 CCS projects around the world since 1998.

One example of this is in Illinois in the United States where the US Department of Energy recently awarded the Midwest Geological Sequestration Consortium a contract to begin a large-scale CCS project in Decatur, Illinois. This project is the first of its kind in North America and caters for an unprecedented amount of CO_2 to be stored in a saline formation. Responsibility for the project lies with The Illinois State Geological Survey which has brought in Schlumberger and Archer Daniels Midland as major partners.

One million tons of CO_2 will be captured from an Archer Daniels Midland ethanol plant and injected into the Mount Simon formation—a geological structure spanning the states of Illinois, Kentucky, Indiana, and Ohio. The project is designed to test and demonstrate the ability of a geological formation to safely, permanently, and economically store considerable amounts of CO_2 but will also help establish design and safety regulations for future CCS projects.

As a primary partner, Schlumberger Carbon Services will manage the complete design, construction, and operation of the storage part of this project, using oilfield subsurface evaluation and integrated project management techniques.

In another demonstration project in Australia, the company is a partner in the Callide project consortium in Queensland that will see the coal-fired boiler at a power station retrofitted with oxyfuel combustion technology, with the end result being injection and storage of approximately 100,000 tons of captured CO_2 in saline aquifers as well as depleted oil or gas fields. This project is funded through the Australian Government's Low Emission Technology Demonstration Fund, the Australian Coal Association's COAL21 Fund, and the Japanese Government. Schlumberger will project manage the storage of the CO_2.

Committed to CO_2 solutions

Since the late 1990s, Schlumberger has directed a number of research and development efforts to the challenges of carbon capture and storage. The company's leading role in global collaborative research efforts such as the Global Climate and Energy Project at Stanford University is helping improve the understanding of the factors that affect carbon storage. The pilot projects that are now underway will measure the effectiveness of CCS in reducing atmospheric releases and determine the most suitable technologies and infrastructure needed for wider-scale implementation.

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The case for nuclear energy

Nuclear energy is set to play an increasingly important part in the world's energy mix. Governments have a key role to play in maximising its potential

By Luis Echávarri, Director-General, OECD Nuclear Energy Agency

Governments are responsible for designing and implementing national energy policies that respond to the needs and aspirations of society. They have to make trade-offs between the risks and benefits of various alternatives, taking into account their priorities and preferences, and ranking social, environmental and economic indicators accordingly.

Nuclear energy, from a government perspective, is a competitive source of base-load electricity, which provides secure and reliable supply and offers a cost-effective option for alleviating the risk of global climate change. After several decades of industrial and commercial experience, the nuclear industry has demonstrated its reliability; nuclear power plants provide nearly a quarter of the electricity consumed in OECD countries (16 per cent worldwide).

However, like any other energy source, nuclear power presents some risks that governments and the industry need to minimise for the benefit of society. The risks of nuclear energy are essentially economic and social. In economic terms, the high capital costs of nuclear power plants and fuel-cycle facilities create a financial risk for investors and operators. From the social perspective, civil society is concerned about nuclear safety, radioactive waste disposal and the proliferation of nuclear weapons.

Governments wishing to take advantage of cheap and nearly carbon-free nuclear electricity can alleviate those risks and concerns by taking adequate policy measures, without interfering with market mechanisms. They have a broad range of measures at their disposal to achieve their policy goals, including norms, standards and regulations, support to R&D in innovative technology, tax regimes and incentives to investors.

With oil prices exceeding $100/barrel, and gas and coal prices following similar trends, the economic attractiveness of nuclear energy is no longer challenged. Although prices of raw materials and commodities have risen dramatically over the last few years, leading to considerable increases in power-plant construction costs, this trend affects all electricity generation technologies in a similar fashion.

In liberalised electricity markets, nuclear power plants perform extremely well, owing to their excellent reliability and very low running costs. Nuclear electricity-generation costs are stable and predictable once the plant

Construction site of the world's third second-generation nuclear reactor in Flamanville, northern France

is connected to the grid, providing domestic industries with a guarantee of long-term stability in their energy-related expenditure, and thereby enhancing their competitiveness in international markets.

The impact of uranium price escalation on the cost of generating nuclear electricity has remained marginal. As uranium accounts for only a few per cent of total nuclear electricity generating costs, even a doubling of uranium prices would not jeopardise the competitiveness of nuclear energy. On the other hand, the drastic escalation of gas prices has significantly reduced the attractiveness of gas-fired power plants.

While nuclear energy is competitive, it is nevertheless capital-intensive and the financing of large nuclear power plants has proven difficult in most countries. Private investors are reluctant to embark on high-investment-cost projects requiring amortisation times in excess of two decades, especially in the context of deregulated electricity markets where future demand is uncertain in volume and sales value.

Governments can alleviate or mitigate the financial risks supported by the private sector through stable regulatory frameworks and consistent energy policies that provide clear signals to investors. Recognition by the government that nuclear power is a long-term option in national energy policy provides stakeholders with confidence and reduces uncertainties and, consequently, the risk-premium demanded by investors in nuclear projects.

A typical state-of-the-art nuclear power plant can be built in four to five years. Nevertheless, the lead time required for such measures as acquiring land, preparing environmental impact assessments, ordering equipment and obtaining the construction and operating licence means that the total project time – from the decision to order a plant to electricity generation – is much longer. The project time may be shortened, and made more predictable, by efficient regulation, including harmonisation of local, regional and national regulatory requirements.

But the contrary is also true. Delaying the commissioning of a plant by two years because of unexpected changes in regulatory requirements may increase capital costs by some 15 per cent due to high interest rates during construction. Such an increase, combined with additional equipment costs that could be needed to meet the new regulatory requirements, might make the plant unaffordable. The stability of the regulatory environment is, therefore, an important factor in the final construction costs of the plant.

Governments can also be proactive, if and when they wish to facilitate the penetration of nuclear energy in their national supply mix. The United States Energy Policy Act of 2005 is one example of a policy designed to facilitate investments in the nuclear power sector. It provides for federal loan guarantees and production tax credits as well as insurance coverage for unexpected delays in the regulatory process. Those measures reduce the risk to investors, thereby enhancing the attractiveness of nuclear projects.

Although it is recognised that the risk of proliferation of nuclear weapons is not linked to nuclear power development, the peaceful use of nuclear energy does employ sensitive technologies in the fuel cycle – for uranium enrichment for example – and generates sensitive materials. Proliferation resistance and physical protection are social concerns that require concerted efforts from governments and the industry to be addressed in a comprehensive and effective way.

The international safeguards regime based on the Treaty on the Non-proliferation of Nuclear Weapons and administered by the International Atomic Energy Agency (IAEA) ensures through monitoring and controls that nuclear materials and technologies

designed for civil uses are not diverted to military applications. Governments are responsible for adhering to international safeguards agreements and facilitating the implementation of an effective safeguards regime. Strengthening this regime is a prerequisite for the broad development of civil nuclear energy programmes worldwide with society's support.

Furthermore, several recent governmental initiatives are aimed at ensuring security of nuclear fuel service supply to all countries, while avoiding dissemination of sensitive technologies. The Multilateral Approaches to the Nuclear Fuel Cycle proposed by the IAEA, the Global Nuclear Energy Partnership launched by the United States, and to which some 30 countries are associated, and the Russian proposal for an International Nuclear Fuel Centre, are examples of such initiatives.

These proposals need further elaboration and broad international support to become operational. The establishment of an international legal framework covering such comprehensive arrangements will likely require lengthy negotiations and co-operation among many countries with different geopolitical situations, infrastructures, resource endowment and nuclear industry development. Governments of countries interested in such endeavours will need long-term commitment and concerted approaches to ensure their success.

Today, after several decades of feedback from experience, nuclear energy has demonstrated that it is among the safest sources of electricity generation. Nevertheless, nuclear technology is complex and communication with the public on safety issues requires a continued effort to earn the confidence of civil society, decision-makers, regulators and experts, and to reach an informed understanding of the risks and benefits of nuclear facilities.

Transparency is a key element in communication about safety issues. The role of government in this regard is to establish a regulatory framework that clearly identifies the respective roles and responsibilities of the operators and the regulators. International co-operation plays an important role in enhancing public confidence. The Convention on Nuclear Safety, adopted in 1994 and to which countries operating nuclear power plants are parties, is a major achievement towards promoting higher safety standards and gaining public confidence.

The management of radioactive waste is a key social issue

"Finland, France, Sweden and the US are well advanced in their planning for the commissioning of a high-level waste repository"

Radioactive waste management raises social issues, not because of the volumes involved, but owing to the long-term stewardship required by long-lived, high-level waste. Although the volume of radioactive waste generated per unit of electricity produced is very small, its management and disposal are often pointed to as unresolved issues for nuclear energy. While technically feasible and economically viable disposal options exist for all types of radioactive waste, no country has opened a repository, yet, for spent fuel or high-level waste from nuclear power plants.

It is, therefore, essential that governments implement long-term strategies adapted to social concerns raised by potential risks associated with radioactive waste. Governments of countries relying on nuclear energy have a key role to play in this regard. Several countries, including Finland, France, Sweden and the United States are well advanced in their planning for the commissioning of a high-level waste repository. The successful completion of such projects will be a major step towards public acceptance of nuclear energy.

Nuclear energy is a competitive, nearly carbon-free and industrially mature alternative to fossil fuels. Its benefits in terms of economics, sustainability and climate change are significant for governments and civil society as a whole. While the risks associated with its development in terms of financing, safety, waste management, weapons proliferation and physical protection raise some public concerns, overall they are by no means higher than other risks associated with alternative energy sources – and the mechanisms to control them are in place.

Governments have established legal and regulatory frameworks at national and international levels to ensure that peaceful uses of nuclear energy are implemented safely and securely. They have played an important role in the successful implementation of nuclear power programmes, which require long-term commitments and stability of energy policy. Their involvement will continue to be essential for the revival of nuclear energy and its enhanced contribution to economic growth and sustainable development.

Nuclear energy is already playing a substantial role in providing societies with the energy they need for economic and social development. It is set to play an even larger role in the 21st century, both in industrialised and developing countries, to help meet growing energy demand while reducing greenhouse gas emissions.

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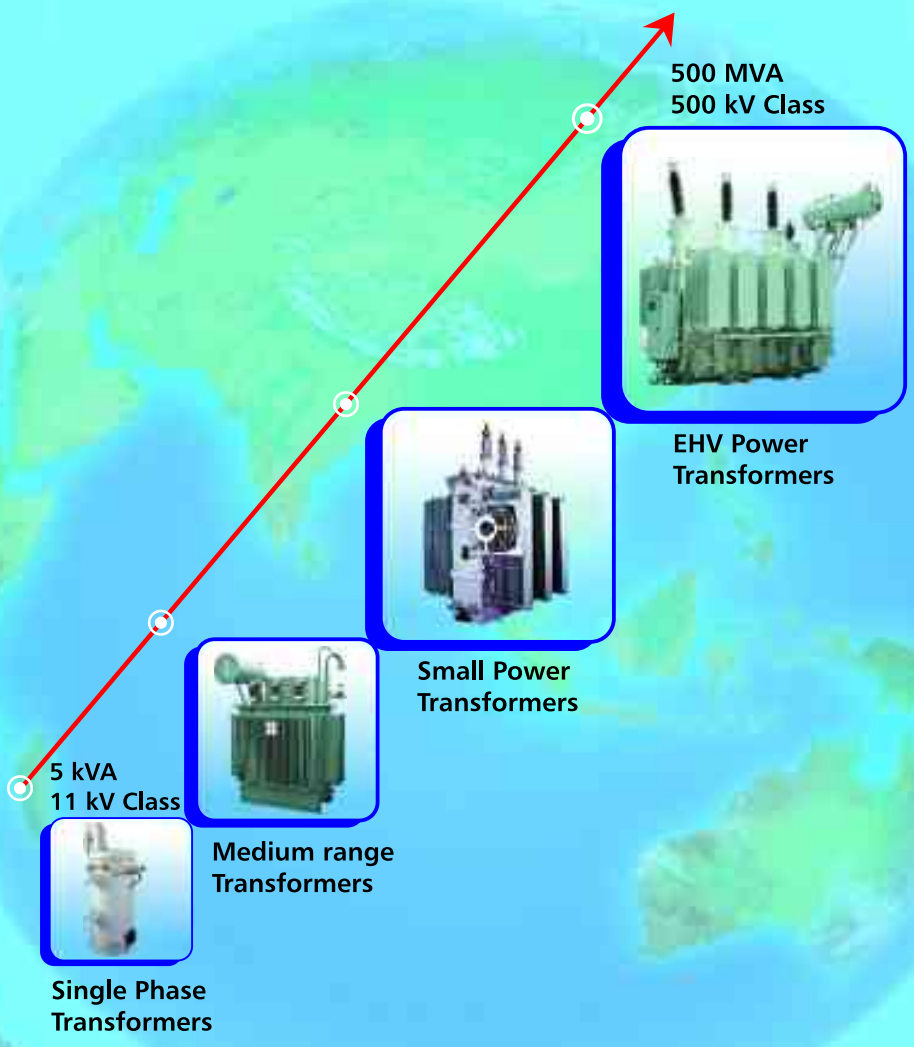

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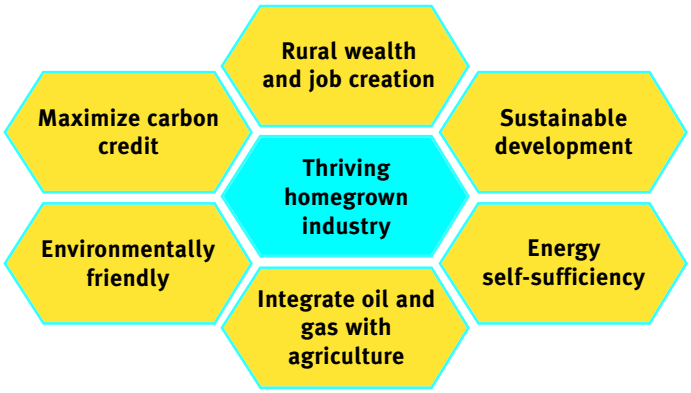
Heralding Nigeria's biofuels programme

Nigeria's biofuel programme is generating a thriving homegrown industry that is spinning off numerous benefits

The advent of the biofuel programme in Nigeria can be traced to the Federal Government's mandate to NNPC in August 2005. The NNPC accordingly created the Renewable Energy Division (RED) to drive the implementation of the programme with articulated vision and mission statements and through partnerships with privately-led domestic and foreign agro-industry leaders.

The main thrust of the biofuel programme is the generation of a thriving homegrown industry that will spin-off the following benefits:



Nigeria's climate, agronomy and availability of large tracts of land are ideal conditions for launching large-scale, modern biofuel operations capable of supplying domestic and international biofuel needs. Sugarcane, cassava, oil palm, jatropha, sweet sorghum, corn are among the crops that thrive well in Nigeria.

NNPC initiative in delivering the programme is anchored on a framework with rationalised timelines. The framework consists of:

- Domestic bio-fuel programme which focuses on launching a series of ethanol and biodiesel projects in Nigeria over the next 10 years.
- Ethanol seeding programme which focuses on establishing an E10 market in Nigeria in the near term.
- Policy enactment whose immediate objective is to set up the proper policy environment to stimulate domestic and foreign investment in biofuel projects.

Significant progress has been made in the achievement of the objectives of the biofuels programme, namely:

(a) Federal Government of Nigeria gazetted biofuels and incentives policy document of June 20, 2007;

(b) Identification of suitable locations for sugarcane and cassava plantation for large scale ethanol plantation and plant operations, as well as oil palm for large-scale biodiesel plantation and plant operations;

(c) Completion of feasibility studies for three integrated sugarcane plantation/plants and two cassava plantation/plants. These were carried out by international experts of excellent reputation;

(d) Completion of environmental and social impact assessment studies for some of the identified sites, with others ongoing;

(e) Completion of business plans for some of the sites, with others at advanced stage;

(f) Importation of ethanol for E10 ethanol seeding programme;

(g) Partnering discussions with foreign and Nigerian investors, domestic and international banks.

The Nigerian biofuel programme is here to stay

- NNPC has secured contiguous locations for projects from local and state authorities. Feasibility studies with international experts and public institutions are ongoing.
- NNPC is seeking to create Joint Ventures (JVs) with strategic investors with proven international operational expertise in managing the various crops and plants envisaged for the programme. NNPC opts to take minority ownership in each of the JVs and let the operations of the JV be managed by strategic investors.
- NNPC is committed to guarantee 100% off-take as buyer of last resort for biofuels produced from the JV or other qualified biofuels projects.

Cassava plantation (left) and tubers (above)

Oil palm plantation (right)
and fresh fruit bunches (above)

Sugarcane plantation (left)
and harvested cane (above)

Private sector led biofuels programmes / initiatives

Apart from the Joint Venture programmes mentioned above, several private sector-led biofuels programme are being embarked upon in Nigeria. These, even without equity contributions from NNPC, are being pursued vigorously by the parties concerned due to the very good potential return on investment.

The consolidation of the biofuel programme will need investors with the following characteristics:

(a) Ability to take majority equity ownership as sole investor or as a leader of a group of investors.

(b) Proven competence in at least one of the following activities:

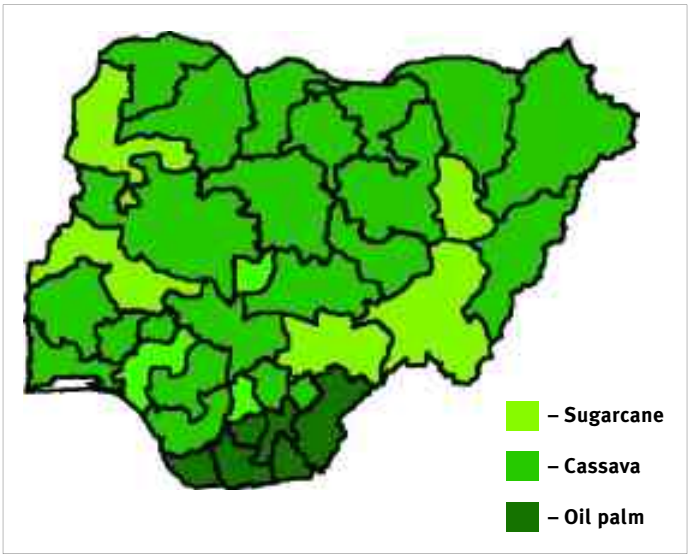
i. Ownership and / or management of large-scale sugarcane, cassava and palm oil operations;

ii. Ownership and / or management of large-scale sugarcane mills with sugar, cogeneration plants and ethanol production plants, palm oil extraction and biodiesel plants;

iii. Commodity trading experience (sugar, palm oil, ethanol, biodiesel, etc);

iv. Carbon financing knowledge.

NNPC therefore invites eligible firms to indicate their interest in joining the Nigerian Biofuels Programme. Further clarification can be obtained from the Group General Manager:
Engr. Sulaiman Achimugu on Tel: 234-9-460 82600 or
email: sulaiman.achimugu@nnpcgroup.com



www.nnpcred.com

By Camilla Toulmin, Director, International Institute for Environment and Development

Renewables hold the key

Any post-Kyoto deal in Copenhagen in 2009 must place renewable energy and the needs of the least developed countries and small island states centre-stage

Right and left: The PS10 solar tower plant in Sanlucar la Mayor, Spain, was the first commercial solar tower in the world. It can provide electricity for up to 6,000 homes. Solucar (Abengoa) plans to build another nine solar towers to provide electricity for 180,000 homes

Twelve months is a very long time in world politics. At last year's G8 Summit in Heiligendamm, concerns over the US missile defence system threatened to push climate change off the agenda. Since then, the world has been whipped by a perfect storm, with the credit crunch, doubling of prices for grains and other commodities, and oil breaking through the $100/barrel ceiling and heading towards $200.

This is the context within which our leaders must agree a post-Kyoto deal on climate change – we hope in Copenhagen in December 2009 – which shifts our economies onto a low-carbon pathway. And it is a context in rapid mutation, with a new geopolitics to mirror the shifts in global power and wealth, and high expectations from a new US president due to take office at the start of 2009.

Renewable energy must be a major piece of the jigsaw if we are to combine living within the ecological limits of our one-and-only Earth, while generating growth and increased well-being, particularly for poorer countries and communities. For renewable energy to flourish at household level, governments need to agree a good price for energy when fed back into the grid by small-scale energy producers.

There are six main kinds of renewable energy: solar, water, wind, geothermal, biomass and marine. Each kind takes a variety of forms and each kind presents a range of characteristics that will influence whether it is the right energy option for a given country and location. Some are particularly suitable for decentralised energy generation at household or community level. Countries that have established a reasonable feed-in tariff for surplus energy fed back into the national grid, have witnessed a major investment by small-scale energy producers at household and settlement level.

Solar energy can be captured directly by heating water, by focusing the sun's rays and by designing buildings to make best use of solar gain, or indirectly via photovoltaic cells that generate electricity. It is possible with new constructions to position the building

CO_2 a growing concern

World demand for transportation fuel is growing fast. The energy sector faces key challenges in ensuring security of supply and tackling CO_2 emissions. Blended with conventional fossil fuel, biofuels have the potential to reduce CO_2 emissions because they absorb CO_2 as the feedstock grows.

BP is currently investing in a range of biofuel-related activities and our strategy centres around developing sustainable feedstocks and investing in research work to develop the technologies required to produce advanced biofuels. BP's sales of biofuels in 2007 accounted for about 10% of the global biofuels market.

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"Many households in Africa have benefited from access to improved bio-energy systems"

directly in relation to the sun's passage, so that offices are kept cool in the heat of the day, but store heat for use during colder periods. Dealing with the large number of existing offices and homes presents a great challenge. Equally, by spending more on thick walls and less on glass, new buildings can be very much better insulated from fierce sunshine. Solar-powered photovoltaic cells, while expensive to buy, provide a very good option for settlements far away from the electricity grid, where there are few alternatives.

Water power is a well-tried and tested technology, but its appropriateness depends greatly on the availability of a good site. Many of the easy hydro-power sites worldwide have already been exploited; there are only more difficult options ahead, which cost more. Large-scale dams often involve major displacement of people and their resettlement elsewhere. The heavysunk costs in concrete and other carbon-intensive materials make sense if the lifespan of the dam is sufficiently long, but, with soil erosion rapidly filling up reservoir space, the actual length of useful life for a dam is often a fraction of that originally anticipated. However, dams can also produce multiple co-benefits from access to irrigation water, energy generation for local needs, easy navigation along the reservoir and development of fisheries.

Wind power is one of the best-established renewables. There are a range of different windmill systems available, depending on the characteristics of the site and the wind available. Disadvantages include the damage to landscape and to the amenity value that many people attach to areas where wind farms have been set up, combined with noise and possible risk to birds in the vicinity. Wind energy seems to operate well at a range of different scales, making it more adaptable than many other kinds of renewable energy for poor countries as well as rich. Offshore wind energy farms are likely to be the way forward, allowing us to benefit from high levels of wind in north-west Europe, but without the unsightly littering of the landscape with many windmills.

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"Achieving a global climate deal that cuts the rapid rise in greenhouse gas emissions is vital for our continued existence on Earth"

Geothermal power is relatively rare, except in those countries like Iceland where tapping the heat from underground sources is a major source of energy. There is now increasing investment by households in building geothermal systems at a household level, which is relatively easy where there is sufficient land around the house to dig the pipes into the ground. However, there are real problems in using this as a source of power in large cities, where there are few opportunities to dig deep and where each household unit has very little access to land.

Biomass shows considerable potential, especially as it minimises the changes required of us as motorists. Many households in Africa have benefited from access to improved bio-energy systems, such as more fuel-efficient stoves, which combine reduced exposure to smoke, less time spent collecting fuel, and reduced deforestation, bringing benefits for the community at large.

Marine energy is seen by many as the ultimate prize if we can manage to gear the technology in ways that allow us to harness the tides and wave power. The engineering is not yet complete, so we may have a few more years to wait before relying on this source for our daily ration of energy. Nevertheless, if we can manage to tap such energy effectively, this would be a powerful source for many coastal nations, though not so useful for landlocked nations such as Mali, Niger and Chad. There are also concerns that establishing tidal flow infrastructure on major estuaries, such as the River Severn in the UK, would damage irreparably the breeding habitat of several rare breeds of bird.

Let's look at biofuels in more depth, given their growing interest to many countries – poor and rich. They offer the prospect of greater energy security and reduced reliance on increasingly expensive and possibly unreliable sources of fossil fuels. They are also seen as a means to generate jobs, incomes, tax revenue and export receipts, especially for those primary producers who, until recently, have experienced three decades of declining prices for agricultural commodities. Production of biofuels has increased from 20 tonnes in 2005, to an expected 54 tonnes in 2015 and possibly up to 100 tonnes by 2030. Much of this growth is likely to take place in tropical nations, since they have more favourable biophysical conditions and generally lower land and labour costs.

However, the boom in biofuel production has raised particular concerns in the last few months because of fears that such crops compete with food crops for land and water, leading to food shortages and rising prices. For example, local farmers may find their access to water cut off by it being diverted for irrigated sugar cane, while elsewhere, farmers are being cleared off land that has been allocated to commercial oil palm production. Smallholders are particularly vulnerable in those countries where government claims ownership of the land and accords only weak recognition of customary land rights. Women's rights to land are particularly at risk. There is growing evidence of a land-grab underway in many regions, involving foreign investors and governments keen to promote large-scale commercial biofuel production and less worried about the adverse impacts on small-scale farmers. Such growth has been led by the ambitious targets set by the EU and US for the proportion of transport fuels to be made up by biofuels over the next 10-15 years. Biofuel targets in China, India and Brazil are also adding to the push for increased production.

Svartsengi geothermal power plant, Reykjanes Peninsula, Iceland

Biofuels are classed as renewables because the carbon emitted when they are burned should be equivalent to the carbon that had been absorbed in their period of growth. However, different biofuel crops vary greatly in terms of their energy efficiency. In some cases, such as rain-fed sugar-cane production in south-east Brazil, there appear to be high levels of efficiency, with each unit of energy put into production generating eight units of biofuel. But in the case of maize ethanol in the US, it is reckoned that the carbon balance is probably zero, or even negative. This means that more energy is used up in growing, harvesting and processing the maize into ethanol than is saved by using ethanol rather than burning petrol. Similarly, there have been major concerns that tropical forest is being cleared to make way for oil palm production, releasing large amounts of greenhouse gas in the process, which more than offsets any gain from using the resulting biofuel.

Achieving a global climate deal that cuts the rapid rise in greenhouse gas emissions is vital for our continued existence on Earth. Addressing the major challenges presented by climate change is centre-stage at the G8, and rightly so. Achieving significant

reductions in greenhouse gas emissions and moving to a low-carbon economy are key elements both for G8 member states and for the large developing nations, such as China, India, Brazil and South Africa. But in designing climate policy, it is vital to think through the likely impacts of our choices on other parts of the world, particularly the least developed countries and small island states, which have contributed least to global warming but may suffer the worst consequences from its impacts.

Alongside the commitment by rich countries to ambitious cuts in carbon emissions, we need attention to the impacts of global warming on poorer parts of the world. There are four important components here:

Support is urgently required for adaptation to the adverse impacts of climate change, which are now inevitable. Even if we were able to stop all future emissions, there is sufficient inertia in the global

"We certainly need some form of payment to reward sound, long-term management of tropical forests"

atmospheric system for warming to continue for the next 30 years. Hence, help is needed in adapting to higher temperatures, changes in rainfall, rising sea levels and increased frequency of extreme events such as droughts, storms, and hurricanes. Such help should pass through both governmental and NGO routes in ways that best support greater resilience in rural and urban areas.

Measures to cut greenhouse gas emissions must consider the likely impact on other parts of the world. In our increasingly globalised system, decisions we take in Tokyo, Brussels and Washington feed through rapidly into every corner of the planet, whether it is the price of food, demand for organic cotton or the pull of biofuel targets. But we cannot win the battle against climate change by shifting the costs onto poor countries and poor communities. Currently, there is much concern among consumers in the UK and elsewhere to reduce their carbon footprint, with the proposal for individuals to live within a carbon budget. Aviation has been targeted as a major source of greenhouse gases, with air-freighted fresh fruit and vegetables from Africa attracting particular criticism. Yet, as careful analysis shows, cutting back on such purchases does very little to reduce carbon emissions, and such cuts are at the expense of poor farmers in countries such as Kenya and Zambia. Far more carbon is involved in driving to and from the supermarket and in agricultural production and distribution systems in Europe.

Equally, there is rising concern to halt one of the other big sources of global greenhouse gas emissions, namely tropical deforestation. Numerous initiatives are underway to establish payment systems for avoided deforestation, whereby those countries that harbour tropical forests will receive compensation for maintaining their stands of timber, rather than allowing them to be cleared for agriculture or other purposes. We certainly need some form of payment to reward sound, long-term management of tropical forests, given their enormous global importance for maintaining a viable climate system for us all. The main question is: can such a payments system be set up that rewards properly those who bear the cost? And how to make sure that the prospect of a cash payment to those who occupy forest land will not lead to mass evictions of forest dwellers by more powerful elites seeking to demonstrate their rights over the land?

Improved access to renewable energy for poor nations should be a central part of any global deal, offering the prospect of growth but without the carbon cost. There are a number of global initiatives such as the Clean Energy Investment Framework, and the Renewable Energy and Energy Efficiency Partnership. The growing carbon market provides one source of funding for such initiatives, but such funds tend to go to the least-cost provider of carbon services, bringing few benefits to small-scale providers and poor communities where transaction costs are higher. Greater investment is needed to improve access to sustainable energy for poor countries and communities to ensure a more equitable pattern of growth and opportunity.

In the immediate term, least-developed countries and small island states have a very strong interest in ensuring rapid, ambitious and effective cuts in greenhouse gas emissions, thereby maximising the probability of limiting the global temperature rise of 2°C. Every delay in meeting tough targets for emission cuts will bring higher temperatures, increased damage and greater costs and difficulties in adaptation. It is vital that these countries are able effectively to engage with and shape the post-2012 agreement, making sure it is responsive to their needs and priorities. This will involve a mix of activities, such as strengthening negotiating capacity, tactics and strategy; developing input from research, civil society and community groups to provide effective grassroots voice to national positions; assessing costs of climate change for different countries and sectors; and testing out practical options for adaptation. It will also include programmes of public information and education to generate understanding among the population of the challenges to be faced.

Twelve months is a long time in global politics, but 12 months from now, much of the talking on getting a global climate deal in Copenhagen, in December 2009, will need to have been done. We face a tight timetable. Let's make sure we get the cuts in greenhouse gases essential for maintaining life on this planet, and make sure it's not at the expense of the wellbeing of the world's poorest.


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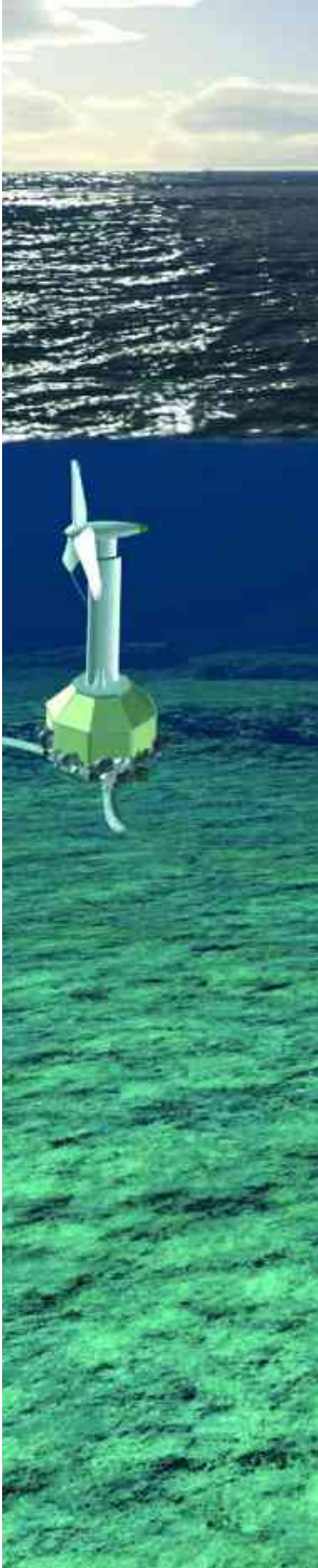

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Sustainability in practice: the view from business

An interview with Björn Stigson, President, World Business Council for Sustainable Development

Sustainable development often looks like a bolt-on activity for corporations. How can they mainstream it within their business strategy?

Sustainable development is about aligning the three elements – economy, environment and social structure – within a functioning governance system so that today's needs are met in ways that do not compromise the ability of future generations to meet their own.

More and more, a company's licence to operate, innovate and grow is determined by 'sustainability issues': climate change, social progress and balanced ecosystems. The space for doing business is increasingly shaped and defined by these issues.

Pursuing sustainable development is a prerequisite for success in this resource and carbon-constrained world, but minimising resource use and pollution also makes firms more competitive, more resilient and more likely to win and retain customers. It can also help them attract the best brains on the market. In addition, it addresses concerns of investors and insurers regarding company exposures to regulatory and other liabilities.

Business cannot succeed in societies that fail. There is no future for successful business if the societies that surround it are not working.

Most agree that market mechanisms have a key role to play in tackling climate change, but what about in protecting ecosystems?

There is a growing market for biodiversity and ecosystems, as there is for carbon. There is, at present, no uniform metric to guide what would be traded and most ecosystems and their services have characteristics of public goods.

We do see markets as part of the solution, but also clearly recognise the need for governments to provide the legal and regulatory frameworks that will give market actors the certainty and liquidity of transaction volumes that are needed for the growth of these markets and create the incentives needed for adopting sustainable practices. In countries like the US, progress has been made in establishing markets for wetlands and biodiversity.

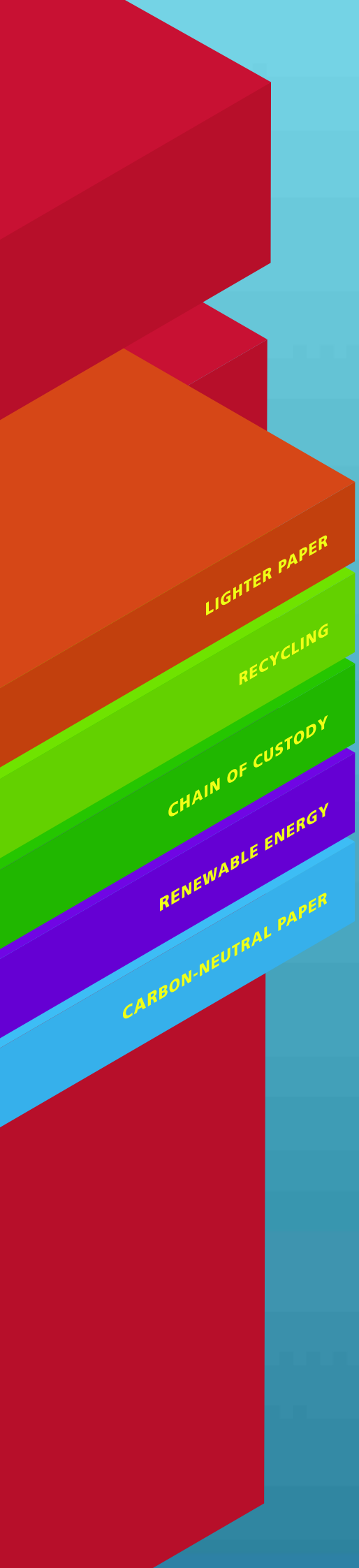
What part do biofuels play in the future energy mix? Aren't they a mixed blessing at best?

We need fundamental changes in our energy systems. Research, development, demonstration and deployment of next generation technologies is essential. Bio-energy, therefore, should not be arbitrarily excluded from this effort. However, it is clear that bio-energy is not a panacea. Like any new technology, it has inherent risks that must be explored and minimised.

It can make a positive contribution to our efforts to de-carbonise, but it is not clear at what scale. As many have pointed out, we must be careful about its impacts. We must assure ourselves that for any given technology and feedstock, the life-cycle greenhouse gases mitigation is positive. We must also be certain that with any bio-energy pathway, the food supply to poor countries is not disrupted.

"Bio-energy is not a panacea. Like any new technology, it has inherent risks that must be explored and minimised"

Bio-energy will play its part in the future energy mix. Here, vats of fermenting sugarcane distill into alcohol which is used for fuel



In a low-carbon economy, competitive edge could be paper thin.

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At Catalyst, our ongoing journey toward sustainability began well over a decade ago with a focus on efficiency that is good for our business, for the environment and for forward-thinking customers. Through commitments to product quality and **five key steps to sustainability**, we continue to help the business world set higher standards for a low-carbon planet.

For more on the Catalyst sustainability story, view our 2007 Sustainability Report at
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Catalyst is proud to be a WWF Climate Savers company.

Do we have adequate structures for engaging China and India on environmental issues?

There is now absolutely no doubt that developing countries, especially China and India, are firmly seated at the table when it comes to international deliberations such as the United Nations Framework Convention on Climate Change, and other international processes.

In terms of international business engagement, we have various channels for engaging China and India. I'm pleased that a number of World Business Council for Sustainable Development (WBCSD) companies are from China, for instance, Sinopec, COSCO and Baosteel. Our Indian companies include Reliance Industries and Infosys. In addition to this, we work closely with our partner organisations: the China Business Council for Sustainable Development, TERI BCSD and the Confederation of Indian Industries.

Finally, I am pleased to say that I represent the WBCSD on a high-level advisory body to the Chinese government. This includes the China Council for International Cooperation and Development and, within this body, I co-chair a newly created task force that is considering how to move China towards a low-carbon economy. Clearly, this is no easy task, but my impression is that the Chinese are showing enormous willingness to take these imperatives seriously.

"The current boom in commodity prices is a signal for urgent action"

It is essential that developing countries such as India and China are engaged on environmental issues

Can agribusiness be sustainable as well as profitable?

Yes, but it's not easy. The current boom in commodity prices is both a signal for urgent action, and an opportunity to initiate crucial shifts in policy-making.

The future of agriculture will be shaped by key trends such as population growth, shifting consumer patterns (for instance, meat consumption in China has more than doubled in the last 20 years and it is

projected to double again by 2030), increasing urbanisation and a shrinking workforce, and regulatory and policy frameworks, as well as by market mechanisms, such as certification schemes.

There is no single, globally applicable, sustainable management solution for agriculture. This is because agricultural practices depend on site-specific variables, such as climate, ecology, geography, demography, and regulation. But agribusiness can be sustainable as well as profitable.

Agricultural producers can use farm management systems and stewardship approaches that improve ecosystem health, such as integrated crop management that balances the economic, social and environmental dimensions of sustainable farming and sets a framework for reducing greenhouse gas emissions.

Using 70 per cent of total global 'blue water' freshwater, agriculture both depends and impacts greatly on water availability and quality. Agricultural practices that can contribute to improved water availability include recharging groundwater aquifers, using more efficient irrigation systems (such as drip irrigation) and more water-efficient crops. But inadequate use of nitrogen and phosphorus have significant negative effects, such as eutrophication and excessive growth of algae.

Agribusiness must be looked at in a holistic manner. It is a key part of society responsible for our food supply. Lack of holistic thinking can create a lot of unintended consequences, as seen recently with the debate on biofuels.

Some say that securing water supply is even more urgent than tackling climate change. Do you agree?

The complex interplay between energy and water is undeniable. Just look at what happened in France during the heatwave in 2003, when there wasn't enough power to keep the grid going. Despite peak demand, a major hydroelectric plant had to cut production when restrictions on river withdrawals limited the amount of water available for its cooling system.

On the global stage, rising incomes push up demand for food, water and energy simultaneously. As the population earns more disposable income, consumption escalates from attending to the subsistence-level needs of washing, heating, cooking and drinking, to amenities such as swimming pools, air conditioners and lawn sprinklers. Our standard of living improves as we climb this water-energy ladder. But how can we reduce our water and energy footprint as we do so?

Many members of the world's business community have embarked on energy and water savings programmes, developing or adopting new efficient technologies. Organisations which understand the energy-water linkage also recognise that they alone cannot solve the problem; they have to work with others.

The enormous amount of attention directed at climate change is helping to build awareness of the water – energy nexus outside corporate borders. Media coverage of biofuels and reports of changing sea levels and severe storms encourage the public to join the dots.

Still, it's difficult to frame the complexity of the interrelationships in a simple sound bite. Unlike carbon emissions, which are equivalent the world over, *where* water is being used can matter a lot more than how much is being used. In areas where water is scarce, competition between users intensifies. How can multinational corporations sit across the table from these other users and assert their need for water?

A company's licence to operate in any market depends on constructive dialogue among the different stakeholders – community representatives, business, and others – about how precious water resources will be shared to meet competing demands.

What message would you like to deliver to G8 leaders as they gather in Hokkaido Toyako?

On behalf of our members, we would urge the leaders of the G8 to be thoughtful, global in their outlook, clear about viable framework conditions for business, and principled and courageous.

Time is not on our side, as climate change, poverty, food scarcity, and security concerns threaten the stability of our world. Business has a key role to play in solving these challenges and must continue to be deeply engaged in finding answers. This means new forms of co-operation between governments and business. The good news is that global business is up for the challenge.

Using more efficient irrigation systems helps improve water availability. Drip irrigation, shown here, rations a precise sip of water to a flower

Committed to delivering alternative energy

DuPont is focused on delivering low-carbon solutions to reduce greenhouse gas emissions

"Innovations will be essential to increasing the energy efficiency of buildings and transportation to reduce global greenhouse gas emissions", DuPont Greater China President Doug Muzyka told participants at the Bali Global Business Day at the United Nations Framework Convention on Climate Change in Indonesia, December 2007.

"In the growing world economy, energy demand remains high and will continue to increase, particularly in countries with rapidly developing economies. At the same time, as a global community, we know that critical environmental challenges such as climate change must be addressed," Muzyka said. "DuPont is focused on delivering low-carbon solutions to the marketplace in order to help our value chains improve their energy efficiency and reduce greenhouse gas emissions."

From 1990 to 2003, DuPont reduced the greenhouse gas emissions from operations by 72 percent. During the same period, the global energy use actually declined 6 percent while the business grew by 40 percent – translating to over $3 billion in avoided energy costs.

"With the launch of our 2015 Sustainability Goals over a year ago, we expanded our commitments to go beyond our own footprint reduction, to include market-facing goals for R&D investment and revenues from sustainable products and services," he added. "For example, we know that buildings can account for approximately 40 percent of the greenhouse gas emissions in developed countries. DuPont™ has innovative products that can help reduce a building's emissions by reducing energy use up to 30 percent."

DuPont is committed to delivering alternative energy with a large portfolio that includes:

Photovoltaic Technologies

DuPont supplies eight of the nine key materials used in a solar panel. These products include conductive pastes and high-performance films that help the panel achieve higher power output and long life. DuPont will invest approximately $100 million in the continued development of products and technologies for solar cells and panels.

Biofuels

DuPont announced the creation of a Biofuels business unit to deliver commercial products and pipeline opportunities to the biofuels market. This business includes a programme that is marketing 135 corn hybrids this season to improve the yield potential of grain ethanol production; the Integrated BioRefinery research programme to develop technologies to convert entire corn plants and other cellulosic plant material into ethanol; and a research pipeline to accelerate commercialisation of alternative biofuels technologies.

Crop Genetics

Over the past decade, agricultural biotechnology has emerged as a high value-driving technology in major crops such as corn, soybeans and cotton. Given growing market needs for energy alternatives, energy security and environmental sustainability, there is a significant opportunity in seed genomics to meet the growing demand for agri- cultural feedstocks that will be used to create new bio-based products.

Fuel Cells

DuPont's product offering includes advanced materials such as DuPont™ Nafion® perfluorinated membranes, which have been used in fuel cells for more than 35 years, as well as high-performance membrane electrode assemblies (MEAs). DuPont is active in the development of both hydrogen and direct methanol fuel cell technology.

DuPont owns one of the world's largest patent estates in biotechnology, covering both the rapidly growing agricultural sector and the emerging industrial sectors, and currently ranks second among patent holders in this

DuPont is a science company. Founded in 1802, DuPont puts science to work by creating sustainable solutions essential to a better, safer, healthier life for people everywhere. Operating in more than 70 countries, DuPont offers a wide range of innovative products and services for markets including agriculture, nutrition, electronics, communications, safety and protection, home and construction, transportation and apparel.

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Bioethanol is currently the only viable alternative for eliminating our oil dependence. It reduces energy dependence on oil producers, allows energy diversification, reduces greenhouse gas emissions, guarantees fuel supply and supports rural development.(*)

*Sources:

[1] European Federation for Transport and Environment, "Greenhouse gas emissions from transport in the EU25". 2004.
[2] Commission of the European Communities, "An EU Strategy for Biofuels-Impact Assessment, Communication from the Commission". 2006.

Abengoa Bioenergy, a business unit of Abengoa, is Europe's largest bioethanol producer and the only global producer with operations in the US and Brazil as well. Abengoa is a technology company, with presence in over 70 countries worldwide, applying innovative solutions for sustainability in the infrastructure, environment, and energy sectors. Abengoa's portfolio of products includes solar energy and bioethanol production, hydrogen technologies, construction of renewable energy facilities, water desalination, recycling of industrial waste, and IT consulting and system development.

ABENGOA BIOENERGY

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We applaud Japan's environmental leadership...

with one huge exception.

We commend the Government of Japan for helping lead the world on the crucial environmental issue of climate change. As an innovative and prosperous nation working to limit CO_2 emissions, Japan's environmental policies serve as a powerful positive example to other G8 members and the rest of the world, with at least one enormous exception.

More than 10,000 Whales Killed

Since the International Whaling Commission banned commercial whaling in 1986, Japan has killed more than 10,000 of the world's remaining whales through its "Scientific Whaling" program while pushing for a relaxation of the commercial whaling ban.

Our planet's great whales face more threats today than ever before in history including marine pollution and habitat destruction, entanglements in fishing gear, ship strikes and the emerging threats of ocean noise and climate change. These recovering species cannot sustain renewed commercial hunting.

Please End the Hunt

Recognizing the massive threats to these magnificent creatures, the other G8 nations have given up their centuries-old whaling traditions to pursue whale watching instead of whale hunting.

It is time for Japan, as a prosperous world leader, to do the same.

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Joining forces for water

With climate change, demographic growth, economic development and soaring oil prices putting water supplies under increasing strain, a global strategy for water is more urgent than ever

By Loïc Fauchon, President, World Water Council

'Water is life' is something that translates in all the world's languages. Water is at the source of all life and a universal symbol of fertility, purification and regeneration. For some, it is 'The Measure'. For others, the 'Materia Prima' is the most common of substances yet also the most essential.

Today water is threatened more than it has ever been before: threats of dependence when it is withheld or embezzled; threats of being contaminated when human thoughtlessness is responsible for multiple forms of pollution; and threats of depletion when climate change aggravates drought to an unprecedented degree. These threats are due to man and his erratic behaviour – making him water's worst enemy.

In Johannesburg in 2002, the international community agreed to set ambitious objectives for water and even more for sanitation. What have we done since? Both a lot and too little. According to the United Nations Development Programme, half-way into the process, the world is about to meet the goal set for drinking water: to provide access to water for 900 million more people by 2015.

But this achievement owes a lot to the progress made by China and India. At the same time, it conceals wide differences between countries. If we do not gain momentum, 55 countries run the risk of not reaching the objective. For sanitation, despite all the efforts

This is Bangladesh where millions have to live in the kind of squalor and disease that was eradicated long ago in the rich world.

In 2008, **2.6 billion** people across the world are living without sanitation. The resulting diarrhoeal diseases kill **5,000 children** every day.

It's time for the G8 to take action and commit to a global action plan for sanitation and water.

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being made, the prospects are less encouraging: close to 400 million people could be left behind when we reach the 2015 deadline.

To be sure, much is being achieved because of increased public awareness, thanks to the media. Yet this awareness also owes a great deal to the 'dramatisation' of climate change – a phenomenon in which everyone wants to play his or her part.

Granted, major institutions and organisations have progressively placed water at the top of their agenda. An increasing number of countries are taking concrete steps to prioritise water, through the strengthening of national policies, legislative action and the role of local authorities. Also, we have done a lot in very little time, but it is not enough and there are still plenty of challenges to address. Have we made enough headway to ensure that the destitute can have access to water when they need it?

The answer is no, because we haven't managed to curb demographic growth, which accounts for very substantial additional demand for water. Neither have we managed to control the sudden rise of water consumption for the agricultural, industrial and domestic purposes which accompany economic development. For many years to come we will not be able to control all kinds of pollution, particularly that generated by mega-cities, effectively exposing us to sanitary time bombs. What is more, we are not yet mastering climate change, even though we understand that it requires us to protect ourselves against extreme phenomena: droughts on the one hand and floods on the other. As you can see, the overall picture is, at best, a mixed one.

"Changing man's relationship to water is an ethical duty"

Is the dream of the poorest and most destitute – to have access to water and sanitation – out of reach? We could be forgiven for thinking so when we see that information technologies, the internet and video communications are evolving faster than access to water. And when we see, day after day, more people acquiring a mobile phone or taking a plane for the first time than people managing to get a tap or a lavatory inside their home. To quote Muhammad Yunus, winner of the Nobel Peace Prize: "It's about time that we come up with a system that includes the poor rather than excludes them."

Until now, man has shown an inability to establish a new relationship to water that would be harmonious and supportive. Changing this relationship is an ethical duty: it means asserting access to water as a right that is essential to the dignity of millions of people.

Changing this relationship is also an economic necessity because, without water, there is no development, no agriculture and no industry in a form that respects and sustains ecosystems and biodiversity. It is a social imperative if we are to win the battle against waterborne diseases, which are still the main cause of child mortality. And it means reducing our consumption and improving our management of water in a world where resources are becoming increasingly scarce.

"Access to water is being affected by the soaring price of oil"

Our world is filled with uncertainties causing tensions that can lead to conflicts if they are not properly managed.

Water is affected by the shift of world population from West to East. The most difficult struggles for access to water will now take place in India and China. Enormous challenges have to be taken up in these countries to ensure the survival of half the human race.

Water is affected by the multiple impacts of the world's continuing financial crisis. The demand for water is moving to places where resources are lacking. Emerging countries have become the laboratories of the West, and their economies – which already account for half of the world's GDP – are growing at a breathtaking pace.

As a result of the third oil crisis, which is probably more severe than the two previous ones put together, a severe food crisis is emerging. Humankind today consumes more food than it can produce. Moreover, the world's food reserves have never been so low and the production of biofuels – which is increasing, not without controversy – will not contribute to improving food stocks in the short term.

At the same time, we are seeing access to water being affected by the soaring price of oil and thus by the spiralling costs of energy.

Water badly needs energy. Without energy there can be no well-drilling, no treatment nor sanitation, because water in our modern times consumes a lot of electricity. Today in the bush of Mali, people can only pump water for four hours, while two years ago, with the same budget, they used to pump for eight hours. The poor are the first victims of this trend. More even than climate change, the issue of the cost and availability of energy is the most urgent for humankind to address. Otherwise, what is the point of making such a colossal effort to increase resources if we cannot manage to provide the means to capture those resources for the largest number?

Is there a solution to the fate of water? Does the potential water shortage threaten world peace? Obviously yes, if we stand idly by and just wring our hands. And obviously no, if we make people aware of the seriousness of what is at stake and if we take strong and sustainable action.

Water is a world cause and of course this includes sanitation as much as drinking water. A world cause means that water, air and renewable energies must be

given absolute priority. It is only on this basis that we can build our future capacities to ensure development and provide food, healthcare and education – a triptych that is essential to achieve peaceful coexistence between peoples. As far as water is concerned, what is needed is more and diversified funding, democratic and decentralised institutions, and appropriate and low-cost know-how.

The challenges posed by water are complex, but the solutions are simple. They require that we meet to establish a dedicated dialogue. There is an urgent need for a water diplomacy that can deal with the distribution of large continental water reserves; work to ease transborder conflicts; and foster preferential investments and reinvestments for water. Progress is needed on all these fronts for the cause of water to make progress. This cause calls for planning and discipline, now and in the long term, so that a global political strategy for water can be prepared, driven by a genuine collective commitment.

It is the international community's duty to make 'Joining Forces for Water' a reality, and thereby guarantee the life and dignity of as many of our planet's inhabitants as possible.

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Wat'er We Waiting For?

By Mikkel Vestergaard Frandsen

Justine Kasongo won't be surprised to learn that water-borne diseases take the lives of more young children in the developing world than AIDS, malaria or measles. She lost her young daughter Muleka to typhoid several years ago.

More than one billion people like Ms. Kasongo, who is from the Democratic Republic of Congo, lack access to safe and clean water. More than one-sixth of the world's population lives without access to safe water, and more than 6,000 lives are lost each and every day because of water-borne illnesses. Not surprisingly, children and those with compromised immune systems are most at risk.

Recently, the growing global water problem received international attention with the observance of World Water Day. Initiated by the United Nations, events were held across the globe to stimulate awareness of the lack of safe water.

Unfortunately, women like Ms. Kasongo, whose tragic loss was profiled globally in World Vision Magazine, are typical of many in the developing world. They struggle daily to find safe drinking water for their families. Their children walk miles every day to fetch water; precious time that could be better spent in school.

Fixing the global water problem has implications that go beyond improving human health. It can also impact economic development, gender equality and environmental sustainability. We must move quickly to deliver effective ways to provide clean, safe drinking water and find the financial resources to implement them.

But the cost is high. The World Health Organization estimates that an investment of about $18 billion U.S. dollars a year would be needed to meet the UN Millennium Goal of reducing by half the number of people without access to safe drinking water by 2015. Without the support of political leaders and governments committed to bridging this lack of funding, this goal will remain a distant dream.

Another challenge lies in insuring that precious resources for water investments are wisely spent. Drinking water must no longer be considered just an infrastructure project, but rather a public health priority. All new sources—such as wells, hand pumps, and community pipelines— as well as available surface water must be combined with effective point-of-use interventions to deliver safe and clean drinking water to the people who desperately need it. After all, it does little good to spend billions on improving the quantity of water available to thirsty communities if the quality is still so poor that it has the potential to extinguish young lives.

Universal access to piped, treated water may require decades to achieve, but here and now we can take simple steps for immediate improvement. Those with access to water, albeit unsafe, can benefit tremendously from inexpensive water filtration. By empowering people with the ability to make homemade drinking water, we can start saving lives today.

Because in the end, mothers like Justine Kasongo won't really care what works as long as they don't lose another child to dirty water and the preventable diseases that flow from it.

VESTERGAARD FRANDSEN

Mr. Mikkel Vestergaard Frandsen is the CEO of Vestergaard Frandsen Group (www.vestergaard-frandsen.com), a fifty-year old, Swiss-based company specializing disease-control textiles for developing countries. Vestergaard Frandsen Group is the creator of LifeStraw® Personal and LifeStraw® Family, revolutionary water filtration tools which prevent deadly waterborne diseases.

Meeting the climate change challenge

Monique Barbut, CEO & Chairperson, Global Environment Facility (GEF)

The GEF Ecomarket Project promoted biodiversity conservation and preserve forest ecosystems through conservation easements on privately owned lands outside protected areas in the Mesoamerican Biological Corridor (MBC).

This meeting marks the first G8 Summit to be held after the Intergovernmental Panel on Climate Change and former U.S. Vice-President Al Gore were jointly awarded the 2007 Nobel Peace Prize "for their efforts to build up and disseminate greater knowledge about man-made climate change, and to lay the foundations for the measures that are needed to counteract such change," in the words of the Nobel award committee.

Scientists have long been aware of the underlying factors responsible for climate change, as well as the means to mitigate its effects. But too often co-ordinated action was scarce, with piecemeal funding to help countries, especially the world's most vulnerable, to adapt to existing climate-driven problems and to stop more damage from taking place. It is fortunate that years of repeated warnings by IPCC have now convinced policy leaders to take action.

The future is encouraging. We are seeing momentum toward making large-scale investments that will have impacts on both the global and local level. Now is the time scientific realities are being linked to technology challenges as well as economic opportunities as we move to a low-carbon society.

The Brazilian Amazon is home to 20 million people. The Amazon Region Protected Areas Program (ARPA) is the largest joint initiative for the conservation of tropical forests in history. In the two years since its inception, the ARPA programme has already established over 20,000 square miles of protected areas.

The international community has pledged to reach a comprehensive international climate change agreement at the United Nations Climate Change Conference in Copenhagen in 2009. This agreement will play a critical role in generating resources for adaptation, especially through a global carbon market that dedicates a share of funding for adaptation.

The Adaptation Fund is one way to achieve this goal. It was established under the Kyoto Protocol to finance concrete adaptation projects to help developing countries cope with the effects of climate change. Currently, the Fund is financed by means of a 2% levy on projects from the Kyoto Protocol's clean development mechanism (CDM). Considering the amount of CDM projects in the pipeline, this figure could rapidly increase to an estimated 80-300 million USD in the period 2008-2012. The GEF Secretariat was entrusted at the Bali climate change conference with providing services to this Adaptation Fund.

The creation of the Global Environment Facility (GEF) in 1991 was an early breakthrough in multilateral financial partnering. The GEF represented an agreement among the international development community on how to structure global initiatives to tackle the huge array of problems related to climate change. With more than $7.6 billion invested in 2,000 projects in over 165 countries over the last 15 years, the GEF has proven effective and has made meaningful contributions.

It is even more interesting to look at this in terms of what GEF money has already generated globally: it has preserved 360 million hectares spanning 1,600 protected areas, and worked with over 130 countries to educate and expand public awareness of how to address climate change at the local level.

Those are just two examples. Other success stories at the national and regional level include:

• Creating jobs in and around Cape Town by training national park staff and the unemployed to combat invasive species, which threaten one of the world's six floral kingdoms, located on the Cape Peninsula. The area harbours more than 9,000 plant species, 70 percent of which are found nowhere else.

• Restoring degraded wetlands in Romania which resulted in the removal of an estimated 55 tons of phosphorus, 1200 tons of nitrogen, and 40,000 tons of sediment from the Danube River before it enters the Black Sea.

There is a lot of good news. But there is no dispute that our global resources need to keep growing; there is a pressing need to generate more concessional funding to transfer clean technologies into developing countries now and not later.

At the GEF we plan to work collaboratively to create measurable progress against climate change. This is no longer simply the territory of non-governmental organisations (NGOs); we all belong to this movement. International development agencies, NGOs, governments, think tanks – and we, as hopeful, well-intentioned citizens of the world – all have an important role to play.

The private sector also will have a key voice in how successful we can be to meet the climate change challenge. Together we have to identify those opportunities that not only provide avenues for investment and profit, but which also deliver global environmental benefits.

Some of these opportunities are now not fully realised because of policy and institutional barriers. We still need more robust financial instruments to address short-term to medium-term market risks. This is where the public sector can play a role in partnering with the private sector. Traditional donor aid will not be enough – not given the magnitude involved, which some experts estimate as high as $40 billion. Therefore, how we meet these looming challenges depends largely on how well the public and private sectors can work together to create innovative financial and policy solutions.

Now that world leaders have decided to move environmental issues to the top of the agenda, most recently at this G8 Summit, we have a unique opportunity that should not be squandered. Now is the time to lay out a clear and co-ordinated roadmap for international environmental investment.

Our transition to a low-carbon society requires incentives for the private sector to invest in environmentally-friendly technologies in developed and developing countries alike.

Supporting adaptation measures to climate change aims to improve the lives of some of the world's most vulnerable

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Low commercial returns coupled with a concern in how to achieve the levels of compliance demanded by drug regulators such as EMEA and FDA, are cited as some reasons for lack of investment by the pharmaceutical industry in innovative drug development to tackle the family of, so called, neglected diseases.

However with new models for drug development being created, innovation is being channelled to help develop novel medicines to alleviate these global issues:

> Funding through Product Development Partnership organisations, governments and philanthropic institutions have contributed greatly to the creation of alternative scenarios for leading-edge drug development against malaria, trypanomiasis, diarrhoeal diseases and others which are highly prevalent in large parts of Africa and other developing regions.

> Defining clear strategies which optimise investment in resources through tailored drug development to a well defined target product profile and focus on delivering therapies which are not only low cost but also highly effective and safe.

> Harnessing the intellectual power of committed scientists, physicians and healthcare workers and organising their talents to derive the optimum return from their time and skills creates an environment for success, driven by a common goal in the development of novel medicines which offer benefits over those currently available (which may be expensive, ineffective or even toxic).

> Building capacity and competence at clinical trial sites in endemic countries through knowledge transfer and training, which provides a platform for subsequent drug development projects to be conducted to similar exacting regulatory standards.

Provision of safe and effective new medicines in neglected diseases is becoming a reality.
The challenge is in creating the ideal environment to optimise use of investment in resources and skills needed to ensure this reality continues into the future.

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Global health: making progress

Since its creation at the G8's initiative, The Global Fund has shown an impressive return on investment in the form of millions of lives saved. The challenge now is to extend the Fund's successful formula of strategies, investments and targets to other areas of health care

By Michel Kazatchkine, Executive Director, The Global Fund to Fight AIDS, Tuberculosis and Malaria

Eight years ago, at the G8 Summit in Okinawa, the economic, social and humanitarian consequences of infectious diseases were for the first time placed on the G8 agenda. It became clear how infectious diseases hamper social and economic development, perpetuate poverty, and drain resources from other important priorities of developing countries. Excessive disease burdens add substantial handicaps to many countries in the globalised competition for investment and trade.

As a result of this debate, the G8 approved the creation of The Global Fund to Fight AIDS, Tuberculosis and Malaria at their summit in Genoa in 2001. Most G8 nations substantially increased their investments in global health interventions through The Global Fund, the Global Alliance for Vaccines and Immunization (GAVI) and other initiatives, and through national programmes, most significantly the US President's Emergency Program for AIDS Relief

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Partnerships for public health

The G8's continued call for improving health in developing countries underscores the need for multi-stakeholder alliances

G8 leaders stress the need for strengthened partnerships with the private sector to accelerate development. BASF - 'The Chemical Company' - has responded to the concerns for the health and welfare of developing countries and is widely engaged in public health projects with public sector partners and civil society. In order to support these partnerships, BASF is continually developing new solutions to improve public health.

BASF's citizen engagement mission, entitled *'Better Lives-Better Communities-Better Health'* includes activities in the public health sector which are sustainable and socially responsible. Product solutions, technical capacity building, innovation and analytic expertise form the Company's response to global health needs. BASF not only provides the most technologically developed solutions, but also the expertise to implement these solutions.

BASF's *'Better Lives-Better Communities-Better Health'* interventions include:

• ***Vector Control*** - BASF's Interceptor® long-lasting insecticide mosquito net (LLIN) contains a slow releasing insecticide that withstands a minimum of 20 washes and stays active more than three years, even under bad field conditions. It is efficient in vector control for reduction of Malaria and Yellow Fever. In addition to Interceptor® LLIN, BASF also offers Fendona® insecticide kits for retreating ITNs, and Fendona® for IRS. BASF puts strong effort into research and development of insecticides and resistance breakers to control malaria in areas of pyrethroid resistance; all the mentioned products are WHO Pesticide Evaluation Scheme (WHOPES) recommended. As part of this effort BASF engages in partnerships with the Roll Back Malaria Partnership and other international multi-stakeholder organisations (see www.basfpublichealth.com).

• ***Guinea Worm*** - This worm is a water-borne parasite that has infected millions of humans through contaminated drinking water in Africa and Asia. BASF has developed a larvicide, Abate®, which when sprayed on water, kills any larvae, stopping the likelihood of infection. BASF has partnered with The Carter Center and is actively involved in the affected countries in distributing Abate®. This integrated partnership has led to a 99% success rate in the global eradication of Guinea Worm. Abate® is also used for vector control in dengue fever, malaria, and yellow fever.

Women and child protected by Interceptor® long-lasting insecticide mosquito net (LLIN)

Left: Spraying Abate® larvicide to prevent Malaria
Above: Indoor residual spray - Fendona® Insecticide application

• ***Food Fortification Projects*** (various countries) - BASF supports the provision of vitamin A and other essential nutrients through staple foods (food fortification) to populations who are suffering from micronutrient malnutrition. BASF implements these projects with national fortification alliances through workshops; technical competence building providing basic fortifying equipment; on the ground training; and reliable and cost-effective nutrient product solutions (see www.food-fortification.com).

• ***StrigAway® Project*** - A public-private partnership to improve productivity in African maize farming. BASF's agricultural department has developed technology that prevents striga (witchweed) – a widespread parasitic weed that causes extreme production losses – from multiplying, which in turn enhances crop yield.

BASF, as a founding member of the UN Global Compact, invites interested stakeholders with operational public health projects to contact BASF through the websites mentioned above.

www.basf.com

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(PEPFAR). Private sector initiatives, in particular the Bill and Melinda Gates Foundation, have injected additional billions for research and other activities. Consumer initiatives like Bono's (Product) RED have also provided extra resources and spread knowledge and support for the campaign against ill-health in the developing world.

Over the past eight years, we have seen a tenfold increase in global expenditure on AIDS, and similar increases for tuberculosis (TB) and malaria. Immunisations have also seen a substantial expansion of additional funds. This money has been invested well and is already yielding significant returns in the form of lives saved. Programmes supported by The Global Fund alone have averted well over two million deaths over the past four years. Vaccines financed through GAVI have already prevented over a million future deaths. Other initiatives are likely to have similar benefits.

More specifically, programmes supported by either or both PEPFAR and The Global Fund have provided access to antiretroviral (ARV) treatment for AIDS to well over two million people since 2003. This is a remarkable figure, given that at that time, only a few thousand people had access to such treatment in developing countries (outside Brazil, which had started a free treatment programme in the mid-1990s); and that many health experts believed it impossible to expand such a complicated treatment regime to countries with health systems so weak that they were barely able to deliver the most basic health care.

"In Malawi, ARV treatment programmes have drastically reduced the deaths of health workers"

Global Fund-supported programmes have in addition provided HIV testing and counselling for more than 35 million people; TB treatment for more than 3.5 million people; distribution of insecticide-impregnated bed nets against malaria to well over 50 million families; and care to more than 2 million orphans. In all, nearly 60 million people have been reached with community outreach services, and more than 6 million health workers have received training.

Beyond these results, we have also started to make a real impact on the burden of these diseases. Recent reports from the World Health Organization indicate that both the AIDS and TB pandemics show signs of levelling off, although progress in some areas of the world is offset by worrisome increases in infections in other regions. There are encouraging signs of turnaround. In Malawi, ARV treatment programmes have drastically reduced the deaths of health workers, leading to an increase in the number of nurses for the

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Diabetes and NCDs need greater attention

Every ten seconds someone dies of diabetes. In the same ten seconds another two people develop diabetes. Diabetes was responsible for 3.8 million deaths worldwide in 2007, roughly 6% of total world mortality.

There are currently an estimated 246 million people with diabetes worldwide and within 17 years this number is expected to rise to a stunning 380 million. Along with other related non-communicable diseases, diabetes is a major health challenge, particularly in the developing world; yet too little is being done to tackle it. Increasingly younger people all over the world are developing diabetes, with serious complications that can derail lives and overwhelm health care budgets.

Access to care is important—but so is awareness about prevention of diabetes and its devastating complications. People with diabetes are at great risk of developing arterial hypertension, heart attacks, blindness, limb amputations, and kidney failure. These complications of diabetes are costing people their future, but it doesn't have to be that way. It costs just USD 3 to educate a person with diabetes to take care of his feet to prevent foot ulcers—but an estimated USD 650 to amputate a limb and another USD 524 for limb prosthesis. Costs like these put people living on less than a dollar a day into lifelong indebtedness, sentencing them to a life of dependence through their inability to work and support a family.

Despite these alarming numbers and death toll, non-communicable diseases and diabetes in particular are surprisingly neglected issues on the global health agenda. They are widely neglected as development issues and underestimated as diseases with profound economic consequences. The rapidly increasing burden of these diseases is affecting poor and disadvantaged populations disproportionately, contributing to widening health gaps between and within countries.

If the high mortality and heavy burden of disease experienced by low- and middle-income countries are to be tackled comprehensively, global development initiatives must take into account the prevention and control of non-communicable diseases and diabetes in particular. Instruments such as the Millennium Development Goals and the recently adopted United Nations resolution on diabetes provide opportunities for synergy, as do mechanisms that harmonise development aid and strategies for poverty alleviation.

In 2002, only 3.5% (1.53 million USD) of the total WHO budget of USD 43.6 million was spent on non-communicable diseases.

70% of all lower limb amputations are linked to diabetes – more than 1 million are performed every year. Up to 80% of these are preventable.

World Diabetes Foundation

The World Diabetes Foundation (WDF) is dedicated to supporting prevention and treatment of diabetes in the developing world through funding sustainable projects. The Foundation creates partnerships and acts as a catalyst to help others do more.

WDF strives to educate and advocate globally in an effort to create awareness, care and relief to those impacted by diabetes. The World Diabetes Foundation has funded 144 projects to date with a total portfolio of USD 125.7 million of which USD 42.6 million are donated by the Foundation. The projects funded by the WDF will in the coming 3-4 years potentially influence the diabetes treatment, prevention and awareness efforts of 63 million people directly in the developing countries.

The World Diabetes Foundation was established as an independent trust in 2002 by Novo Nordisk A/S through a commitment of over 1.0 Billion DKK (USD 225 Million) to be allocated over 15 years. The Foundation is governed by a board of six experts in the field of diabetes, access to health, and development assistance.

For further information about our projects, partnerships and funding possibilities, please visit our website at:
www.worlddiabetesfoundation.org

WORLD DIABETES FOUNDATION

"The fight against diseases of poverty is one of this decade's undisputable achievements"

first time in a decade. In China, the number of TB cases has fallen by 1 per cent per year over the past few years.

Malaria – always hard to measure given that so few infections are treated by health workers – has shown the most exciting potential for progress. The new resources allocated (nearly 80 per cent of all international funding for malaria comes through The Global Fund) have allowed the blanket roll-out of new, effective mosquito nets and medicines. Where such roll-outs are comprehensive, such as in Ethiopia, Kenya, Ghana, Rwanda and parts of Tanzania and Mozambique, malaria deaths have been cut by half or more in one year.

This brings hope that with accelerated roll-out of such bed net campaigns and a sufficient supply of effective drugs, we can come close to meeting the target committed to in Okinawa of halving the disease burden from malaria by 2010.

As the G8 again meets in Japan, the leaders can draw satisfaction from the progress made in global health as a result of their commitments in Okinawa. The fight against diseases of poverty is a truly international partnership and its progress is one of this decade's undisputable achievements.

However, the G8 also faces some difficult challenges. A sober economic outlook makes it particularly hard for the G8 leaders to promise continued growth in development assistance. There is a distinct danger that the early successes in global health will generate complacency in the face of other pressing priorities.

There is a growing recognition that AIDS and other communicable diseases are among the most important human security challenges threatening the lives and livelihoods of individuals and communities around the world, particularly in developing countries. In addition, it has become clearer that these communicable diseases are closely interrelated with various other threats, such as poverty, hunger, inequality and violence and, therefore, require a comprehensive, integrated response.

Unless investments in AIDS, TB, malaria and immunisation are continued and even increased further, the progress made so far is certain to be lost. In most developing countries, the newly expanded AIDS treatment and prevention programmes will be dependent on continued international assistance for years. We are far from reaching all of the nearly 10 million people who need ARV treatment. Only communities where a large majority of the population uses bed nets systematically will see a sustained reduction in malaria transmission. And reduced budgets to combat TB will result in a

renewed spread of the disease, increasingly in the form of strains immune to most or all existing drugs.

Equally importantly, the success in fighting AIDS, TB, malaria and vaccine-preventable diseases has shown what it is possible to achieve when strategies are formed, investments made, and targets set. There is a rising demand to expand such investments into other areas, such as maternal and child health, neglected diseases and chronic conditions, such as diabetes, heart disease and cancer.

The challenge that faces the G8 leaders in Japan this year is to stake out a strategy for the coming years that builds on the successes and lessons learned since the Okinawa Summit in order to broaden global health investments. Other areas of health can benefit from the strategic and result-focused advances made through GAVI, The Global Fund, and others. In addition we need to take advantage of these injections of resources and energy to strengthen the health systems charged with delivering the services so that improvements in health outcomes are sustainable and all areas of health care can benefit. This is especially important in areas where disease-specific investments have led to disproportionate improvements in certain areas of care. Stories of newly painted and well-equipped AIDS clinics next to wards where children are dying for lack of basic equipment and medicines should not lead to demands for reduced investments against AIDS – rather we must see how we can expand these investments and break down barriers so that the whole health system can benefit.

Eight years ago, Japan initiated a new era in global health with its visionary leadership as G8 President. This year, we are looking to Japan to again provide leadership towards a strategy which will ensure that our world can soon be free from the heavy burden of infectious diseases that still kill millions and drain resources needed for development. Our recent progress has shown that it is possible to achieve this aim.

Winning the battle against AIDS

It's time to put poor and excluded communities in the driving-seat

For the last quarter century, citizens across the globe have been watching with frustration the failure of international initiatives, public and private funding, and government actions to put an effective stop on the impact of HIV and AIDS on the poor in general, and on women and girls in particular.

So let us put a question to all actors working in the HIV and AIDS response: how about putting women, the most vulnerable and the excluded at the forefront of your response? Here is a simple example of how to make effective use of limited resources and bring sustainable change to communities around the world.

By organising at local level and working in partnership with the leaders of poor and marginalised communities, we are using participatory strategies to build local capacity to address issues such as HIV, human rights and gender inequality. The approach is simple: a group of people is established within the community, meeting on a weekly basis to identify the main problems in their households and in their community. At he same time, they receive information about HIV, violence against women and human rights. Together, members of the group then work towards changing their conditions for the better.

The pictures here are just one illustration of what ActionAid has been doing since 2005 in 19 countries in Africa and Asia, through a programme called STAR (Societies Tackling AIDS Through Rights). With the financial support of the European Commission and building on long years of experience of building participation in the community, thousands of people in hundreds of communities have been empowered to deal with HIV and AIDS and poverty challenges, and have brought meaningful change to their own lives. In 2007, in the city of Dhaka, Bangladesh alone, 430 women and children, and, indirectly, 14,000 more people, have improved their living conditions and their ability to deal with HIV and AIDS and other threats to their well-being.

Young Girls STAR circle group in Faridpur, Bangladesh

A STAR Group meeting in Mityana, Uganda

Already in 2006, we could see Muslim women addressing the HIV and AIDS issues raised by the practice of polygamous marriage in northern Nigeria; HIV testing services being used by over 150 members of STAR groups in Uganda; the formation of women co-operatives in Sierra Leone, which then successfully lobbied local government to provide schools access to their children; STAR group members living with HIV and AIDS developing initiatives and accessing funds from the district HIV council in Mozambique; or providing counselling and care support to 141 HIV-positive and AIDS patients in Malawi; teenagers from Dhaka's slums reaching out to injecting drug users and rickshaw pullers to raise their HIV awareness; and women and teenage groups successfully negotiating with service providers improvements to sanitation conditions and electricity supply.

All this at a cost of just US$4,700 per group per year!

ActionAid therefore calls on governments, donors, the World Bank and the Global Fund to fight AIDS, Tuberculosis and Malaria, to make more efficient use of resources, and to prioritise long-term strategies which mobilise and empower communities to bring sustainable change to the lives and conditions of some of the world's most vulnerable people.

For more information about ActionAid and the STAR approach, please contact leonard.okello@actionaid.org or visit our website: www.actionaid.org

actionaid

End poverty. Together.

www.actionaid.org

A sustained commitment to social responsibility is part of Novartis' strategy and values. Last year our access-to-medicine programs reached USD 937 million in contributions, representing about 2.5% of annual net sales from continuing operations. Important Novartis initiatives are focused on neglected diseases, especially malaria, leprosy, dengue fever and treatment-resistant tuberculosis.

Malaria is a disease which is both treatable and preventable, but nevertheless causes more than a million deaths each year worldwide, of which over 75% occur in African children. In 2007, Novartis provided 66 million treatments of our anti-malaria medicine Coartem below cost in more than 40 African countries, saving an estimated 200,000 lives, a majority of which were children. Today, annual production capacity has been ramped up to enable us to deliver 100 million treatments of Coartem.

Thanks to our commitment to provide all leprosy medication for free, over 4 million patients have been treated successfully since the year 2000.

Addressing the health problems of the developing world is complex and challenging. No single player can be successful. To make a meaningful and sustainable impact, governments, international institutions, industry, and civil society must join forces. Novartis has done so with WHO, the government of Singapore and several other organizations. The positive impact of these initiatives on patients worldwide inspires us to continue to provide our knowledge and research capabilities, making contributions that probably nobody else could make.

Daniel Vasella, M.D.
Chairman and Chief Executive Officer of Novartis

“When my baby got malaria I feared the worst.”

– Anette Mukonka, Zambia

Malaria is the leading cause of childhood death in Africa. In fact, African children account for nearly 75% of the 1 million malaria deaths each year. Despite there being highly-effective malaria treatments, millions of people in need still don’t have access to them. Anette was a fortunate one. Her clinic had the medicine, and by the third day of treatment her baby was cured.

Novartis is working with governments and international agencies to ensure that millions of people can get malaria treatments when needed. To date, Novartis has provided more than 160 million treatments without profit. At Novartis, we know that a medicine can only be effective when it reaches the people who need it.

To learn more, visit **novartis.com**

NOVARTIS

Learning the lessons of the financial crisis

Action is needed on several fronts if confidence is to be restored to the world's financial markets – and firms will have to play their part

By Sir Howard Davies, Director, London School of Economics and Political Science

The financial crisis which erupted in the summer of 2007 has already claimed the lives of several financial institutions, including Bear Stearns in the US and Sachsen LB in Germany – not to mention Northern Rock, which is now on a Bank of England-backed life support system. In addition to these outright casualties, a number of major firms – Citigroup, UBS and others – are in the walking wounded category. Even more serious, the impact of the credit crunch, which has followed the bursting of the sub-prime bubble, is now making itself felt in the real economy. The US is almost certainly in recession already, and cold winds are blowing across the Atlantic.

What can be done to mitigate the impact of the crisis and begin to rebuild confidence in the financial system? At this point it is more realistic to talk of mitigation rather than prevention: it is too late for that.

For a time in the autumn of last year it seemed that the international financial architecture was simply incapable of a decisive response. Central banks in individual countries began to supply liquidity to the markets, in larger and larger amounts, and on easier and easier terms. But there was little sign of a globally co-ordinated effort. Now, following the G7 Finance Ministers, meeting in April, informed by an excellent report by the Financial Stability Forum (FSF), there is at last some evidence of leadership[1].

The last six months have highlighted the lack of a central crisis management system able to grapple with financial meltdown on a global scale. The FSF is the logical place but, as I explain in a book on global financial regulation published in May[2], it has lacked political support since it was set up, following the Asian crisis in the late 1990s. My recommendation is that it should be renamed the Financial Stability Council (not a revolutionary change in itself, but one that would usefully demonstrate its importance). And it


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should be seen by the G7 as a body which can give a lead to both regulators and central banks.

Moving to specifics, there is clearly a need for some domestic actions in the US to clean up the mortgage market and to allow sub-prime securitisations to find a stable price-level. Perhaps banks should be allowed to renegotiate the capital values of mortgages without bankruptcy and foreclosure. Perhaps a targeted interest-forgiveness programme is needed. Certainly, while these securitisations continue in free-fall it will be hard to restore confidence.

The central banks also need to clarify the terms on which they will provide liquidity assistance in the future, and to whom. The Fed stepped in controversially to facilitate the rescue of Bear Stearns. It has been criticised for doing so, but if the alternative was wholesale meltdown on Wall Street it was right to act. Other monetary authorities need to be ready to act with similar dispatch.

Banking regulators, too, have work to do, especially in liquidity oversight. As a former member of that club I hesitate to criticise, but it may be that liquidity has been neglected in recent years, and the Basel Committee has focused too much attention on constructing a new Capital Accord, named Basel 2. We now need a rapid review of whether banks have been allowed to run down their most liquid assets too far. And in the case of the investment banks we need to ask whether the scale of the leverage they have achieved in recent years is sustainable. The Federal Reserve will, in any event, need to review the regulatory framework in place for them now they have access to the discount window.

"We now need a review of whether banks have been allowed to run down their most liquid assets too far"

We need to look, too, at the incentives within the financial system, and their impact on risk-taking. It is fine to talk of the importance of strong risk management, but the poor risk manager is likely to be ineffective in controlling traders who are heavily incentivised to take more risks – especially where, if they make big profits they can earn huge bonuses, while if they lose large sums it is the shareholders who suffer. To its credit the Institute of International Finance (IIF), the principal trade association for global financial firms, has recognised the centrality of compensation policies in its own review of what needs to be done[3], though it leaves the responsibility with individual firms. We shall see how far banks pick up this challenge.

Another set of institutions which have suffered reputational damage in the crisis are the credit rating agencies. Some of the mortgage securities which are now close to worthless were the proud owners of a triple-A rating.

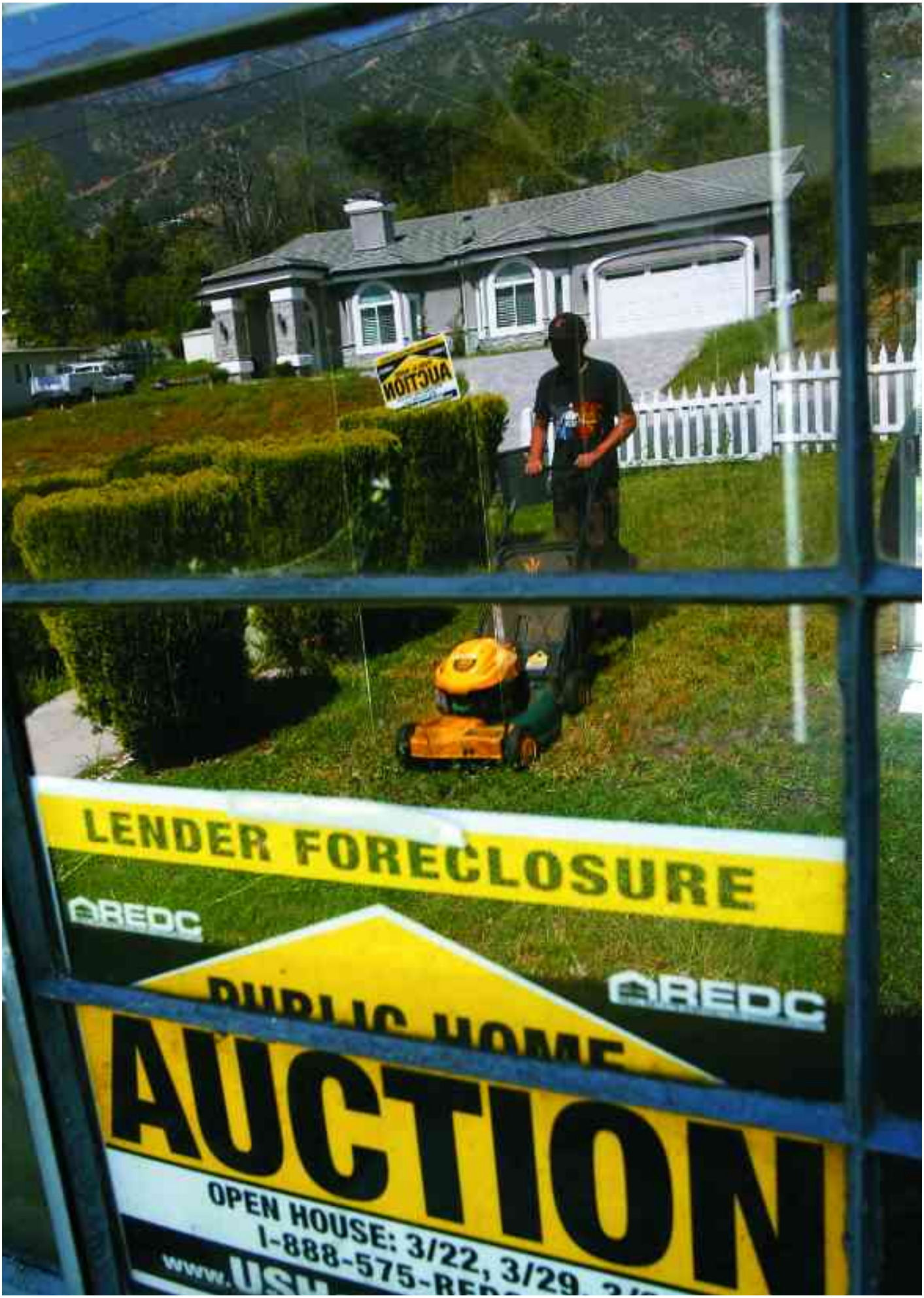
Some commentators, and indeed some academics, would be happy to see the agencies vanish into oblivion, on the grounds that they face an irreconcilable conflict of interest when they are paid by the institutions whose securities they rate. But the agencies play an important role in the markets. If they did not exist something similar would have to be invented. The key is for them to demonstrate that their rating staff are not influenced by the fees they earn. And I believe they should use a separate rating scale for securitisations, which clearly do behave quite differently from corporate bonds at times of liquidity stress.

There is also a related need for greater transparency and more informative disclosure, especially by institutions holding complex derivative portfolios, perhaps in off-balance sheet vehicles which ultimately depend on the security of the parent, and are, therefore, an economic risk for its shareholders. One reason why the liquidity crisis has been so severe, and so long-lasting, is that banks and other intermediaries have been uncertain about where the losses on sub-prime assets would eventually appear. It was a game of 'find the lady'. So, faced with great uncertainty banks began to retrench, and to reduce their exposure to all other institutions without discrimination, a clear example of circumstances in which rational behaviour by each individual firm can produce a collectively damaging outcome.

The problem was cumulated by the fact that banks have disclosed losses in a piecemeal fashion. Some marked their portfolios down sharply to get the bad news out of the way as quickly as possible, others have let the news emerge more slowly, prolonging the agony for their shareholders. And the market suspects that there are more disclosures still to come. Confidence will not return until investors, and banks, are convinced that all the hidden ladies have been found, and their vital statistics displayed for all to see.

Even if all those recommendations, and the others in the FSF and IIF reports, were to be implemented overnight, it is unlikely that there would be bonfires lit in the concrete canyons of Wall Street, or on the docksides of Canary Wharf. The liquidity and asset price bubbles which lay at the heart of the crisis last year will take some time to deflate, and it will be a while before the euphoria of 2006 returns to the markets. Indeed we should not hope for a return to those far-off heady days when risk spreads were narrower than for a generation and credit flowed as freely as red ink now does on a bank's P and L. We must hope that the painful lessons learnt over the last 12 months have a half-life longer than those which came out of the dotcom boom and bust. Unless firms themselves learn lessons, and act on them, regulators, central banks and the international financial institutions are likely to be wasting their time.

[1] *Financial Stability Forum Report to G7 Finance Ministers*, April 2008. Visit: www.fsf.org
[2] *Global Financial Regulation: the Essential Guide*, Howard Davies and David Green. Polity Press 2008.
[3] *Interim Report of the Institute of International Finance Committee on Market Best Practices*, April 2008. Visit: www.iif.com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Time for sense about risk

The world's financial markets have been casualties of a complex game of risk-taking and risk-shifting. A better understanding of the relation between risk and return is urgently needed – together with rigorous due diligence, right along the chain

By Paola Subacchi, Director, International Economic Research, Chatham House

When the sub-prime mortgage crisis erupted in the United States in August 2007, it became immediately clear that it would have an impact far larger than the actual size of the niche mortgage market where it had originated. Some months later, and after some serious troubles in many banks and financial institutions, nobody can confidently say whether the worst is over. Because of the scope and intensity of the crisis, all efforts have been concentrated on how to get out of the current mess while relatively little attention has been given to how to prevent future crises occurring. The immediate question of crisis resolution and, in the longer term, of crisis prevention are, however, related. Their connection lies in the way risk is handled, rewarded and distributed. In the current system, incentives are skewed towards encouraging risk-taking while the costs are marginal for the principal risk-takers. Crucially, there are questions to be asked about how these costs are distributed across the whole banking and financial system. These are critical issues that need to be addressed in order to avoid increasing the risk of moral hazard and, consequently, of recurring crises as we try to resolve the current one.

In the world of finance, the complex dynamics of risk-and-return force players into an intricate game of risk-taking and risk-shifting. This is because, on average, profits tend to be regular but small, while losses tend to be infrequent, but large. This is what happened in the past decade when liquidity and credit were growing rapidly – globally and locally – while risk premia in international markets remained low for an unusually long period. Financial innovation and regulatory arbitrage accelerated amid a search for yields, and rating agencies took on more entrepreneurial activities in designing new products for their customers. The result was an increase in the popularity of investment in emerging markets, alternative asset classes and complex instruments. As usual, when the cycle is upward, the playing field soon becomes very crowded. Having too many players tends to reduce profits, while it increases the amount of risk that is necessary to generate them. The only way to reduce such risk is to shift it onto another player – no-one wants to be left standing when the music stops.

"Most sensible commentators knew by early 2007 that the house of cards was going to fall"

The perversity of this game is clear. As the bubble inflates, every serious player knows that the situation is increasingly unsustainable, but no-one can afford not to be in the game when there is still scope for profits. Most sensible commentators knew by early 2007 that the house of cards was going to fall – the US housing market topped out in 2006, if not late 2005, and central banks had been warning, ever more urgently, that risk levels were flashing red alert – but no-one knew when the crash would come. And until it came, the financial markets were generating profits which no company, and certainly no CEO, could afford to leave for others: his profits would be sub-par, his share price would plummet and his career would be terminated. "As long as the music is playing, you've got to get up and dance. We're still dancing," said former Citigroup CEO Chuck Prince in July 2007.


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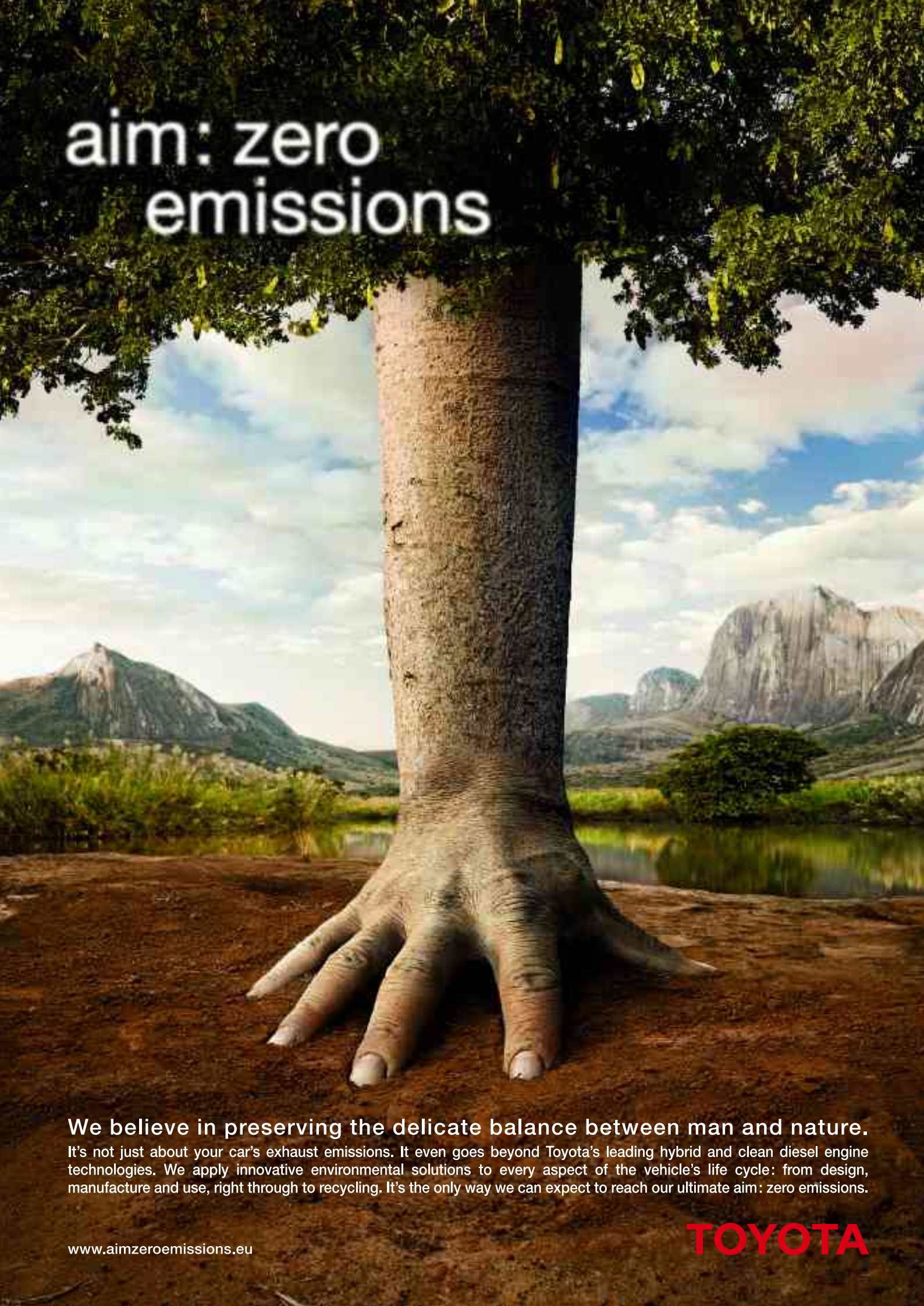

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We are now familiar with the chain of events that sparked in a niche of the US mortgage market, spread out from the US markets in mortgage-related and other complex products, and triggered a much broader 'credit crunch'. The current situation is one where credit problems, through various transmission channels, are also acting as a drag on global growth, causing the real economy itself to become a source of disruption – thereby reversing the causality chain.

Nobody knows what to expect, but it is clear that the end of the tunnel is not yet in sight. Not surprisingly, then, all eyes are on central banks, regulators and supervisory authorities. The former are supposed to provide enough liquidity to unblock the arteries of the banking system and reduce spillovers to the real economy, while the latter should monitor the system to prevent similar crises in the future. Regulators, in turn, are increasingly regarded as performing the critical tasks of setting the rules and 'guiding' the functioning of the market. In the current market they even seem to be expected to prevent investors from taking hazardous decisions.

A set of problems that is on the frontier of supervision has emerged during the backwash from US-originated problems and a global search for yield. One was a failure to think about incentives – in particular, the possible conflicts of interest for credit rating agencies, excessive reliance on bank- and market-driven ratings of risk, and executive remuneration systems too geared towards risk-taking, with little accountability. The key questions, therefore, are whether there are reasonable measures to prevent systemic crises, and to what extent these can be applied without creating scope for moral hazard.

Crisis-prevention measures should avoid the build-up of major volatility in financial markets and should include self-insurance through adequate official foreign exchange reserve levels, safer exchange regimes, greater transparency, and enforcement and monitoring of standards and codes in key areas, including supervision.

All these measures should rest on the basic principle that supervisory authorities should take more account of macro prudential risks when evaluating bank activities in order to avoid problems building up in the capital market system. This principle, however, tends to be forgotten in expansionary periods, when monetary and fiscal policy settings are easy and credit is growing rapidly.

When problems erupt in one part of the system, crisis-prevention measures should be quickly and

consistently applied to avoid contagion. These measures might take the form of emergency liquidity support to save an individual bank. They might include stretching the definition of collaterals that central banks are prepared to accept in order to supply liquidity to troubled credit institutions. Alternatively, they might be broader liquidity injections or fiscal action to avoid destabilising swings in financial markets or in savings behaviour.

Even the most effective regulatory framework, however, cannot control and restrain individual players from trying their luck by taking large but one-off risks. The case for moral hazard indeed rests on the widespread perception that the whole financial and banking system is too complex and integrated to fail. Crisis-prevention measures are driven by considerations of how to reduce spill-overs into the real economy and the costs of the crisis for a number of different constituencies – from retail investors to taxpayers. But this poses the question: to what extent should a government intervene to prevent a crisis that threatens to wipe out the savings and pensions of many individuals and families? It also poses another question: what signals does such intervention send to markets? Any crisis-preventing intervention risks being perceived by the markets as a 'macro bail-out' whatever the true intention and concerns of policy-makers may be, with the result that there may be excessive risk-taking,

"The case for moral hazard rests on the widespread perception that the whole financial and banking system is too complex and integrated to fail"

particularly when many systematically important and globally integrated institutions are in the same trade. A further complication in the current picture of integrated global financial markets is the 'globalisation' of risk. Policy-makers now have to cope with the risks of turbulence in an environment that features universal financial intermediaries, widespread interstate and cross-border banking, complex instruments, and untransparently dispersed risks.

The case for moral hazard seems to be embedded in the contradictory approach to the costs and benefits of a market-driven economy, where the political costs of market failure are far larger than the political benefits. The debate over the compensation to be offered to the shareholders of Northern Rock, the troubled British bank, is emblematic: why should the shareholders be compensated for the bank's failure? Investments carry risks as well as rewards, and investors should be ultimately responsible for their investment decisions. But should investors deserve some protection if the institutions concerned are big pensions funds representing many pensioners and savers? This is a tricky question: it involves judgements not only about what constitutes the smooth and efficient functioning of financial markets, but also about how the burden of market failure should be fairly distributed (ie, taxpayers versus shareholders).

Perhaps the solution, albeit a partial one, would be not to wait until the risk is shifted to the last link in the chain (or 'when the music stops'), but to ensure that due diligence is scrupulously applied throughout the chain, and that the whole system is based on sound incentive schemes and on a better understanding of the relation between risk-and-return. How policies are implemented is as critical as how the system is designed. Policy-makers and supervisory authorities should all aim to avoid resorting to the ultimate rescuer – central banks and other public institutions – to pick up the pieces when the system can no longer stand the stress.

Northern Rock's request for assistance to the Bank of England, in September 2007, prompted customers to queue at branches across the UK to withdraw money

Seeking a new global agenda for commodity development

The commodity sector provides the principal stimulus for economic growth and development in many developing countries, especially the Least Developed Countries (LDCs) among them. A great number of the populations in many developing countries depend for their livelihoods on the production and trade of a narrow range of primary commodities, with one or two commodities often accounting for the bulk of their foreign exchange earnings.

About 70% of those living on less than $1 a day live in rural areas and represent the target group of the Millennium Development Goals (MDGs). In many of these rural areas, commodities form the main source of economic activity and livelihood of the population. A more productive and profitable commodity sector is therefore a critical component in meeting the MDGs by 2015 in many parts of the world.

Producers in the Least Developed Countries (LDCs) of Africa and elsewhere in the developing countries receive a dismal percentage of the retail value of their commodities and remain vulnerable to the vagaries of the international commodity markets over which they have little leverage. More fundamentally, they face the persistent challenge of the secular tendency of declining and volatile prices associated with structural constraints. The international community has not given adequate support and attention to this strategic sector.

It is clear that the international community, and the G8 in particular, would need to do more collectively, at national, regional and global levels, to ensure that the commodity sector

The Common Fund for Commodities is a 106-member state international financial institution established within the framework of the United Nations. The Fund's specific mandate is to support developing countries that are commodity-dependent to improve and diversify commodities production and trade.

in developing countries becomes a dynamic factor for growth and development. Considering the clear linkage between poverty and the commodity sector, mobilising financial support for this sector would have far-reaching impact towards the achievement of the Millennium Development Goals (MDGs). The Global Initiative on Commodities, which the Common Fund for Commodities spearheads, provides a platform with key action areas for development of the commodity sector, and underlines the importance of key intervention areas including:

- Diversifying income sources to high-value and more sustainable products;
- Making smallholder farming more competitive and sustainable through technological innovation and the creation of economies of scale;
- Increasing access to core assets including land, water and human capital; and
- Improving access to financial services and reducing exposure to risk.

The importance of the critical situation in the world commodity markets was among the main concerns of the Heiligendamm G8 Summit of 2007, as mentioned in the Chair's Summary. In this regard, there is a need to strengthen the capacities of development institutions such as the Common Fund for Commodities to continue to assist commodity dependent developing countries (CDDCs) in the above areas, as well as in strengthening the marketing chain, improving market structures, broadening the export base and ensuring the effective participation of all stakeholders in the supply chain.

Amb. Ali Mchumo
Managing Director
Common Fund for Commodities
Amsterdam, The Netherlands

www.common-fund.org

Statement of G7 Finance Ministers and Central Bank Governors

Washington DC, 11 April 2008

Against a background of continuing instability in global financial markets, the G7 has set out a wide-ranging plan of action

The turmoil in global financial markets remains challenging and more protracted than we had anticipated. In the context of a weaker economic outlook, financial markets confront the interrelated issues of: re-pricing of risk and significant de-leveraging; managing counterparty risks; accommodating balance sheet adjustments; raising capital and improving the liquidity and functioning of key markets. We welcome efforts by many financial institutions to improve disclosure of exposures to structured products and related risks, and raise significant new capital.

We reaffirmed our strong commitment to continue working closely together to restore sustained growth, maintain price stability, and ensure the smooth and orderly functioning of our financial systems. We welcome the co-ordination by major central banks to address liquidity pressures in funding markets and recognise the importance of their co-ordinated actions to address disruptions in global financial markets. In particular, the recent steps taken by some central banks to expand access to central bank lending facilities and expand the range of collateral that they will accept is providing liquidity to financial institutions and helping to support improved market functioning. In addition, we welcome other measures that have been taken, including monetary and fiscal policy that aim to give support to underlying economic activity and ensure price stability. Each of us remains committed to taking action, individually and collectively, as appropriate, consistent with our respective domestic circumstances.

We reaffirm our shared interest in a strong and stable international financial system. Since our last meeting, there have been, at times, sharp fluctuations in major currencies, and we are concerned about their possible implications for economic and financial stability. We continue to monitor exchange markets closely, and co-operate as appropriate. We welcome China's decision to increase the flexibility of its currency, but in view of its rising current account surplus and domestic inflation, we encourage accelerated appreciation of its effective exchange rate.

Last autumn we tasked the Financial Stability Forum (FSF) for a report identifying the underlying causes and weaknesses in the international financial system that contributed to the financial market turmoil. We thank Mario Draghi, the chairman of the Financial Stability Forum, and FSF members, for the report that sets out detailed recommendations to enhance market and institutional resilience. We, the G7, strongly endorse the report and commit to implementing its recommendations. Rapid implementation of the FSF report will not only enhance the resilience of the global financial system for the longer term, but should also help to support confidence and improve the functioning of the markets.

The FSF report presents a specific and substantive set of recommendations across five major areas. We have identified the following recommendations among the

Group photo of G7 Finance Ministers and Central Bank Governors, Washington DC, 11 April 2008

immediate priorities for implementation within the next 100 days:

- Firms should fully and promptly disclose their risk exposures, write-downs, and fair value estimates for complex and illiquid instruments. We strongly encourage financial institutions to make robust risk disclosures in their upcoming mid-year reporting, consistent with leading disclosure practices as set out in the FSF's report.
- The International Accounting Standards Board (IASB) and other relevant standard setters should initiate urgent action to improve the accounting and disclosure standards for off-balance sheet entities and enhance its guidance on fair value accounting, particularly on valuing financial instruments in periods of stress.
- Firms should strengthen their risk management practices, supported by supervisors' oversight, including rigorous stress testing. Firms also should strengthen their capital positions as needed.
- By July 2008, the Basel Committee should issue revised liquidity risk management guidelines and International Orgaization of Securities Commissions (IOSCO) should revise its code of conduct fundamentals for credit rating agencies.

We endorse the following FSF proposals for implementation by end-2008:

- Strengthening prudential oversight of capital, liquidity, and risk management: The Basel II capital framework needs timely implementation. The Basel Committee should raise capital requirements for complex structured credit instruments and off-balance sheet vehicles, require additional stress testing, and enhance their monitoring.
- Enhancing transparency and valuation: The Basel Committee should issue further guidance to enhance the supervisory assessment of banks' valuation processes to strengthen disclosures for off-balance sheet entities, securitisation exposures, and liquidity commitments.
- Changing the role and uses of credit ratings: Investors need to improve their due diligence in the use of ratings. Credit rating agencies should take effective action (consistent with IOSCO's revised code of conduct) to address the potential for conflicts of interest in their activities, clearly differentiate the ratings for structured products, improve their disclosure of rating methodologies, and assess the quality of information provided by originators, arrangers, and issuers of structured products.
- Strengthening the authorities' responsiveness to risk: Supervisors and central banks should further strengthen co-operation and exchange of information, including the assessment of financial stability risks. It is important that an "international college of supervisors" be established for each of the largest global financial institutions. Market authorities also should act co-operatively and swiftly to investigate and penalise fraud, market abuse,and manipulation.
- Implementing robust arrangements for dealing with stress in the financial system: Central banks should be able to supply liquidity effectively during financial system stress, and authorities should review, and where necessary strengthen, their arrangements for dealing with weak and failing banks, domestically and cross-border.

We ask the FSF and its working group to monitor actively the implementation of the report's recommendations. It is important that member bodies of the FSF, including the Basel Committee, IOSCO, the IASB, and the Joint Forum, accelerate their timetables of work to conclude their efforts by end-2008 and that the recommendations of the FSF be fully and effectively implemented. We look forward to an update at the Osaka meeting in June and a comprehensive follow-up report by the FSF at our meeting in the autumn. We welcome the strengthened co-operation between the FSF and International Monetary Fund (IMF), which should enhance the early warning capabilities of key risks to financial stability.

We also welcome efforts by private-sector participants to develop proposals to contribute to a better functioning of the financial system.

The current financial market turmoil also has raised broad policy issues about the appropriate regulatory frameworks of our financial sectors. We have reaffirmed the importance of reviewing regulatory frameworks to consider whether changes are necessary to ensure that our financial systems are as efficient and stable as possible in the future.

We reaffirm the important role for the IMF in securing global financial stability. In this light we endorse the significant progress on IMF reform:

- We welcome the agreement on quota and voice reform in the IMF as an important step to recognise the greater global weight of dynamic economies, many of which are emerging markets, and increasing the voice of low-income countries.
- We reiterate the importance we place on the IMF's new framework for surveillance, including for exchange rates, and urge its firm and even-handed implementation.
- We welcome progress toward putting the IMF's finances on a more sustainable footing, including a $100 million annual reduction in administrative expenses. Ongoing budget discipline will be required. We support new sources of income, including an endowment financed by a limited sale of IMF gold.

Taken together, these important reforms will boost the IMF's legitimacy, effectiveness and credibility.

Upholding open trade and investment regimes is critical to realising global prosperity and fighting protectionism. We highlight the urgent need for a successful conclusion to the Doha Development Round. We also commend the Organisation for Economic Co-operation and Development work on open investment and the IMF's commitment to deliver a set of best practices for Sovereign Wealth Funds by the IMF Annual Meetings in October. The policy principles put forward by Abu Dhabi, Singapore and the United States should be helpful inputs into these processes.

This is a slightly shortened version of the G7 statement

Ghana: Creating a financial architecture for an emerging market economy

by Dr. Paul A. Acquah, Governor of the Bank of Ghana

Ghana's economic performance in 2007 marks the fourth consecutive year of rising GDP and strong export growth underpinned by stable macroeconomic fundamentals. An integrated policy framework has been in place since 2001 refocusing policy objectives towards maintaining macroeconomic stability and scaling up growth. Ghana has since then made a transition to a 'frontier' emerging market economy with the medium term aim to raise growth rates to 8 percent towards middle income country status. Investments are being channeled to critical growth catalytic areas such as energy, infrastructure, transportation, and information technology.

Financial sector reforms

In order to facilitate the role of the financial sector in economic growth, the Bank of Ghana has implemented widespread reforms aimed at deepening the financial system, removing deficiencies, and promoting competitiveness. The promulgation of the Bank of Ghana Act 612 (2002) was a clear watershed in this process. This provided a strong legal framework for the Bank of Ghana to refocus on its core function of promoting price stability and improving the monetary policy operations framework.

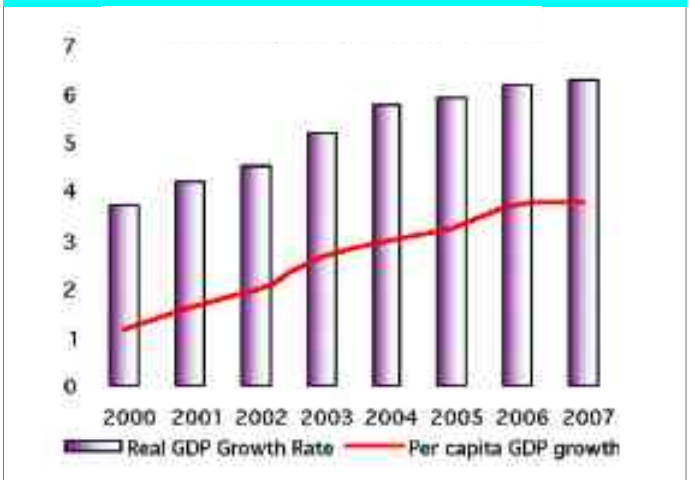
In 2003, the universal banking concept was introduced and entry liberalised, encouraging foreign banks and investors in the Ghanaian financial services industry. This has significantly increased competition in the banking industry and led to the introduction of strong business practices, new technology, new financial products, and improved risk management systems.

Further changes have been made to the legal and regulatory framework. In particular, the Banking (Amendment) Law, Act 738 which was passed in 2007 and the Foreign Exchange Act passed in 2006 provided the foundation on which to establish Ghana as an offshore financial services centre in the sub-region, to compete in the global market for savings and its allocation to investment. An International Financial Services Centre (IFSC) has been established as an important component of the financial sector development strategy.

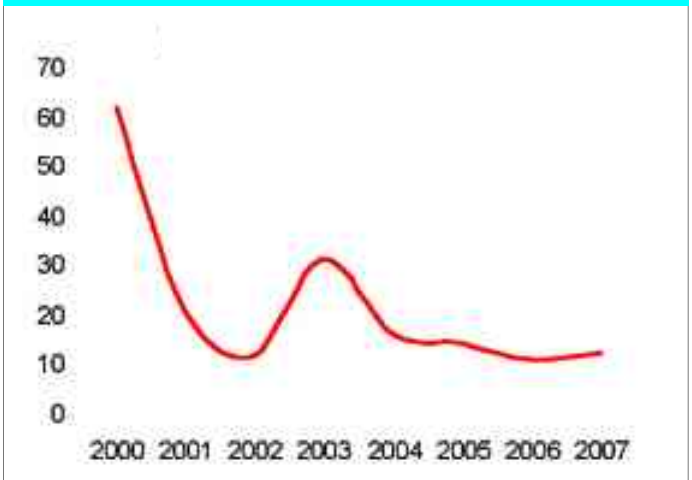
The Ghana Interbank Payment and Settlement System (GIPSS) features a state-of-the-art payments and settlement infrastructure which includes a real time gross settlement system (RTGS) as well as a central securities depository (CSD).

The Bank has also installed an electronic payment and settlement platform (e-zwich) enabling the banking system to reach the 'unbanked' and the 'under-banked' in the formal and informal sectors. The e-zwich and biometric smartcard platform is expected to serve as a vehicle to transform Ghana from a predominantly cash economy to an economy more dominated by electronic transactions. Also, the promulgation

Real GDP growth and per capita GDP
Growth rates (%) 2000 – 2007



Annual inflation
2000 – 2007



On July 1st 2007, the Bank of Ghana successfully re-denominated the entire currency base, removing the significant dead-weight burden that the old currency regime had placed on the economy.

of a Credit Reporting Act, 2007 (Act 726) and the licensing of Credit Reference Bureaus is expected to enhance the assessment and pricing of risks.

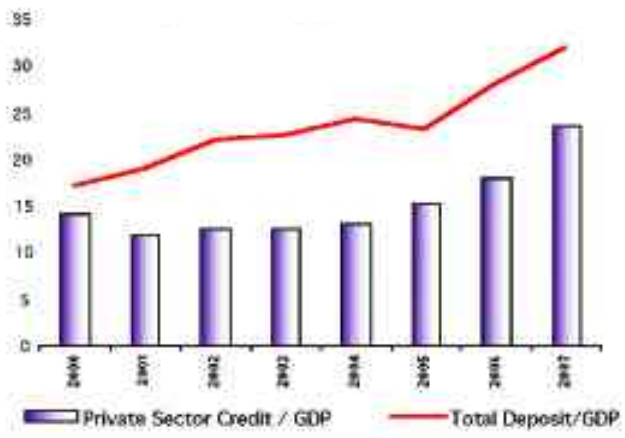
Recent policy achievements

On July 1st 2007, the Bank of Ghana successfully re-denominated the entire currency base, removing the significant dead-weight burden that the old currency regime had placed on the economy. This has resulted in significant efficiency gains in the economy. Another financial milestone was the successful entry of Ghana into the Euro bond markets with the issue of $750 million in sovereign bonds that was twice over-subscribed, with proceeds mostly to finance specific energy and road projects. Ghana has a sovereign rating of B+ by both Standard and Poors (stable) and Fitch (positive).

Outlook for the future

Government is pursuing further development of the financial architecture in line with Ghana's middle income goals. The Financial Sector Strategic Plan (FINSSP) is being reviewed to identify the next generation of reforms for the next five years. A key component of the reforms is the development of a strong and efficient domestic capital market. We envision a financial sector that is effectively integrated with strong individual component institutions, efficient, innovative, and one that can lead the growth process to Ghana's middle income goals.

Private sector credit/GDP (%) and total deposit/GDP (%)
2000 – 2007



GSE All-Share Index and Market Capitalisation

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Common problems demand common solutions

Greener growth, trust in sovereign wealth funds, open trade and lower food prices all require policy convergence and concerted action by and between developed and developing economies

By Angel Gurría, Secretary-General, OECD

These are complex times. Fallout from financial market turmoil, the sub-prime debacle and high commodity prices have led us to revise down our growth forecasts since last year. Energy and food prices have soared, stoking inflationary pressures. Unemployment is rising in several countries, and world trade growth is slowing.

It is precisely at such moments that governments must keep their heads and stay focused on the fundamentals. Indeed, strengthening the world economy is vital, and forceful action by governments and central banks has started to restore confidence among market participants.

The most challenging issue that concerns the future of us all is climate change. It is a problem that confronts us with the fierce urgency of 'now', which is why we chose the economics of climate change as the main theme of this year's Organisation for Economic Co-operation and Development (OECD) Ministerial Council Meeting and Forum at the start of June. I am delighted to see that Prime Minister Fukuda of Japan has also placed climate change high on the agenda for the G8 Summit in Toyako Hokkaido in July.

The OECD has been dealing with climate change for over two decades and is well placed to contribute to producing a sound economic foundation for the post-Kyoto architecture. The 2008 OECD Environmental Outlook issued in March delivered a strong, positive message, which member countries have echoed: with new policies we can overcome climate change, while maintaining economic competitiveness. The OECD is helping to build consensus on the key questions, such as the costs of action and inaction, and to design policies for promoting innovation, clean technologies in energy and transport, and actions for developing countries. OECD ministers must seize that common ground now, by making greater use of economic instruments, including putting a price on carbon, to spur efficient, low-carbon growth.

The figures are compelling. Our experts believe that if we can live with a 98 per cent increase in global GDP from now to 2030, instead of 99 per cent in our 'business as usual' baseline scenario, the improvements in air and water quality would be considerable. Foregoing that single percentage point would bring us some way towards reducing greenhouse gas emissions. A percentage point over a quarter century is not a high price to pay. Not cheap, but affordable.

Our message is simple: with the size of the world economy expected to double by 2030, we must act now to move to a low-carbon, greener growth path. New investments in energy infrastructures are set to take place in emerging and developed countries over the next

"Sovereign wealth funds could become a formidable force for development"

decade. By acting today, we can ensure that these projects lock in the right fuel, technology and efficiency standards. A rare window of opportunity is now open and we must use it to avoid costlier investments later on.

Economic instruments, including emissions trading and taxes, are needed to help put a price on carbon and lower the cost of action, and must be given more space in the policy mix. But climate change is not the only problem. Humanity's ecological footprint is expanding at an unsustainable rate, threatening biodiversity and the fragile resources on which we depend, including air and drinking water. Market-based instruments can help address these issues.

Restructuring the global economy along low-carbon, sustainable lines will require concerted policy action and leadership. It will require the engagement of all actors and the inclusion of all sectors, and more co-operation among different ministries and stakeholders from business, labour and civil society.

Another global challenge we are addressing at the OECD concerns the emergence of sovereign wealth funds (SWFs). Their size, growth and the fact that they are owned by governments have raised eyebrows about whether these funds' decisions could be politically motivated or target security-sensitive assets.

The OECD has been responding to requests from the G7 finance ministers to devise guidelines and best practices for recipient country policies towards these funds, complementing International Monetary Fund (IMF) work on the funds themselves. We have discussed the issue with OECD and non-OECD countries, social partners, and SWFs too. OECD countries already have longstanding rules on investment and see no need for new legally-binding codes on SWFs. Instead, governments must keep investment regimes open and fair, and restore trust between SWFs and recipient countries. After all, these funds have a good track record as long-term investors and could also become a formidable force for development.

This raises another vital issue that world leaders must address, because once again the world's poor are suffering – this time from higher food prices. This impacts the economies of all countries, but high prices punish the urban poor and major food importing countries in particular, not least in Africa. Many factors can explain higher food prices, from bad harvests and rising demand to competition from biofuels and speculation.

Humanitarian aid will be needed, but one thing is certain: trade protectionism will not bring food prices back down. Open trade can, however, and more trade is therefore vital to meet the Millennium Development Goals. Members must redouble their efforts to bring the

Doha Development Round of trade talks to a successful close. We calculate that a 50 per cent reduction in tariffs and other trade-distorting support would generate over $40 billion in global welfare gains, which would benefit developing countries in particular.

This year is one for the OECD as we deepen ongoing reforms to boost our responsiveness and impact in the interests of our member countries. We are on our way to becoming a more open, representative and relevant organisation, and a hub for discussion on global issues. This demands action on many fronts, from investing in the quality of our work, to building strategic alliances with other organisations and strengthening communications at every level.

At the 2008 OECD Ministerial Council Meeting in June, we welcomed five candidates for OECD membership – Chile, Estonia, Israel, Slovenia and Russia – to the meeting for the first time. We also welcomed Brazil, China, India, Indonesia and South Africa as partners in the organisation's Enhanced Engagement programme. This historical 'opening' is giving the OECD new weight and significance in global affairs.

Our work with the G8 has progressed since the OECD attended the Heiligendamm Summit in Germany in 2007, while our increasingly relevant, more influential OECD is also reflected in closer relations with developing countries and our stronger collaboration with other international organisations, such as the World Bank, the World Trade Organization, the United Nations Development Programme and the regional development banks. Indeed, the OECD is gradually becoming a forum for policy convergence between developed and developing economies.

Globalisation has brought great benefits, but there will always be fresh challenges ahead, in areas such as inequality, migration, poverty, governance and healthcare, and from resource scarcity problems, notably freshwater. Dealing with these issues demands a focused response and a strong global engagement by all players. I am convinced that with the right policies, experience and resolve, we can address the challenges with confidence and build a brighter future for all.

Please visit: www.oecd.org/secretarygeneral and www.oecdobserver.org/angelgurria

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Boosting the global economy

Clinching the Doha trade round, enhancing freedom of investment, action against intellectual property theft and leadership on energy supply and climate change should top the agenda at Hokkaido Toyako

By Guy Sebban, Secretary General, International Chamber of Commerce

The economic backdrop to this year's G8 Summit at Hokkaido Toyako, Japan could not be more different to how it was just a year ago. This year's Summit sees the G8 leaders faced with some heightened challenges as the result of soaring food prices, turmoil in financial markets, rising protectionism affecting both cross-border trade and foreign investment, and the growing threat posed by piracy and counterfeiting.

To meet these challenges, as well as the opportunities brought on by globalisation, a renewed commitment to a fresh agenda of multilateral co-operation is needed.

The International Chamber of Commerce (ICC), as a representative body that speaks with authority on behalf of hundreds of thousands of enterprises from all sectors in every part of the world, has identified four key issues we believe are in need of immediate attention by G8 leaders. ICC, through decades of close co-operation with the G8 and intergovernmental institutions, has acquired considerable expertise in developing voluntary rules that govern the conduct of business across borders, and in shaping a world business consensus on major international policy questions. ICC urges G8 leaders to devote their attention to the following agenda of key issues for business globally.

The current world economic climate makes it all the more urgent to complete the Doha Round of multilateral trade negotiations before the year ends. We call on the leaders of the G8 to devote their personal attention to this objective and to launch an intense diplomatic effort among themselves and with other world leaders to conclude the Round. Considerable progress has been made during the negotiations and there are many hard-won, trade-enhancing offers already on the table. These must not be lost. What has been missing to date has been decisive leadership, in deeds as well as words, from the highest political level. High-end political support is required to make the compromises and break the logjams that bedevil the negotiations in some prominent and politically sensitive areas. A successful outcome of the Doha negotiations is essential to safeguard the achievements of multilateral trade liberalisation, which has raised living standards, created jobs and widened consumer choice around the globe for the past 20 years.

Like cross-border trade, cross-border investment is also crucial to the goal of spreading the benefits of globalisation.

Another form of protectionism has recently begun to emerge in the global economy: investment protectionism. Governments are introducing, or threatening to introduce, measures to block the flow of cross-border investment, increasingly under the guise of protecting so-called strategic sectors in the interest of preserving national security.

In this regard, G8 countries can serve as models to the rest of the world in regulating cross-border investment without hampering the flow of these investments or cancelling out the benefits brought to home and host countries. This can be achieved by applying the principles of non-discrimination, transparency, predictability and accountability, and by increasing multilateral co-operation in intergovernmental bodies and with the private sector.

These principles must also be applied to the treatment of investments by governments made through sovereign wealth funds (SWFs). ICC is contributing to the intergovernmental dialogue to

develop international best practices on SWFs, and recommends these funds follow these guidelines:

- public disclosure of fiscal treatment, governance structure and investment strategy;
- basing of investment decisions solely on commercial grounds; and
- contribution to ongoing intergovernmental efforts to develop best practices for SWFs.

Counterfeiting and piracy have become a global epidemic. In one country after another, running in parallel with the lawful economy is a black economy based on the disregard for laws and regulations. Governments must take bold action to curb this illegal activity. Intellectual property (IP) is a vital element in encouraging research and innovation, international trade and investment, and sound economic growth and development.

IP theft should be considered no less a crime than the theft of physical property. Strong sanctions that serve as real deterrents to IP crime must not only be introduced, but also effectively enforced.

Business also has a leading role to play in the fight against counterfeiting and piracy. In 1994, ICC launched Business Action to Stop Counterfeiting and Piracy (BASCAP). BASCAP serves as a forum for businesses in all sectors and from all regions to work together to raise public and government awareness of the associated

"Business has a leading role to play in the fight against counterfeiting and piracy"

economic and social harm of counterfeiting and piracy. BASCAP has forged close working relationships with several intergovernmental bodies, including Interpol, the World Intellectual Property Organization and the World Customs Organization.

ICC calls upon G8 countries to exhibit world leadership on IP protection by promoting global minimum standards in key areas of enforcement. ICC applauds the prominent role the G8 has played to launch negotiations for an Anti-Counterfeiting Trade Agreement aimed at establishing strong common standards for IP rights enforcement in their countries. This effort encourages major improvements in national enforcement across the world. We would, however, like to encourage G8 governments to work towards the prohibition of trans-shipment of counterfeits through free-trade zones. In conjunction with international organisations, such as the World Customs Organization, the G8 must take steps to improve the legal framework to curb illegal counterfeiting and piracy in these zones.

The challenge of climate change is already high on this year's G8 agenda. Finding ways to meet the world's growing appetite for energy, key to raising living standards, while also taking effective measures to reduce the harmful impact of greenhouse gas emissions are vital objectives, which should be furthered at the Summit. Business is contributing to the process launched during the United Nations Framework Convention on Climate Change meeting last December, the Bali Action Plan, aimed at negotiating a new international pact on climate change by the end of next year.

ICC would like to point out to the G8 that any workable global framework must take into account some key issues, including:

- advancing cleaner development alongside other priorities, such as eradicating poverty;
- promoting global participation by all nations and key stakeholders;
- encouraging mitigation and adaptation through incentives and market-oriented initiatives;
- where appropriate, fostering continued development of an international sectoral approach;
- developing incentives for efficient energy use and reducing emissions;
- stimulating research and development in low-emissions technologies; and
- involving business in the dialogue on technology co-operation.

ICC is worried by the growing interest in some G8 countries in the use of unilateral trade sanctions to deal with competitiveness concerns provoked by differences in national climate change policies throughout the world. We do not believe that such an approach would improve the long-term competitiveness of business in countries resorting to such measures. Surely, it would risk becoming another pretext for protectionism and would further threaten the system of multilateral rules that are most conducive to the rapid dissemination across the globe of climate-friendly services and technologies.

Governments should, rather, focus on the key goal of assuring the mutually-reinforcing benefits of successfully completing the Doha Round and achieving intergovernmental agreement on a new long-term global framework for combating climate change effectively and efficiently. They should not allow themselves to be side-tracked in this momentous task by the blind alley of border measures that damage international trade.

World business stands ready to assist the G8 and governments the world over to develop effective trade rules, and to elaborate and implement practical programmes to tackle counterfeiting and piracy.

If ever there was a moment to act decisively, this is the year.

2007 **$123.3m**

Private Placement
AIM IPO
Nomad & Broker

Europe

2006 **$65.2m**

AIM Dual Listing
Nomad & Broker

Australasia

2007 **$170.0m**

Sale to Viridor
Financial Adviser

Europe

2005/08 **$31.7m**

AIM IPO & Placings
Nomad & Broker

Americas

Libertas Capital

2007 **$8.2m**

Private Placement
Financial Adviser & Broker

Australasia

2007 **$101.0m**

Reverse Takeover
Nomad & Broker

Europe

2004/05 **$28.6m**

AIM Admission & Placing
Acquisition of Dachland
Financial Adviser

Americas

2007 **$39.7m**

AIM IPO
Nomad & Broker

Australasia

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Aid for Trade: why G8 leaders must keep their promises

Real help for developing countries means not only an ambitious outcome to the World Trade Organization's Doha Round, but a major boost to their capacity to trade

By Pascal Lamy, Director-General, World Trade Organization

The World Trade Organization (WTO) is about creating opportunities. Reducing trade distortions and minimising barriers to trade can open doors to commercial prosperity that previously may have been closed.

The Doha Development Round of global trade negotiations offers us a rare chance substantially to open markets around the world and across the spectrum of goods, services and agriculture products. As its name suggests, the Doha Development Round has been specifically structured to ensure that a significant portion of those opportunities accrue to developing countries.

In recent years we have seen irrefutable evidence that trade can be a powerful tool for development and poverty alleviation. Exports from developing countries rose 16 per cent in 2007 to $5 trillion and these countries' share of global trade reached an all-time record last year of 34 per cent. In China, exports have risen by an astounding 25 per cent annually from 2000 to 2007.

Since the creation of the WTO in 1995, China's share of world trade has risen from 2.8 per cent to 11.8 per cent. India's services exports have risen from $6 billion to $86 billion and its share of global services trade has more than quintupled over the same period. And Brazil's farm exports have nearly tripled to more than $40 billion.

It's no coincidence that during this same period of time, hundreds of millions of people have been lifted

from poverty. Export-driven growth, and greater openness to goods, services and investment, have led to wide-scale transfer of technology, greater innovation and a rapidly expanding base of middle-class consumers. These are the success stories and there are many others like this – Malaysia, Thailand, Chile, Botswana, to name but a few.

But the trade-driven model for growth and development has not worked everywhere. In many parts of the world, particularly the 50 least-developed countries, trade has not provided the benefits that it has elsewhere. This is due primarily to the fact that these countries often lack the infrastructure and institutional capacity to trade effectively. Such a lack of capacity manifests itself in many ways: uncompetitive production facilities; inadequate infrastructure; inability to meet technical standards; and insufficient training and technical assistance for trade officials.

"Inadequate roads, rail lines and ports prevent agriculture producers in the developing world from delivering their products to market"

At a time when record food prices and frequent shortages lead many parents in the developing world to wonder if they can provide the next meal for their families, enhanced trade capacity is more urgent than ever. Too often, inadequate roads, rail lines and ports prevent agriculture producers in the developing world from delivering their products to market. Too often, producers lack the necessary knowledge to assist them in deciding on crop diversification, pricing and optimum sales markets. Bringing more producers into the local and global markets can redress some of the market shortcomings that have led to the current crisis.

Underdeveloped roads, ports, railways and telecoms systems make trade an expensive and often fruitless venture. Potentially competitive exporters can be priced out of markets thanks to high freight costs or burdensome customs practices. As a percentage of total import value, freight costs in developing countries average 9 per cent, compared with 5 per cent in developed countries. In East Africa it costs $2,500 to import one container, five times the cost in Singapore. Delays at customs average more than 12 days in Sub-Saharan Africa.

Many producers of horticulture and fruit and vegetables have found they cannot export to rich country markets because they cannot meet minimum pesticide residues in those markets. Others have found their fish products exports stymied because they couldn't achieve the necessary health standards. Officials in many developing countries are not aware how the multilateral trade and development rules can help them to shape policy so that it delivers more for their citizens. Government officials in communities dependent on a limited number of commodities may not be aware of the best methods for diversifying production and export practices in order to take advantage of changing market conditions and consumer tastes.

Governments have recognised that unless we address this capacity shortcoming, the world's poorest countries will not reap the benefits of a Round that holds so much potential for them. At the WTO's 2005 Hong Kong Ministerial Conference, Ministers asked the WTO to help assist developing countries, especially the least developed, build the trade capacity they need to take advantage of trade opening. They did this in the belief that this could contribute to achieving their development goals.

Rich country governments pledged in Hong Kong significantly to increase by 2010 their Aid for Trade contributions. According to data from the Organisation for Economic Co-operation and Development (OECD), bilateral and multilateral Aid for Trade commitments in 2005 came to $22 billion, or a 22 per cent increase over 2002. But this represents a decline in the share of Aid for Trade in percentage terms. In 2002, Aid for Trade came to 35 per cent of overall official development, but that figure had fallen to 32 per cent three years later. In Hong Kong, members pledged an additional $15 billion in Aid for Trade contributions. As the G8 leaders meet in Hokkaido, they must remember that increasing their contribution to Aid for Trade is crucial to make sure that trade translates into growth and poverty alleviation.

What we quickly came to understand was that tracking Aid for Trade commitments and disbursements was no easy undertaking. Defining what constituted Aid for Trade programmes and outlays was a big part of the challenge. In 2007, I outlined a plan for mobilising and monitoring Aid for Trade. This plan was based on the collective efforts of a task force of WTO members and multilateral donors. It involved global tracking of financial flows, self-assessments by partner and donor countries, three high-level regional meetings in Manila, Lima and Dar es Salaam, and a series of periodic reviews in the WTO Committee on Trade and Development. These various threads would be woven together in a global Aid for Trade review and debate in the General Council.

The WTO has worked in close co-operation with international organisations such as the World Bank, the IMF, regional developments banks, the OECD, and the United Nations Conference on Trade and Development, to name but a few, as well as with bilateral donors. This is a clear example of how the international community, when acting together, can deliver in a coherent manner.

What emerged from these meetings and numerous consultations and brainstorming sessions was a focused agenda for 2008. The monitoring mechanism we have established provides – thanks in large part to our constructive partnership with the OECD – a sound foundation for future work. In 2008, we will shift the

emphasis from monitoring to implementation and look closely at national, regional and sector priorities. Our aim is to showcase how Aid for Trade strategies are progressing and to provide incentives for others to follow these good examples. We will need, as well, to develop performance indicators to identify precisely which strategies work – and which do not. We must measure Aid for Trade flows, but also the impact of these programmes on development.

There is already evidence that partner countries have tightened their focus and are mobilising resources through the Aid for Trade initiative. Over the course of this year we will build on this by focusing on specific countries and regions. We will be results-oriented, aiming to advance national and sub-regional plans.

Lastly, it will be essential that developing countries themselves are actively and directly involved in participating in this programme. Developing countries must feel a sense of ownership over this process and work to tailor it to fit individual circumstances and needs. They need to mainstream trade into their development strategies. The evidence to date is impressive on this front, but we can only be certain when we see the results.

Too often in the past, development assistance programmes have not delivered for recipients or for donors. We have learned from the mistakes of the past and have worked carefully with all partners involved to lay the foundation for a programme with specific achievable objectives, a clear roadmap and a process of monitoring and follow-up which should ensure that every development yen, euro or dollar we spend represents a sound investment in the future.

"Developing countries need to mainstream trade into their development strategies"

The Doha Development Round is an unprecedented recognition by all WTO members that the global trading system was not adequately serving the needs of those countries which so desperately need it. An ambitious and development-oriented outcome to the Doha round, one which promises real opportunities for poverty alleviation in the developing world, is now within our grasp.

If these opportunities are to be seized, donor governments must follow through on their financial commitments, recipient countries must participate actively in the design and implementation of capacity enhancement programmes, and international organisations must provide the co-ordination and leadership needed to make Aid for Trade successful.

Designing and making operational effective Aid for Trade programmes is a challenge for us all. But if we are really serious about making trade work for the poor of the world, it is a challenge we must meet. I hope G8 leaders keep their promises.

Dock workers load cacao beans in the port of San Pedro, Ivory Coast. Poor transport infrastructure often hampers delivery of products to market

Global trade growth accelerates logistics infrastructure development in emerging markets

By Jeffrey H. Schwartz, Chairman and Chief Executive Officer of ProLogis

The 32 kilometer long East Sea Bridge has been built to connect the Yangshan deep-water port with the Lingang Logistic Park.

It is a well known fact that globalisation and free trade have had a dramatic impact on the world's economic landscape. Today products may be designed in California, manufactured in China, consumed in Canada and serviced in India. Perhaps less well understood is how early investment in logistics infrastructure – i.e. industrial distribution space – not only supports growth in global trade but can accelerate industry and infrastructure development in emerging markets overall.

Industrial distribution centres are fundamental to global trade. They serve as a crucial link in the modern supply chain, ensuring the accurate and seamless flow of goods from the point of manufacture to their ultimate destination in consumers' hands. And, as global trade continues to grow – currently faster than growth in global GDP – more and more companies and supply chain participants are demanding flexibility through scale and broad geographic coverage.

As globalisation and free trade continue to expand we are confronted with the classic 'chicken or egg' dilemma: On one hand, underdeveloped countries need manufacturers, retailers and distributors to establish operations and bring the commerce, taxes and capital to support the development of roads, rail and seaports. On the other, companies with warehousing requirements need a modern logistics infrastructure to support the flow of goods – and may refrain from investing in an emerging market until one is in place.

The bottom line? You can't have growth in trade without an appropriate logistics infrastructure. By investing in this early, companies and countries alike will achieve greater results – faster.

Opportunities in emerging markets

Companies face many potential risks when entering a new market: lack of familiarity, insufficient knowledge about the existing real estate markets and underdeveloped infrastructure.

My company, ProLogis, has substantial experience as a 'first-mover'. Our strategy for growing the business has long been focused on facilitating our own customers' global expansion plans – no matter where they desire to be. We believe our success correlates to this unique approach, which includes hiring local talent to run the business and developing the necessary logistics infrastructure, because it mitigates risk for our customers. Currently, we are the world's largest provider of industrial distribution space, with over 526 million square feet in 121 markets across Asia, Europe and North America.

The Yangshan Deepwater Port in Lingang near Shanghai, China, is a prime example of how early investment in logistics infrastructure can benefit the community as well as the bottom line. The port complex, which officially opened in December of 2005, is located on

a series of islands in the East China Sea and is connected to the mainland by a 32 kilometer sea bridge. The port is expected to be the world's largest, with a total capacity of more than 25 million TEUs (twenty-foot equivalent units) at full build-out.

ProLogis, realising the development potential at the port and clear lack of modern logistics product in the market, sought out a joint venture partner to accomplish its business objectives. The company worked with a governmental agency in China responsible for redeveloping the land near what would eventually become the mainland base of the bridge to the port. Leveraging ProLogis' development expertise and the Chinese entity's existing relationships, the joint venture was able to secure exclusive rights to provide distribution facilities at this important deepwater port complex.

Today, ProLogis Park Lingang comprises over 1.6 million square feet of warehouse space that is leased to multinational companies including DHL, UPS, Schenker and Kuehne + Nagel. The park, which in time will comprise up to 10 million square feet of space, employs more than 300 people and will add another 1000 jobs once it is completed.

Demand for ProLogis' modern facilities at ProLogis Park Lingang has been nothing short of phenomenal and has even set a precedent for the quality of warehouse development throughout China. In addition, the company's involvement at the port has helped to generate new development agreements with local and multinational customers in other markets – further supporting industry and infrastructure growth. In less than four years, ProLogis has established itself as the largest private industrial real estate provider in the country.

Sustainable development – the next frontier

Early investment in logistics infrastructure is not easy. It requires raising capital, acquiring land in the right locations, obtaining entitlements for projects, and of course, finding customers to occupy the newly constructed buildings. In a future of more stringent environmental standards, companies will also need to have a core competency in sustainable development in order to succeed.

ProLogis is committed to becoming the global leader in sustainable warehouse design and construction. We are finding more and more global customers have their own sustainability platforms and desire buildings that satisfy these interests. Fortunately, we have established what we believe is a core competency in this area, developing facilities with recycled materials, energy-efficient lighting, solar and wind power, low-usage water and landscaping systems, airtight construction and other environmentally friendly features and technologies.

Additionally, ProLogis has established industry-leading partnerships with green building organisations around the globe, certifying and rating facilities where possible. The company was the first U.S. real estate developer to issue a sustainability report certified by the Global Reporting Initiative; the first to join the Chicago Climate Exchange, a voluntary greenhouse gas emissions reduction and carbon credit trading programme; and have pledged to be carbon neutral in our business operations through 2010.

The ProLogis Park Lingang located in the Shanghai Lingang Logistic Park

An aerial view of the ProLogis Park Lingang.

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Food supply: planning must start now

Amid increasing signs that the era of cheap food is over, the international community urgently needs a strategy for long-term food security – while avoiding short-term measures that could make shortages worse

By Kemal Dervis, Administrator, United Nations Development Programme and Chair of the United Nations Development Group

The steep rise in food and energy prices has become detrimental to many countries, threatening to thwart their development and to erase years of careful progress.

Troubling signs of social unrest in the form of riots have already occurred in Burkina Faso, Cameroon, Egypt, Guinea, Haiti, Mauritania, Mexico, Morocco, Nepal, Niger, Mozambique, Senegal, Uzbekistan and Yemen. In some cases, these riots have turned violent and even fatal. Just past the mid-point in the global effort to achieve the Millennium Development Goals by 2015, our sense of urgency to meet them, especially the first goal of eradicating global poverty and hunger, is only heightened by the recent and dramatic spike in food prices and its consequences.

To get a clear idea of the challenge, it is instructive to examine this new reality. In some of the poorest countries, food can constitute 80 per cent of consumer spending. Individuals sometimes spend more than a quarter of their income on bread alone before they pay for other essential foods, and before basic health care, education and shelter. Rising prices often mean fewer meals for people who are already malnourished. If left unchecked, food inflation could push an additional 100 million people into poverty.

In an effort to keep prices low and ensure adequate access to food for their populations, many governments have so far responded by putting in place domestic food price controls, export restrictions, reduced import tariffs and safety nets, such as cash for work schemes. Unfortunately, some of these policies may actually end up making the situation worse for everyone. Keeping prices for producers artificially low prevents the necessary supply and productivity increases needed to maintain long-term food security. Export restrictions decrease the supply to international markets, thereby increasing prices in many countries and aggravating the global situation.

While the international community and the countries affected are eager to respond to this crisis, it is also important that any action taken creates long-term solutions for those affected, so that similar situations can be avoided in the future. Doing so will require a co-ordinated global effort by international organisations on several fronts.

"If left unchecked, food inflation could push an additional 100 million people into poverty"

Typically, 60 to 80 per cent of the population of the least developed countries (LDCs) depend on land and agriculture for their livelihoods, though support for agricultural development usually receives a much smaller share of government or donor resources. National spending on agriculture in the LDCs is typically between 2 and 8 per cent of government income. Investment by donors in agriculture has been steadily decreasing since the mid-1980s, and only very recently has this trend shown any signs of reversing. Improved agriculture in Africa, and elsewhere, depends upon the development of appropriate technology – which requires a significant increase in investment. For their part, donor governments should boost their support for agricultural research and development, while African governments should heed the call of the Maputo Declaration to allocate at least 10 per cent of national budgetary resources to agriculture and rural development.

Innovative ideas such as the 'New Rice for Africa' initiative should be encouraged. With support from United Nations Development Programme (UNDP) and

A woman prepares mud cakes on a street in the Cite-Soleil slum of the Haitian capital Port-au-Prince. Rising prices and food shortages leave the poorest in society no choice but to eat the mud cakes, made from salt and vegetable shortening

Japan, the African Rice Centre created a crossbreed of Asian and African rice varieties that combines the resilience of West African rice and the high productivity traits of Asian rice. This new rice can yield up to 200 per cent larger crops and is expected to generate rice import savings of several million US dollars per year in the seven countries where it is being piloted.

All countries should consider their current market structure and ensure competitive behaviour. There will be an increased need for food subsidies in the short and medium term, but these will have to be targeted, leading to serious administrative challenges that must be overcome. Fiscal policies that boost services and public investment in the agricultural sector could go a long way towards increasing productivity. By combining stepped-up production with improved terms of trade for agricultural products, millions of poor farmers could increase their supply and generate more income. This is a good recipe for reducing poverty and income disparities. At the same time, improving food distribution networks, including investments in road infrastructure, is critical. Too often the problem is not a shortage of food, but one of access.

"The crossbreed of Asian and African rice varieties can yield up to 200 per cent larger crops"

The international community has created a dependence on food aid to respond to food shortages, rather than contributing funding for long-term measures to reduce the risks of these shortages. While food prices will eventually decrease below current levels, there is no reason to believe they will return to their original levels, given the increase in demand, in part, the result of changing consumption patterns in countries with growing economies. As many commentators have already pointed out, the current crisis is a warning that the era of cheap food is probably over. While there has always been a valid need for food aid in emergency situations, there now also needs to be a real debate on how to use aid to reduce the need for relief in the future, given the new realities.

Of the millions of people who suffer from hunger in the world, relatively few of them suffer from short-term acute famine. Most hunger affects millions who are under-nourished, even in countries where food appears to be abundant. This is caused by many factors, including people not being able to afford food; ill-health that reduces the body's ability to consume food; poor maternal health that affects breast feeding; poor knowledge of nutrition; and discrimination against girls and women. Currently, different organisations support governments in responding to each of these complex challenges. But the global response could be more effective if such efforts were more closely co-ordinated.

To this end, a collective, coherent and co-ordinated partnership with the UN family, donors and countries involved is key. Secretary-General Ban Ki-moon has already created a task force comprising experts and leading policy authorities to tackle this crisis. By working together with the World Bank and the International Monetary Fund, and building on the efforts already underway by the Food and Agricultural Organization, the World Food Programme, and many other UN agencies such as UNDP, the International Fund for Agricultural Development and UNICEF, the international community can effectively tackle this issue and create the long-term policies necessary to ensure that the poor are better protected against such crises in the future. Better co-ordination between countries and international organisations would have reduced the shock we are experiencing now.

"Relatively few people suffer from short-term acute famine. Most hunger affects millions who are under-nourished"

Without strengthened policies to deal with food inflation, years of careful progress in some of the poorest countries in the world will be wiped out. The international community must work together to ensure that a new generation of individuals is not consigned to malnourishment and hunger – and, inevitably, severe poverty.

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Successful reconstruction is an essential part of avoiding future conflict

Building peace

Post-conflict reconstruction requires an integrated strategy based on security, political institutions, economic renewal, transitional justice, popular participation and attention to the wider region

By Donald Steinberg, Deputy President, International Crisis Group

The sweep of natural and man-made disasters and crises demanding the world's attention makes a mockery of attempts by policy-makers to separate the essential from the urgent, to engage in long-term strategic planning, or even to maintain a well-ordered in-box. Cyclones in Myanmar, earthquakes in China, and floods in Bangladesh too often settle for their 15 minutes of fame in competition with political and economic crises in Afghanistan, Colombia, East Timor, Kenya, Somalia, Zimbabwe and dozens of other situations that should benefit from long-term and sustained international commitment. Enormous issues such as climate change, energy security, poverty, rising food prices, women's empowerment, and HIV/AIDS must also make their cases for policy-makers' time and governments' resources.

In this context, the traditional dividing line between issues of hard national security and promotion of international and national interests becomes blurred. Crises no longer remain in their separate and distinct boxes any more than they respect national borders. Failure to consolidate peace can result in instability and chaos that serve as breeding grounds for terrorism; trafficking in drugs, arms and persons; pandemic diseases; massive refugee flows; and other threats to peace and international order.

This reality places a premium on addressing the root causes of conflict at the local level, and engaging in conflict prevention and avoidance. In assessing where to put our ounce of prevention, it is important to

remember that the single best predictor of where future conflict will occur is where conflict has already occurred. Too often, fragile and incomplete peace is the prelude to a return to armed conflict.

Once the killing stops and the guns go silent; once the transitional government has been installed and the combatants turn in their weapons; once the UN peacekeepers leave and the donors conferences conclude; what comes next? This question is being asked around the world, from Sierra Leone and Burundi, from Liberia to Haiti, from Nepal to East Timor, from Angola to Afghanistan. In studying successful and failed processes of post-conflict reconstruction, it is evident that the challenges facing these countries are many, but are often remarkably similar from state to state. Six key challenges must be addressed simultaneously; namely, restoring security, building a political framework, kick-starting the economy, ensuring justice and accountability, promoting civil society, and getting the regional context right.

"Crises no longer remain in their separate and distinct boxes"

On the security front, international peacekeepers can provide a buffer, but credible local security forces must quickly take over to provide a sense of stability and normality to everyday life. International support for security sector reform is usually essential to ensure that forces are well-trained, disciplined and adequately paid so that they do not exploit the populations they are supposed to protect. Women must be amply represented in these forces, in part to ensure that law enforcement is 'community-friendly' and that women who have been abused are comfortable coming forward with complaints. There must be effective programmes to disarm, demobilise, and reintegrate ex-combatants, including militias. Child soldiers must put down their AK-47s and pick up schoolbooks.

The second challenge is to restore a political framework. The quick-fix of creating a government of national unity, including all the competing forces, is rarely a viable long-term solution. The premature holding of elections can create a winner-take-all power dispensation that is itself a prelude to new conflict from disempowered minorities. The challenge is to restore confidence in government at the national and local levels; transform armed movements into political parties; and build effective legislatures and judiciaries to counterbalance the power of the executive. A culture of accountability and transparency must emerge in government, along with an effective system to protect human rights. Decentralisation and local empowerment must be balanced against the usual need for a strong central authority in fragile states.

Third, economic renewal is often defined in strictly physical terms as the rebuilding of roads, clinics, schools, power grids and houses. In truth, long-term development means reviving agriculture, creating conditions needed to attract local and foreign investment, ensuring greater equality in income distribution, and creating jobs. A quick route to conflict is through youth unemployment – it is little surprise that in addition to their brutal forced conscription of child soldiers, renegade leaders like Foday Sankoh, Joseph Kony and Jonas Savimbi have lured disaffected young people with a siren song that offers quick empowerment and meaning to their lives.

The fourth challenge is coming to grips with past abuses and atrocities. Clearly, nations and individuals who have suffered from grievous treatment must balance immediate accountability and long-term national reconciliation. But too often, transitional justice means amnesty, whereby men with guns forgive other men with guns for crimes committed against women and children. There is no one-size-fits-all approach to transitional justice: whether it is action by the International Criminal Court, a Truth and Reconciliation Commission, as in South Africa, the *gacaca* community court system in Rwanda, a human rights commission in Afghanistan under the Bonn agreement, or ad hoc international tribunals in cases where local courts are inadequate – ensuring accountability is essential to rebuilding the concept of rule of law and eliminating a culture of impunity.

A fifth challenge, often ignored, is the re-creation of civil society. Groups of academics, lawyers, teachers, unions and women are the glue that holds society together and can serve as safety valves to permit the peaceful redress of grievances. Disadvantaged minorities, including internally displaced persons, must be drawn into the mix. Women in particular are not only the primary victims of conflict, but are key to the consolidation of peace. Bringing women to the peace table improves the agreements reached, and involving women in post-conflict governance reduces the likelihood of returning to war. The single best investment to revitalise agriculture, restore health systems and improve other social indicators after conflicts is girls' education. It has been said: "Educate a boy and you educate an individual; educate a girl and you educate a community."

The final challenge is getting the regional context right. Countries in bad neighbourhoods risk spillover from armed combatants, refugees and arms flows. Those in good neighbourhoods receive a powerful dampening effect on potential violence. Comprehensive peacebuilding must go beyond national borders to draw all neighbouring countries into a regional recognition that peace is usually in the interest of all the parties. It also recognises the differing and often synergistic roles to be played by neighbouring countries, each with its special relationships and contacts with key actors.

New tools are at hand for addressing these challenges. Integrated peace operations that flow naturally from peacekeeping to a comprehensive addressing of security, economic and political concerns are now the order of the day. The UN Peacebuilding Commission, established in late 2006, is co-ordinating the actions of relevant UN agencies, bilateral donors, international financial institutions, governments and civil actors. It is helping to establish integrated planning mechanisms, inject emergency resources to kick-start governments and economies, and press donors to maintain the flow of funds when the spotlight shifts elsewhere. Similarly, several countries are creating in-house government co-ordinating bodies to draw together the various economic, social, humanitarian and military efforts to support reconstructing states.

"Too often, reconstruction is seen as the 'soft side' of foreign policy"

Another new tool is the concept of the 'responsibility to protect', unanimously adopted by the World Summit in September 2005 and endorsed by the UN General Assembly and Security Council. This concept acknowledges that a state's assertion of sovereignty brings with it a responsibility to protect one's population from genocide, crimes against humanity, war crimes and ethnic cleansing. If a state is unwilling or unable to do this, the international community bears the responsibility to act, in the first instance through assistance to the state; thereafter through pressure, naming and shaming, sanctions, and other measures; and in the final instance, under strict criteria, through coercive intervention. This emerging norm is yet to be brought properly into operation, but it changes the terms of the debate by 'internationalising' the fight against mass atrocities.

Returning to the question of prioritisation, too often the challenges of peacebuilding suffer from second-class citizenship. Governments and international organisations faced with more immediate and concrete issues, such as combating terrorism and stopping the proliferation of weapons of mass destruction, often ignore the organic link between these efforts and the instability and insecurity that emerge from fragile states. Too often, reconstruction is seen as the 'soft side' of foreign policy.

In fact, there is nothing 'soft' about holding warlords accountable for their war-time crimes. There is nothing 'soft' about ensuring that refugees and internally displaced persons are safe from violence and sexual abuse. There is nothing 'soft' about insisting that women have a seat at the table in peace negotiations and post-conflict governments; that roads, villages, and farmlands are free of landmines; that governments are empowered to deliver health and education services to their people; or that neighbouring countries and world powers alike cease their meddling and play a positive role in building regional peace and security.

These are among the hardest challenges we face as an international community. In the name of a more inclusive definition of national security, they deserve our equal time and attention.

The G8 confronts the second nuclear age

With the demand for energy increasing relentlessly, the G8 has a key role to play in advancing new approaches to nuclear nonproliferation and strengthening the NPT regime

By Michael Rühle, Senior Policy Adviser, NATO Policy Planning Unit

Since the inception of the G7/8, security issues have claimed an ever greater part of its agenda, and the proliferation of weapons of mass destruction has become a major issue for debate. Communiqué language has been strong and unequivocal; violators have been named and shamed; and considerable funds have been allocated to secure nuclear material, notably in the former Soviet Union.

The 2008 G8 Summit venue will give an even greater sense of urgency to the proliferation issue. With the North Korean nuclear challenge right next door, host country Japan is clearly the G8 member most directly affected by nuclear proliferation. Japan's worries are entirely justified. Attempts to contain the nuclear ambitions of North Korea have repeatedly failed, and although talks continue, few observers believe that Pyongyang is serious about relinquishing its nuclear status. Together with its programme to develop long-range ballistic missiles, North Korea's nuclear programme could seriously alter the security situation in East Asia.

Yet it is not just developments in East Asia that will put proliferation firmly on the Hokkaido agenda. In the Middle East, Iran has emerged as another challenger to the nuclear nonproliferation regime. Despite several UN Security Council Resolutions and a tightening sanctions regime, Tehran continues to enrich uranium "for peaceful purposes". A country that once joined the Nuclear Nonproliferation Treaty (NPT) as a non-nuclear state is turning into a nuclear power – with the entire international community watching.

The blatant violations of nuclear nonproliferation agreements by North Korea and Iran are the most visible developments putting the nonproliferation regime into jeopardy. However, there is more. Structural weaknesses of the NPT have gained in salience. New developments in international security tend to invalidate many traditional assumptions. And the increasing demand for energy tends to override the nonproliferation norm. Taken together, these developments suggest that the golden age of nonproliferation is past. The world has entered a 'second nuclear age', the rules for which have yet to be developed.

The NPT is one of the most successful arms control agreements. Since it entered into force in 1970, almost all nations have signed up to it. The Treaty's underlying bargain was complex, but logical. The recognised Nuclear Weapons States would not pass on to others nuclear technology that was militarily relevant; committed themselves to negotiations on nuclear

"The NPT's logic of preventing military proliferation by promoting civilian energy is now reaching a dead end"

Kim Jong-il, Supreme Commander of the Korean People's Army, stands accused of latent violations of nuclear nonproliferation agreements

disarmament; and pledged not to attack a non-nuclear state with nuclear weapons. In return, the Non-Nuclear Weapons States would benefit from a more predictable strategic environment and, above all, get support for the civilian use of nuclear power.

However, the NPT's structural dilemmas have progressively been exposed. Its codified nuclear inequality continues to be a cause of resentment. Moreover, its insufficient verification procedures remain a source of political dispute, as remains the absence of agreed rules for dealing with Treaty violators. Even worse, the NPT's logic of preventing military proliferation by promoting civilian energy is now reaching a dead end. Since civil and military nuclear technologies are almost indistinguishable, the Treaty permits a country to develop its civilian nuclear programme right to the threshold of military application. A country may then abrogate the Treaty and complete the few remaining steps to weaponisation. This very scenario now appears to be coming true in Iran.

As long as the bipolar framework of the Cold War dominated international politics, the NPT's structural problems did not matter much. However, the end of the Cold War, together with an ever-accelerating process of globalisation, has sparked new developments that challenge the traditional nonproliferation regime.

The discovery of Iraq's secret nuclear programme after the 1991 Gulf War revealed a massive verification failure of the international community and specifically of the International Atomic Energy Agency. Only a few years later, North Korea's nuclear ambitions were uncovered and, despite considerable US engagement, could never be fully contained. After Pyongyang was caught circumventing its disarmament obligations, North Korea became the first country to withdraw from the NPT in 2003, and in 2006 conducted a nuclear test that sent political shockwaves through Asia.

The 1990s also saw the nuclearisation of the rivalry between India and Pakistan, two countries that had remained outside the NPT. Their nuclear tests in 1998 raised the difficult question of how to discourage non-NPT members from seeking nuclear weapons, and, failing that, how to bring wayward outsiders into the NPT.

The terrorist attacks against the United States on 11 September 2001 gave the nonproliferation question a new sense of urgency. US tolerance vis-à-vis proliferating states decreased dramatically ('Axis of Evil'). By raising the spectre of terrorist non-state actors using weapons of mass destruction, 9/11 also invalidated many assumptions of rationality and restraint that were considered central to dealing with the nuclear reality. And the debate on a possible 'Talibanisation' of Pakistan

Satellite image of an unidentified facility in Syria. The site, suspected to be a nuclear reactor, was bombed by Israeli jets in September 2007

"UNSCR 1540, which in essence criminalises proliferation, offers considerable leeway for taking action against proliferators"

raised the spectre of a fundamentalist nuclear power emerging literally overnight.

The uncovering of the A.Q. Khan network in early 2004 invalidated yet another widespread assumption: that would-be nuclear powers were dependent on the support of traditional Nuclear Weapons States. The 'father of the Pakistani atom bomb' had supplied Iran, Libya, North Korea and possibly others with nuclear technology and know-how. This made clear that proliferation was increasingly proceeding outside the inter-state nonproliferation regime, and that proliferation might accelerate if new nuclear nations sold their technology to the highest bidder, or traded it for other technologies, such as ballistic missiles.

Another development that has strained the nonproliferation regime is the global renaissance of nuclear energy. While it constitutes a logical response to climate change and the scarcity of fossil fuels, it may also contribute to the emergence of 'virtual' nuclear powers, notably in Asia and Latin America. Paradoxically, even the continuing need for fossil fuel has emerged as a challenge to nuclear nonproliferation: if a proliferator also happens to be a major supplier of oil or gas, as in the case of Iran, some customer countries may refrain from taking strong measures against it.

Other geopolitical factors also come into play. Reflecting the need to cope with global power shifts, the US has sought to develop closer relations with India by offering nuclear co-operation that, in principle, should not be available to a country that has not signed the NPT. Moreover, long before the US-India deal (which the G8 has tacitly approved), Pakistan's crucial role in the 'War on Terror' put nonproliferation concerns on the back burner. In short, nonproliferation requirements are increasingly competing with other vital interests – and, in some cases, are losing out.

Many ideas have been put forward to repair the damaged nonproliferation regime. A frequent suggestion is for the Nuclear Weapons States to re-commit to their disarmament pledge in the NPT. Such a gesture towards the international community might make these states less vulnerable to charges of 'double-standards' and thus facilitate the achievement of many important goals, such as better verification agreements, or the internationalisation of uranium enrichment.

It is not difficult to see why, from a G8 perspective, a debate that focuses on the Nuclear Weapons States' alleged lack of commitment is problematic. After all, of the eight members of this forum, four are Nuclear Weapons States, and the other four enjoy nuclear protection provided by the United States (Japan bilaterally, the other three through NATO). Indeed, if the forum were enlarged by adding other economic heavyweights, as is often suggested, the club would become even more 'nuclearised': India and China are both nuclear powers; and even Brazil, possibly the next in line in terms of economic performance, is suspected by some to be a 'virtual' nuclear power. In short, even if the G8 was to be enlarged, charges about the group's continued 'nuclear addiction' and about stalling on disarmament would not cease.

However, even in spite of such charges, the G8's stance on nonproliferation remains important. Its members can be instrumental in advancing new approaches to nonproliferation that seek to augment the NPT regime. A look at the most recent proliferation challenges demonstrates that the key does not lie in unspecific nuclear disarmament commitments by the Nuclear Weapons States, but in country-specific approaches: the Iraq war, Libya's voluntary self-disarmament, the sanctions regime against Iran, the attempted 'buyout' of the North Korean nuclear programme, and the US-India deal all followed very different patterns. Another new development is the growing role of UN Security Council Resolutions. For example, UNSCR 1540, which in essence criminalises proliferation, offers considerable leeway for taking action against proliferators, provided there is consensus among the members of the Security Council. And more robust forms of denial, such as intercepting ships with suspicious cargo, are further means of policing the nonproliferation regime.

In sum, if the G8 wants to provide its share of 'global governance' on nonproliferation, there is much it can do. Even if the club is too small to handle what is essentially a global phenomenon, it does bring together eight of the world's most influential countries. It thus can be instrumental in promoting greater awareness of the importance of nonproliferation, and of the need to find new approaches tailored to the challenges of a 'second nuclear age'.

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Customer Success Is Our Mission

Shaping the counterattack against the international trade in fake goods

The European Anti-Counterfeiting Network

Counterfeiting of goods is a serious crime that has many negative consequences. The capacity of an economy to create and innovate is reduced, consumers are exposed to danger, the viability of commercial enterprises is undermined, there is a disincentive to inward investment and job creation and government revenues are reduced.

SNB-REACT: In response to the damage being caused by this illicit trade a number of rights holders grouped themselves together and established a non-profit business association, SNB-REACT. It comprises 150 members drawn from all the industry sectors affected by counterfeiting and assists them to share ideas, best practice and manage the growing problem. Amsterdam based, SNB-REACT is a European association representing all industry sectors affected by counterfeiting. It enjoys a network of branch offices and agencies in Milan, Lisbon, Skopje, Vilnius, Madrid, Prague, Latvia and Warsaw. Through partnership agreements with highly skilled intellectual property right specialists in all other European countries, members of SNB-REACT can rely on a practical anti counterfeiting service which fully complements their internal counterfeiting strategies.

Combating counterfeiting can be expensive! Legal procedures, investigations and the enormous volume of counterfeit consignments, place a real burden on the financial resources of rights holders. SNB-REACT is able to succeed in fighting the trade in counterfeiting in the most efficient and cost effective manner. It provides an inclusive package of legal and practical services and continuously strives to maintain the lowest possible cost and fee structure, whilst maintaining a high quality in delivering:

- Legal actions
- Investigations
- Monitoring of markets, events and the Internet
- Storage, recycling and destruction of fake goods in environmentally friendly manner

IPR Business Partnership: To complement this practical enforcement framework the members of SNB-REACT now have direct access to the IPR Business Partnership, a global and strategic public-private partnership that seeks to develop innovative solutions to the problem of counterfeiting and works alongside key bodies at the global, regional and national levels of in capacity building and training initiatives. Our partnership offers training and capacity building assistance for Customs, Police and other enforcement authorities on a global basis, to ensure that frontline officials at border and frontier crossings or with responsibility for market surveillance and detection of the illegal manufacture of counterfeit products are as well informed as possible.

The counterfeit problem is changing rapidly and is being facilitated by the new digital and IT technologies and the ease of travel and communications. Such developments were not fully anticipated when the Trade Related aspects of Intellectual Property Rights (TRIPS) agreement in 1986 was negotiated. We therefore wholeheartedly support the G8 discussions on counterfeiting as well as the on-going ACTA negotiations. We highlight several issues that deserve a high priority:

- **Improving information management** and dealing with 'roadblocks' that inhibit the sharing of information on a 'Government to Government' and a 'Government to private sector' basis.

- **Sharpening accountability.** Logistics operators, shippers, brokers, storage operators, FTZ operators, ISP's etc, are important links in the movement of counterfeit or pirated goods. Improving accountability mechanisms for such operators would strengthen official control over the supply chain and reduce the movement of counterfeit products.

- **Implementing best practices.** Our Partnership supports the development and cascading of international best practices to national enforcement agencies. We encourage international donor institutions to integrate IPR enforcement as a key element in national structural reform programs. We are ready and willing to facilitate such initiatives at any time.

- **Building effective partnerships.** This is the cornerstone of our inclusive approach to anti counterfeiting. We advocate the creation of structures at a national level to enhance partnership between policy ministries, enforcement agencies and the private sector and at regional or sub-regional level.

www.snbreact.org
www.iprbusiness.org

SNB-REACT recycles seized goods

SNB-REACT

IPR Business Partnership

Crime without frontiers

Globalisation and the collapse of communism created unprecedented opportunities for organised crime. Reform of the international financial system and a review of security priorities should be at the top of the international community's agenda

By Misha Glenny, journalist and author

The last two decades have witnessed an astonishing proliferation in organised criminal activity around the world. From Mumbai to Odessa and from South Africa to Canada, cities and countries that were never associated with the mafia in the post-war period have been swamped by syndicates shifting huge quantities of illicit goods and services around the world.

"We have an exponential growth in serious and organised crime," noted Commander Sharon Kerr, Head of the Metropolitan Police's Specialist Crime Directorate, at a conference in Liverpool earlier this year, "manifesting itself in all kinds of ways; from Chinese DVD sellers, which can involve murders, trafficking and kidnap – to Romanian gangs of bag snatchers using young children trafficked into the United Kingdom."

Commander Kerr's examples of organised criminal activity in Britain represent the final retail link in a vast chain of production, distribution and sale of criminal goods that is every bit as entrepreneurial and growth-oriented as the most dynamic global corporations. There are now few major crimes which do not involve syndicates in several countries, usually spanning more than one continent.

Israeli crime groups, for example, have for some time controlled the export of ecstasy tablets into the US. Last year, the most notorious trafficker, Ze'ev Rosenstein,

conceded in a plea bargain at a Miami court to having smuggled around a million ecstasy tablets into the US via Las Vegas, New York and Miami. Globalisation enabled this Tel Aviv gang to mastermind the export of drugs manufactured in northern Europe, chiefly in Holland and Belgium, to the United States in shipments expedited by Latin American carriers.

The 'McMafia' now dominates a shadow economy which accounts for around 15 per cent of the world's GDP. Inextricably bound with straightforward criminal markets are the spiralling levels of corruption around the globe, which the UN's latest estimate places at between $2 and $3 trillion dollars.

Corruption acts as a multiplier that greases the wheels of organised crime. A common strategy of criminal syndicates is to 'capture' or 'semi-capture' the state. American and European law enforcement agencies now categorise the West African country of Guinea-Bissau as the world's first 'narco-state,' where the levers of state are now entirely at the disposal of operations moving cocaine from South America to Europe.

The proceeds of corruption and organised crime then often merge in the banking and financial industries with the profits from tax evasion and worldwide corporate fraud, practices which act as a bridge between the licit and shadow economies.

"The gangs of Sofia, Moscow and Prague were in fact the midwives of capitalism"

Two phenomena coincided to trigger the dramatic rise in criminal activity of the past two decades.

The first was globalisation – the liberalisation of financial and commodity markets that created huge new opportunities for the world's most adventurous entrepreneurs.

The second was the fall of communism. When the regimes in Eastern Europe and the Soviet Union imploded, the vacuum was filled by a huge swathe of failing states that stretched from the Balkans across Eastern Europe, the Caucasus and Central Asia as far as the Chinese border.

Within months of the collapse of communism in 1989, hideous hybrid organisations, including newly unemployed secret policemen and Olympic wrestlers and weightlifters, seized control of former Warsaw Pact states such as Bulgaria. They began as muscle-bound gangs, running the streets of Sofia and other cities, before graduating to become the major importers of stolen cars from Western Europe.

Violent and frightening they may have been, but these groups were also essential to ensure the free-market economy took root. With the police and courts in freefall, these protection rackets guaranteed that contracts entered into by the new entrepreneurs of Eastern Europe would be honoured. It may have looked like the Wild East from the outside, with regular shoot-outs and murders on Russia's streets and alleys, but behind the bloody drama, a new economic system was emerging.

"If it wasn't for the mafia in Russia and elsewhere in the early 1990s, nothing would have moved, nothing would have happened," says Gary Busch, an American businessman who worked in Russia during the turbulent 1990s. "They were essential for the free market." The gangs of Sofia, Moscow and Prague were in fact the midwives of capitalism.

Russia was a unique case because the new entrepreneurs, or 'oligarchs' as they were called, could use their guile as well as the available muscle to seize control of Russia's vast energy and metallurgical sectors. They built empires worth billions of dollars while the living standards of most ordinary Russians plummeted – male life expectancy had dipped to 58 by 1997.

With the East European oligarchs and protection rackets acting as a replacement criminal justice system, they defined what was legal and what was illegal. And 'legal' was anything that brought in a profit – so, along with oil, food, furniture and cars, they established markets in drugs, caviar, trafficked women and counterfeit cigarettes. In fact, they would bring to market anything that would sell.

By the mid-1990s, the US government had recognised that something very ugly was underway. Jon Winer, the architect of Clinton's anti-organised crime strategy, had become especially concerned: "In 1993/94 I started working in law enforcement, knowing that globalisation was beginning to have an impact on a whole range of issues. The paradigm was El Salvador. After the war, people decided to use their arms caches to make money in criminal gangs. And then we saw that the right-wing paramilitaries and left-wing guerrillas began working together. Burglary, car-jacking plus kidnapping, car theft and the like... But the main sources of revenue in El Salvador were not car-jacking or drugs. When you got to the Balkans or the Caucasus, however, the main source of revenue in society was criminal. Now you had a very different model."

Traditional organised crime groups like the Sicilian mafia, New York's Five Families and even the powerful Yakuza syndicates in Japan have had difficulty adjusting to this rapacious new model of crime that is now present in most countries around the world. In the early 1980s, the Yamaguchi-gumi, the largest Yakuza group with its home in Kobe, nearly destroyed itself in a deadly internecine conflict. The new mafias, whether Russian, Chinese or Nigerian, have largely dispensed with codes of loyalty based on family and clan ties that too often drew the heat of public opprobrium and then police intervention. Instead, their obsessive and main focus is on money – making it and then laundering it.

Together, the fall of communism and the deregulation of the international financial markets in the late 1980s triggered a huge injection of cash into the global economy. The frenetic traders on the financial markets, the new money kings, scanned the

globe for the most profitable opportunities. Some were looking for the maximum rates of return; others were seeking to avoid paying tax; companies were also demonstrating their commitment to new markets. But a significant minority of investors wanted to launder their money and remove the stain of its criminal origins.

Organised crime and corruption deny governments their tax revenues and encourage the type of unstable political regimes that attract terror groups and insurgents. The long-term solution to the problem of the shadow economy and criminality lies in poverty reduction. But in the short term, there are two critical policy areas that need to be reassessed.

The first is the international financial system. The sub-prime crisis has led to the world's largest banks and financial institutions confessing they are unaware of how much money they have lost. The middle classes of Japan, the United States and Europe have watched in astonishment as their governments have paid out billions of dollars from central bank funds to prevent a meltdown caused by speculative behaviour on the part of banks whose senior employees have nonetheless garnered unprecedented wealth in the process.

Politically, then, the time is ripe for reform of the banks, hedge funds and private equity companies. But this should be combined with a serious debate about the value of offshore banking centres whose main clients are legitimate corporations seeking to evade tax, and organised criminals seeking to launder their ill-gotten gains.

Elsewhere, the 'War on Drugs' is now critically undermining the 'War on Terror'. In 2003, the Taliban was a defeated force, militarily. But the failure of the coalition to implement an effective development programme in the country allowed the Taliban to refinance itself. This it does almost exclusively through taxation on opium transactions. NATO is now hovering on the edge of a catastrophic defeat in Afghanistan because the Taliban earns tens of millions of dollars from the heroin trade. Since the huge increase in production, distribution and consumption of drugs worldwide from the early 1990s, the West does not have the policing capacity successfully to prosecute the War on Drugs; instead, drugs are now just a cash cow for organised crime and terror around the world. At one stage, policy-makers may wonder which is more important: the War on Drugs, or our strategic security interests in Afghanistan, Pakistan and the region?

Misha Glenny is author of McMafia: A Journey Through the Global Criminal Underworld, *The Bodley Head, 2008. Readers can purchase a copy at the special price of £17.50 by calling +44 (0) 1206 255800 and quoting ref: 'G8'*

Police escort men suspected of involvement in the abduction and sale of women in Nanjing, Jiangsu Province, China

Education: the currency of development

By Koïchiro Matsuura, Director-General, UNESCO

Progress towards the Millennium Development Goals requires an ambitious strategy based on access, quality, diversity and innovation – and a major increase in resources

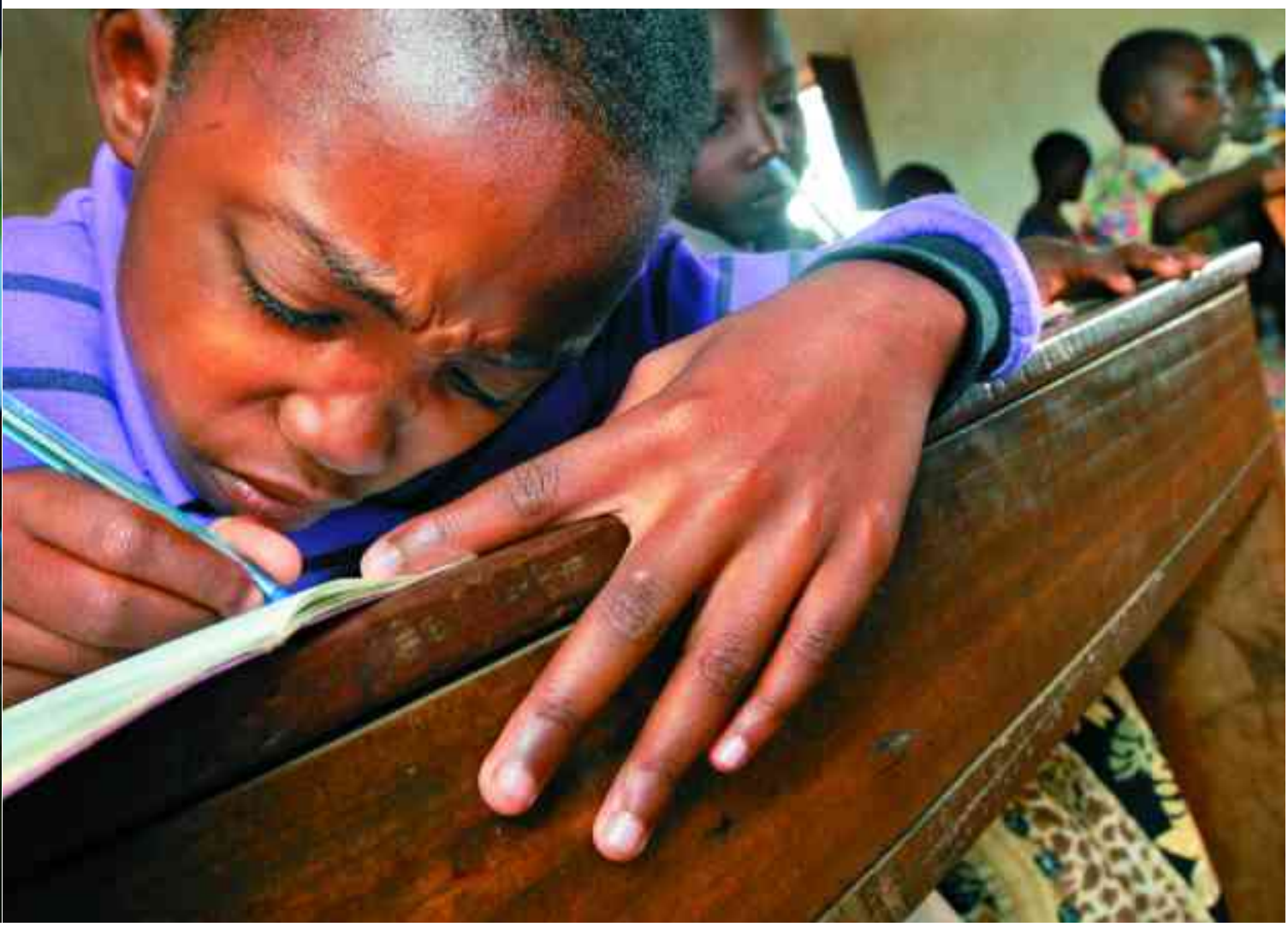
"We have a duty therefore to all the world's people, especially the most vulnerable and, in particular, the children of the world, to whom the future belongs."
These words in the UN's Millennium Declaration reflect a universal aspiration for social justice. The special reference to children expresses a collective responsibility towards their well-being and development.

Learning and education are central to all the Millennium Development Goals adopted in 2000. Improving maternal health, reducing child mortality, combating HIV/AIDS and ensuring environment sustainability simply cannot be achieved without empowering individuals with knowledge and skills to better their lives. The Education for All (EFA) goals, adopted in Dakar, Senegal, the same year, set a comprehensive agenda for learning that stretches beyond primary education to encompass the critical early childhood years, as well as literacy and life skills programmes for youths and adults. The EFA goals also place emphasis on the most vulnerable and marginalised groups, and stress the importance of quality at every stage of learning.

As these goals underscore, development simply does not happen without education – a fundamental human right. The 1948 Universal Declaration of Human Rights, whose 60th anniversary we celebrate this year, establishes the right to compulsory elementary education. Ever since that date, the international community has sought to anchor this aspiration within a solid legal and political framework.

Extending learning opportunities to all children, youths and adults enhances the ability to make informed choices and to participate in society. Evidence shows that participation in literacy programmes, for example, increases civic engagement, notably in local politics. Recent research suggests that the cognitive skills required to make informed choices about the HIV/AIDS risk are closely tied to levels of education.

Education is also a major determinant of individual income, with each extra year of schooling resulting in a 10 per cent increase in earnings. The Organisation for Economic Co-operation and Development estimates that adding one extra year of schooling increases GDP per capita by 4-6 per cent. Recent studies show that literacy has a positive impact on earnings, beyond the sheer number of school years. Investment in girls' education yields some of the highest development returns. Girls' education translates into lower fertility, later marriage and better health. An educated woman is also more likely to send both her sons and daughters to school.



As a knowledge-intensive world economy gains ground, calling for a more skilled labour force, a higher premium than ever is placed on education. But if education is to be the currency of development, several dimensions deserve attention that can be summed up in four words: interdependence, inequality, inclusion and innovation.

First, the reality of interdependence. Our societies are increasingly integrated, connected and affected by global trends. These, in turn, affect education. Efforts to eradicate hunger cannot be separated from those to expand primary education. In the wake of the recent food crisis, the World Food Programme has reported that free school meals are under threat in a number of countries. Given the ample evidence that school meals encourage parents to send their children to school and that nutrition programmes improve a child's cognitive skills, this is a serious concern for pupils from disadvantaged backgrounds. Similarly, the drive to improve child and maternal health cannot be dissociated from the provision of care programmes for young children, and literacy and skills programmes for adults, especially for women.

"New communication and information technologies offer flexible and innovative ways to deliver education and share learning resources"

Second, the consequences of inequality. Since 2000, steady economic growth has been essential to reducing poverty. But reductions in absolute poverty have been accompanied by rising inequality. The income inequality gap has, in fact, widened in Sub-Saharan Africa, Latin America, Asia and the transition countries of south-eastern Europe. Inequality in educational opportunities remains flagrant. Some 72 million children are missing out on primary school altogether, poverty being a leading factor of exclusion. The causes of disadvantage, be they based on wealth, gender, disability, ethnicity or place of residence, must be clearly identified and acted upon.

Third, linked to the above, inclusion must be the principle underlying all education reforms. The development agenda is about reducing vulnerability and marginalisation and ensuring that all individuals acquire confidence, skills and knowledge to contribute to their societies. Access to education does not suffice for education to be inclusive. The quality of education – the how, why and results of learning – is equally important.

Education systems are going through an unprecedented period of expansion at all levels. Sub-

Saharan Africa witnessed a 36 per cent increase in the number of new entrants to primary school between 1999 and 2005. Many governments have abolished school fees and taken additional measures enabling children from the poorest families to attend school. As increasing numbers of students finish primary education, demand for secondary education is on the rise. (Enrolments are up 55 per cent in Sub-Saharan Africa and 25 per cent in south and west Asia and the Arab states since 1999). Worldwide, three out of four countries include the lower secondary level in compulsory education.

The vast majority of new places in tertiary institutions were created in large developing countries, such as Brazil, China, India and Nigeria. Promoting higher education in today's knowledge-based societies is a key factor for cultural, economic and political development. Higher education institutions have the potential to support education for all through research, capacity-building, teacher training and service to the community.

This expansion, however, conceals wide gaps in opportunity. Inclusion begins with setting strong foundations. Development is at risk when 10 million children die each year before reaching the age of five. It is at risk when large cohorts of students do not reach the last grade of primary school and fail to attain minimal levels of competence in reading, writing and numeracy, as revealed by national and international learning assessments. Finally, it is inequitable when gender discrimination prevails. Only one third of the world's countries have achieved gender parity in primary and secondary education.

Disadvantage takes hold of a child's life well before the beginning of primary school. Evidence has accumulated in recent years on the positive impact of participation in early learning programmes and

subsequent achievement in school. These programmes level the playing field, improve child well-being and development, and increase the chances of achieving universal primary education. But they do not generally reach the most disadvantaged children who stand to benefit most from them.

Despite significant progress, primary education is still far from universal, even though, in a majority of countries, legislation calls for nine years of compulsory education. In more than a dozen African countries, participation rates in secondary education are below 40 per cent.

More than 770 million adults – 64 per cent of them women – lack basic literacy skills. Governments and donors are allocating scarce resources to literacy, and more broadly to the development of literate environments through print, publishing and audiovisual policies that encourage people to acquire literacy skills and to maintain them.

These facts point to the tremendous challenges facing education today, both in terms of access and of quality. This brings us to the need for innovation, both in terms of policy and of practice, to respond to the diversity of learners and their circumstances.

Effective education reforms will remain limited in scope and impact if they are not based on the vision of a learning society. Opportunities for quality secondary education and ongoing learning programmes provide motivation for students to pursue their studies and view learning as a lifelong endeavour. Transitions from one stage of education to the next call for particular vigilance. Are there enough places in school? Is cost an obstacle? Do students meet nationally defined standards at the end of primary school? Are systems flexible enough to accommodate a diversity of learners?

There is no one road to acquiring an education. Some programmes may rely on technology, others on flexible learning schedules, community involvement or development of learning materials in the mother tongue. Bridging courses and other non-formal programmes offer youths and adults the opportunity to acquire basic skills to improve their livelihoods. New communication and information technologies offer flexible and innovative ways to deliver education and share learning resources. They might be the only answer to training the teachers required just to achieve universal primary education: nearly 4 million in Africa alone.

Failure of education systems to provide young people with competences and skills will only aggravate the exclusion cycle. Closer linkages to labour markets are a rising concern for decision-makers. Curricula must respond to the new demands of the global market and knowledge economy, providing skills such as communication, critical thinking, science and technology education and environmental knowledge. At a recent roundtable on education and economic development, which gathered more than 100 education ministers at UNESCO, many officials described a 'skills gap' that could only be reduced through better vocational and technical education systems attuned to national development needs.

Finally, education has a central role to play in transmitting the knowledge, values and skills to make development sustainable. Are students learning to know, to do, to live together and to be?

Reaching quality education for all is a compact. Industrialised countries have a stake in raising the skills base in developing ones and reducing the 'brain drain' within the academic profession. This mutual responsibility was underlined by donors at the World Education Forum in 2000 when they pledged to assist countries clearly committed to expanding learning opportunities. It has since been reiterated at the Conference of Financing for Development in Monterrey, Mexico, in 2002, and at previous G8 Summits, in particular at Gleneagles in 2005, where donors pledged to increase their commitments, especially to Africa.

In spite of promises to support basic education, aid commitments are stagnating and remain far short of what is needed to achieve universal primary education. On current trends, and if pledges are met, external aid to basic education is expected to reach $5 billion a year in 2010 – well below the $11 billion required to reach universal primary education and expand literacy and early childhood programmes. We must do better.

More than ever, education must empower and enable learners to gain the confidence, knowledge and tools they need to participate as responsible citizens. If societies are characterised by poverty, large inequalities, gender discrimination and exclusion, they are on the wrong path to development. Sustainable societies are based on the respect of fundamental human rights. They rest on the belief that everyone has the right to learn, the capacity to contribute and to share in the benefits of development.

A global presence ensures global opportunities

Strategic acquisitions have seen Qtel Group become a dynamic regional telecommunications leader.

The rapid evolution of communication technologies is increasingly changing the way people interact with each other. The Qtel Group is at the forefront of a major technological revolution taking place in one of the fastest growing regions of the world.

Chairman of The Qtel Group and the local Qatar operation, Sheikh Abdullah Bin Mohammed Bin Saud Al-Thani says; "It's an exciting time to be in telecommunications in the Middle East, North Africa (MENA) and Asia" as his organization embraces the many challenges and opportunities that exist throughout the region.

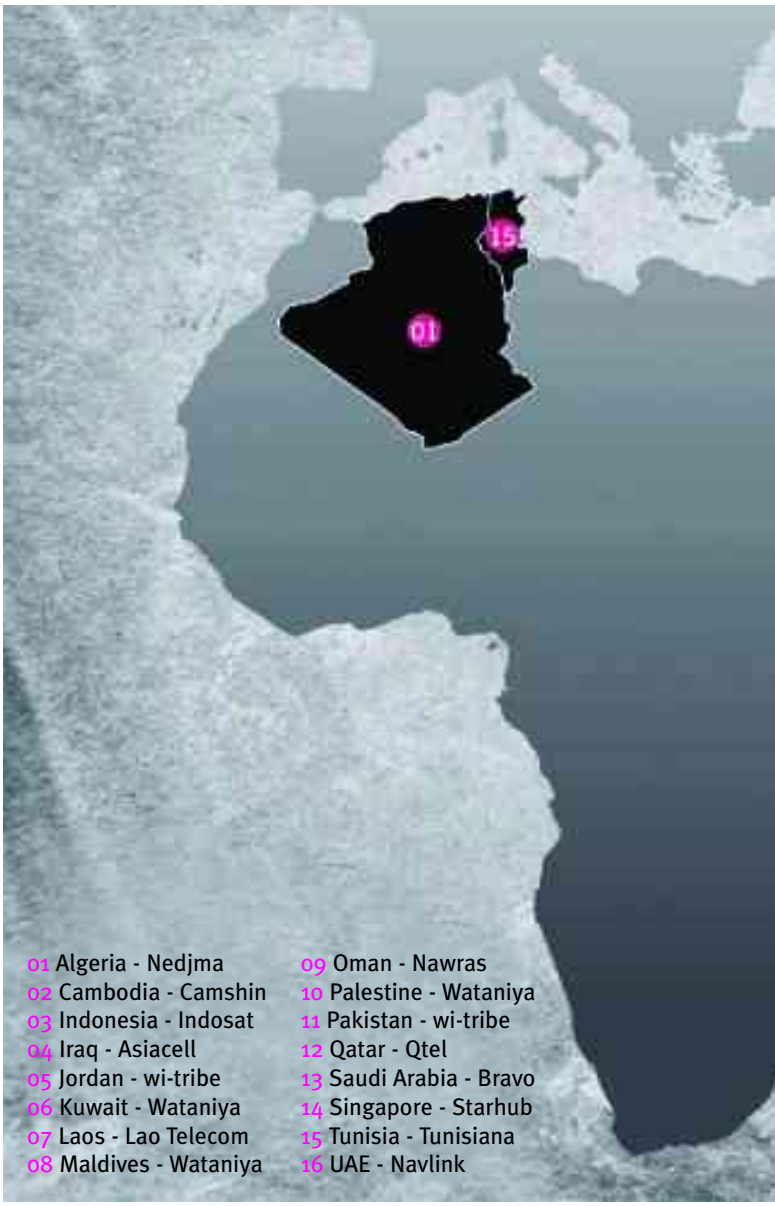
Qatar and The Qtel Group: an ambitious vision

"The Qtel Group has a clear vision to become a top 20 global telecommunications player by the year 2020," says Sheikh Abdullah. "This ambition requires us to not only deliver value to our shareholders, but also to become an influence in communications and to share our knowledge at an international level. We particularly want to focus on developing regions of the world such as MENA and Asia where we believe we have both the opportunity and the capability to empower these regions with advanced information and communication technology".

The Qtel Group has evolved significantly in recent years and has a strong presence in 16 countries across MENA and Asia. In a short space of time, The Qtel Group has grown enormously, from two operations in 2006, to 16 by the end of 2007. Today, The Qtel Group is one of the most exciting and fastest growing emerging market operators. This growth – through successful and targeted acquisitions – was spurred by the desire to access new markets and technologies with the aim of enhancing services across all operations.

Sheikh Abdullah Bin Mohammed Bin Saud Al-Thani
Chairman of The Qtel Group

"The Qtel Group has a clear vision to become a top 20 global telecommunications player by the year 2020...We particularly want to focus on developing regions of the world such as MENA and Asia where we believe we have both the opportunity and the capability to empower these regions with advanced information and communication technology"

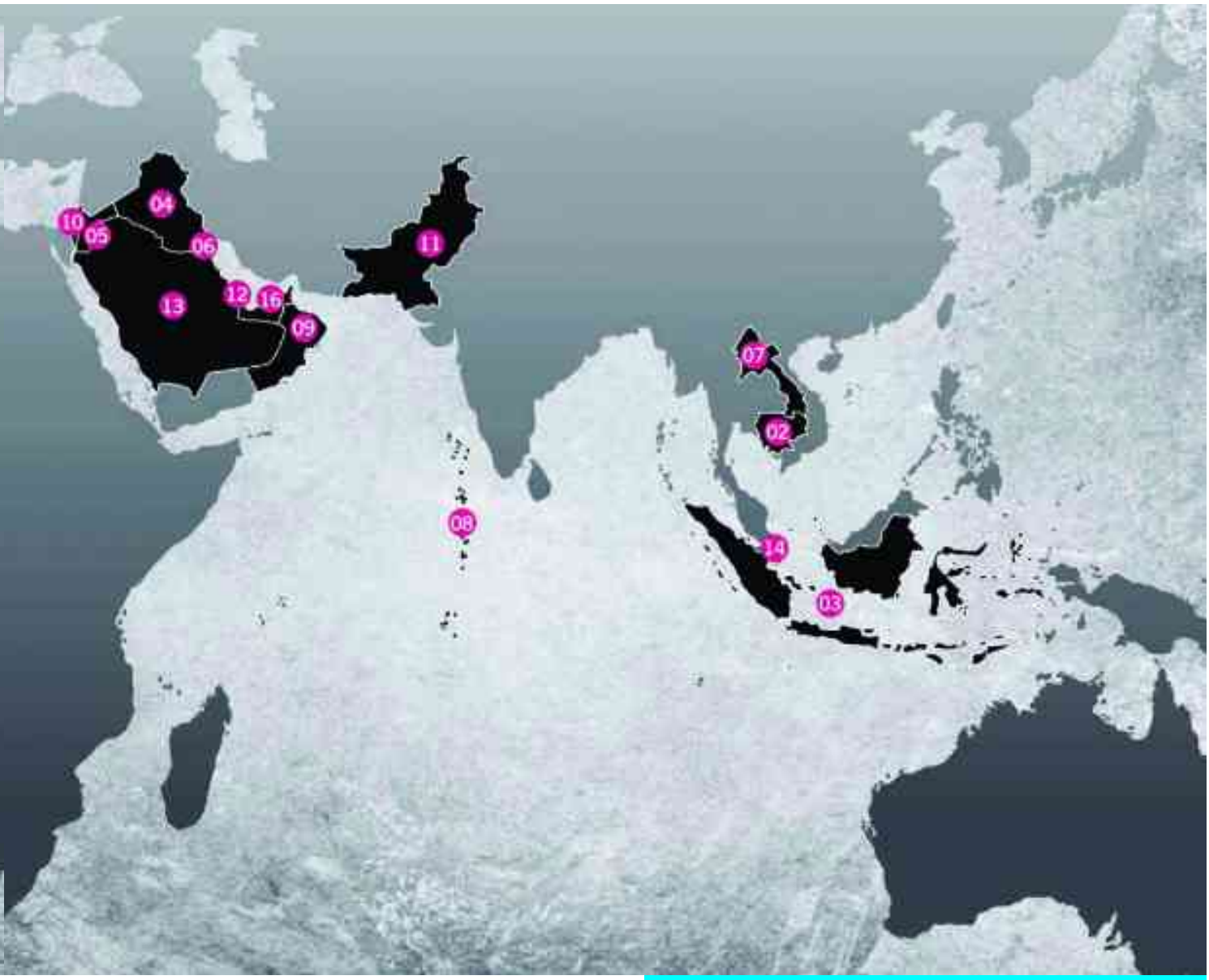


The purchase of a 25 percent stake in Asia Mobile Holdings enhanced the group's position as a key player in Southeast Asia's mobile market, whilst a major integration with Wataniya earned due recognition of The Qtel Group as a major player within the MENA region. The group also consolidated its strength and position in Iraq, by winning a 15-year GSM mobile licence through Asiacell.

It is through these strategic acquisitions that The Qtel Group has become an acknowledged dynamic regional leader. This is evidenced by the 2007 award for 'Telecoms Deal of the Year' for the Wataniya acquisition from both the CommsMEA and Telecom Finance. Nawras – part of The Qtel Group of companies based in Oman – was also recognised as the 'Middle Eastern Operator of the Year' by CommsMEA.

The Qtel Group's expanding footprint delivers significant benefits to the regions in which it operates. In the Middle East and Africa, the group is able to leverage its scale to bring low cost, advanced services to customers. The Qtel Group is continuing to invest in network operations in Algeria and Tunisia, as well as enhancing the services it already provides to existing customers in this region.

North Africa remains a key strategic area for further expansion and forms a major part of The Qtel Group's acquisition strategy to reach the 2020 Vision. The Qtel Group intends to seize opportunities in this area in accordance with the group's rigorous investment criteria.



The Qtel Group's geographic footprint

The Qtel Group has evolved significantly in recent years and has a strong presence in 16 countries across MENA and Asia

Exponential growth: the inspirational challenge for The Qtel Group

"Obviously with growth comes considerable change and challenges for companies like The Qtel Group that are active in driving such economic and social development," says Sheikh Abdullah.

"As the MENA and Asia region expands rapidly, The Qtel Group has stepped up to this responsibility by investing heavily in operations, technology and resources ensuring that all telecommunication operations – the key platforms for any country's ongoing development – continue to improve.

"The Qtel Group has been an integral part of this region's progress, developing and facilitating services and expanding businesses both locally and globally in a systematic, strategically managed way. As the group continues to extend its geography it paves the way to connect people and businesses efficiently and creates more opportunities for growth on a global scale."

Historically, The Qtel Group has always had a commitment to its customers and to bringing innovation to the telecommunications industry. For example, wi-tribe – the group's international wireless broadband provider using latest wiMAX technology to deliver instant wireless broadband connectivity across MENA and Asia – confirms The Qtel Group's leading influence at an international level.

The Qtel Group has a relentless focus on delivering business value, building long-term relationships, and using existing worldwide partnerships and alliances to deliver solutions to the consumer, enterprise and broadband markets within its ever-expanding geographical footprint. It is this commitment that differentiates The Qtel Group from other players within the region and ensures that their vision is achievable by the designated date of 2020.

"We will continue to meet future challenges by utilising our size and excellent business alliances, developing an understanding of local markets and expertise in our core products and services. This strategy, combined with a rigorous investment process and implementing sound governance across the organisation, will lay the foundations for The Qtel Group to meet its vision," says Sheikh Abdullah.

www.qtel.com.qa

Qtel International

Bringing the next billion online

Extending the economic and educational benefits of the internet revolution will depend on the creation of a genuinely enabling environment – and stronger partnerships between business, governments and other stakeholders

By Guy Sebban, Secretary General, International Chamber of Commerce

We almost take for granted the many advantages and conveniences that the internet provides today to businesses, governments and the world's citizens.

The challenge ahead lies in bringing these benefits and opportunities to the next billion users. To do so will require accomplishing four things: putting in place the necessary conditions to attract investment; building education and skills programmes; fostering entrepreneurship; and promoting innovation. Each of these elements will require tapping the experience of all stakeholders to develop and implement national policies and frameworks, and close collaboration between business and government, in policy and in practice.

We should not take the internet for granted for many reasons, but especially because it plays such a vital role in the smooth functioning and growth of the global economy. In a poll conducted by the International Chamber of Commerce (ICC) with the German research institute Ifo earlier this year, more than 1,000 economists in 90 countries said a one-day 'blackout' of the internet would result in major losses and costly damage, with huge and lasting effects.

Business is a firm believer that access to information and communications infrastructure facilitates education, information and knowledge, and that all of these elements are important for economic growth and social development. To that end, in mid-2006, the ICC, the largest, most representative business organisation in the world, created Business Action to Support the Information Society (BASIS). This initiative serves as the voice of business in the global dialogue on the information society. BASIS was established in the wake of the two World Summits on the Information Society (WSIS) held in Geneva (2003) and Tunis (2005), building upon the leadership and co-ordination efforts of ICC during the preparations, and at these two United Nations' Summits.

Today, BASIS brings business experience and priorities to UN-linked forums set up to continue the exchange among all stakeholders – business, governments, civil society, inter-governmental organisations and technical experts, such as the Internet Governance Forum (IGF), the Global Alliance for ICT and Development, and the WSIS follow-up and implementation processes.

Business also believes that access to information and communications technologies, and building the infrastructure necessary for more of the world's citizens to log on to the internet, start with creating the right conditions. We often refer to this as an 'enabling environment'. Such an environment includes policy, legal and regulatory frameworks that stimulate investment in infrastructures which also support internet connectivity, including:

- liberalising telecommunications and communications sectors;

"Market entry should be subject to minimal barriers and restrictions"

- creating an independent regulator;
- developing and implementing the rule of law;
- introducing pro-competitive policy frameworks;
- setting up independent courts;
- fostering entrepreneurship;
- promoting innovation; and
- enforcing intellectual property rights protection.

Getting the framework right is challenging to achieve in its complexity, but it is vital for economic development. This is especially true of entrepreneurship. A good basic education and skills training are the building blocks for entrepreneurs to flourish. Many businesses have training and skills development programmes available for their employees, often in partnership with governments and other stakeholders.

Entrepreneurs need room to grow – free from unnecessary obstacles, such as excessive administrative bureaucracy. Creating incentives, such as tax holidays and reductions in social charges, can help entrepreneurs get started. Successful new businesses create jobs – which benefits government, the country's economy and its people. Access to capital to start or to expand a business is also a key element of an entrepreneurial economy. Governments can develop programmes to provide start-up funding and teach entrepreneurs how to raise capital.

Business has long argued that any country seeking to increase internet access needs to liberalise its telecommunication and communication network sectors. The benefits can be numerous, including: lower prices for long-distance and international calls; more reliable services and greater network capacity; increased foreign direct investment (FDI) in the sectors, accompanied by a transfer of skills and technology and spending in the local economy. More FDI in telecoms leads to an improved investment climate overall. Above all, liberalising these sectors leads to increased user access and the opportunity to enable more affordable, universal access.

Licences issued to telecoms operators as part of the liberalisation process provide much-needed certainty and legal security. Lenders and investors need these assurances to make the major capital commitments required to install or to upgrade telecoms infrastructure. Licensing should be technologically

Continued p157

Egypt unlocks its potential as a future leader in the ICT industry

With an abundant pool of talented and technologically skilled workers, it's easy to see why Egypt is a rising star on the global outsourcing map

Egypt has undergone an unprecedented phase of development in recent years and is now one of the most dynamic and fastest growing offshoring locations for the world's information and communications technology (ICT) industry.

The country, home to more than 75 million inhabitants, has all the resources necessary to become a leading player in the global ICT industry. With its ideal geography and infrastructure - between the continents of the world - Egypt is an amazing asset for any investor who wishes to tap this region. It provides excellent access to markets in the area, and acts as a bridge between the East and West, North and South.

Adding Egypt's abundant pool of talented and technologically skilled workers, and competitive cost structure, it is easy to see why Egypt is a rising star on the global outsourcing map.

Early on in its modernisation, the government of Egypt focussed on creating an environment that would transform the country into a world-class, high-tech location. For example, a series of government initiatives including 'Egypt PC 2010' and a 'PC for every home' are intended to ensure that, with the support of the private sector, around three million families can obtain a PC at an affordable price by 2010 and have promoted the development of a national industry for the assembly of computers.

Furthermore, the country has seen huge leaps in the number of internet users in the country, rising from 0.3 million in 1999 to a staggering 9.29 million in April 2008. Coupled with increases in the number of fixed line communications (currently 11.248 million) and mobile phone subscribers (33.285 million compared to 0.654 million in 1999), Egypt is constantly improving its ICT infrastructure.

At the center of Egypt's reform is Cairo, home of Egypt's growing outsourcing industry. The city, like the country, is open to providing outsourcing services from call centres to software development to companies around the world. It has full support from the Egyptian government, through the Information Technology Industry Development Agency (ITIDA), and there has been a vast amount of investment in a Smart Village, a 600 acre technology business park, on the outskirts of Cairo. Initiatives including a Call Center Academy and a pact between the IT Institute of Cairo and NIIT of India to provide IT education programs are also helping to secure the future of Egypt.

Smart Village, the 600 acre technology business park, situated on the outskirts of Cairo, Egypt

Smart Village by night - view of Xceed's offices at the Smart Village business park in Cairo, Egypt

Egypt's ICT development has taken a significant step forward as a result of several reforms, not only in the sector but also in the country's wider business environment. The number of ICT companies working in Egypt has increased rapidly from 226 in October 1999 to 2400 in February 2008.

As reported by analysts at the Yankee Group, Egypt would be the 'India of the Middle East' in five years time. By 2010, IT outsourcing and business process outsourcing (BPO) should be generating revenue of 1.2 billion US dollars. World-renowned companies like Cisco, Google, IBM, Microsoft, Oracle and Orange Business Services are already focussing on IT experts from Egypt, say the analysts, and Indian IT provider Satyam has also opened an office on the Nile. With its stable economy; a government willing to make reforms and attract investments; and a well developed IT infrastructure, Egypt is fast becoming an attractive offshoring location and looks set to continue growing in the coming years.

For more information contact **www.mcit.gov.eg**

Arab Republic of Egypt
Ministry of Communications and Information Technology

Information Technology Industry Development Agency

neutral to avoid market distortions, and to prompt innovation and adoption of the latest technologies.

If liberalisation is to lead to a competitive telecoms market, market entry should be subject to minimal barriers and restrictions.

The growth and success of the internet in a country depends on the network of fixed and mobile connections in place. Where telephone penetration is high, the growth of the internet has been nothing short of explosive. Where telephone penetration is low, universal access achieved through liberalising the telecoms sector should be the top priority. Mobile phone access has also been a boon to diffusing electronic communications in rural and remote areas.

To attract investment, a country must reform its laws and regulations so they are clearly defined and provide the requisite level of security that foreign and domestic investors need. A checklist of reforms should include the following three steps:

- take an inventory of existing legal instruments affecting the sector: treaties, bilateral and multilateral trade agreements, telecoms laws, decrees, ministerial orders, licences, tenders and contracts, such as for specific services with network operators, internet service providers (ISPs), or equipment manufacturers and vendors;
- create a strategy to reform the sector;
- remain loyal to the primary purpose of the reform: to provide consumers and businesses with more varied, efficient and, generally, less costly communications services.

Removing barriers to international trade will also help attract investment. That means:

- offering market access and national treatment commitments for all service sectors without restrictions;
- reducing or eliminating restrictions on foreign ownership;
- adhering to the Reference Paper commitments for basic telecoms services only;
- complying with the GATS Annex on Telecoms for access to, and use of, public telecoms networks for the provision of value-added services, including internet services, and for other sectors to which countries have made commitments.

The challenge of putting in place the right enabling environment in the developing world is further compounded by the convergence of digitised

information formats, services, applications, networks and business models brought on by the rapid development of digital technology.

Business urges governments, when crafting policies and regulations, to avoid divergent approaches with other countries or regions, to use competition law as much as possible to prevent abuses of market power, and to provide adequate protection and enforcement of intellectual property. At the same time, government regulation should be limited to promoting competition, innovation and investment, and allocating scarce resources, where necessary, to public service objectives.

ICC BASIS believes that the IGF, one of the outcomes of WSIS to create a more inclusive and people-centred information society – including bringing the next billion users online – offers an important opportunity to discuss internet governance issues related to access to infrastructure, and access to information and knowledge. The IGF gives all stakeholders – business,

"Public-private partnerships are crucial to raising access to the internet in developing countries"

government, civil society, academic, and technical experts – a chance to discuss their views, experiences, and concerns. Sharing case studies of countries that have created successful enabling environments, and of those that faced challenges and learned from their less successful choices, represents the kind of important dialogue IGF has also facilitated[1].

All stakeholders involved in the global discussions on the information society have a common goal: to bring the benefits of the internet to more people around the world, and to welcome more people into the discussions on internet governance issues at all levels – national, regional and international.

Finally, public-private partnerships, entered into by various stakeholders to accelerate digital transformation, are crucial to raising access to the internet in developing countries. There are many successful examples of these partnerships in many countries, such as India, where companies work with government and academia to improve skills so that more people can benefit from the socio-economic opportunities these technologies provide.

In short, getting the next billion users online may seem like a daunting prospect. But with the ongoing commitment of business and government, along with other stakeholders, to work together to do the right things, this goal is achievable in the years to come and will have a positive impact on the global economy as well as on national and regional economic growth.

Notes

[1]*For more information on the Internet Governance Forum, please visit: www.intgovforum.org.*
For information about ICC-BASIS contributions to the IGF, please visit: www.iccwbo.org/basis/

"Africa is a strategic investment"

Africa is a strategic market for HP says Rainer Koch, Managing Director and Technology Solutions Group Lead for HP Africa

With the goal of establishing HP as the world's leading technology company, Africa is a strategic market in HP's growth plan. HP's activities in Africa are led by local presence in eight countries: Algeria, Egypt, Kenya, Morocco, Nigeria, South Africa, Tunisia and Uganda. HP is represented by a strong network of channel partners covering roughly 95% of the continent with customer call centres in north and south Africa.

Doing business in Africa

With an average GDP of approximately 6%, Africa offers an attractive investment opportunity for HP. Over the years, we have seen improvements in infrastructure investments resulting from factors such as the growth in the telecoms industry, banking consolidation, debt relief and progress towards democracy. Additionally, as government organisations become more transparent, foreign confidence and investments in those economies increase.

HP does business in all sectors across Africa, with a strong focus on telecommunications, financial services, public sector, health and life science, manufacturing, and oil and gas. As the largest technology solutions provider in Africa, the solutions that we offer, and our local presence, enables us fully to serve customers' needs, whilst increasing the skills of local communities.

HP's African education initiatives

As a key Information and Communications Technology (ICT) player on the continent, HP has projects underway to help Africans harness the power of ICT.

A great example of this is HP's support for a strategy to turn all African schools into NEPAD e-schools. To date, HP has launched the NEPAD e-school initiative in Burkina Faso, Egypt, Mozambique, Nigeria, South Africa and Uganda. The main aim of this project is ultimately to equip an estimated 600,000 schools throughout the continent with PCs, software and internet access by 2015.

"Reversing Brain Drain into Brain Gain in Africa" is another programme HP has formed in partnership with UNESCO. The primary aim of the initiative is to enable institutions of tertiary education across Africa to collaborate on research by connecting to international networks through the use of advanced technology known as grid computing.

Furthermore, HP has teamed up with NGOs to provide IT and business training to graduates and unemployed youths who need professional IT skills. The 'Graduate Entrepreneurship Training through IT' programme provides grants worth US$40 000, IT equipment and professional guidance courses to various centres and their trainers in Nigeria, Kenya and South Africa, with additional centres planned in 2008. Also, in 2007, HP awarded the University of Cadi Ayad, in Morocco, a US$100 000 HP Technology for Teaching grant.

South Africa's President Thabo Mbeki, at the 2007 opening of the Maripe secondary school in Mpumalanga.

Bugulumbya Senior Secondary school students pose for a 2007 photo with Ken Mbwaya and Rainer Koch of HP and Computech's Chris Muk

Co-operation in building ICT infrastructure

The key focus area for the 2008 G8 Summit is on building a joint policy towards Africa, and developing its markets amid globalisation. Africa needs a sustainable ICT infrastructure and the development of the ICT sector can be channelled into growth areas such as the telecommunication sector.

Major telecommunications operators throughout the region rely on HP solutions. Amongst others, HP provided Wataniya Telecoms, one of Algeria largest mobile operators, with an end-to-end solution, enabling it to offer innovative mobile telecommunications solutions, and to be successful in a competitive playing field.

Challenges in Africa

The energy, transportation and ICT infrastructural needs represent some of Africa's greatest challenges. However, the development of an efficient energy infrastructure also presents an opportunity for the continent to take advantage of natural resources such as solar heat and wind energy.

The G8 Summit is tasked with making decisions that will affect generations to come. Better ICT infrastructure across Africa will make for a more attractive investment landscape. The continent presents numerous opportunities, and with continued growth, HP remains confident and committed to Africa's future.

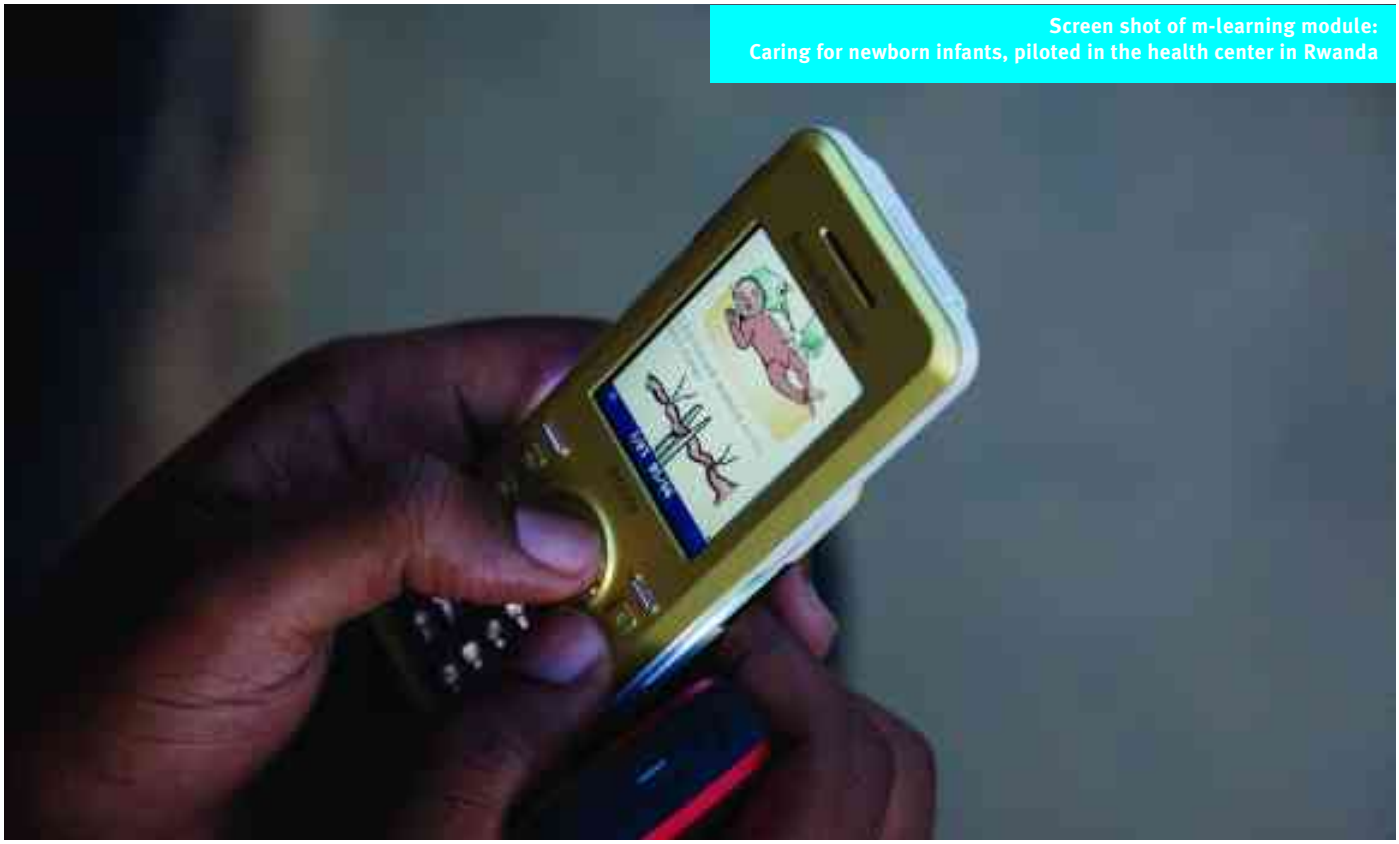
Factbox

HP provided key technology solutions to the Ugandan Government's Ministry of Finance, Planning and Economic Development, which implemented a country-wide Integrated Financial Management System. The solution enabled it to improve budgeting, financial management and accounting. This transparency fundamentally paved the way for Uganda to enjoy foreign investments and multilateral financing – encouraging more confidence in the country.

www.hp.com

Bringing connectivity to Millennium Villages in Africa

A unique public-private partnership is bringing connectivity to almost half a million people in 10 sub-Saharan African countries



Screen shot of m-learning module: Caring for newborn infants, piloted in the health center in Rwanda

Africa is at the epicentre of extreme poverty. Income in the world has now soared to unprecedented levels – 2006 was even touted as the richest year in human history. A large share of this prosperity, however, is not reaching almost half the world's population, and is completely by-passing the poorest of the poor. In total, 2.5 billion people struggle to survive on less than USD 2 a day. Africa remains the epicentre of extreme poverty, with a large number of people in African countries trapped by endemic poverty, especially in rural areas.

The Millennium Development Goals (MDGs) are a series of time-bound targets with a deadline of 2015, which range from reducing extreme poverty and hunger by half to improving education, health, gender equality and environmental sustainability.

Telecommunications are fundamental in society

The mobile phone was once seen as a luxury item, reserved for those in higher income segments who could afford it. Today, mobile communications and information communication technology (ICT) in general are seen as a basic necessity – as basic as access to clean water, roads and electricity.

Telecommunication is fundamental in society. It addresses human needs – whether it is extending basic services such as health care or helping to establish access to credit, transferring money, checking on family and friends' well-being and whereabouts, updating on natural calamities and disaster relief, providing educational material, access to news, or enhancing personal safety or public safety in general.

Today, with mobile phones available in the USD 20 range, there are over 3 billion mobile phone subscribers around the world. By 2013, the next 3 billion subscribers will be connected and the majority will be from emerging markets.

Information and Communication Technologies are critical to achieving the Millennium Development Goals (MDGs)

Recent studies have shown that an increase of 10 mobile phones per 100 people could increase GDP growth by 1.2 percent. In 2006, 5 percent of Africans had access to the internet versus

Mobile communications will dramatically improve access to healthcare in rural Africa

50 percent in G8 countries. This data provides a compelling case for exploring ways to leverage these powerful technologies in the communities that need them most.

The integration of information and communications technologies plays a critical role in ending the cycle of poverty and can impact all of the MDGs. Around the world, mobile technologies are proving to be important tools in expediting information sharing and creating pockets of entrepreneurial enterprise among poor, rural communities. At the same time, they also enhance and boost existing systems in education, health care and business. As basic interventions are achieving success in the Millennium Villages, communications technologies can help take the fight against poverty a step further.

Ericsson and Columbia University's Earth Institute and the Millennium Villages initiative have entered into a unique public-private partnership designed to bring connectivity to almost half a million people in 10 sub-Saharan African countries. As the dominant telecoms supplier in Africa, Ericsson is leading the initiative with our customers in the region, including Zain and its subsidiary Celtel, and MTN, in order to develop a comprehensive end-to-end telecommunications strategy in the villages and to extend mobile phone connectivity and coverage build-out to selected areas.

Public-Private Partnerships create sustainable solutions

In order to effectively combat the extreme poverty crisis, the public and private sectors will need to work together to create practical, sustainable solutions. One type of public-private partnership with tremendous – and largely untapped – potential is mobile phone and internet connectivity pairing with social sectors like health and education.

Ericsson's President and CEO, Carl-Henric Svanberg, says: "The Millennium Village project provides us with a unique ecosystem to demonstrate the benefits of voice and internet. We believe the uptake of mobile services could go even quicker than anticipated in this environment, as the need for even basic services is so much greater. The project is one concrete example where we are actualizing our commitment to the Millennium Development Goals, while at the same time stimulating positive business impacts and opening new markets in remote parts of rural Africa."

Transformative technology delivered to rural Africa

The first telecommunication services were delivered to the Millennium Village in Rwanda by Ericsson and its partners in October 2007. During May 2008, additional services were delivered to villages in Kenya, Uganda and Tanzania. In Kenya, Ericsson and Zain have brought mobile communication to the 5,000 people in Dertu for the first time. In this remote, pastoral and nomadic society, new mobile phone applications for livestock management are being piloted, to track livestock that has recently undergone a massive immunisation program.

In Rwanda, Tanzania and Uganda, Ericsson and Sony Ericsson are providing mobile phones to community health workers, and have piloted new health applications for mobile learning purposes as well as basic household data collection. Zain and MTN have

The first phone call ever in Dertu, Kenya, was made possible by Ericsson, Sony-Ericsson and Zain

provided SIM cards and have established emergency telephone numbers in order to improve access to health care and emergency services. Together with partners, Ericsson are also working to make access more affordable, for example through shared access to voice and data solutions.

Because many rural communities have limited or no access to the power grid, Ericsson and Sony Ericsson have jointly developed a Village Solar Charger, capable of recharging at least 30 mobile phone batteries per day and eight phones simultaneously.

Sony is also committed to working toward a sustainable society under the slogan "For the Next Generation". Sharing the vision and activities of the Millennium Village project, Sony provides villages with laptop computers and digital cameras in order to support ICT education.

On a recent visit in Dertu, Kenya, Jeffrey Sachs, Special Advisor to the United Nations Secretary-General and Director of Columbia University's Earth Institute, said: "Mobile communications is perhaps the single most transformative technology for rural African villages to improve access to health care and education, create new business opportunities and access to markets, and ultimately to help eradicate extreme poverty. We are excited by the tremendous opportunities which mobile phones make possible in every kind of community and economic activity – ranging from pastoralists and farmers, to traders, health workers and teachers."

www.ericsson.com/millenniumvillages
www.sonyericsson.com
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www.earth.columbia.edu
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Millennium Villages

Intellectual property: the key challenges

Concentration on strengthening intellectual property rights is distracting from issues that could make a real difference to people's lives if tackled with imagination

By James Boyle, William Neal Reynolds Professor of Law at Duke Law School

Here are some predictions: leaders at the 2008 G8 Summit will say that intellectual property (IP) policy is vital to the coming decade. They will be right. They will say that protecting and strengthening IP rights should be our first priority. (Here, they will only be half-right; IP is a matter of balance. Saying that strengthening rights is always better is like saying that you cannot over-water a plant.) They will announce some set of initiatives related to innovation and IP.

However, I believe that there are three challenges that need to be addressed that will most likely be ignored. These are hugely important challenges, in human, economic, cultural and development terms. Here they are, in reverse order:

Challenge three: find out what works – empirically

This is the simplest challenge to tackle. IP law should be a matter of fact-based policy, not faith-based intuition. Remarkably, no global economic study has ever been conducted on which policies work and which do not. The few studies that have been conducted, such as the UK government-backed Gowers' Review, or the EU study of database protection, have shown that some of our policies may actually be counterproductive.

The G8 should lead the way in turning to evidence-based policy. Yet it is a safe bet that in all the announcements coming out of this Summit, not a single one will include an attempt to see if the IP policies proposed actually work.

Access to research into new medical treatments is still limited in poorer countries

Challenge two: close the '20th-century black hole' and save the 20th century's culture for our children

The vast majority of 20th-century culture – books, music, poems, films – is still under copyright. In the United States for example, only works published before 1923 are clearly in the public domain. And the vast majority of that culture is also probably commercially unavailable. Tim O'Reilly provides one useful back-of-the-envelope calculation of the problem: there are 32 million titles in the Online Computer Library Center's 'WorldCat' catalogue; this is a reasonable, though not perfect, proxy for the number of books in US libraries. Nielsen's Bookscan shows that 1.2 million books sold at least one copy during the year. This yields a percentage of 'books commercially available' to 'books ever published' of about 4 per cent. But of those 1.2 million books, many are in the public domain – think of Shakespeare, Dickens, Austen, Melville, Kipling. Thus the percentage of books that are still under copyright *and* commercially available is, in all likelihood, considerably lower than 4 per cent.

This matters, for two reasons. Firstly, a huge percentage of copyrighted works have no identifiable copyright holder. This becomes truer the further back one goes. Remember copyright now requires neither registration nor renewal. Consider those fascinating home movies of life in the segregated South, and that diary of privation in the 1930s. These works might still be under copyright but, of course, the copyright holder will never be found. This is true even for commercially produced works, where the company has gone out of existence, the author's heirs cannot be identified, or no author could be found in the first place. Archivists estimate that most of our film heritage, for example, consists of 'orphan works' – under copyright but with no identifiable owner.

> *"Our culture sits in our libraries, films are turning to dust, books remain inaccessible to digitisation. All for no purpose"*

Secondly, copyright is a 'strict liability' system. Copying or distributing is still illegal, whether done in good faith, in the belief that there is no surviving copyright holder, or even when done for non-profit archival purposes. Our culture sits in our libraries, films are literally turning to dust, books remain inaccessible to digitisation or republication for education or simple pleasure. All for no purpose. Copyright has done its job in encouraging the production of the work. It now operates simply as an impediment to giving the public access to that work, indeed to our collective culture. This is the 20th-century black hole.

The good news is that there are simple solutions to this problem. We could create and improve registry systems. We could develop a simple legislative scheme that provides immunity to archivists and individuals for

digitising work, so long as they make 'reasonable efforts' to identify a rights holder. (If a copyright holder eventually did appear, he or she would still have the right to insist that the work be taken down.) In a few countries, these proposals have even attracted some attention. The G8 could meet the second challenge by declaring that its members are committed to preservation of, and access to, our collective culture. (That, after all, is the reason we have copyright in the first place.) Let us not be identified as the generation that let a century's art and culture moulder away, when the countless millions of orphan works could instead be available to the world online for free.

Challenge one: encourage innovation where it really matters and provide an integrated system to promote access to medicines and research into the diseases of the global poor

This challenge is clearly the most vital. I start from the premise that saving the lives of other human beings, particularly children, ought to be at least as important in our innovation policy as saving the world from

"90 per cent of public and private investment goes into research that benefits 10 per cent of the population"

knocked-off handbags and illicitly copied music. To say this is not to slight the importance of the latter problem. As a believer in the basic premises of the IP system, I think that 'piracy', as it is misleadingly called, is indeed an issue that we should be, and are in fact, addressing. Enormous resources, both state and private, have been poured into the problem (appropriately in many cases, though in others there is evidence that the cure can be worse than the disease). I am merely arguing that we should devote at least an equivalent amount of time and effort internationally to craft a system that will encourage research into the diseases of the global poor – and how to cure them effectively and cheaply.

What is the challenge? Around the world, poor people are dying in their millions from diseases, either because no-one is researching a cure, because the sufferers are too poor to make it economically 'worthwhile', or because though there are methods for prevention or cure, the sufferers cannot afford them or get access to them.

These abstract words conceal a situation of matchless human misery. Every year a huge number of people – estimates range from 1 to 3 million – die from malaria. Most of them are young children in Sub-Saharan Africa. It is estimated that 6,000 children die every day from drinking contaminated water. Millions of others are blinded, suffer neurological diseases, respiratory infections – the list goes on and on. There is no reason to believe that the parents of these children love them any less than you love your children, or than your parents loved you.

How do we respond to this devastating reality? Scholars call it the '90-10 problem'. Roughly 90 per cent of public and private investment goes into research that benefits 10 per cent of the population. This is hardly surprising. Our main techniques for encouraging research into drug development – particularly patents on pharmaceuticals – will hardly work to encourage research into diseases that kill or cripple the chronically poor. To say this is to criticise neither patents nor the drug companies that depend on them. Patents are designed to focus research on problems for which there is a commercial market. In many cases, they work very well. We get statins that lower cholesterol, drugs to treat rheumatoid arthritis or diabetes. We also get drugs to treat male pattern baldness, sexual dysfunction and weight gain. We do not – and will not – get research into malaria, schistosomiasis, or sleeping sickness.

Even where there are effective tools for prevention – many of them focused on basic public health measures

– they are not affordable or accessible. Occasional moments of brilliance show what could happen if we focused more human ingenuity (and money) on finding solutions and making them available. The 'lifestraw' – a simple resin filter inside a straw that is worn around the neck – allows its users to drink from unsafe water supplies and yet to avoid viruses and parasitic diseases. Village water pumps can be powered by children's merry-go-rounds. Cheap and simple net and insecticide kits can dramatically lower malaria rates. But incentives could also foster more scientific research focused on the diseases, and the public health situation, of the global poor; a malaria vaccine, for example, or stable and cheap once-a-day cocktails of anti-retrovirals for treating AIDS.

There are existing public and private efforts to address these problems, of course. Some are focused on access to medicines – solving problems of both price and accessibility in existing remedies. The Doha Declaration, for example, reaffirmed the right of states to use the 'flexibilities' in the Trade-Related Aspects of Intellectual Property Rights (TRIPs) agreement to protect public health, whether by issuing compulsory licences for vital medicines or through other techniques.

Yet G8 governments have a poor record in actually supporting those flexibilities in practice. Both the US and the EU trade representatives have responded negatively to the attempts of states, such as Thailand, to use the freedoms that TRIPs gave them and Doha reaffirmed. This is truly a shameful – and inhuman – result. This needs to be on the G8's IP agenda.

Other efforts are focused on encouraging research on the diseases of the global poor. The World Health Organization, for example, has a working group exploring which types of incentive systems – prize funds, guaranteed purchases, direct investment – would best encourage research on neglected diseases. The Gates Foundation has also done much on the private philanthropic level.

Yet these efforts pale in comparison to the amounts of time, governmental effort, money and regulatory ingenuity spent on our 'conventional' IP policy discussions: geographical indications for wines and cheeses, expanded trademark protection, technological protection measures for copyrighted content and the rest. We exile the life-or-death discussions to poorly funded health agencies, private philanthropic efforts, vague development agendas. Yet they are, at base, core questions of innovation policy, of incentives, distribution and access. They are deeply implicated – positively and negatively – in our existing structure of IP policy. Time, then, that we started paying more attention to them.

I propose a simple 'tying' strategy. Ultimately, IP is a tool to promote innovation in science and culture – innovation that is designed to serve human ends. Whatever our hierarchy of values about what innovation should be encouraged, surely we must agree that saving the lives of poor kids from preventable diseases is pretty high on the scale? Why not discipline ourselves by requiring that in each international deliberation over IP, in responding to each industry request for stronger rights, we commit our countries also to spending an equivalent amount of time, effort and state resources solving the problems of access to medicines and encouraging research into neglected diseases. There are promising possibilities: a proposed Research and Development Treaty; multiple prize funds to encourage research in everything from tuberculosis to malaria; education in the TRIPs 'flexibilities'; even low-cost regional distribution techniques for generic drugs.

Not all of these initiatives are good ideas. Some are comparatively cheap, some are expensive. They would all need hard, pragmatic consideration to see if they worked. But imagine committing our trade representatives and IP bureaucracies to spend as much time and money working to solve these issues, as they do to solving the problems of counterfeit handbags and illicitly copied pop songs. If we could do that, we might be able to look at IP as part of a truly holistic, and humane, innovation system. And look at ourselves in the mirror without shame, as well.

James Boyle's latest book, The Public Domain, *will be published by Yale University Press in November 2008*

Energising community growth across Africa

Coca-Cola is actively supporting the achievement of the Millennium Development Goals

Having operated in Africa for more than three quarters of a century, the Coca-Cola business has deep roots in local communities across the continent. It is committed to maintaining an open and constructive dialogue with people in its communities, understanding their needs and aspirations, and investing company time, expertise and resources in collaborative initiatives that respond in a meaningful way to community needs and priorities.

The Coca-Cola Company is Africa's leader in refreshment. Every day, about 78 million servings of Coca-Cola products are consumed across the continent's 56 countries and territories. These are produced and distributed by over 160 bottling and canning plants, and then sold by 900,000 retail partners, making the Coca-Cola system Africa's largest consumer goods provider.

In 2007, the Coca-Cola Africa Group experienced 10% unit case volume growth – the second highest growth rate across the Company's geographic operating groups. Today, Africa contributes 7% of The Coca-Cola Company's total global unit case volume.

Coca-Cola's story of growth would not be possible if it were not in tandem with the growth and development of the communities it serves. Over the last five years, Coca-Cola has invested US$600 million in Africa. The company is determined to make its beverages available and affordable around the world, as well as to invest in the health and sustainability of the communities it reaches.

In 2007, The Coca-Cola Africa Foundation awarded ChildHelp Line Foundation (a local Ghanaian NGO) $56,000 to fund the Aburi Primary School Project. The aim of the project was to provide a modern school environment where teachers and students were motivated to teach and learn.

"For us to have a successful and sustainable business, we must invest in and support the growth of sustainable communities."

Neville Isdell,
Chief Executive of The Coca-Cola Company

Together with its bottling partners (the Coca-Cola System), it employs more than 55,000 people in Africa. Through its value chain, job creation comes alive; it is estimated that for each job created at Coca-Cola Africa, ten to sixteen additional jobs are created within its distribution system. Coca-Cola is committed to - and reaps the benefits from - good corporate governance, innovation amidst challenges, adaptation to local markets, communities and cultures, and caring partnerships.

Coca-Cola is actively supporting the achievement of the Millennium Development Goals (MDGs). To this end, it recently committed to enhancing its current distribution network and replicating its community-empowering Manual Distribution Centre (MDC) model in key African countries over the next three years. Through this commitment, Coca-Cola aims to create 1300 – 2000 additional independent distribution businesses, 5300 to 8400 new jobs, and to generate new revenue of between US$320million and US$520million.

Lilian Nale, MDC owner in Kinondoni, Dar es Salaam, employs five people at her MDC operation. She says, "Being an MDC owner has empowered me in business skills and management as a whole. It has helped me to pay school fees for my daughter, Angel, and I am starting to build my own house now."

Coca-Cola's commitment to corporate giving in Africa has been its focus since it entered the continent in 1928. This commitment was formalised with the creation of The Coca-Cola Africa Foundation in 2001. Focusing on the critical areas essential to Africa's social and economic development, its focus spans Health, Environment, Entrepreneurship and Education, which form the Foundation's 4 pillars.

Sustainable development is key to corporate thinking and a fundamental driving force for its business success. The Coca-Cola Company, in conjunction with the U.S. Agency for International Development (USAID), is spending $7m to address water scarcity issues in Africa. On a global level, in September 2007, Coca-Cola announced that it will build the world's largest bottle recycling plant as part of a plan to recycle all its plastic packaging in the US. The company has already built PET recycling factories in Australia, Austria, Mexico, the Philippines and Switzerland.

NetsforLife distribution in Tanzania with the Minister of Health (April 07)

Coca-Cola actively engages governments and regulators to create investment-friendly environments, and believes that trade liberalisation should be undertaken together with a campaign on Joined-up Sustainable Trade (JUST). Further, the Coca-Cola Company chairs the IATWG (Intra Africa Trade Working Group) of the Commonwealth Business Council in promoting the investment climate in Africa. Coca-Cola strives to play an active part in contributing to energy reduction. Its African plants have reduced their energy consumptions by eleven per cent over the last two years, and the Company is also innovating HFC-free cooling solutions that have less impact on the global climate.

Ultimately, Coca-Cola believes that it is through working together, leveraging platforms such as public-private partnerships and, importantly, nurturing its links with local communities, that it can contribute to Africa's economic growth. Real transformation is possible through energising sustainable communities.

The Manzini community has been proactive in ensuring that the village has water. The Coca-Cola Africa Foundation and Swaziland Beverages assisted them by launching the Emlonyeni Water Project

Coca-Cola's focus on healthcare

The health of the communities we serve is of the utmost importance to us. We work with local health officials and a variety of experts to provide communities within which we operate with healthcare-related education.

• At The Coca-Cola Company, water is the main ingredient in all our beverages. Lack of public access to clean water is a serious problem in many communities. We have, therefore, set ourselves the goal of becoming water neutral in our operations on a global basis. For our business, that means investing in and supporting initiatives that bring safe water and sanitation to communities in need; continuing to use water more efficiently in our operations; returning water used in our manufacturing processes safely to the environment in a form that can sustain aquatic life; and helping to protect watersheds in the regions in which we operate. We support more than 100 community water projects in 49 countries.

• The Coca-Cola system provides comprehensive HIV/AIDS coverage for all 55,000 Coca-Cola system associates, as well as their spouses and children. Our involvement in campaigns such as "Dance4Life" also supports our aim to raise community awareness of HIV/AIDS. Pledging $2.5 million over 3 years, The Coca-Cola Africa Foundation aims to further develop programmes in Egypt, Ethiopia, Kenya, South Africa and Tanzania.

• In partnership with three South African Government departments, Coca-Cola South Africa manages a programme that provides Nurisha to children at public schools. Nurisha is a vitamin-enriched powder concentrate4 that is mixed with water to provide children with the daily nutrition they need. This project is a further programme that strives to contribute to the achievement of the United Nation's Millennium Development Goals, which include eradicating extreme poverty and hunger.

For more details about The Coca-Cola Company and The Coca-Cola Africa Foundation please visit our websites.

www.africa.coca-cola.com
www.africacommunity.coca-cola.com

The Coca-Cola Africa Foundation

Africa: how do we measure progress?

An interview with Donald Kaberuka, President of the African Development Bank

The last few years have seen plenty of initiatives, reports and pledges on Africa from the international community. Is the performance matching the aspirations?

I believe the international community remains committed to the pledges they have made. There has been progress. However, a recent report by the Organisation for Economic Co-operation and Development – Development Assistance Committee found that while aid to Africa increased to about $35 billion in 2006, "most donors are not on track to meet their stated commitments to scale-up aid". Implementation remains key, especially to provide predictable levels of assistance to particular countries, so that recipients can plan ahead with confidence.

Further improvement in the quality and effectiveness of aid are needed. I hope that the review of the Paris Declaration in Accra in September will show results, but also demonstrate where we can do better. I am sure the will is there, but it is not always translated into practical improvements in-country.

Good progress has been made in debt relief, with multilateral debt relief of up to $60 billion under the Mutual Debt Relief Initiative, mostly benefiting African countries. In addition, under the enhanced Heavily Indebted Poor Countries initiative, the African Development Bank (AfDB) has committed about $4.8 billion (in nominal terms) to debt reduction for the 26 African countries.

On infrastructure, the picture is also promising. Members of the Infrastructure Consortium for Africa (ICA), hosted by the AfDB, have committed more than $10 billion by 2007 (up from $7.7 billion in 2006). But huge needs remain: a recent study estimated the continent's infrastructure financing needs at $40 billion a year over ten years, with nearly two-thirds of the investment needed in the energy sector.

Progress on trade is too slow in the Doha Development Round and we also need to mobilise greater support on Aid for Trade resources.

In short, progress has been made, but more needs to be done to consolidate the gains. Donors should honour their pledges to Africa because investment now will pay rich dividends in the not so distant future. We at the Bank will continue to play our part.

Are we getting any better at measuring development effectiveness?

While there has been a commitment by all donors to scale-up financial and technical support, this must be accompanied by a demonstration of increased results at the country level. We are getting better at measuring both development effectiveness (social and economic progress) and aid effectiveness (outputs produced using aid). But as aid is only one contributory element, it often remains difficult to trace clear connections between aid and development progress.

Greater emphasis is placed on results by donors and recipients. Several countries, including Ghana, Uganda and Rwanda, have extensive processes to monitor their poverty reduction programmes; others seek systematically to link budget allocations to results achieved. To this end, we will continue to support statistical capacity building in Africa, and have helped launch a best practice network.

We will now report within the agreed results measurement framework, underpinned by updated operational guidelines for Strategy Papers, programme and project monitoring and evaluation. We commission independent evaluations to assess the development effectiveness of the Bank's policies and operations. We will issue our first report on development effectiveness this year.

Adapting to climate change is one of Africa's biggest challenges. How do you see the AfDB's role?

Africa is especially vulnerable to climate change, with the poor paying the highest price. The Bank has both the responsibility and the capacity to assist. We are promoting greenhouse gas mitigation activities, and expanding access through clean energy investments and low-carbon financing.

We are increasingly focusing on adaptation with a Climate Risk Management and Adaptation (CRMA) Strategy, along two main lines:

- due diligence in AfDB projects and country/sector planning and decision-making, to climate-proof Bank investments and maximise their development effectiveness;
- support for CRMA undertaken by regional member countries, through capacity-building and investments. We will channel external resources for risk management add-on projects to address both current and future climate risks.

We will be selective, focusing on infrastructure, including water and energy as well as agriculture, land use and natural resources management. Given the current shortfall in adaptation financing, we will facilitate better access to existing sources and advocate for new funding, building on strategic partnerships with other development agencies, the private sector, NGOs and local communities.

Climate change puts an additional pressure on natural resource use and adds to insecurity among producers. In many areas, the natural resource base is being affected by processes of soil degradation, water scarcity, water quality reduction, siltation, deforestation, over-fishing and over-grazing. The Bank, together with the UK Department for International Development, has developed the Congo Basin Fund to support innovative and transformational projects which will help to manage the forests better; secure sustainable livelihoods; and reduce the rate of deforestation.

Is the quality of governance improving on the African continent? And what are the signs of progress in the anti-corruption drive?

African countries have made significant progress. There remain pockets of instability and arbitrary rule, but democratic change is becoming the norm in the region, and African-led efforts have reduced conflicts. The African Peer Review – a voluntary mechanism – has grown in importance.

Change has not been entirely smooth. The Worldwide Governance Indicators published last year stated: "The good news is that some countries, including some of the poorest ones in Africa, are deciding to move forward, and are showing to the world that it is possible to make substantial inroads in

"A recent study estimated the continent's infrastructure financing needs at $40 billion a year over ten years"

improving governance over a relatively short period of time – in less than a decade. However, others have stayed behind or even deteriorated."

The increasing demand from citizens for greater transparency and accountability promotes scrutiny over the use of public resources and diminishes tolerance for corruption. We are seeing greater use of Public Expenditure Tracking Studies and surveys aimed at assessing political transparency and governments' capacity to provide effective public services.

We have a key role in promoting integrity and strengthening institutions – for example, through the establishment of the Tanzania Public Procurement Regulatory Authority; or helping Liberia improve transparency and accountability in revenues generated from its extractive industries and forestry resources. This is a positive African agenda for good financial governance – consistent with the G8 Action Plan for Good Financial Governance in Africa.

Aren't we seeing the emergence of two Africas: the oil-exporters and the oil-importers?

It is rather the emergence of two groups facing different challenges, with considerable variation between them. Oil exporters have enjoyed good growth due to high oil prices and increased demand, and have increased production. They have enjoyed overall fiscal and

UNION BANK OF NIGERIA
PROMOTING GLOBAL VISION

Barth Ebong
GMD/CE
Union Bank of Nigeria

Union Bank and Its Vision

Union Bank of Nigeria PLC's vision is national, regional, continental and global in outlook. From all perspectives, the Bank's vision is simply to be **the best of the banks to bank on**. In furtherance of this, our mission is to become the foremost financial Institution with the most satisfied customers.

Today, the Bank has a full-fledged subsidiary in London (UK) and a representative office in South Africa. In the West African sub-region, we have high stakes in Ghana, HFC bank (Ghana) Limited and Banque Internationale Du Benin (BIBE). These subsidiaries add to our network of correspondent banks which facilitate our global operations. The latest being our partnership with Black Rock/Merrill Lynch in the management of the highest allocation of Nigeria's external reserves.

Post Consolidation

Poised to keep ahead of the post-consolidation challenges in readiness for the Financial System Strategy (FSS 2020), Union Bank has launched Project **GEAR**, a business transformation initiative that aims to **G**row the bank from **G**ood to **G**reat; **E**clipse the competition; **A**lign the bank's strategy, people, processes and technology; and **R**edefine the Bank's position as a leader in the Nigerian banking industry.

Prior to the consolidation programme of the Nigerian banking industry, Union Bank had proactively positioned itself and came out of the exercise stronger, bigger and better. The Bank as of today, has a shareholders' fund in excess of N100.5 billion as well as assets and deposits bases among the highest in the country. As at March 31, 2007, the Bank had an assets base of N699.45 billion and deposit of N482.38 billion.

Integration

The Bank has concluded its business processes by upgrading its banking software, flexcube. The Business Process Redesign (BPR) project led to the establishment of efficient processes in accordance with best practices that was aligned with the new version of flexcube. The essence is to delight our customers world wide with unmatched service, with a view to running all operations on cutting edge technology.

The Union Bank and its Subsidiaries

Union Bank's subsidiaries specialise in mortgage insurance, trusteeship, stockbroking, property development, telecommunication and share registration. The uniqueness of these approaches is that they have emerged market leaders in their various sub-sectors and are contributing substantially to the Groups earnings as 'one shop financial institution' in Nigeria.

These most formidable subsidiaries and associate companies in the Nigerian financial market are: Union Homes Savings and Loans PLC, Consolidated Discount House, Union Assurance Company Limited, Union Trustees Limited, UBN Property Company Limited, Union Registrars Limited, Union Capital Markets Limited, Saffer-Union (West Africa) Limited, Unique Ventures Capital Management Company Limited, Banque Internationale du Benin (BIBE), HFC Bank (Ghana) Limited and Union Bank (UK) Plc.

Economic Growth/Awards

For over 90 years, the Bank has been in the vanguard of Nigerian economic development and growth and have won many laurels.
For instance, it has won the Nigerian Stock Exchange President's Merit Award twelve times, which is more than any other bank in the country. Four out of the last six years, i.e. 2000, 2001, 2002 and 2004, it was named **The Bank of the Year** for Nigeria by **The Banker** magazine, a sister publication of the influential **Times of London**. Also, the magazine ranked the Bank among the best banks in the world. It won 2006 **Euromoney** Award as **The Best Bank in Nigeria**.

Apart from excellence as the best bank in Nigeria, it has also won Central Bank of Nigeria (CBN) **Best Agric Support Bank** award since its inception in 1993; CBN **Best State Farmer of the Year** award.
Recently, the Bank was also rated by Fitch Global Ratings, a foremost international rating agency, assigning it **National Long and Short-term Ratings of "A+(nga)" and "F1(nga)" respectively as well as Issuer Default Rating ("IDR") "B+" with stable outlook.**

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"Progress on trade is too slow in the Doha Development Round and we also need to mobilise greater support on Aid for Trade resources"

current account surpluses against deficits in the other group of countries.

The increased resources have supported real GDP growth of one percentage point above that of the group of oil importers since 1995. The challenge for oil exporters is to ensure that the proceeds are invested productively in infrastructure and human capital development to support their medium- to long-term needs.

Oil importers face the challenge of containing inflationary pressures, to finance or contain the increases in their fiscal and current account deficits. However, recently the growth differential between them has narrowed as strong external demand for minerals and tropical agricultural commodities, domestic investment and productivity gains, supported by sound policies and improved governance, have enabled oil importers to perform better. Their average growth is increasing and some (Tanzania, Zambia, Mozambique, Ghana) have outperformed oil exporters.

The New Partnership for Africa's Development (NEPAD) is now in its seventh year. How successful has it been in upgrading Africa's infrastructure?

NEPAD has a two-pronged approach: Short-Term Action Plan (STAP), and the Medium to Long Term Strategic Framework (MLTSF). The Heads of State specifically mandated the Bank to be the lead agency for infrastructure development. We have had some success.

Infrastructure has received increasing attention and substantial funds have been mobilised. ICA members have increased their support to infrastructure in the form of Official Development Assistance by 165 per cent between 2003 and 2007 (from $3 billion to $8 billion).

We have helped finance 40 STAP projects for a total commitment of $1.7 billion and some $2 billion has been mobilised in co-financing for key NEPAD flagship projects across the continent, including: Mozambique-South Africa Gas Pipeline; Morocco-Algeria-Spain Electricity Interconnection Project; West Africa Gas Pipeline; Benin-Togo-Ghana Power Interconnection Project; and East African Submarine Cable System Project.

We have also established a NEPAD Special Fund, which has approved financing for project preparation totalling $11 million, and there is active knowledge-sharing, for instance on country diagnoses and project preparation.

Encouragingly, regional infrastructure projects are now attracting more interest. In 2006, they represented 12.5 per cent of total investments and for the Bank the allocation for regional infrastructure will increase to 17 per cent under ADF XI between 2008 and 2010 – some $1.8 billion.

What message would you like to deliver to G8 leaders meeting in Hokkaido Toyako?

I urge them to keep faith with Africa. We are making substantial progress. Africa is taking responsibility for its own destiny. But we still need help: not just aid, but investment; removal of barriers to trade; transfer of technology; ideas; and skills. Our main goal must be to promote greater integration within Africa and within the global community.


Microsoft

The Unlimited Potential of Africa

With the world's economy shifting balance, Africa has an increasingly important role to play as a trading partner and a competitor. Information and communication technologies (ICT) will help accelerate the modern knowledge economies that are the cornerstone of a more competitive and stable Africa.

As one of the world's leading technology companies – and one that has 14 offices, hundreds of employees and thousands of partners across Africa – Microsoft recognizes that it can and should make a substantial contribution towards enhancing the continent's capacity for development.

We know that ICT will not directly resolve conflict, disease or governance, but technology in all forms has tremendous potential to connect communities, markets and nations. So together with our partners, our goal is to ensure that ICT supports and accelerates progress towards the United Nations' Millennium Development Goals and towards sustainable development across Africa.

To make this a reality, we have expanded our Microsoft Unlimited Potential initiative to focus on three key areas that will help create social and economic opportunity for the long term:

- → **Transforming education**
- → **Fostering local innovation**
- → **Enabling jobs and opportunities**

Bringing the same spirit of innovation to global citizenship that we have always applied to our business, our first milestone is to deliver the benefits of ICT to the next billion people by the year 2015.

Today, we are already taking key steps throughout Africa. We are driving our Partners in Learning programme with at least 15 governments – providing training and access to technology for thousands of teachers and students. We are also leading a NEPAD e-Schools consortium and other targeted efforts to bring technology into education in meaningful ways; helping regional communities to learn new technology skills and find employment; empowering the youth of Africa through access to technology; providing entrepreneurs with innovative funding and development support; and helping NGOs to improve their capacity and effectiveness. And these are just some of the initiatives.

So at Microsoft, we can see the unlimited potential of Africa. Can you?

www.microsoft.com/unlimitedpotential

Microsoft Unlimited Potential

The role of the Kuwait Fund in supporting development of the agricultural sector

The Kuwait Fund assists Arab and other developing countries in building their economies, with a particular focus on the sectors of agriculture and irrigation, transport and communications, energy, industry, water and sanitation.

Lebanon - Litani River project. Developing agricultural production through improved use of water resources from the Litani River.

Agricultural development is key to food security, and is vital for ensuring that all people have sufficient food for healthy and active lives. Since its establishment, Kuwait Fund has provided support for agricultural projects in many developing countries where 60 – 80% of the population depend on agriculture for their livelihood.

Assistance for agricultural development

During the past 46 years the Fund has supported development operations in 101 developing countries by providing concessional financing for 716 projects in various sectors, such financing amounting in total to about US$ 13.5 billion.

The total assistance for agricultural development amounted to about US$2.2 billion, representing about 16% of the Fund's total lending as at end of 2007. Substantial sums are also lent for other projects which directly or indirectly support agricultural production and rural development, such as transport, water supply, and electricity projects. The first Agricultural Project financed by the Fund was in 1962, involving development of Al-Yarmouk Valley in Jordan.

In general, Kuwait Fund loans for agricultural projects are highly concessional, as reflected in the following lending terms:

Kuwait Fund general lending terms	
Interest rate:	1 – 3% per annum
Maturity period:	20 – 25 years
Grace period:	3 – 5 years
Grant element:	50 – 70%

Kuwait Fund For Arab Economic Development

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Kirago-Giciye tea cultivation, picking and processing on a tea plantation in Rwanda

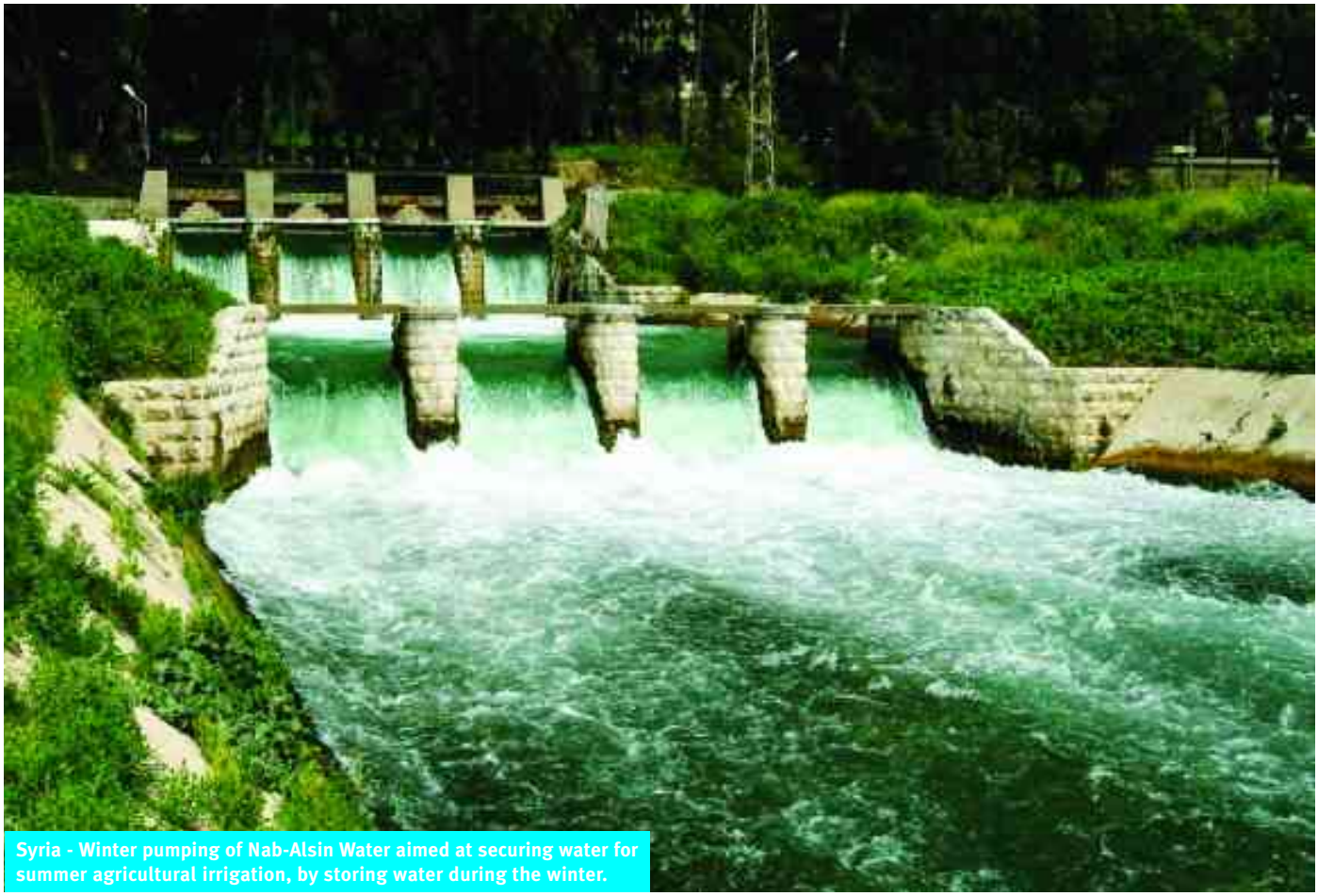
The efforts of Kuwait Fund in supporting agricultural development may be highlighted by a brief description of some examples of recent projects financed by the Fund, and by indicating their contribution to improving the food situation in the countries concerned.

Lebanon: hydro-agricultural development of south Lebanon

The project covers an area of about 15000ha and aims at developing agricultural production in South Lebanon, through adequate use of water resources of the Litani River. It focuses on irrigated agriculture for production of vegetables, fruits and fodder through a cropping intensity of about 130%. It is estimated that the number of beneficiaries of the project will be about 400,000 people. The project consists of irrigation and drainage networks, land reclamation, drinking water treatment plants and pumping stations, with all necessary equipment, in addition to institutional support and training.

Syria: winter water pumping project

The project benefits an area of about 12,000ha located near the coastal area and an important agricultural centre. It aims at securing water for summer irrigation, by storing water during the winter, to the benefit of about 13,000 farming families active in growing vegetables and fruits for local consumption and export. The main components of the project consist of rehabilitation of a number of dams, irrigation and drainage networks, pumping stations, and engineering design and supervision of construction.



Syria - Winter pumping of Nab-Alsin Water aimed at securing water for summer agricultural irrigation, by storing water during the winter.

KFAED supports agriculture around the world

Lebanon - Litani water project

Albania: irrigation and drainage rehabilitation

The project aims at improving the standard of living of farming families by increasing agricultural production, through rehabilitation of irrigation and drainage networks, pumping stations, flood protection structures, reservoirs and small dams. It also aims at strengthening institutional reforms and establishing water user associations, in addition to environmental monitoring and training.

The project consists of 3 phases covering over 200,000ha, with direct benefits to over 160,000 families.The project, which started production in 1994, reflects the principal aims of the Albanian Agricultural Strategy. There has been significant progress in participatory irrigation and drainage management, due to the formation of water user associations throughout the country.

Honduras: Elcoyolar Dam and La Flores Scheme Rehabilitation Project

The main objective of the project is to rehabilitate El Coyolar dam in order to protect the downstream area affected by floods and to generate electricity through incorporating a mini-hydro power plant in the project, in addition to rehabilitating the Las Flores Irrigation scheme so as to increase agricultural production in an area of about 4,000 ha. Furthermore, the project includes a component for the supply of drinking water to meet the increasing demand in nearby towns. One of the main benefits of the rehabilitated dam was evident during the destructive event of Hurricane Mitch, which struck the country in 1998, as the dam served to protect the lives of many people living downstream.

Vietnam: Ayun Irrigation Project

The project is located in the central region of Vietnam and covers an area of about 14,000 ha of irrigated land for the purpose of production of rice and soybeans as main crops, in addition to development of a fishery in the reservoir and

supplying drinking water. Moreover, the project aims at reducing annual flood risks. It consists mainly of earth-fill dams, reservoirs, access roads and bridges, and irrigation and drainage networks. The estimated number of the beneficiaries is about 60,000 people, being able to produce about 130,000 tons of rice and soybean annually, in addition to large quantities of fish as a source of protein.

Mali: Ke-Macina Irrigation Project

The project aims at increasing crop production, mainly of rice, in Ke-Macina area, located in the eastern region, by providing irrigation water from the Niger River to reclaimed land of about 4,600ha, where cropping intensity was increased from less than 10%, to about 120% after the implementation of the project. There are about 4,000 rural families benefiting directly from the project.

The project consists of construction of main canals, irrigation and drainage networks, flood protection works, earth roads and equipment. Also, the project provides tube wells, storage facilities and electricity networks, in addition to extension services and training.

Nepal: Babai Irrigation Project

The project lies in the mid-western region of Nepal. It provides adequate irrigation water for the development of about 13000ha on the eastern bank of Babai River, where farmers practise traditional methods of irrigation. The project benefits about 17,000 families by increasing crop production to about 50000 tons annually, with a cropping intensity of about 175%. The project consists of construction of a diversion weir with a road bridge, irrigation and drainage networks, field roads, engineering services, and extension and training services.

Providing support to farmers to improve food supply

Sudan - increasing agricultural output through better irrigation

Mali - Ke-Macina irrigation project

Geographical distribution of agricultural projects Financed by Kuwait Fund up to 31st December 2007

Region	No. of Loans	Amount in K.D. (million)	%
Central Asia and Europe	4	14.5	2.3
Latin America and the Caribbean	2	13.4	2.1
East, South Asia and the Pacific	21	92.5	14.6
Arab Countries	57	415.9	65.8
West Africa	19	65.7	10.4
Central, South & East Africa	12	30	4.7
Total	115	632	100

1 KD = US$ 3.5

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Governance in Africa: opportunities and threats

The continent is enjoying economic growth and greater political accountability. But serious question marks remain over political leadership – and the nature of China's engagement

By Richard Dowden, Director, Royal African Society

The economy of Sub-Saharan Africa has been growing at more than 5 per cent a year since 2000. In 2007 it hit 5.8 per cent. The rise in the price of oil and other African commodities driven by Chinese demand has been the main cause, but several countries without oil or any significant commodity are also growing. There is widespread agreement that better governance is playing a vital role in Africa's economic revival.

Aspects of this are clearly visible: ten years ago, wars raged or smouldered in about ten African countries; many more suffered civil unrest. Darfur and eastern Congo notwithstanding, almost all of those wars have now ended. In their place are elections, increasing in quantity and in quality. In 1976, Freedom House, the American freedom and democracy organisation, rated 25 African countries not free, 16 partly free and three free. Some 30 years on, it rated 14 not free, 23 partly free and 11 free.

While some African countries are still ruled by one powerful man or a ruling elite, the old dictatorships of the past are mostly gone and those that survive no longer claim divine support for their rule, or glory in the trappings of monarchy. It is hard to imagine someone like Idi Amin or Jean Bedel Bokassa taking over an African country today.

Some of these changes have come about through a continent-wide pact enshrined in the African Union. The Union's charter promotes "democratic principles and institutions, popular participation and good governance". It has banned coups and is committed to protecting human rights. Abandoning non-interference as a fundamental principle, it has given itself the right to intervene to stop crimes against humanity. Although only as strong as the collective of African presidents allows it to be, the African Union is far more active in trying to settle disputes than its predecessor.

"The African Union is far more active in trying to settle disputes than its predecessor"

African leaders also set up the New Partnership for Africa's Development (NEPAD), which commits African governments to rule better. It was aimed at better governance for its own sake but also at encouraging foreign investment and aid.

Out of the NEPAD principles grew the Africa Peer Review Mechanism (APRM), a lengthy and complex process whereby African countries can volunteer to subject their governance process to scrutiny. The process is overseen by a high-level panel of former African presidents and representatives from other countries that have signed up to be reviewed. There is also supposed to be widespread consultation with the people. The four areas examined are political governance, economic management, corporate governance and socio-economic development. One criticism levelled at the APRM so far is that it only looks at process and does not review the basic aims and strategies of governments. Another is that it has no effect on countries like Zimbabwe, which have not signed up, but whose people desperately need the support and protection of other African countries.

A third criticism is the lack of follow-up to ensure that recommendations are acted upon.

By February this year, 29 African countries – more than half – had signed up for the Peer Review Process. Africa's worst performers – those that needed reviewing the most – refused to join. Botswana, the continent's best performer, also refused to join on the grounds that good governance in Botswana was there for all to see. It feared that the process might be devalued if badly-run countries were given gold-star ratings. These fears have not been borne out. The initial reports were hard-hitting and although they were supposed to be confidential, many were leaked to the press. Rwanda's dictatorial tendencies were exposed, as were the deep divisions in Kenyan society. Governments were forced to respond.

An equally important change is the opening up of space for ordinary citizens to hold their governments to account. According to Freedom House, only eight countries in Sub-Saharan Africa have a free press, while 19 are partly free and 21 not free – figures not significantly different to the map of political freedom. Local radio is the new, powerful arbiter of popular democracy in Africa. Radio call-in programmes discussing every topic under the sun have become extraordinarily popular throughout the continent, leading if not directly to participation, at least to a major new fact for politicians to take into account: popular opinion.

And through the internet, radio stations that relay the BBC World Service and other international radio stations,

The Oure Cassoni refugee camp, close to the border of Darfur

"Radio call-in programmes have led to a major new fact for politicians to take into account: popular opinion"

Africans have far better access to alternative sources of news and views. The days when there was a single government-run newspaper and radio station have gone.

One of the most striking examples of new technology in action is the combination of the mobile phone and radio. In several elections, people at remote polling stations have called in to radio stations to report ballot-box stuffing and other illegal behaviour. In the Zimbabwe election in March, people were able to take photos of election results as they were posted at polling stations and relay them to party headquarters. The ruling party's ability to rig the election was reduced.

However, like all communications, radio stations and mobile phones can be used for evil as well as good. The role of Radio Mille Collines in promoting genocide in Rwanda is now well documented. In the 2008 Kenyan election, too, several radio stations in local languages urged listeners to purge their areas of outsiders while mass text messaging also spread ethnic hatred.

In 2007, Mo Ibrahim, the Sudanese telecoms billionaire, launched his $5 million prize for an elected African president who retires on time and has achieved a better life for his people. He also launched the Mo Ibrahim Index, which rated African governments on their quality of governance. The immediate impact of these controversial initiatives is hard to judge. Many people pointed out that $5 million was small beer in relation to what some corrupt African presidents made off with during their tenure. But these new institutions, created by an African, started vigorous debates across the continent and put a weapon in the hands of citizens to hold their governments to account.

Several mid-sized African countries are being ruled better than before and investment is flowing into Africa on an unprecedented scale. However, as long as three giant countries – Sudan, Nigeria and Congo – are either at war or chaotically ruled, Africa must be regarded as still in the emergency room. With South Africa entering an era of political turbulence following the split in the ruling African National Congress, it is also hard to see which heavyweight can give a lead in Africa now.

The threats to better governance in Africa come partly from the size of the problems; even governments with the best will in the world will find them hard to manage. Rapidly increasing populations with rising expectations; inflation, especially in the price of food; power shortages in many countries; and climate change everywhere are all issues that have global dimensions and cannot easily be fixed locally.

The most immediate new factor for African governments is the engagement of China, which is buying up and digging up Africa's raw materials. China has brought more people out of poverty than at any other time in human history, but it does not offer Africa a new model of development. While its overall impact may be beneficial, it seems to offer a repetition of the old economic relationship between Europe and Africa. Just as Western governments, companies and NGOs seem to be moving away from that model and agreeing on a 'sustainable development' agenda to promote accountability, transparency and long-term development, China seems to be pushing Africa back into the colonial economic model, extracting its minerals and raw materials as fast as it can and shipping them back to China for manufacture. The Chinese even import millions of their own workers into Africa to do this. Its own exports of manufactured goods to Africa push African manufacturers out of business.

Meanwhile, Beijing's policy of government-to-government relations and non-interference in internal affairs means it is prepared to do business with any African government, whatever its legitimacy or lack of it. Its own lack of democracy or concern for human rights means that would-be African dictators may find an ally in China. However, China realises that, these days, bad government means its own investments may be insecure. China may, in time, adhere (though not sign up) to principles enshrined in the NEPAD agenda.

"As long as Sudan, Nigeria and Congo are either at war or chaotically ruled, Africa must be regarded as still in the emergency room"

The United States war on al-Qaeda also puts US interests before development or political stability in Africa. The establishment of American-African policy around the new military command, Africom, suggest that the US puts African development second to its own strategy for protecting what it sees as its security.

Another threat comes from the aid donors who pour millions into African government treasuries while keeping the agreements underpinning this aid secret. That reinforces the danger that African governments will be more accountable to the aid donors than to their own people.

The test of just how deep and strong the new governance principles have gone will be how African governments spend their new wealth from the rise in commodity prices. If governments spend it on prestige projects and imported consumer goods, it will be wasted. But if it is invested in the future on education, health and infrastructure, Africa may turn the corner and reach the levels of prosperity that it should be enjoying.

The Alliance for a Green Revolution in Africa

Lifting millions out of poverty and hunger by increasing the productivity and profitability of small-scale farms in Africa

The Alliance for a Green Revolution in Africa (AGRA) is a partnership-based organisation that works across Africa to improve the lives of millions of smallholder farmers by helping them increase yields and profits and connect to markets. Founded in 2006, AGRA's Board is chaired by Mr. Kofi A. Annan, the former Secretary-General of the United Nations. Its President is Dr. A. Namanga Ngongi, former Deputy Executive Director of the United Nations World Food Programme. With initial support from the Rockefeller Foundation and the Bill & Melinda Gates Foundation, and later on from the UK Department for International Development (DFID), AGRA maintains offices in Nairobi, Kenya and Accra, Ghana.

Only a Green Revolution that improves the productivity of smallholder farms will enable the continent to achieve food security. AGRA works with and for small-scale farmers, most of whom are women. We partner with individual farmers, and farmer unions to identify practical solutions to their problems. We work across the agricultural value chain on everything that can help farmers to sustainably increase production, from improved seeds and fertilizers, to proper soil and water management systems. We also help farmers go to market – working on crop storage, processing, transport, and finance, so that they can earn more from their harvests.

We work to allow farmers to revitalise depleted and eroded soils, conserve crop biodiversity; make better use of limited water resources; and spare vast expanses of forest and savannah from cultivation. To be sustainable, Africa's Green Revolution must protect the natural resource base that all of society depends upon.

AGRA has funded several projects and launched programmes that are taking root in rural areas around Africa. We are funding national breeding teams to develop higher-yielding, earlier-maturing, and disease-resistant varieties of all Africa's major food crops. We are working with farmer cooperatives and private seed companies and national organisations to make sure better seed gets into farmer's hands. Already, new high-yielding and disease-resistant varieties of maize in Mozambique, cassava in Tanzania, sorghum in Mali and rice in Uganda are reaching farmers.

Farmers in Mozambique and Kenya show off improved food crop. AGRA works to increase the productivity and profitability of small-scale farmers in Africa

New kinds of financing are helping farmers and 'grass-roots' agricultural businesses to access loans. We are working with the governments of Tanzania and Kenya and banks in both countries to provide millions of dollars of loans to farmers and subsidised inputs for the poorest farmers. We are strengthening agro-dealer networks in Kenya, Malawi, and Tanzania to provide seeds and fertilizer at more affordable prices. We are also training agro-dealers in business skills and in the safe and environmentally sound use of farm inputs.

A new generation of agricultural scientists is being educated to address Africa's smallholders farming productivity needs. AGRA-supported programmes at the University of Ghana and the University of Kwa Zulu Natal in South Africa are educating African plant breeders at PhD level who will return to their home countries to improve food security and farm yield of vital African crops.

Our work is urgent. We are acting to help farmers now, while putting in place long-term solutions to food security. AGRA is engaged in a race against time to turn back the tide of hunger and poverty in Africa. So far, the results on the ground are promising. The right policies are as important as the right technologies. To prosper, Africa's farmers need supportive national and international policies in place. Our best work is ahead as we aim to enable legions of small-scale farmers to grow more food and to prosper.

AGRA is cultivating a green revolution through smallholder agriculture

Alliance for a Green Revolution in Africa

www.agra-alliance.org

Innovative use of ICTs spurs African development

The International Development Research Centre (IDRC) demonstrates the effectiveness of low-cost, reliable ICT applications in promoting development and access to social services

Sister Patricia Madikane, the only trained medical staff member at Tsilitwa Clinic in a remote district of South Africa, at work on a CA-supported wireless network to facilitate teleconsultation with the nearest hospital.

In rural Uganda, healthcare workers using handheld computers over low-cost cellular networks are improving the quality and accessibility of healthcare information. In Free State, South Africa, a health information management system allows health workers to collect detailed information to ensure that anti-retroviral (ARV) treatment for HIV-infected patients is effective. In Mozambique, low-cost wireless technologies give students in remote villages access to course materials and regular contact with university tutors. In Angola, innovative uses of these technologies help reunite families displaced by war.

Two Mozambican students manufacture cantennas (antennas made from tin cans) at a technology incubator that is helping youth to obtain the resources and skills needed to launch successful technology businesses.

These are just a few of the many ways that Connectivity Africa (CA), one of 24 initiatives supported by the Canada Fund for Africa, Canada's contribution to the G8 Africa Action Plan, is helping African communities and individuals use information and communication technologies (ICTs) to meet critical needs.

Overseen by Industry Canada and implemented by the International Development Research Centre (IDRC) in partnership with the United Nations Economic Commission for Africa, the four-year CA programme supported projects that have demonstrated the effectiveness of innovative, low-cost, reliable ICT applications in promoting development and access to social services.

The projects were typically small in scale but large in potential impact. They identified and fostered technological innovations that are affordable, easily expanded, and self-sustaining. This is the premise of Connectivity Africa: at the right time, with the right people and the right tools, a small change can have a transformative effect.

Some projects focused on giving Africans in remote communities new opportunities. Some aimed to break down technical barriers that inhibit intra-African collaboration and economic co-operation. Others created networks of ICT expertise in Africa, or helped Africans develop a capacity for research and development. All were created through dialogue with African partners to ensure CA addressed the most pressing needs in the most effective ways.

The aim was to make a major and lasting difference in the lives of as many Africans as possible.

Highest cost telecoms: universities share costs

To address the challenge of high telecom costs, which hamper regional economic development, CA helped facilitate linkages between national and regional Internet exchanges. It also worked with IDRC research partners to encourage universities to establish purchasing consortiums to obtain bulk discounts from satellite providers. The universities went on, with CA support, to seek even cheaper alternatives.

In addition to promoting the sharing of expertise and knowledge across national borders, CA also helped develop mechanisms to facilitate donor collaboration through the Partnership for ICTs in Africa, and has helped to kick-start a number of organisations that have continued to operate beyond the life of the CA initiative itself. For instance, the formation of Promotion of African Research and Education Networking led, in turn, to the establishment of an association of national research and education networks called the UbuntuNet Alliance. The aim of the alliance remains to ensure that national networks in sub-Saharan Africa are interconnected regionally and to the rest of the world through high-speed fibre-optic networks, many of which are now under construction.

Economical alternatives: communities share costs

Low-cost alternatives supported and innovated by CA partners include using:

- wireless technologies over long distances to share bandwidth costs among local institutions;
- refurbished computers – as an affordable, effective technology for schools; and
- hand-held computers as a viable means of collecting field data and ensuring a two-way flow of information to support the delivery of health services.

A cantenna being installed on the house of a healthworker in the Peebles Valley, South Africa, connected to the HIV/AIDS clinic and other houses. A small wireless mesh network connects the hospice with an HIV/AIDS clinic and other community members, who share the cost of a single connection.

A rural nurse in Mbale uses a PDA to send and receive health information through a Uganda Health Information Network African Access Point. UHIN is the largest and most ambitious handheld-computer project that CA partner Satellife has undertaken

A training session in Nairobi, held as part of a project to support optimisation of university bandwidth. CA partner INASP developed and ran a series of bandwidth management workshops and seminars which, in total, trained 514 people from over 150 different universities and related institutions in 16 African countries

CA promoted the development of ICT business "incubators" based at the Mozambique ICT Institute of the University Eduardo Mondlane, and at Makarere University in Kampala, Uganda. These operate as small business parks for start-up ventures. Several of these incubated businesses have graduated to the formal market place.

CA also enabled the establishment of a university-based network of open-source developers from 14 countries who are designing and developing educational software. Called AVOIR, the network exposed African software developers to best practices and to the latest software development techniques, helping them to acquire leading-edge skills. AVOIR has been highly influential in informing a similar initiative in North Africa.

Women were often the agents of change in the CA-funded projects. Through work in the health sector and innovative use of ICTs, as well as in expanding low-cost connectivity in remote areas, women built their capacity to use mobile technologies and entered the male-dominated area of network administration in increasing numbers.

For more information, visit the Connectivity Africa web site at: www.connectivityafrica.ca/en or www.idrc.ca/en

IDRC CRDI Canada

Power to Africa: the Inga hydropower projects

A visionary project on the Congo River has the potential to extend self-sufficiency in energy right across the African continent

By Gerald Doucet, Secretary General, World Energy Council

Even though Africa has only 13.5 per cent of world population, barely 3 per cent of world total primary energy supply and less than one-fifth of world average electricity consumption per capita (see table below), the continent could nevertheless become one of the most dynamic energy markets during the next few decades. Indeed, given the low level of primary energy supply per capita, the wealth of unexplored energy reserves, the great potential of power generation (both interconnection and trade), and sustained economic development, Africa's energy future could be one of exceptional growth and opportunity.

However, realising this energy future will require boosting Africa's energy self-sufficiency through the sustainable development of continent-wide energy supply projects, in a timely and cost-effective manner and a safe environment. Hydropower projects are serious candidates for supplying Africa with a renewable, clean and affordable energy source and, therefore, contributing to the achievement of the three World Energy Council (WEC) Millennium Energy Goals of accessibility availability and acceptability – which are the key principles for achieving the sustainable supply and use of energy.

The Inga hydropower projects are regional integration projects which will offer access to electricity to more than 500 million Africans who do not have it today. They will foster the industrial development of the continent, and promote economic interdependence, peace and prosperity.

Immediate action is now needed on several fronts, from all the stakeholders, if these projects are to be realised – and in a sustainable way.

The Inga hydropower projects, namely Inga 3 (4,320 megawatts) and Grand Inga (40,000 megawatts), represent a potentially massive boost for Africa's energy sustainability. Located on the low course of the Congo River in the so-called Inga Hinterland area, they would offer substantial energy potential and major benefits not only for the Democratic Republic of Congo (DRC) but also for other African countries.

When realised, Grand Inga would be the world's largest hydropower scheme; it would have about twice the generating capacity of the Three Gorges in China (22,400 megawatts), and three times the capacity of

Energy production and consumption, by region

Region	GDP (PPP) per capita ($'000s)	Total primary energy supply per capita (TOE)	Electricity consumption per capita (kWh)	Energy production/ Total primary energy supply (self sufficiency)
Africa	2,290	0.67	547	1.75
Asia	3,309	0.63	617	0.87
China	5,540	1.25	1,607	0.94
Latin America	7,037	1.10	1,645	1.35
OECD	25,340	4.73	8,204	0.70
North America	29,327	6.42	10,833	0.83
World	8,231	1.74	2,516	1.01

Source: *Energy Balances for Non-OECD Countries* and *World Energy Statistics 2006*, IEA, Paris, 2006

"The Inga hydropower projects are regional integration projects which will offer access to electricity to more than 500 million Africans who do not have it today"

The Inga hydropower projects on the Congo River could provide a massive boost for Africa's energy sustainability

the Itaïpu Binacional Project between Brazil and Paraguay (14,000 megawatts).

The Inga projects seek to capitalise on a number of favourable factors:

- significant river flow through the whole year (with an average of 42,000m³/s);
- favourable natural conditions (geological and hydraulic) for hydropower infrastructure and facilities;
- huge hydropower potential of more than 44,000 megawatts, with potential energy production estimated at more than 320TWh/year;
- low energy cost: around 1.2 US cents for Grand Inga, and 2.1 US cents for Inga 3;
- a substantial internal rate of return – more than 18 per cent for Inga 3, and probably more for Grand Inga;
- reduced environmental impact and more efficient energy generation for climate change issues than fossil energies;
- numerous other uses and benefits, including increased availability, reliability and quality of water supplies and reduced flood risk;
- improvement of the political situation in DRC; and
- strong political and public support from the G8, UN and EU for Africa's efforts to achieve the UN Millennium Development Goals.

What's more, these projects can supply most of Africa's electricity needs at affordable prices, and can be made commercially viable with suitable planning.

The primary objective of the Inga projects is to scale-up and accelerate modern energy access and contribute to the eradication of poverty in Africa.

As regional integrator projects, they are set to meet Africa's growing electricity demand. The main external market comprises the five African power pools: SAPP, WAPP, PEAC, EAPP and COMELEC. A pan-African transmission grid is needed to interconnect these power pools, and thus expand the African electricity market, increase regional electricity trade, improve energy efficiencies in power generation, and actually contribute to the achievement of the '3 As' (accessibility, availability and acceptability).

It has been estimated that, when commissioned by around 2025/2030, Grand Inga's contribution to Africa's electricity needs would be around 20 per cent. This would mean that most of Africa's energy demand would be met, and the project would attract money from both the public and the private sectors.

The pre-feasibility study of the Inga 3 project, carried out by SNC-LAVALIN, is now complete and was presented to the stakeholders in Kinshasa in February 2008. The study reviewed the technical, environmental and financial dimensions of the project. The associated dam will be built on the run-of-the-river, reducing its impact upon the environment. The planned installed capacity of the power station is 4,320 megawatts.

The power station of Inga 3 will be built in two phases: phase one in 2009-2018 at a cost of $1,974 million; and phase two in 2014-2021, at a cost of $1,569 million. The total construction cost is estimated at $3.5 billion.

In order to move to a full feasibility study, geological and hydraulic studies will have to be undertaken, at a cost of $5-6 million. The predicted timeline for their completion is estimated at 18 months from now, subject to funding, allowing the construction phase to start in 2009. Meanwhile, the feasibility study of the transmission system will be financed and carried out by an international consultancy with the required level of expertise.

The Grand Inga project will be located in a natural valley of the Inga River; the area is effectively unpopulated.

The key technical characteristics of the electricity facilities are:

- potential capacity: 40 gigawatts (pre-feasibility study done by EDF & Lahmeyer International 1997);
- investment cost of the hydro plants: more than $40 billion (est);
- investment cost of the transmission system: more than $40 billion (est);
- an interconnection transmission system (HVDC), to include:
  - Northern Highway (Inga-Sudan-Chad-Egypt, 5,300km);
  - Southern Highway (Inga-Angola-Namibia-Botswana -South Africa, 2,734km);
  - Western Highway (Inga-Congo-Gabon-Cameroon-Nigeria, 1,400km).

The overall project will be capital-intensive, requiring huge investments (estimated to exceed $80 billion), advanced technical and managerial skills, and expertise to operate and maintain the facilities. Grand Inga would be the most powerful hydropower source in the world, with very low generation costs, estimated around US cents 1.1 to 1.4/kWh (compared with an average cost of US cents 4/kWh for coal, and even more for other energy sources, such as fuel, gas, wind, solar and nuclear).

"An environmental and social management plan needs to be set in hand as soon as possible"

In order to allow the construction phase to begin as soon as possible, there is real determination to complete all feasibility work on Grand Inga by 2014, in parallel with the development of Inga 3 and the rehabilitation of the existing power stations, Inga 1 and 2. The total financing required for the feasibility work is estimated at between $15-20 million, and the African Development Bank has been asked to contribute to this cost.

The social and environmental aspects of the Inga site and projects are of keen concern to the official representatives of the Inga Hinterland, who wish to draw the lessons from the existing dams and electricity facilities.

To overcome these past negative aspects and to facilitate the development of the new Inga projects, an environmental and social management plan needs to be set in hand as soon as possible to ensure that the benefits of the Inga projects are maximised and distributed equitably among the stakeholders; and that any negative economic, social and environmental impacts are avoided, mitigated or compensated for. This will ensure that the Inga projects meet generally accepted sustainability standards.

Africa has sufficient energy resources and a high level of self-sufficiency in energy, but these resources need to be developed and exploited in a sustainable way, in order to supply the growing energy needs of the entire continent.

African hydropower, and particularly the Inga projects in DRC, can be expected to provide an increased share of the African energy mix during the next decades, given their technical, economical and environmental benefits: renewable energy, low production costs, low levels of GHG emissions, high internal rate of return, flexibility and reliability. These will require the continuing and efficient engagement of governments, and intensive co-operation between them.

The successful development of ambitious schemes like Inga will also require appropriate regulations and institutions; a real commitment to meeting sustainability standards; productive partnerships between the public and private sectors; and more partnerships between developed and emerging countries, particularly to foster technology transfer and attract capital investment for the necessary infrastructure.

The making of Africa's global bank

United Bank for Africa aims to fly the flag for African excellence

United Bank for Africa (UBA) Plc is West Africa's largest banking and financial services group with assets in excess of $14 billion. We provide a full range of personal and commercial banking, asset management, insurance, corporate finance and investment banking, custodian and other financial services to over 6 million customers.

Employing about 17,000 staff, the bank has operations spread across Nigeria, Ghana, Cameroon, Cote d'Ivoire, Uganda, Sierra Leone, Liberia, New York, London and the Cayman Islands. Our vision is to achieve leadership in the financial services industry in Africa and be a recognised player in the global financial arena.

UBA House Lagos, Nigeria

Regional potential and leadership

The banking sector is often a good barometer for the wider economic performance of a country and most observers agree that Nigeria's economic performance over the last few years has been impressive. The fiscal environment is stable, foreign reserves are at record levels, growth is broad based, etc. This has bolstered confidence and created an environment conducive to growth.

We see UBA as a partner in actualising individual, business and national economic development and growth aspirations. Today, UBA is a market leader in the retail and payment landscape. With our growing network of ATMs, payment cards and on-line real time transactions, we have consistently ranked first in national banking industry reports.

The entrepreneurial spirit in our people is a key factor behind our success. Drawing from a global talent pool we employ the best people who are inspired to achieve results by virtue of their passion and the capacity to harness a great team spirit.

Beyond Nigeria, beyond Africa

There are opportunities in new markets, particularly where financial services are still nascent. Our aim is to be the bank of choice for all financial transactions involving Africa and Africa-related businesses wherever these may be around the world. Our brand positioning as ***Africa's global bank*** is an effective touchstone for entry into new markets where consumers can benefit from the breadth of innovative products and services that UBA has to offer.

Our aim is to fly the flag for African excellence and be a role model for other African businesses and we are increasingly recognised as a respected player in the global financial space. This is evidenced in the alliances, partnerships and transactions that we have been able to secure.

UBA recently entered into an exclusive partnership with football giant Arsenal FC for the development of co-brand financial services and CSR initiatives. Also recently, UBA was appointed by International Air Transport Association (IATA) as the sole Billing and Settlement Plan (BSP) clearing bank in Nigeria; and in May 2008, the Bank of New York Mellon (BNYM), the world's largest Global Custodian with over 20 Trillion USD in Custodial Assets, appointed UBA Global Investor Services as a Sub-Custodian in Nigeria for its Depositary Receipts Programmes. These, among others, underscore the confidence that UBA enjoys from global institutions.

Banking at the bottom of the pyramid

The 'unbanked' and 'underbanked' represent an estimated 70% of the total population in the region and a significant untapped economic potential. As industry leader we have taken on the mantle by launching UBA Microfinance Bank Limited, to show our commitment to support the growth of micro and small scale enterprises. Rather than giving handouts to the poor, it is about creating an enabling environment for people who have the dynamism, vocational attitude and a desire to succeed but without the financial resources to actualise their dreams. With our expansive retail network of over 700 business offices, UBA Microfinance Bank is poised to be the biggest financial partner of those considered 'economically disadvantaged' in Africa.

Doing well and doing good

Beyond providing financial solutions that create value and make life better for our customers, we want to ensure that ***Africa's global bank*** has a deeper meaning in the lives of the communities in which we operate. Through our experiential branding and CSR platforms we've aligned the UBA brand with key passions of the community. For example, our partnership with the Africa Movie Academy & Awards (AMAA) enables us to support the development of the African cinema industry; we encourage individual entrepreneurship by sponsoring the 'Dragon's Den' project; and our UBA Grassroots Football associates the brand with the biggest mass audience passion of all, whilst helping to develop talent in young people. These are just some of the components of our brand building strategy that accords us relevance and goodwill in the community.

In addition, we created the UBA Foundation as the Corporate Social Responsibility (CSR) arm of the group. Inspired by the imperative to 'Do Well and Do Good', we contribute 1% of the Group's profit so the Foundation can extend a hand of partnership to our communities for development in the areas of Environment, Education, Economic Empowerment and Special Projects. We are creating an Institution that is a source of pride for all stakeholders.

www.ubagroup.com

UBA Africa's global bank

The Millennium Development Goals: running out of excuses

Targeted public investment in crucial sectors like health, education, water and transport could put an end to Africa's extreme poverty. But the world is still waiting for G8 countries to deliver the aid they promised at Gleneagles in 2005

By Professor Jeffrey Sachs, Director, Earth Institute, Columbia University

The Millennium Development Goals (MDGs) are at the mid-way mark of the 15-year period between their adoption in 2000 and their target date of 2015. Yet progress towards the MDGs in Africa, the world's poorest region, has reached much less than half-way. There is no mystery as to what needs doing, nor how to do it. Africa needs more investments – in agriculture, health, education and infrastructure – supported by increased donor flows. This has been agreed for years. Yet it is the G8 that has so far failed to deliver, and has become the limiting factor in achieving the MDGs.

When the MDGs were announced in 2000, the world's governments also agreed on a need for a financing plan. This was adopted in March 2002 in Monterrey, Mexico, at the International Conference on Financing for Development. The Monterrey Consensus outlined the mix of private capital flows and official development aid that would be necessary for success. The argument went beyond 'aid versus trade', or 'public versus private' investment. It was rightly recognised that aid *and* trade, public *and* private investment, would be needed.

Paragraph 42 of the Monterrey Consensus set the specifics, when it called on "developed countries that have not done so to make concrete efforts towards the target of 0.7 per cent of Gross National Product (GNP) as Official Development Assistance (ODA)…". This goal was repeatedly enshrined in follow-up diplomatic processes, including the World Summit on Sustainable Development, the Council of Europe (notably in 2005), the G8 Gleneagles Summit in July 2005, the UN World Summit in September 2005, and in many more instances.

At Gleneagles, the G8 promised to double aid to Africa from the 2004 level by 2010 (in constant dollars, adjusting for inflation and exchange rate changes). The 2004 level was approximately $29 billion. At today's exchange rates and price levels, a doubling of the 2004 aid would require something of the order of $75-$80 billion. Instead, aid remains nearly stuck at the 2004 level. The only notable increase in aid was the temporary boost that came with debt cancellation. Cash flows in real terms have hardly budged since 2004.

"Japan's leadership role could be very important"

We are running out of time and out of excuses. Every few months the European leaders re-emphasise their commitment to reach the 0.7 per cent target by 2015 (and at least 0.51 per cent in all countries by 2010) and to double African aid by 2010 – but then they repeatedly fail to deliver. The leaders of the US, Canada and Japan do less, rarely even mentioning these goals. (As host of this year's G8 Summit, and host of TICAD IV this past May, Japan has recently taken a more visible leadership role. If backed by increased Japanese resources as well, Japan's role could be very important, in view of the highly pragmatic and effective nature of Japanese aid in the past, especially towards East and Southeast Asia in the 1960s to 1980s.)

If the leaders of the world's richest countries continue to fall short on their commitments, the disasters ahead could cause the world to shudder. The effort required is so small that the cynicism is commensurately great. Doubling aid to Africa – say by another $40 billion per year – is roughly 0.1 per cent of the donor GNP, which is now around $40 trillion. It is around 20 days of US Pentagon spending, which now comes to around $700 billion per year. It's also not far from the total Christmas bonuses earned on Wall Street each year, which have totalled around $30 billion per year or more. But even these sums – small, relative to the vast income of the rich world – have been too much for the world's richest countries to honour, despite their repeated, explicit, time-bound commitments.

Now we are in an era of soaring food prices and food riots, and soaring oil and fertiliser costs. The

situation is even more desperate for the poorest of the poor. Time for the MDGs is running out. Will any of this matter?

With adequate financing – another $70 billion per year by 2010, another $100 billion per year by 2015 – Africa's extreme poverty could actually be ended. The 'what to do' is not so complicated, and indeed the stable countries of Africa drew up plans long ago. (And let's recognise that instability is often the result of extreme poverty, not just the cause of poverty). The key public investments should focus on the critical areas of agricultural production, public health, education for all, roads, power, clean water and sanitation, and internet connectivity. Concerted public investments in these areas would be complementary to private capital flows. The argument, as I mentioned earlier, of 'public versus private' investments is long-since moot, since both kinds of investments are complementary inputs to poverty reduction and long-term economic growth.

With adequate financing, African yields could be doubled within the next five years, easing poverty and hunger at the same time. Malaria deaths could be brought down to nearly zero. All HIV-infected individuals who need anti-retroviral medicines would have access by 2010, as promised. All children could be in school, and indeed receiving midday meals, using locally produced food from the increased yields. A boom in solar power could extend clean and reliable energy to hundreds of millions of people in Africa's villages who now lack any access to electricity whatsoever. And all-weather roads and fibre-optic cables could break economic isolation and allow Africa to play a fully-fledged role in the global trading system.

"With adequate financing, African yields could be doubled within the next five years"

There are few mysteries left as to what to do up until 2015. The only mysteries are whether the G8 still has the will to act on its repeated promises. A new US President might make a huge difference. Europe might still rouse itself from the audacity and consequences of failed promises. Indeed, I believe that is likely.

Perhaps if these promises fail, all is still not necessarily lost. Brazil, China, India, Korea and the Middle East's oil states could fill in much, or most, of the gap. The world system would then be re-ordered by the emerging powers if the rich countries display such lethargy and loss of dynamism. The poor would no doubt suffer mightily in the transition, but a different and possibly even more robust global system might yet emerge.

These are big 'ifs', however. A safer and more prudent path for the world – the one most likely to keep the peace and achieve the benefits of global prosperity – is clear. And that is for all countries, the richest as well as the poorest, to follow through on their long-standing commitments, and to achieve the goals set down as a global compact and partnership at the start of the millennium.

How to grow out of poverty

Three out of four poor people in developing countries live in rural areas, 1.5 billion as smallholders; and most of them severely affected by the current food price crisis. Sustainable, climate-proofed agricultural growth and equitable rural development is imperative to eradicating extreme poverty and hunger.

Leading donors have joined forces to:

- Harmonise donor policies and align donor resources behind national ownership of development agendas;
- Support country-led and context-specific initiatives like the AU/NEPAD's Comprehensive Africa Agriculture Development Programme (CAADP);
- Spur macro-economic development through better and increased investments in agriculture;
- Highlight the fundamental importance of smallholder agriculture for food security and the achievement of the Millennium Development Goals.

Global Donor Platform
for Rural Development

www.donorplatform.org

SA space plans ready for launch

South Africa is poised to be the space science and technology leader on the African continent, with the establishment of an extensive space programme that will include a national space agency.

South Africa already has some of the best space infrastructure in Africa and the envisaged space agency will boost its efforts to position itself as a preferred partner in space science and technology. Space science and technology has been identified, by the Department of Science and Technology (DST), as one of the grand challenges in its Ten-Year Innovation Plan. The Ten-Year Innovation Plan recognises that, while the country's science and technology system has taken major strides forward, there is a tremendous gap between South Africa and those countries identified as having knowledge-driven economies. The Plan therefore sets out to transform the country's economy into a knowledge-based one. To do this, the DST has identified five grand challenges to focus on. These will have a number of social, economic, political, scientific and technological benefits.

The grand challenges – one of which is space science – are designed to stimulate multidisciplinary thinking and to challenge the country's researchers to answer existing questions, create new disciplines and develop new technologies. The plan is to transform the space industry into a key contributor to global space science and technology, with a national space agency, a growing satellite industry, and a range of innovations in space science, earth observation, communications, navigation and engineering.

The vision is to create the capability in our National System of Innovation to deploy satellites, as well as to provide a range of scientific, security and specialised services for the government, the public and the private sectors.

Hence the establishment of a space science and technology programme, which will provide a blueprint for South Africa's future space science programmes, while the National Space Agency will harmonise the activities of local institutions involved in space research and development. These institutions, currently situated at universities, science councils, national facilities and in industry, have broad competencies in satellite applications, satellite engineering, space science and all their supporting technologies.

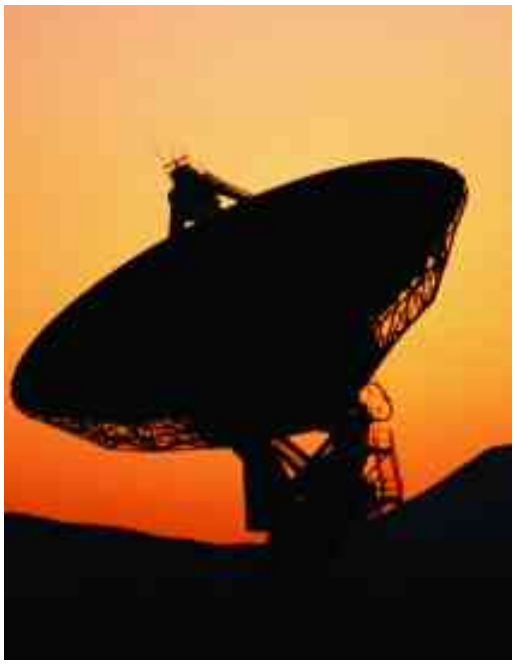
The new space programme will have three key focus areas – innovation and economic growth, environmental and resource management, and health, safety and security.

- Innovation and economic growth will include communications, space science and exploration, space technology transfer and various spin-offs and industry development.
- Environmental and resource management will include land management, rural development and urban planning, meteorological monitoring, hydrological monitoring and ocean, coastal and marine management.
- Health, safety and security will encompass, among other things, disease surveillance and health risk, disaster monitoring and relief, hazards forecasting and early warning, asset monitoring and defence, peacekeeping and treaty monitoring.

The National Space Agency Bill has already been approved by Cabinet and is now being considered by Parliament. The Minister of Science and Technology, Mosibudi Mangena, has issued an invitation to all private sector companies to invest in local space-related technologies.

Minister Mangena says the establishment of such an extensive space programme will create many investment opportunities. He says: "South Africa is on the verge of establishing a space agency, which means we expect increased growth in our country's space science and technology field. We need the involvement of the private sector, especially in the niche areas where they are better able to play a role than the public sector. The Agency will also provide an appropriate platform for a greater convergence of all role players in South African space science and technology" added Minister Mangena.

The South African government has also introduced a tax incentive programme to encourage private sector investment in research and development (R&D). The incentive offers a 150% deduction for R&D costs, and accelerated depreciation on R&D capital expenditure. This will reduce the cost of doing research in South Africa by 18 cents for every rand spent. Furthermore, South Africa is also positioning itself as an astronomy hub on the continent.



"The establishment of such an extensive space programme will create many investment opportunities"

To further this objective, the DST has introduced the Astronomy Geographic Advantage Bill, which seeks to give advantage and protection to those operating in the field of astronomy research. The Bill has been approved by Parliament and is about to be signed into law by President Thabo Mbeki.

The legislation aims to –

- protect large-scale global investments already made in astronomy;
- enable the establishment of astronomy reserves that provide protection across all wavelengths, from radio through optical to gamma-ray;
- preserve an environment for a global astronomy hub that will continue to attract international investments; and
- provide a competitive advantage for South Africa to become the preferred host for the full Square Kilometre Array (SKA).

South Africa and Australia are the only two countries still bidding to host the SKA, the world's largest and most powerful radio telescope. A final decision on the host site is expected by 2011. South Africa stands to gain greatly if it is chosen to host the SKA.

A significant amount of the capital and operating costs is likely to be spent in South Africa and Southern Africa. Equally important is that the SKA will be unique, and therefore South Africa would become one of the major centres in the world for fundamental physics research, astronomy and high-tech engineering, such as very fast computing and radio frequency engineering. This would attract some of the best scientists and engineers in the world to South Africa.

The SKA would thus provide a tremendous boost to South Africa's development of high-level skills and expertise, which would strengthen the country's ability to compete effectively in the global knowledge economy.

For more information, contact: Mr Nhlanhla Nyide, Chief Director Communication, on email: nhlanhla.nyide@dst.gov.za or mobile: +27 (0)82 871 6767.

www.dst.gov.za

science & technology
Department:
Science and Technology
REPUBLIC OF SOUTH AFRICA

Canada

Leader

Name:	Prime Minister Stephen Harper
Date of birth:	30 April 1959
Education:	BA University of Calgary 1985, MA University of Calgary 1991
Profession/previous occupation:	Economist
Political party:	Conservative
Date assumed office:	6 February 2006
Previous summits:	2006, 2007
G8 sherpa:	Leonard Edwards

Polity

Government:	Lower House – minority Upper House – minority
Next election:	Variable
Political system:	Parliamentary
Legislature:	Bicameral, elected House of Commons, appointed Senate
Capital city:	Ottawa
Official languages:	English, French

Demography (2008 est)

Population:	33,212,686 (36th in the world)
Population growth:	0.83%
Population density:	3.3 per sq km
Age profile:	0-14 years: 16.3% (male 2,780,491/female 2,644,276) 15-64 years: 68.8% (male 11,547,354/female 11,300,639) 65 years and over: 14.9% (male 2,150,991/female 2,788,945)
Language profile:	English (official) 59.3%, French (official) 23.2%, other 17.5%
Religious profile:	Roman Catholic 42.6%, Protestant 23.3% (including United Church 9.5%, Anglican 6.8%, Baptist 2.4%, Lutheran 2%), other Christian 4.4%, Muslim 1.9%, other and unspecified 11.8%, none 16%

Geography

Size of territory:	9,984,670sq km (2nd in the world)
Coastlines:	202,080km (North Atlantic, North Pacific, Arctic Oceans)
Fresh water:	891,163sq km
Forests:	45.3%
Arable land:	4.57%
CO^2 emissions:	549 million tonnes (2005) (decrease from 550 million tonnes in 2004)

Economy

Currency:	Canadian dollar
GDP:	C$1,350 billion, US$1,114 billion
Structure of economy: (% of GDP)	Agriculture 2.2% Industry 29.5% Services 68.3%
Energy production:	397.5 million TOE
Oil production:	3.092 million bbl/day (2005)
Natural gas production:	178.2 billion cubic metres (2005 est)
Electricity production:	609.6 billion kWh (2005)
Energy consumption:	269.0 million TOE
Oil consumption:	2.29 million bbl/day (2005)
Natural gas consumption:	92.76 billion cubic metres (2005 est)
Electricity consumption:	540.2 billion kWh (2005)
ODA:	US$3.76 billion
ODA as share of GDP:	0.34%

Defence

Defence spending:	US$12.8 billion
Armed forces:	62,000 regulars; 25,000 reserves

France

Leader

Name:	President Nicolas Sarkozy
Date of birth:	28 January 1955
Education:	MA (Law) University of Paris 1978
Profession/previous occupation:	Lawyer
Political party:	Union for a Popular Movement (UMP)
Date assumed office:	16 May 2007
Previous summits:	2007
G8 sherpa:	Jean-David Levitte

Polity

Government:	Lower House – majority Upper House – majority
Next election:	Spring 2012
Political system:	Semi-presidential
Legislature:	Bicameral, elected National Assembly, elected Senate
Capital city:	Paris
Official language:	French

Demography (2008 est)

Population:	60,876,136 (metropolitan France) (20th in the world)
Population growth:	0.574%
Population density:	111.3 per sq km
Age profile:	0-14 years: 18.6% (male 6,091,571/female 5,803,127) 15-64 years: 65.2% (male 20,884,919/female 20,849,988) 65 years and over: 16.3% (male 4,335,996/female 6,092,189)
Language profile:	French 100%. Regional languages and dialects include Provencal, Breton, Alsatian, Corsican, Catalan, Basque and Flemish.
Religious profile:	Roman Catholic 83-88%, Protestant 2%, Jewish 1%, Muslim 5-10%, unaffiliated 4%

Geography

Size of territory:	547,030sq km (metropolitan) (48th in the world)
Coastlines:	3,427km (Bay of Biscay, the English Channel/Manche and the Mediterranean)
Fresh water:	3,374sq km (including French Guyana, Guadeloupe, Martinique and Reunion); 1,400sq km (metropolitan)
Forests:	31.6%
Arable land:	33.46%
CO^2 emissions:	388 million tonnes (increase from 387 million tonnes in 2004)

Economy

Currency:	Euro
GDP:	€1,710 billion, US$2,127 billion
Structure of economy: (% of GDP)	Agriculture 2% Industry 20.7% Services 77.3%
Energy production:	137.4 million TOE
Oil production:	73,180 bbl/day (2005 est)
Natural gas production:	1.4 billion cubic metres (2004 est)
Electricity production:	543.8 billion kWh (2005)
Energy consumption:	275.2 (million TOE)
Oil consumption:	1.999 million bbl/day (2005 est)
Natural gas consumption:	47.26 billion cubic metres (2005 est)
Electricity consumption:	451.5 billion kWh (2005)
ODA:	US$10.03 billion
ODA as share of GDP:	0.47%

Defence

Defence spending:	US$ 53.1 billion
Armed forces:	255,000 regulars; 22,000 reserves

Germany

Leader

Name:	Chancellor Angela Merkel
Date of birth:	17 July 1956
Education:	PhD (Physics) Leipzig University 1986
Profession/previous occupation:	Research chemist
Political party:	Christian Democratic Union (CDU-CSU)
Date assumed office:	22 November 2005
Previous summits:	2006, 2007
G8 sherpa:	Bernd Pfaffenbach

Polity

Government:	Lower House – majority (coalition) Upper House – majority (coalition)
Next election:	Autumn 2009
Political system:	Parliamentary
Legislature:	Bicameral, elected Federal Assembly, elected Federal Council
Capital city:	Berlin
Official language:	German

Demography (2008 est)

Population:	82,369,548 (14th in the world)
Population growth:	-0.044%
Population density:	219.6 per sq km
Age profile:	0-14 years: 13.8% (male 5,826,066/female 5,524,568) 15-64 years: 66.2% (male 27,763,917/female 26,739,934) 65 years and older: 20% (male 6,892,743/female 9,622,320) (2008 est)
Religious profile:	Protestant 34%, Roman Catholic 34%, Muslim 3.7%, unaffiliated or other 28.3%

Geography

Size of territory:	357,021sq km
Coastlines:	2,389km (Baltic Sea and North Sea)
Fresh water:	7,798sq km
Forests:	30.2%
Arable land:	33.13%
CO^2 emissions:	813 million tonnes (2005) (decrease from 850 million tonnes in 2004)

Economy

Currency:	Euro
GDP:	€2,247 billion, US$2,795 billion
Structure of economy: (% of GDP)	Agriculture 0.9% Industry 29.6% Services 69.5%
Energy production:	136.0 million TOE
Oil production:	141,700 bbl/day (2005 est)
Natural gas production:	19.9 billion cubic metres (2005 est)
Electricity production:	579.4 billion kWh (2005)
Energy consumption:	348.0 (million TOE)
Oil consumption:	2.618 million bbl/day (2005)
Natural gas consumption:	96.84 billion cubic metres (2005 est)
Electricity consumption:	545.5 billion kWh (2005)
ODA:	US$10.08 billion
ODA as share of GDP:	0.36%

Defence

Defence spending:	US$38.0 billion
Armed forces:	284,500 regulars

Italy

Leader

Name:	Prime Minister Silvio Berlusconi
Date of birth:	29 September 1936
Education:	JD (Law) University of Milan 1961
Profession/previous occupation:	Business
Political party:	People of Freedom (coalition of parties)
Date assumed office:	27 April 1994 (to 17 January 1995); 11 June 2001 (to 17 May 2006); 8 May 2008
Previous summits:	1994, 2001, 2002, 2003, 2004, 2005
G8 sherpa:	Giampiero Massolo

Polity

Government:	Lower House – majority (coalition) Upper House – majority (coalition)
Next election:	Variable
Political system:	Parliamentary
Legislature:	Bicameral, elected Chamber of Deputies, elected Senate
Capital city:	Rome
Official language:	Italian

Demography (2008 est)

Population:	58,145,321 (22nd in the world)
Population growth:	0.019%
Population density:	193 per sq km
Age profile:	0-14 years: 13.6% (male 4,086,951/female 3,842,765) 15-64 years: 66.3% (male 19,534,247/female 19,024,776) 65 years and over: 20% (male 4,864,189/female 6,792,393)
Language profile:	Italian (official), German (parts of Trentino-Alto Adige region are predominantly German- speaking), French (small minority in Val d'Aosta region), Slovene (minority in the Trieste-Gorizia area)
Religious profile:	Roman Catholic 90%, other 10%

Geography

Size of territory:	301,230sq km
Coastlines:	7,600km (Mediterranean Sea)
Fresh water:	7,210sq km
Forests:	23.3%
Arable land:	26.41%
CO^2 emissions:	454 million tonnes (2005) (increase from 451 million tonnes in 2004)

Economy

Currency:	Euro
GDP:	€1,417 billion, US$1,763 billion
Structure of economy: (% of GDP)	Agriculture 1.9% Industry 28.8% Services 69.3% (2007 est)
Energy production:	30.1 million TOE
Oil production:	164,800 bbl/day (2005 est)
Natural gas production:	11.49 billion cubic metres (2005 est)
Electricity production:	278.5 billion kWh (2005)
Energy consumption:	184.5 million TOE
Oil consumption:	1.732 million bbl/day (2005 est)
Natural gas consumption:	82.64 billion cubic metres (2005 est)
Electricity consumption:	307.1 billion kWh (2005)
ODA:	US$5.09 billion
ODA as share of GDP:	0.29%

Defence

Defence spending:	US$31.4 billion
Armed forces:	191,000 regulars; 57,000 reserves

Japan

Leader

Name:	Prime Minister Yasuo Fukuda
Date of birth:	16 July 1936
Education:	Degree (Political Science and Economics) Waseda University 1959
Profession/previous occupation:	Petroleum refining and marketing
Political party:	Liberal Democratic Party
Date assumed office:	26 September 2007
Previous summits:	None
G8 sherpa:	Masaharu Kohno

Polity

Government:	Lower House – majority (coalition) Upper House – minority (coalition)
Next election:	Variable
Political system:	Parliamentary
Legislature:	Bicameral, elected House of Representatives, elected House of Councillors
Capital city:	Tokyo
Official language:	Japanese

Demography (2008 est)

Population:	127,288,419 (10th in the world)
Population growth:	-0.139%
Population density:	336.9 per sq km
Age profile:	0-14 years: 13.7% (male 8,926,439/female 8,460,629) 15-64 years: 64.7% (male 41,513,061/female 40,894,057) 65 years and over: 21.6% (male 11,643,845/female 15,850,388)
Language profile:	Japanese
Religious profile:	Observe both Shinto and Buddhist 84%, other 16% (including Christian 0.7%)

Geography

Size of territory:	377,835sq km
Coastlines:	29,751km (North Pacific Ocean and the Sea of Japan)
Fresh water:	3,091km (includes Bonin Islands [Ogasawara -gunto], Daito-shoto, Minami-jima, Okino-tori-shima, Ryuku Islands [Nansei-shoto] and Volcano Islands [Kazan-retto])
Forests:	68.9%
Arable land:	11.64%
CO^2 emissions:	1,214 million tonnes (2005) (increase from 1,201 million tonnes in 2004)

Economy

Currency:	Yen
GDP:	¥500 trillion, US$4,534 billion
Structure of economy: (% of GDP)	Agriculture 1.5% Industry 25.2% Services 73.3% (2007 est)
Energy production:	96.8 million TOE
Oil production:	125,000 bbl/day (2006)
Natural gas production:	4.85 billion cubic metres (2005 est)
Electricity production:	1.025 trillion kWh (2005)
Energy consumption:	533.2 million TOE
Oil consumption:	5.353 million bbl/day (2005)
Natural gas consumption:	83.67 billion cubic metres (2005 est)
Electricity consumption:	974.2 billion kWh (2005)
ODA:	US$13.15 billion
ODA as share of GDP:	0.28%

Defence

Defence spending:	US$43.9 billion
Armed forces:	239,000 regulars; 44,000 reserves

Russia

Leader

Name:	President Dmitry Medvedev
Date of birth:	14 September 1965
Education:	LL.M (Law) Leningrad State University 1987, PhD (Private Law) Leningrad State University 1990
Profession/previous occupation:	Lawyer
Political party:	United Russia
Date assumed office:	7 May 2008
Previous summits:	None
G8 sherpa:	Arkady Dvorkovich

Polity

Government:	Lower House – majority Upper House – N/A
Next election:	March 2012 (presidential)
Political system:	Semi-presidential
Legislature:	Bicameral, elected State Duma, appointed Federation Council
Capital city:	Moscow
Official language:	Russian

Demography (2008 est)

Population:	140,702,094 (7th in the world)
Population growth:	-0.474%
Population density:	8.2 per sq km
Age profile:	0-14 years: 14.6% (male 10,577,858/female 10,033,254) 15-64 years: 71.2% (male 48,187,807/female 52,045,102) 65 years and over: 14.1% (male 6,162,400/female 13,695,673)
Language profile:	Russian 79.8%, Tatar 3.8%, Ukrainian 2%, Bashkir 1.2%, Chuvash 1.1%, other or unspecified 12.1% (2002 census)
Religious profile:	Russian Orthodox 15-20%, Muslim 10-15%, other Christian 2% (2006 est of practising worshippers)

Geography

Size of territory:	17,075,200sq km (1st in the world)
Coastlines:	37,653km (Arctic Ocean, Pacific Ocean, Baltic Sea, Black Sea, Caspian Sea)
Fresh water:	79,400sq km
Forests:	69%
Arable land:	7.17%
CO^2 emissions:	1,493.0 million tonnes (2003)

Economy

Currency:	Rouble
GDP:	Rb21,598 billion, US$764 billion
Structure of economy: (% of GDP)	Agriculture 4.6% Industry 39.1% Services 56.3% (2007 est)
Energy production:	1,158.5 million TOE
Oil production:	9.87 million bbl/day (2007)
Natural gas production:	656.2 billion cubic metres (2007 est)
Electricity production:	1 trillion kWh (2007 est)
Energy consumption:	641.5 million TOE
Oil consumption:	2.916 million bbl/day (2006)
Natural gas consumption:	610 billion cubic metres (2007 est)
Electricity consumption:	985.2 billion kWh (2007 est)
ODA:	N/A
ODA as share of GDP:	N/A

Defence

Defence spending:	US$58 billion
Armed forces:	1,027,000 regulars; 20,000,000 reserves

United Kingdom

Leader

Name:	Prime Minister Gordon Brown
Date of birth:	20 February 1951
Education:	PhD (History) University of Edinburgh 1982
Profession/previous occupation:	Lecturer and journalist
Political party:	Labour
Date assumed office:	27 June 2007
Previous summits:	None as leader. As Finance Minister: 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007
G8 sherpa:	Jonathan Cunliffe

Polity

Government:	Lower House – majority Upper House – minority
Next election:	Variable
Political system:	Parliamentary
Legislature:	Bicameral, elected House of Commons, appointed House of Lords
Capital city:	London
Official language:	English

Demography (2008 est)

Population:	60,943,912 (21st in the world)
Population growth:	0.276%
Population density:	249.1 per sq km
Age profile:	0-14 years: 16.9% (male 5,287,590/female 5,036,881) 15-64 years: 67.1% (male 20,698,645/female 20,185,040) 65 years and over: 16% (male 4,186,561/female 5,549,195)
Language profile:	English, Welsh (about 26% of the population of Wales), Scottish form of Gaelic (about 60,000 in Scotland)
Religious profile:	Christian (Anglican, Roman Catholic, Presbyterian, Methodist) 71.6%, Muslim 2.7%, Hindu 1%, other 1.6%, unspecified or none 23.1% (2001 census)

Geography

Size of territory:	244,820sq km
Coastlines:	12.429km (North Sea, English Channel, North Atlantic Ocean)
Fresh water:	3,230sq km (includes Rockall and Shetland Islands)
Forests:	11.6%
Arable land:	23.23%
CO^2 emissions:	530 million tonnes (2005) (decrease from 540 million tonnes in 2004)

Economy

Currency:	Pound Sterling
GDP:	£1,209 billion, US$2,199 billion
Structure of economy: (% of GDP)	Agriculture 0.9% Industry 23.6% Services 75.5%
Energy production:	225.2 million TOE
Oil production:	1.861 million bbl/day (2005 est)
Natural gas production:	84.16 billion cubic metres (2005 est)
Electricity production:	372.6 billion kWh (2005)
Energy consumption:	233.7 million TOE
Oil consumption:	1.82 million bbl/day (2005 est)
Natural gas consumption:	91.16 billion cubic metres (2005 est)
Electricity consumption:	348.7 billion kWh (2005)
ODA:	US$10.77 billion
ODA as share of GDP:	0.47%

Defence

Defence spending:	US$51.7 billion
Armed forces:	191,000 regulars; 199,000 reserves

United States

Leader

Name:	President George W. Bush
Date of birth:	6 July 1946
Education:	BA (History) Yale University 1968, MBA Harvard University 1975
Profession/previous occupation:	Business
Political party:	Republican
Date assumed office:	20 January 2001; re-elected 2 November 2004
Previous summits:	2001, 2002, 2003, 2004, 2005, 2006, 2007
G8 sherpa:	David McCormack

Polity

Government:	Lower House – minority Upper House – minority
Next election:	4 November 2008
Political system:	Presidential
Legislature:	Bicameral-elected House of Representatives, elected Senate
Capital city:	Washington, DC
Official language:	English

Demography (2008 est)

Population:	303,842,646 (3rd in the world)
Population growth:	0.883%
Population density:	30.9 per sq km
Age profile:	0-14 years: 20.1% (male 31,257,108/female 29,889,645) 15-64 years: 67.1% (male 101,825,901/female 102,161,823) 65 years and older: 12.7% (male 16,263,255/female 22,426,914)
Language profile:	English 82.1%, Spanish 10.7%, other Indo-European 3.8%, Asian and Pacific island 2.7%, other 0.7%; Hawaiian is an official language in the state of Hawaii
Religious profile:	Protestant 51.3%, Roman Catholic 23.9%, Mormon 1.7%, other Christian 1.6%, Jewish 1.7%, Buddhist 0.7%, Muslim 0.6%, other or unspecified 2.5%, unaffiliated 12.1%, none 4% (2007 est)

Geography

Size of territory:	9,826,630sq km (4th in the world)
Coastlines:	19,924km (North Atlantic Ocean, North Pacific Ocean)
Fresh water:	664,707sq km
Forests:	32.6%
Arable land:	18.01%
CO^2 emissions:	5,817 million tonnes (2005) (increase from 5,792 million tonnes in 2004)

Economy

Currency:	US dollar
GDP:	US$12,417 billion
Structure of economy: (% of GDP)	Agriculture 0.9% Industry 20.6% Services 78.5%
Energy production:	1,641.0 million TOE
Oil production:	8.322 million bbl/day (2005 est)
Natural gas production:	490.8 billion cubic metres (2005 est)
Electricity production:	4.062 trillion kWh (2005)
Energy consumption:	2,325.9 million TOE
Oil consumption:	20.8 million bbl/day (2005 est)
Natural gas consumption:	604 billion cubic metres (2005 est)
Electricity consumption:	3.816 trillion kWh (2005)
ODA:	US$27.62 billion
ODA as share of GDP:	0.22%

Defence

Defence spending:	US$495.3 billion
Armed forces:	1,506,000 regulars; 973,000 reserves

A Golden Era - 50th year of production in SAIL

- Steel Authority of India Ltd. (SAIL), India's largest producer of steel, owns and operates five integrated steel plants at Bhilai, Durgapur, Bokaro, Rourkela and Burnpur, three Special Steel Plants at Salem, Durgapur and Bhadravati and a subsidiary at Chandrapur producing ferro alloys.
- All its production units are ISO 9001:2000 certified.
- Produced 350 million tonnes of crude steel since its inception.
- Recorded a turnover of about USD 10.70 Billion USD and profit after tax of 1.8 Billion USD.
- SAIL's product basket includes all Flat products, Long products, and pipes.
- Major supplier to strategic sectors like defense, atomic energy, power, infrastructure, heavy machinery, oil & gas, railways, etc.
- SAIL is the only supplier of rails to the Indian Railways. Total rails supplied to Indian railways, if joined together end to end, would circumnavigate the earth over eight times.
- SAIL exports its products to over 75 countries. The products exported to various countries include Wire Rods, Structurals, Hot-Rolled Plates/ Coils/ Sheets, Cold-Rolled Coils/ Sheets, Rails, CRNO Steel and Pig iron.
- SAIL conducts its operations in an environmentally responsible manner to comply with applicable legal and other requirements related to its environmental aspects and strive to go beyond.
- Major production units are ISO:14001 certified.
- SAIL has undertaken a massive modernisation and expansion plan worth 12.6 Billion USD which will increase its production capacity of Hot Metal from 14.5 million tonnes to 26 million tonnes.
- In its 50th year of production, SAIL reiterates its unchanging commitment towards the nation with a new vitality, using innovative & energy efficient technology and making a meaningful difference in people's lives.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Brazil

Leader

Title and name:	President Luiz Inácio Lula da Silva
Date of birth:	27 October 1945
Education:	Basic
Profession/previous occupation:	Trade union leader
Political party:	Workers' Party (PT)
Date elected leader:	27 October 2002, re-elected 29 October 2006
Previous summits:	2003, 2005, 2006, 2007

Polity

Government:	Lower House – minority Upper House – minority
Next election:	3 October 2010
Political system:	Presidential
Legislature:	Bicameral, elected Chamber of Deputies, elected Federal Senate
Capital city:	Brasilia
Official language:	Portuguese

Demography (2008 est)

Population:	191,908,598 (12th in the world)
Population growth:	0.98% average annual change
Population density:	22.5 per sq km
Age profile:	0-14 years: 24.9% (male 24,391,338/female 23,454,418) 15-64 years: 68.7% (male 65,330,427/female 66,431,982) 65 years and older: 6.4% (male 5,055,770/female 7,244,663)
Language profile:	Portuguese, Spanish, Italian, German, Japanese, English and a large number of minor Amazonian languages
Religious profile:	Roman Catholic 73.6%, Protestant 15.4%, Spiritualist 1.3%, Bantu/voodoo 0.3%, other 1.8%, unspecified 0.2%, none 7.4% (2000 census)

Geography and Ecology

Size of territory:	8,514,876sq km (5th in the world)
Coastlines:	7,491km (Atlantic Ocean)
Fresh water:	55,455sq km
Arable land:	6.93%
CO^2 emissions:	298.3 million tonnes (2003)

Economy

Currency:	Real
GDP:	R1,939 billion, US$ 796 billion (12th in the world)
Structure of economy: (% of GDP)	Agriculture 5.1% Industry 30.8% Services 64%
Energy production:	176.3 million TOE
Oil production:	1.71 million bbl/day (2006 est)
Natural gas production:	12.24 billion cubic metres (2005 est)
Electricity production:	396.4 billion kWh (2005)
Energy consumption:	204.8 million TOE
Oil consumption:	2.1 million bbl/day (2006 est)
Natural gas consumption:	17.85 billion cubic metres (2005 est)
Electricity consumption:	368.5 billion kWh (2005)
Foreign debt:	US$188.0 billion
Foreign debt as share of GDP:	34.0%

Defence

Defence spending:	US$30.3 billion
Armed forces:	288,000 regulars; 1,340,000 reserves

China

Leader

Title and name:	President Hu Jintao
Date of birth:	21 December 1942
Education:	Degree (Hydraulic Engineering) Tsinghua University 1965
Profession/previous occupation:	Engineer
Political party:	Communist Party of China
Date elected leader:	15 March 2003
Previous summits:	2003, 2005, 2006, 2007

Polity

Next election:	March 2013
Political system:	One-party rule
Legislature:	Unicameral, elected National People's Congress (Municipal, Regional, and Provincial People's Congress)
Capital city:	Beijing
Official language:	Mandarin

Demography (2008 est)

Population:	1,330,044,605 (July 2008 est) (1st in the world)
Population growth:	0.629% average annual change
Population density:	138.6 per sq km
Age profile:	0-14 years: 20.1% (male 142,085,665/female 125,300,391) 15-64 years: 71.9% (male 491,513,378/female 465,020,030) 65 years and older: 8% (male 50,652,480/female 55,472,661)
Language profile:	Standard Chinese or Mandarin (Putonghua, based on the Beijing dialect), Yue (Cantonese), Wu (Shanghaiese), Minbei (Fuzhou), Minnan (Hokkien-Taiwanese), Xiang, Gan, Hakka dialects, minority languages
Religious profile:	Daoist (Taoist), Buddhist, Christian 3-4%, Muslim 1-2%

Geography and Ecology

Size of territory:	9,596,960sq km (3rd in the world)
Coastlines:	14,500km (East China Sea, Korea Bay, Yellow Sea and the South China Sea)
Fresh water:	270,550sq km
Arable land:	14.86%
CO^2 emissions:	4,143.5 million tonnes (2003)

Economy

Currency:	Yuan
GDP:	Yuan 18,309 billion, US$2,234 billion (5th in the world)
Structure of economy: (% of GDP)	Agriculture 11.7% Industry 49.2% Services 39.1%
Energy production:	1,536.8 million TOE
Oil production:	3.73 million bbl/day (2007 est) Natural gas production: 58.6 billion cubic metres (2006 est)
Electricity production:	3.256 trillion kWh (2007)
Energy consumption:	1609.3 million TOE
Oil consumption:	6.93 million bbl/day (2007 est)
Natural gas consumption:	55.6 billion cubic metres (2006 est)
Electricity consumption:	2.859 trillion kWh (2006)
Foreign debt:	US$281.6 billion
Foreign debt as share of GDP:	14.0%

Defence

Defence spending:	US$104.0 billion
Armed forces:	2,255,000 regulars; 800,000 reserves

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India

Leader

Title and name:	Prime Minister Manmohan Singh
Date of birth:	26 September 1932
Education:	BA Punjab University 1952, MA Punjab University 1954, MA Cambridge University 1957, PhD Oxford University 1962
Profession/previous occupation:	Economist
Political party:	Indian National Congress
Date assumed office:	22 May 2004
Previous summits:	2005, 2006, 2007

Polity

Government:	Lower House – majority (coalition) Upper House – majority
Next election:	May 2009
Political system:	Parliamentary
Legislature:	Bicameral (elected People's Assembly, indirectly elected Council of States)
Capital city:	New Delhi
Official language:	Hindi

Demography (2008 est)

Population:	1,147,995,898 (July 2008 est) (2nd in the world)
Population growth:	1.579% average annual change
Population density:	349.2 per sq km
Age profile:	0-14 years: 31.5% (male 189,238,487/female 172,168,306) 15-64 years: 63.3% (male 374,157,581/female 352,868,003) 65 years and older: 5.2% (male 28,285,798/female 31,277,725)
Language profile:	Hindi 30%; minority languages include Assamese, Bengali, Bodo, Dogri, English, Gujarati, Kannada, Kashmiri, Konkani, Maithili, Malayalam, Manipuri, Marathi, Nepali, Oriya, Punjabi, Sanscrit, Santhali, Sindhi, Tamil, Telugu, Urdu and Hindustani (a popular variant of Hindi/Urdu spoken widely throughout northern India)
Religious profile:	Hindu 80.5%, Muslim 13.4%, Christian 2.3%, Sikh 1.9%, other 1.8%, unspecified 0.1% (2001 census)

Geography and Ecology

Size of territory:	3,287,590sq km (7th in the world)
Coastlines:	7,000km (Arabian Sea, Indian Ocean and the Bay of Bengal)
Fresh water:	314,400sq km
Arable land:	48.83%
CO^2 emissions:	1,273.3 million tonnes (2003)

Economy

Currency:	Indian rupee
GDP:	Rs35,672 billion, US$806 billion (11th in the world)
Structure of economy: (% of GDP)	Agriculture 16.6% Industry 28.4% Services 55%
Energy production:	466.9 million TOE
Oil production:	834,600 bbl/day (2005 est)
Natural gas production:	28.68 billion cubic metres (2005 est)
Electricity production:	661.6 billion kWh (2005)
Energy consumption:	572.9 million TOE
Oil consumption:	2.438 million bbl/day (2005 est)
Natural gas consumption:	34.47 billion cubic metres (2005 est)
Electricity consumption:	488.5 billion kWh (2005)
Foreign debt:	US$123.1 billion
Foreign debt as share of GDP:	16.0%

Defence

Defence spending:	US$ 21.7 billion
Armed forces:	1,316,000 regulars; 1,155,000 reserves

Mexico

Leader

Title and name:	President Felipe de Jesús Calderón Hinojosa
Date of birth:	18 August 1962
Education:	BA (Law) Escuela Libre de Derecho, MA (Economics) Instituto Tecnológico Autónomo de México
Profession/previous occupation:	Politician
Political party:	National Action Party
Date assumed office:	1 December 2006
Previous summits:	2007

Polity

Government:	Lower House – minority Upper House – minority
Next election:	1 July 2012 (presidential)
Political system:	Presidential
Legislature:	Bicameral, elected Federal Chamber of Deputies, elected Senate
Capital city:	Mexico City
Official language:	Spanish

Demography (2008 est)

Population:	109,955,400 (11th in the world)
Population growth:	1.142% average annual change
Population density:	55.7 per sq km
Age profile:	0-14 years: 29.6% (male 16,619,995/female 15,936,154) 15-64 years: 64.3% (male 34,179,440/female 36,530,154) 65 years and older: 6.1% (male 3,023,185/female 3,666,472)
Language profile:	Spanish, Mayan, Nahuatl, and other regional indigenous dialects
Religious profile:	Roman Catholic 76.5%, Protestant 6.3% (Pentecostal 1.4%, Jehovah's Witnesses 1.1%, other 3.8%), other 0.3%, unspecified 13.8% (2000 census)

Geography and Ecology

Size of territory:	1,972,550sq km (15th in the world)
Coastlines:	9,330km (Caribbean Sea, Gulf of Mexico and North Pacific Ocean)
Fresh water:	49,510sq km
Arable land:	12.66%
CO^2 emissions:	415.9 million tonnes (2003)

Economy

Currency:	Mexican peso
GDP:	Pesos8,374 billion, US$768 billion (14th in the world)
Structure of economy: (% of GDP)	Agriculture 5.1% Industry 30.8% Services 64%
Energy production:	253.9 million TOE
Oil production:	3.784 million bbl/day (2005 est)
Natural gas production:	41.37 billion cubic metres (2005 est)
Electricity production:	222.4 billion kWh (2005)
Energy consumption:	165.5 million TOE
Oil consumption:	2.078 million bbl/day (2005 est)
Natural gas consumption:	47.5 billion cubic metres (2005 est)
Electricity consumption:	183.3 billion kWh (2005)
Foreign debt:	US$167.2 billion
Foreign debt as share of GDP:	26.0%

Defence

Defence spending:	N/A
Armed forces:	238,000 regulars; 40,000 reserves

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FINANCIAL INCLUSION

Financial Inclusion PNB's Commitment

2008 – PNB's Year of Financial Inclusion

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services at a fair cost, the Bank has declared the Year 2008 as the "Year of Financial Inclusion. "Bank has already achieved 100% financial inclusion in 11,043 villages and is continuously adding more villages. To encourage banking habit among the unbanked, the bank opened 1.07 million "No Frills" accounts. With the holistic approach of providing basic financial services to the financially excluded poor, the Bank has identified 27 pilot project sites for launching technology enabled financial inclusion through business correspondents/ business facilitators. Out of these, 20 projects are in rural areas and the balance in urban

the Indo Gangetic belt where the bank has a strong presence. The Bank has launched 2 Rickshaw projects and an innovative scheme to empower women weavers of silk sarees, to supplement their incomes. It opened 9 Financial Literacy and Education Counseling Centers to enable them for absorption of credit and its proper utilization for income generating activities.

Under Financial Inclusion, the Bank plans to cover 30,000 villages and 75 million people by 2010. In recognition, ank got National award for excellence in lending to microfinance and the Chairman was awarded "Skoch Challenger Award 2008-inclusion leader of the ye

Dr. K.C. Chakrabarty, CMD and Mr. K. Raghuraman & Mr. J. M. Garg, Executive Directors intera

GLOBAL FORAYS

Backed by strong domestic performance, the bank is on it's way to realize its glob

its customers who are increasingly going global and to serve the Non-resident Indians. The bank set up a subsidiary at London (UK) and a branch at Hong Kong, in addition to already existing branches at Ka Afg at M

Mr. John C. Tsang, Financial Secretary, Hong Kong, Dr. K.C. Chakrabarty, CMD, PNB & Mr. L. D. Ralte, Consul General of India inaugurati

The Bank has representative offices at Almaty (Kazakhstan), Dubai (UAE) & Shanghai (China) and is in the process of upgrading Shanghai and plans to open a branch at DIFC, Dubai. It has plans to open another subsidiary at Canada and an off shore banking unit at Singapore. It is in the process of finalizing a joint venture Bank in Bhutan. Besides, the Bank has identified Norway as a potential centre for business and proposes to set up a branch and is also looking for presence in SAARC countries to strengthen re

South Africa

Leader

Title and name:	President Thabo Mvuyelwa Mbeki
Date of birth:	18 June 1942
Education:	MA (Economics) University of Sussex
Profession/previous occupation:	Politician
Political party:	African National Congress
Date assumed office:	14 June 1999
Previous summits:	2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007

Polity

Government:	Lower House – majority Upper House – majority
Next election:	April 2009
Political system:	Parliamentary
Legislature:	Bicameral, elected National Assembly, elected National Council of Provinces
Capital city:	Pretoria
Official languages:	Afrikaans, English, IsiNdebel (Ndebele), IsiXhosa (Xhosa), IsiZulu (Zulu), Northern Sotho (Sepedi), SeSotho (Southern Sotho), Setswana (Tswana), Siswati (Swati), Tshivenda (Venda), Xitsonga (Tsonga)

Demography (2008 est)

Population:	43,786,115 (26th in the world)
Population growth:	-0.501% average annual change
Population density:	35.9 per sq km
Age profile:	0-14 years: 28.6% (male 6,295,422/female 6,219,283) 15-64 years: 65.9% (male 14,114,838/female14,737,791) 65 years and older: 5.5% (male 927,932/female 1,490,849)
Language profile:	IsiZulu 23.8%, IsiXhosa 17.6%, Afrikaans 13.3%, Sepedi 9.4%, English 8.2%, Setswana 8.2%, Sesotho 7.9%, Xitsonga 4.4%, other 7.2% (2001 census)
Religious profile:	Zion Christian 11.1%, Pentecostal/ Charismatic 8.2%, Catholic 7.1%, Methodist 6.8%, Dutch Reformed 6.7%, Anglican 3,8%, Muslim 1.5%, other Christian 3.6%, other 2.3%, unspecified 1.4%, none 15.1% (2001 census)

Geography and Ecology

Size of territory:	1,219,912sq km (25th in the world)
Coastlines:	2,798km (South Atlantic Ocean and Indian Ocean)
Fresh water:	0sq km
Arable land:	12.1%
CO^2 emissions:	285.4 million tonnes (2003)

Economy

Currency:	Rand
GDP:	R1,523 billion, US$240 billion (29th in the world)
Structure of economy:	Agriculture 2.2% (% of GDP) Industry 27% Services 70.9%
Energy production:	156.0 million TOE
Oil production:	200,000 bbl/day (2006 est)
Natural gas production:	2.11 billion cubic metres (2005 est)
Electricity production:	264 billion kWh (2007)
Energy consumption:	131.1 million TOE
Oil consumption:	519,000 bbl/day (2006 est)
Natural gas consumption:	2.11 billion cubic metres (2005 est)
Electricity consumption:	241.1 billion kWh (2007)
Foreign debt:	US$30.6 billion
Foreign debt as share of GDP:	14.0%

Defence

Defence spending:	N/A
Armed forces:	N/A

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Japan

Yasuo Fukuda became the 91st Prime Minister of Japan on 26 September 2007, following his selection by his colleagues in the governing Liberal Democratic Party. He was first elected to the House of Representatives in 1990 as the representative for Gunma Prefecture, the 3rd Electoral District (in 1996 it became the 4th Electoral District). He has been re-elected six times since 1990. He served as Minister for Okinawa Development in 2000 and Minister of State for Gender Equality and Social Affairs from 2001 to 2004. He also served as Chief Cabinet Secretary under Prime Ministers Yoshiro Mori and Junichiro Koizumi. His father, Takeo Fukuda, served as Prime Minister of Japan from 1976 to 1978. During his father's leadership, Yasuo served as a political secretary.

Born on 16 July 1936 in Takasaki, Gunma, Japan, he earned a degree in Political Science and Economics at Waseda University in 1959, and moved to a professional career in petroleum refining and marketing at Maruzen Petroleum. He is married to Kiyoko Fukuda. They have three children.

This will be the first G8 Summit that Prime Minister Fukuda has hosted and has attended.

Masaharu Kohno will serve as his G8 sherpa.

Russia

Dmitry Medvedev became President of Russia on 7 May 2008, after winning the presidential election on 2 March 2008. He was officially endorsed as a candidate for the presidency on 17 December 2007 by Russia's largest political party, United Russia, and by the then President Vladimir Putin. He served as Deputy Prime Minister of Russia from 2005 to 2008.

Born on 14 September 1965 in Leningrad in the former Soviet Union (now known as St Petersburg, Russia), he earned a degree in Law from Leningrad State University in 1987. In 1990, he received his PhD in private law from the same university. From 1991 to 1999, Medvedev worked as a docent at his alma mater. From 1991 to 1996, he worked as a legal expert for the International Relations Committee of the St Petersburg Mayor's office, which was headed by Vladimir Putin. In 1999, Putin brought Medvedev to Moscow to serve in one of the top government positions. In the same year, Medvedev was appointed deputy head of the presidential staff. Medvedev also worked on Putin's 2000 presidential campaign. Medvedev is Russian Orthodox. He is married to Svetlana Medvedeva. They have one child.

This will be his first G8 Summit.

Arkady Dvorkovich will serve as his G8 sherpa.

United Kingdom

Gordon Brown became Prime Minister of the United Kingdom of Great Britain and Northern Ireland on 27 June 2007, three days after becoming leader of the Labour Party. He was elected to parliament in 1983, first as the representative for Dunfermline East and, since 2005, as the representative for Kirkcaldy and Cowdenbeath, both in Scotland. He served as Chancellor of the Exchequer from 1997 to 2007 under Prime Minister Tony Blair.

Born on 20 February 1951 in Govan, Glasgow, Scotland, he studied history at the University of Edinburgh and completed his MA with First Class Honours in 1972 and his PhD at the same institution in 1982. He worked as a lecturer at the Glasgow College of Technology and as a journalist on Scottish television before entering politics. Brown belongs to the Church of Scotland, a Presbyterian church. He is married to Sarah Brown. They have two children.

This will be his first G8 Summit as leader of the United Kingdom. He attended the G7 finance ministers' meetings during his time as Chancellor of the Exchequer, and in 1997 attended the 'Summit of the Eight' alongside Prime Minister Blair.

Jonathan Cunliffe will serve as his G8 sherpa.

Meaningful relations: the G8 and civil society

Civil society's role within the G8 process is now well-established, with NGOs taking the opportunity both to address the formal agenda and to raise wider issues, such as human rights

By Professor Peter I Hajnal, G8 Research Group

As the 2008 HokkaidoToyako G8 Summit approaches, Japanese and international civil society is fully engaged in multifaceted G8-related activities. This article begins with a brief historical overview, reviews civil society experiences at earlier summits hosted by Japan, and discusses civil society action in this, Japan's year of G8 presidency.

Non-governmental organisations (NGOs) and civil society movements and coalitions have long been conscious of the influence and role of the G8, whose leaders met for their first annual Summit in 1975 as G6 (France, Germany, Italy, Japan, the UK and the US), to be joined the following year by Canada (turning the group into G7) and, after many years of gradually intensifying involvement, by Russia in 1998, thus forming the G8.

"This year the main co-ordinator is the 2008 Japan G8 Summit NGO Forum, a coalition of more than 120 NGOs"

Because the G8 is not based on an intergovernmental agreement setting out its procedures and has no permanent secretariat, there is no established institutional mechanism to govern its interaction with other actors, including civil society. Nevertheless, for most of its history, the G8 (a major forum of global governance) has met with steadily broadening and deepening civil society engagement. For a number of years, this interaction has involved government consultation with civil society groups, alternative summits, street demonstrations, petitioners and a variety of other actors, as well as rare instances of multi-stakeholder partnerships embracing governments, international organisations and non-state actors (non-profit civil society and the business sector).

Japan, a founding member of the G8, hosted its first G7 Summit meeting in Tokyo in 1979. At the next Summit in Japan (Tokyo 1986), 30 left-wing activists held a peaceful demonstration far from the leaders' venue. The third Japanese-hosted Summit (Tokyo 1993) prompted an alternative summit held by NGOs.

The 2000 Okinawa Summit was a high point in civil society's interaction with the G8. It was there that dialogue with stakeholder groups became a regular part of the G8 process. The Japanese government met with civil society leaders from Europe before the Summit. In addition, the host government sponsored a pre-summit international symposium on the role of NGOs in conflict prevention. At the Summit itself, Prime Minister Yoshiro Mori consulted representatives of five NGOs to discuss the effects of globalisation, the environment, infectious diseases and partnership between governments and civil society. The Japanese hosts also financed a well-equipped NGO centre, with meeting rooms, computers, telephones, photocopiers and other necessities. The Japanese government thus set a positive example of the official G8's openness to civil society, and of its willingness to listen to it and learn from it.

Civil society is continuing this tradition as it prepares for the 2008 Hokkaido Toyako G8 Summit. This year the main co-ordinator is the 2008 Japan G8 Summit NGO Forum (www.g8ngoforum.org), a coalition of

This page and next: Kyoto, 24 April 2008. NGO representatives and G8 sherpas meet within the Civil G8 Dialogue, hosted by the 2008 Japan G8 Summit NGO Forum

more than 120 NGOs active on the environment, poverty elimination, development, human rights and peace. Building on the experience of the very successful 2006 Civil G8 in Russia, as well as last year's civil society dialogue with the G8 in Germany, the Forum has held two dialogue sessions with G8 officials.

The first, on 19 February, with Japanese sherpa Masaharu Kohno and officials of the foreign and environment ministries, focused on targets for greenhouse gas reduction and on increasing Japan's Official Development Assistance in accordance with the UN's Millennium Development Goals.

The second, on 24 April, was held in Kyoto. It brought together some 18 representatives of Japanese and international NGOs (plus some 200 observers) and the G8 sherpas, who heard criticism of the limited progress on meaningful climate change action and calls for stronger government leadership on environment and development issues. In preparation for the forthcoming Summit, the Forum has issued position papers on the environment, poverty and development, and peace and human rights. It has also engaged in advocacy with various government agencies and the Diet. Other events relevant to civil society have included a 'Model G8 Youth Summit' (11-15 March) in Yokohama, and a session hosted by the Japanese government during the Africa Partnership Forum meeting (7-8 April).

An alternative summit, giving voice to citizen concerns, is to take place in Sapporo on 6-8 July, just before the G8 Summit, focusing on the environment, peace and human rights, development and poverty, and other issues. It will be organised by the Forum with another group, the Hokkaido People's Forum on the G8 Summit (a coalition of about 50 organisations). It is not yet clear whether, or to what extent, this counter-summit will choose to engage with the 'official' G8.

Yet another event planned is an Indigenous Peoples' Summit in Sapporo from 28 June to 4 July – a new and potentially important civil society activity around G8 Summits, bringing the special concerns of these populations to world attention. In addition, religious leaders of various faith groups are planning to meet in July, as is the Junior 8 (J8) Summit where young people from G8 countries, chosen by competition, will discuss their positions on G8 agenda items and present their communiqué to G8 leaders for the fourth year in a row. There will also be a World Youth Forum

of young Japanese activists in Tokyo on 27-30 June.

The NGO Forum and the Hokkaido People's Forum are setting out a programme for 'People's Weeks' lasting from 14 June to 9 July. Planned activities include a 'fair trade' fiesta, a symposium on forest eco-systems, a symposium on women, a film festival about indigenous populations and the environment, a peace walk, and an event featuring 'la Via Campesina' peasant movement.

Civil society access to the official media centre (except for some NGO representatives accredited as journalists) is, as usual, likely to be problematic.

"Yet another event planned is an Indigenous Peoples' Summit in Sapporo"

A 'Civil Media Centre' will be established in Sapporo, to provide NGOs and the independent press with a venue for interviews and information dissemination – whether with Japanese government support, is not yet known.

The central agenda items first set by the Japanese host government for the Hokkaido Toyako Summit are the world economy, environmental concerns and African development. But the food price crisis that began in the spring has inevitably found its place among topics to be discussed by the leaders. Civil society's summit-related agenda is the result of a complex process: on the one hand, it tends to reflect the 'official' G8 agenda (and this convergence makes for greater potential public input and influence on the G8); on the other, civil society organisations routinely use the Summits to highlight a number of other concerns such as human rights issues.

Beyond the leaders' Summits, the broader G8 system includes an expanding network of ministerial and other fora (see article by John Kirton, page 14). Such gatherings offer civil society additional platforms for dialogue. For example, trade union representatives discussed with G8 labour ministers the challenge of reducing workplace emissions of greenhouse gases, and other social concerns.

Encouraging work has been done in the preparatory phase this year, and there is good potential for significant G8 – civil society interaction at the time of the Hokkaido Toyako Summit. It is up to civil society groups and the Japanese host government – working with other G8 governments – to fulfil that potential.

G8 Interim Compliance Report 2007-2008

By Cliff Vanderlinden and Michael Erdman, G8 Research Group

Six months after Germany hosted its fifth G8 Summit at Heiligendamm from 6 to 8 June 2007, G8 members' compliance with their priority commitments was 33 per cent, on a scale where 100 per cent is high or full compliance, 0 per cent is partial compliance or 'work in progress', and -100 per cent is no, or minimal, compliance. These results come from the sixth annual *Interim Compliance Report* of the G8 Research Group, based at the University of Toronto. The Group assessed G8 member states' implementation of 23 of the 329 commitments made at Heiligendamm, shortly after the Presidency of the G8 passed to Japan on 1 January 2008 (Table A). The Heiligendamm score of 33 per cent is the lowest for the G8 Summit since Kananaskis in 2002, when compliance was assessed at 27 per cent at the six-month mark (Table B). It is in sharp contrast with the interim compliance scores of 48 per cent for Evian in 2003, 39 per cent for Sea Island in 2004, and 47 per cent for Gleneagles in 2005. It is comparable to the score of 35 per cent assessed for the commitments made at the St Petersburg Summit in 2006.

Although the average compliance score across all countries and all commitments is lower than in previous years, the average scores of some G8 member states are higher this year than at any point since the inception of the *Interim Compliance Report* in 2002. The United States, which has historically ranked fourth, is in first place with a score of 78 per cent. The United Kingdom follows, with a score of 61 per cent, while Germany falls to a third-place ranking at 48 per cent. After the European Union, in the fourth spot with a score of 39 per cent, the compliance scores drop sharply. Canada, which has been awarded an average score of 22 per cent, is in fifth spot. France and Russia, which each rank sixth, have average scores of 17 per cent. Italy follows, in eighth place, with an average rating of 13 per cent; this represents a substantial improvement for Italy since last year's *Interim Compliance Report*. Finally, in ninth position, is the host of this year's G8 Summit, Japan, which has garnered an average score of only 4 per cent.

This year's interim compliance scores represent changes of more than 10 per cent from last year's scores for seven member states and the EU. Only Germany has seen a smaller change in its compliance score, with an improvement of 6.7 per cent over last year. Italy has achieved the largest increase – up 430 per cent from February 2007, when Italy received an average score of -10 per cent. The second largest increase was achieved by the United States, the score for which is 123 per cent higher than in February 2007. Finally, the United Kingdom has registered a slight increase of 11 per cent over its score of 55 per cent in the St Petersburg *Interim Compliance Report*. In terms of decreases in average scores, Japan has registered the largest fall, with a decrease of 87 per cent since February 2007. Canada's score has dropped by 51 per cent. Russia and France have registered the second smallest decreases, at 32 per cent. The European Union saw its average score drop the least – by 26 per cent from February 2007.

The gap between average scores for countries has increased slightly this year to 74 per cent (78 per cent for the US and 4 per cent for Japan). It is lower than the historical high of 90 per cent for the Gleneagles Summit. It is substantially higher than the lowest gap

Table A: 2007 Heiligendamm Interim Compliance scores

Commitment no	Commitment name	CDN	FRA	GER	ITA	JPN	RUS	UK	US	EU	average
1	Intellectual Property Protection	-1	0	0	1	0	0	0	1	1	0.22
2	Fighting Climate Change	1	1	1	1	1	1	1	1	1	1.00
3	Energy: Technology	0	0	0	0	1	0	0	1	0	0.22
4	Energy: Efficiency	0	1	1	1	1	0	1	1	1	0.78
5	Energy: Diversification	0	1	1	1	1	0	1	1	0	0.67
6	Raw Materials	0	0	0	0	0	1	0	0	1	0.22
7	Corruption	1	0	0	0	-1	0	1	1	0	0.22
8	Heiligendamm Process	0	1	1	0	0	0	0	0	0	0.22
9	Africa: Debt Relief	0	0	1	0	-1	0	1	1	0	0.22
10	Africa: ODA	1	-1	1	0	0	1	1	1	0	0.44
11	Africa: Financial Markets	0	-1	1	-1	-1	-1	1	1	1	0.00
12	Africa: Education	-1	0	0	0	-1	0	1	1	1	0.11
13	Africa: Peace and Security	0	1	0	0	0	0	0	0	0	0.11
14	Africa: Global Fund	0	1	1	0	0	0	1	1	0	0.44
15	Africa: S&R Education	1	0	0	-1	0	1	1	1	1	0.22
16	Africa: Health Systems	1	0	1	0	0	1	1	1	0	0.56
17	Nonproliferation: Fissile Material	0	-1	0	0	0	-1	0	0	0	-0.22
18	Nonproliferation: HCOC	-1	0	0	0	0	1	0	0	0	0.00
19	Regional Security: Darfur	1	1	1	0	1	0	1	1	1	0.78
20	Counter Terrorism: Transport Security	0	0	0	0	0	1	0	1	0	0.22
21	Counter Terrorism: FATF	1	1	0	1	0	0	1	1	1	0.67
22	Trade	1	-1	0	0	1	0	1	1	0	0.33
23	Global Partnership	0	0	1	0	-1	1	0	1	0	0.22
	Country average	**0.22**	**0.17**	**0.48**	**0.13**	**0.04**	**0.17**	**0.61**	**0.78**	**0.39**	
	2007 Interim Compliance average										**0.33**
	2006 Final Compliance average	0.60	0.40	0.55	0.05	0.40	0.55	0.60	0.60	0.58	0.47
	2006 Interim Compliance average	0.45	0.25	0.45	-0.10	0.30	0.25	0.55	0.35	0.53	0.35

Scores are preliminary tabulations and may change

of 25 per cent for the Evian Summit, but is nevertheless close to the historical average of 60 per cent.

Compliance by issue area varies widely, although there are fewer outlier scores than last year. Only one commitment area, Fighting Climate Change, has been awarded a score of 100 per cent. Similarly, there is only one commitment, Nonproliferation: Fissile Material Cut-off Treaty (FMCT), for which the average score is negative (-22 per cent). When the two outliers are excluded, the average compliance score falls only slightly, from 33 per cent to 29 per cent.

The average score of 100 per cent for Fighting Climate Change represents an unanimous effort on the part of the G8 member states and the EU to participate constructively in the Bali Climate Change Conference, which was held from 3 to 15 December 2007. Only five other commitments resulted in scores of more than 50 per cent, including Energy: Efficiency; Regional Security: Darfur (78 per cent); Energy: Diversification; Counter-terrorism: Financial Action Task Force (FATF) (67 per cent); and Africa: Health Systems (56 per cent). This is in line with the interim results following the St Petersburg Summit, when five out of 20 commitments resulted in scores above 50 per cent, but is significantly lower than the post-Gleneagles period, when nine of 21 commitments scored above 50 per cent.

Two commitments – Africa: Official Development Assistance (ODA) and Africa: Global Fund – received an average score of 44 per cent, while one other commitment, trade, had an average score of 33 per cent. Commitments that received an average score of 22 per cent constitute the largest group, at nine of 23 commitments. They include Intellectual Property Protection; Energy: Technology; Corruption; Raw Materials; the Heiligendamm Process; Africa: Debt Relief; Africa: Sexual and Reproductive (S&R) Education; Counter-terrorism: Transport Security; and the Global Partnership. In general, these scores

"The G8 nations' performance since Heiligendamm leaves much room for improvement"

result from widespread partial compliance (scores of 0 per cent), rather than polarisation of G8 member states between compliant and non-compliant countries. Two commitments received average scores of 11 per cent – Africa: Peace and Security, for which most countries were partially compliant; and Africa: Education, for which there was a clear division between compliant (100 per cent) and non-compliant (-100 per cent) nations.

An average score of 0 per cent was awarded to two of the commitment areas. Nonproliferation – Hague Code of Conduct (HCOC) was marked by large-scale partial compliance, resulting in an average of 0 per cent. On the other hand, Africa: Financial Markets divided G8 member states and the EU between those who fully complied with the commitment and those states that had taken no action to support compliance. Finally, Nonproliferation: FMCT was awarded the lowest average score, -22 per cent, largely due to the failure of the member states to show serious efforts towards the commencement of negotiations on the issue of the FMCT. The presence of a commitment with a negative average score is in line with historical trends for interim compliance, although it is a marked change from last year's commitment scores.

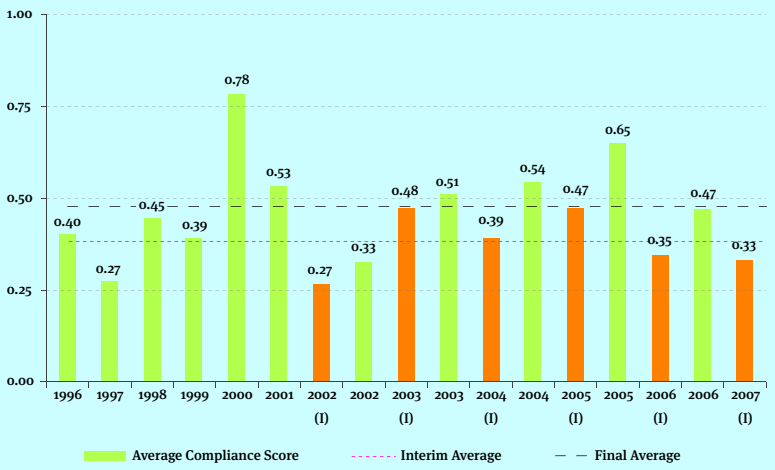
Prior to the Heiligendamm Summit, the German government identified three priority issue areas: Growth and Responsibility (including energy); Africa; and Co-operation with Emerging Economies. Although compliance scores varied within these priority areas, they were noticeably higher for Growth and Responsibility than for either of the other two. Seven commitments, excluding the Heiligendamm Process, were drawn from the Growth and Responsibility document. They included the commitment with the highest average score, Fighting Climate Change, and together received an average score of 49 per cent. This average is significantly higher than the overall interim compliance average. When the commitments are further refined, the three energy commitments have an average score of 56 per cent, lower than the historical average of interim compliance with energy commitments of 72 per cent.

Eight commitments were drawn from the *Growth and Responsibility in Africa* document. Together, these commitments received an average score of 26 per cent, below the average compliance score for all 23 commitments. The average score for Africa, however, is higher than the historical interim compliance average for Development commitments of 15 per cent. Finally, the sole commitment that corresponded to the priority issue of Co-operation with Emerging Economies, the Heiligendamm Commitment, received an average compliance score of 22 per cent.

The G8 nations' lower-than-average performance in the first six months since the Heiligendamm Summit leaves much room for improvement. In particular, many of the countries that have historically performed well in interim compliance assessments must implement concrete and bold measures in order to comply fully with the majority of their Heiligendamm commitments. Since 2002, the final score has consistently been higher than the interim score by an average of 11 compliance points. If the G8 countries continue this trend of significantly increasing compliance efforts in the second half of the Summit year (January to June 2008) and achieve a final score approaching 44 per cent, overall compliance for the 2007 Heiligendamm commitments will fall only slightly below the historical average final score of 46 per cent and be well above the final compliance scores reached at Lyon (1996), Denver (1997), Cologne (1999) and Kananaskis (2002).

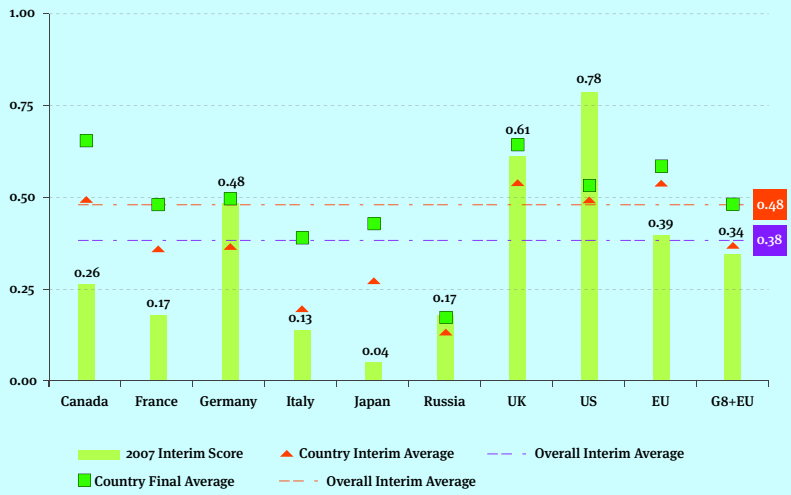
The full 2007 Heiligendamm Interim Compliance Report *can be viewed online. Please visit: www.g8.utoronto.ca/evaluations/2007compliance_interim*

Table B: average compliance scores by year, 1996-2007



Scores are preliminary tabulations and may change

Table C: average compliance scores by year, 1996-2007



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G8 Research Group

Munk Centre for International Studies
at Trinity College in the University of Toronto

The G8 Research Group is a global network of scholars, students and professionals in the academic, research, media, business, non-governmental and governmental communities. The G8RG follows the work of the G8 major market democracies and related institutions, such as the G7 and G20. Its mission is to serve as the world's leading independent source of information, analysis and research on the G8. Founded in 1987, the G8 Research Group is managed from the Munk Centre for International Studies at Trinity College in the University of Toronto, with regional offices in London, Tokyo, Paris, Rome, Moscow, Montreal, Mexico City and Beijing, and has Professional Advisory Council members, Special Advisors and participating researchers spanning the world.

The G8 Information Centre (www.g8.utoronto.ca)

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G8 Outreach 5 Interim Compliance Report 2007-2008

By Cliff Vanderlinden, Miranda Lin and Sarah Yun, G8 Research Group

Heiligendamm signalled a marked evolution in the role played by the Outreach-5 (O5) states at the G8 Summit. Although Brazil, China, India, Mexico and South Africa had, for several years, been invited to send delegations to G8 Summits, the 2007 Summit saw the O5 for the first time make formal commitments within the G8 framework. The joint statement issued in Heiligendamm by the German G8 Presidency and the heads of state of the O5, which marked "an important step towards an equal and enduring partnership for building the framework conditions of a globalised and competitive world economy",[1] included a number of areas in which the O5 states committed to co-operating with the G8, among which are promoting cross-border investment, fighting climate change, promoting energy efficiency, and working with the G8 towards meeting the Millennium Development Goals.

Six months after the Heiligendamm G8 Summit, O5 members' compliance with the commitments made at the Summit was 30 per cent on a scale where 100 per cent is high or full compliance, 0 per cent is partial compliance or 'work in progress', and -100 per cent is no or minimal compliance. These results are derived from the first annual O5 Interim Compliance Report, which was compiled by the G8 Research Group, based at the University of Toronto. The G8 Research Group has been conducting compliance analyses on the G8 for more than a decade, and began monitoring the O5 for compliance following the formalisation of O5 commitments in Heiligendamm.

Mexico demonstrated the highest level of compliance among the O5 states, with a score of 75 per cent six months after the Heiligendamm Summit. Mexico received full compliance scores for the cross-border investment, climate change and development commitments and a partial compliance score for the energy commitment. Brazil, India and South Africa achieve a three-way tie for the second-highest level of compliance, with each receiving a score of 25 per cent. All three countries received full compliance scores for the climate change commitment, but varied significantly on other commitments. Brazil and South Africa, for example, received negative compliance scores on the development and cross-border investment commitments, respectively. China received the lowest compliance score of 0 per cent compliance on the -100 to 100 per cent scale.

The climate change commitment received the highest average score among the O5 states, registering 80 per cent compliance. The energy commitment followed at 40 per cent, while the development and cross-border investment commitments each received 0 per cent compliance scores on the -100 to 100 per cent scale.

Overall the O5 member states demonstrated a net-positive compliance with the commitments made at the 2007 G8 Summit in Heiligendamm. However, given that this is the first year that the O5 is being monitored for compliance, there is a lack of historical data available for comparison and thus a degree of uncertainty as to whether O5 compliance was a direct result of the commitments made in Heiligendamm or extraneous developments.

2007 Heiligendamm Outreach 5 Interim Compliance scores

Commitment name	Brazil	China	India	Mexico	S Africa	Average
Cross-border investment	0	0	0	1	-1	0.00
Climate change	1	0	1	1	1	0.80
Energy	1	0	0	0	1	0.40
Development	-1	0	0	1	0	0.00
Country average	0.25	0.00	0.25	0.75	0.25	0.30

[1] *Joint Statement by the German G8 Presidency and the Heads of State and/or government of Brazil, China, India, Mexico and South Africa, Heiligendamm, 8 June 2007*

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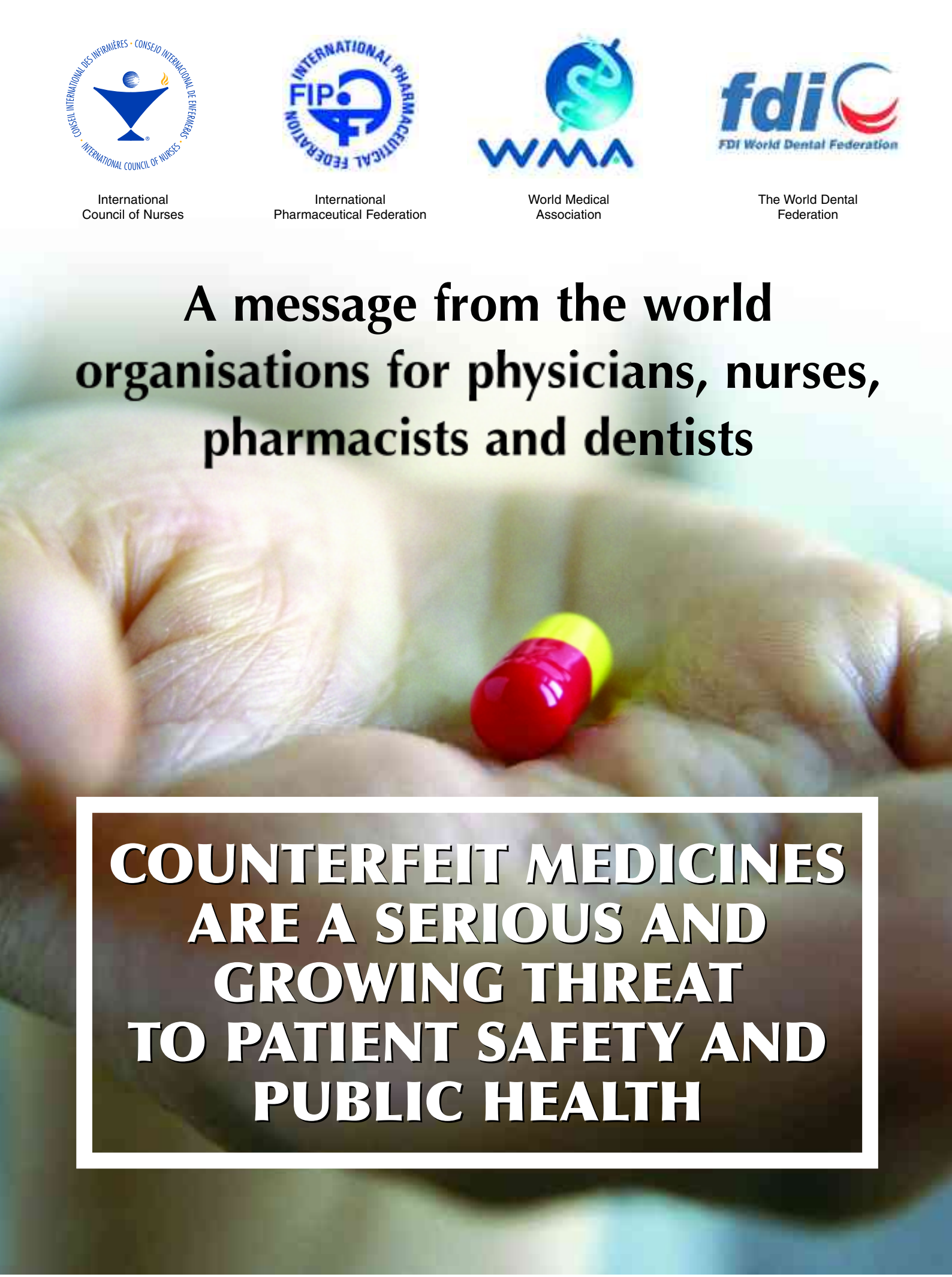

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