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1992

THE Road to Rio+20

2012

For a development-led green economy

Special contributions by
Yann Arthus-Bertrand
and **Günter Fischer**



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For a development-led green economy

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Previous issues



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Eugenia E. Nuñez
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Message from the Editor-in-Chief

This third issue of *The Road to Rio+20* moves forward the debate, focusing primarily on commitments and outcomes and the potential of the process leading up to the Conference to generate innovative ideas, policies and to consolidate sustainable development strategies of governments.

One author recalls her address to the Rio 1992 Earth Summit as a 12-year-old child, and, reflecting on how the environmental movement has progressed, maintains certain optimism for the future. Some essays in this collection justify such optimism, notably some undertakings in Latin America aimed to conserve natural resources at the same time they promote economic development in rural communities through the sustainable use of resources.

One Andean country has come up with an innovative policy that preserves the natural environment of the Amazonian rainforest, protects the lives of isolated communities and manages resources such as fossil fuels: leaving the oil where it is, underground, monetising its value in carbon savings and using the proceeds to promote conservation of biodiversity and equitable human development.

The role of renewable energy resources comes up once again in this issue, in particular the potential of sugarcane and other energy-rich crops to advance development in Africa, subject to adequate investment and technology transfer. Set against this is the view that biofuels, due to the high water-consumption of energy-rich crops, may not be the panacea they seem, justifying the need for comprehensive approaches to resource efficiency.

Whatever the source, authors reiterate the case for energy savings, and that public bodies should lead in reducing consumption and increasing efficiency. The question nevertheless remains: how do some countries acquire green reputations that significantly exceed their environmental performance? A proposed analytical tool, the 'Global Green Economy Index (GGEI)' is set to provide quantitative and qualitative indicators to measure actual performance.

As for the private sector, it is set to be the prime mover in the transition to the green economy; the credibility of Rio+20 will, say authors in this volume, come from concrete proposals, not wishful thinking. Some companies are

already planning and integrating sustainable policies into their supply chain; however, long-term sustainability requires a joint effort by business and government to develop the right framework and negotiate mutually acceptable goals.

Authors acknowledge that concrete outcomes from Rio+20 will require greater commitment and political will than has been in evidence in the run up to the Conference. They call for solid actions to protect the planet for future generations, promote technology transfer, spur investment and thereby enable the green transition in developing countries. Equally, new indicators beyond Gross Domestic Product should be devised to measure national 'green' performance.

Trade –within the context of an open, multilateral trade regime– will play a key role in the transition to the green economy through its potential to reduce costs, transfer technology and best practice and preclude green protectionism. In the end, however, it is individual choices that can make a real difference on the economic transition, and authors stress the need to empower people to make sustainable choices – a realm where the interests of public and private sectors converge.

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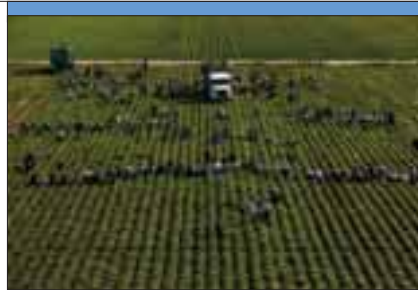
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Banner at Rio Centro, which reads, "It's your conference."
Rio de Janeiro, 1992

power

experience

for



**Through the eyes
of a child**

Remember the future:
A personal story of a journey from
Rio 1992 to Rio 2012
Severn Cullis-Suzuki

Twenty years

▼
I knew why I was there:
I was fighting for
my future
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Remember the future: A personal story of a journey from Rio 1992 to Rio 2012

Severn Cullis-Suzuki

Severn Cullis-Suzuki spoke at the Earth Summit in 1992 as a 12 year-old member of civil society. Her return to the 2012 Rio+20 Earth Summit provides an opportunity to reflect on how the movement has progressed. Today, she is a member of the Canadian Earth Summit Coalition, which has conducted surveys resulting in three policy recommendations for Canada at Rio. The author is realistic, but quietly optimistic, as she calls on all of us to remember the future in our Rio deliberations.

Forum, spoken at the Earth Parliament and, finally, were invited to speak at a plenary session. I was given five minutes. I knew why I was there: I was fighting for my future. I was there because I was scared of what was happening to the natural world around me. I was there to act as a reminder of the children and the future generations who would inherit this Earth. I asked for the world leaders to remember the future, and remember their children, in their negotiations. I asked them to make their actions reflect their words.

The response was passionate. Many members of the audience shed tears, and rose to their feet. I hoped that this action showed that they had truly heard my words. Years later, the video of this speech somehow found its way onto the Internet and YouTube, and has gone around the world.

Today, I am a veteran environmentalist at age 32, yet those five minutes speaking at the UN remain the most powerful action I have taken; people are moved to listen to a child speaking truth to power. Twenty years later, people are asking 'the girl who silenced the world for five minutes' for reflections on our progress. As someone who has dedicated my life to the movement towards sustainability, and as a mother of two little boys, this question is sometimes painful to consider.

The early years

After the Rio Summit in 1992, I began high school. I played basketball and enjoyed science. I also began to travel around the world, continuing to speak my message to

connect today's decisions to our future. In university I studied Biology; I had to make sure that the facts and science supported my long held childhood understanding that humankind was destroying the web of life that supports us.

The facts upheld that argument, and more. I learned about climate change. I learned about giant masses of garbage floating in my beloved Pacific Ocean. I learned that we are currently undergoing the Sixth Mass Extinction Event in the history of Earth. The acts of my society became more disturbing the more educated I became.

Looking for other options, I learned about different human cultures. I studied ethnoecology—the field of anthropology and ecology—and learned that not every culture has destroyed its environment. I studied under indigenous elders on the west coast of Canada, and learned about sustainable management practices that allowed high populations to prosper for ten thousand years.

While I studied at school, I continued to speak out. I was an activist at the university. I also participated in more conferences, at the UN's Rio+5, the Climate Change negotiations in Kyoto in 1997. I had the privilege of sitting on the Earth Charter Commission and was a 'special advisor' to the UN Secretary-General in preparation for Rio+20 in Johannesburg.

However, with each conference I sensed an issue losing its traction. The pursuit of sustainability had certainly waned in my own country of Canada; I watched our government fail to uphold its international

ago, I was a twelve-year-old child. That June, I travelled to the Earth Summit in Rio, to speak to my planet's leaders. I was there with four other children - my friends and little sister who were part of a club called ECO, the Environmental Children's Organization. We had started the group because we were worried about the problems facing our environment, facing our future. We had decided to go to Rio to be the conscience of the decision makers. We wanted to ask them to remember their responsibilities as caretakers of the world for future generations.

Through a lot of hard work, support from our families, our community and individuals who believed in our message, we had worked at a booth at the NGO Global



commitment to reduce greenhouse gas emissions, eventually rescinding our participation in the Kyoto Protocol.

I became discouraged. At big international meetings, I could not feel change I was contributing to. So I decided to focus on change on the ground in my own home and with other communities and networks I could talk to and work with. Feel and see. I could not wait any more for big governments to change the world for me. I moved to a small Northern Canadian island nation, empowered to keep the lands and seas strong for our children; and here in the grassroots I know I can make a difference.

But the need for international discussion and work together on sustainability is paramount. Last year a community of young people approached me. They asked me to join them and return to Rio again for the 20-year anniversary. I could not refuse these young, idealistic Canadians who represented the Canadian Earth Summit Coalition, the Canadian civil society component at Rio+20.

WE CANADA

We are WE CANADA, a direct response in the face of our own government's failure to engage responsibly in the environmental situation and to take up our global responsibility. We are volunteers from across Canada, dedicated to a different future from the one that is unfolding, and we are putting our faith into the process and negotiations of the UN and the Earth Summit.

The Canadian Earth Summit Coalition conducted surveys of civil society groups and from this we have three policy recommendations we propose as our country's strategy at the Earth Summit 2012. The first is about values: Measuring What

Matters - establishing a better measurement of national progress and well-being. Our current indicator, the Gross Domestic Product, does not capture the full range of economic, health, environmental and social realities affecting humans. We are calling for the Government of Canada to push for national and global measures to indicate our social welfare and happiness, as well as the health of our environment.

The second policy we propose is about Getting the Prices Right. Even without subsidies, oil prices do not reflect the ecological and social costs of our economic activity. Of course, the true cost is borne by future generations. The provinces of Alberta, British Columbia, and Quebec have begun to put a price on carbon. Based on these efforts, we are calling on the Government of Canada to push for elimination of fossil fuel subsidies and introduce an ecological tax reform that includes price on carbon emissions.

The third policy recommendation connects our country's actions and its global outcomes: we want our Trade to be Fair. We have a responsibility to ensure that our trade advances the social, environmental and economic well-being of other people around the world. Building on efforts of cities and institutions across Canada who have adopted Fair Trade, we ask for incorporation of Fair Trade Certified products as a best practice in the Federal Sustainable Development Strategy.

These policy recommendations are idealistic. They show the hope for sustainability and belief in the need for global justice that young people in my country hold. But they are also realistic: they look at our world as a single planet that depends on an honest and scientific understanding of the interconnections of society, environment and economy. In order for us to progress as humankind, developed nations must be leaders in responsibility. I am encouraged and inspired by these young people who believe that We Can. We are looking to the 20th anniversary of Rio as an opportunity to ask our government to stand up for our future.

The power of children

In 1992 I was my parents' child. In 2012 I am mother of a two-year-old, and a baby. I now understand why the plenary audience rose to their feet: I know the power that children have on adults. I now understand the depth of love that parents have for their children; nothing is more powerful. How then can we reconcile this with the reality that we participate in limiting their future? The disconnection between source and market, between producer and consumer is the reason. The globalized economy has severed connections between cause and effect and given us prosperity without connection to consequence. It allows us to ignore or forget the real outcomes of our daily choices. Who is to blame? None of us, and all of us. We are all implicit in an unsustainable system.

As we look back on our progress since the Earth Summit in 1992, it would be easy to be discouraged. But today I am a parent, I am a hostage to fortune, and I cannot afford to be discouraged. Twenty years later, I come back to the argument I made as a child, with my presence at the Summit. The strongest moral imperative to act and change is our children. It is because of our children that we must bring back the connection between cause and effect. Between our choices and the global situation. Between privilege and responsibility.

In identifying this moral imperative lies our hope: our hope is love, love for our children. As a scientist, aware of the hard facts, I believe this is the most powerful weapon for positive change in our arsenal. Because we love our children, we must make the changes to become sustainable.

I grew up hearing the strong lesson from my parents **"You are what you do, not what you say."** It is one we must heed as a human race. We grown-ups say we love our children. This time around, let's make our actions reflect our words ▲▲▲



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The transition to a development-led green economy

Maurice Strong

Maurice Strong raises serious concerns over the current lack of political will and cooperation in the face of the dire consequences of climate change as well as threats to security from ever-increasing inequities between and among nations and ever-more scarce resources. He highlights a series of actions to ensure that Rio+20 becomes a “milestone on the pathway to sustainability”, among them, the evaluation and continuing assessment of countries' performance in implementing commitments.



Maurice Strong and Fernando Collor de Mello
June 1992. Rio de Janeiro, Brazil

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The future of human life on Earth
depends on what we do, or fail to do
in this generation
▲

There have been immense changes in the world since the first UN Conference on the Human Environment in Stockholm in 1972 put the environment issue on the world agenda. Some notable progress has since been made in awareness and understanding of the issues we must address, in our capacity to do so, in the urgency of the need for decisive actions and the dire consequences of our failure to act.

The ominous paradox is that the will to act suffers today from the decline in public attention and the preoccupation of governments with more immediate financial and economic concerns. This is reflected in the continued lack of progress in implementing past commitments as well as the prospect of undertaking new ones at Rio+20. This recession in political will have far more damaging consequences for the human future than the more immediate issues that give rise to it.

Indeed, it has never been more important to heed the evidence of science that time is running out on our ability to successfully manage our impacts on the Earth's environmental, biodiversity, resource and life-support systems on which human life as we know it depends. We must rise above the lesser concerns that preempt our attention and respond to the reality that the future of human life on Earth depends on what we do, or fail to do in this generation. What we have come to accept as normal is not normal, as increased human numbers, the growing intensity of human impacts and the demographic dilemma faced by so many nations threaten to erase the developmental gains that society has achieved since the dawn of the industrial revolution.



Maurice Strong accompanied by Lucas Assunção (UNCTAD) greets Fernando Collor de Mello and Gro Harlem Brundtland. Earth Summit 1992. Rio de Janeiro, Brazil

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Only if developed countries realize that their own security and sustainability of life is at risk, then will they be enlightened to accept the principal responsibility they bear

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We must deal with this as the most dangerous security issue humanity has ever faced, with the very conditions necessary to life on Earth at risk.

It is in this larger context that we must view Rio+20 as a unique opportunity to make the “change of course” called for by business leaders at the Earth Summit in 1992. It requires fundamental changes in the ways in which we manage the human and economic activities impacting on the Earth’s sustainability. This will involve a degree of cooperation beyond anything we have yet experienced at a time when competition and conflict over scarce resources is escalating.

The decisions and policies which determine our impacts on sustainability are primarily motivated by economic and financial considerations. The change of course called for at Rio in 1992 requires radical changes in our current economic system. This will need to be led by those countries, mostly Western, which have dominated the world economy during the period in which our cumulative damage to the Earth’s life-support systems, its precious biological resources and its climate, have occurred and have monopolized the economic benefits of this. Rio+20 must reinforce the focus on biodiversity and lead to specific actions on implementation of the measures required to protect and manage these resources so essential to global sustainability.

UNCTAD was early to recognize the importance of environmental issues to developing countries, as well as the relationships between the environment, trade and development. Preparations for the 1992 Earth Summit in Rio de Janeiro benefited greatly from UNCTAD’s pioneering contributions to initiatives which could produce significant benefits for developing countries. Concerns were raised as to the negative impacts of the environmental movement on trade, and especially on developmental priorities, as the world focused on the eradication of poverty.

Especially important was UNCTAD’s innovative role in developing the concept of providing for carbon dioxide emissions of more developed countries to be offset by equivalent reductions of CO₂ in developing countries earning them credits, which could be a new source of revenue for them. Its pioneering work in this area provided the basis for the cap and trade system which produced billions of dollars of benefits for developing countries via investments in emission reduction projects. UNCTAD has continued to play a leading and innovative role in bridging the gap between environment and development in ways that optimize the advantages to developing countries. However, much remains to be done.

The issues for which UNCTAD has been such an impressive and effective advocate for developing countries are now the focus of trade and development discussions in preparations for Rio+20, where the interests of the developing countries will be particularly important.

Experience has demonstrated that the most successful countries to improve their environment were those, like Japan, which have been most efficient in managing their economies and reducing the energy, resource and material content of their GDP. Rio+20 must provide for special measures to assist developing countries in increasing the efficiency of their economies.

No issue is more important to the human future than that of climate change in which the political will to act cooperatively and decisively has dangerously diminished. Rio+20 must reinforce international efforts launched at Durban and beyond to reach agreement and renewal of the Climate Change Convention and its implementation. Paradoxically, if we fail to act, the reduction in global greenhouse gas emissions could occur through the collapse of the world economy, to which none of us would aspire. After all, the roots of the environmental and climate change crises are the same as those of the economic and financial crises – the inadequacies of our economic system.



United Nations Conference on Environment and Development (UNCED)
13 June 1992. Rio de Janeiro, Brazil

Only if developed countries realize that their own security and sustainability of life is at risk, then will they be enlightened to accept the principal responsibility they bear for the fundamental change of course that we must make. Developing countries must play their part but their responsibilities are of a different order of magnitude. The concept of shared but differentiated responsibilities must be strongly reinforced at Rio+20.

The growing inequities in sharing the benefits of economic growth continue to provide a widening rich-poor divide in virtually all countries, even in China, which has lifted more people out of poverty than any nation has ever done. This undermines the prospect of enabling the poor and disadvantaged to fully and equitably share the benefits of sustainable development and will lead to social unrest, evidence of which is already emerging.

Some of the various actions that could be taken at Rio+20 which could make it a major milestone on the pathway to sustainability are:

- ☞ Objective evaluation by civil society organizations in each country's performance in implementing their commitments made at the 1992 Earth Summit and other fora;
- ☞ Establishment of a process of continuing assessment of the performance of each country in its implementation of past commitments and accountability for them. This should lead to a system in which countries which fail to meet their commitments are subject to penalties and sanctions, as well as comparison with other reporting countries.
- ☞ Establishment of an investment instrument in the form of "Earth Bonds" to be purchased by private sector foundations, funds and individuals, for investment in sustainable development projects, principally in developing countries; the World Bank's

initiative in issuing Green Bonds to finance climate change projects provides a useful precedent. The World Bank and/or its private sector affiliate the International Finance Corporation could also be the issuers of the Earth Bonds. They and the regional development banks could initiate and manage projects funded by the Earth Bonds. A high-level group of experts is now developing the proposal. This is an area in which UNCTAD could make a significant contribution.

- ☞ Agreement to establish a system based on Principles 21 and 22 agreed at the Stockholm Conference in 1972 through which victims of environmental damage in one country resulting from development in another country can seek legal recourse and compensation for the damages they have suffered.
- ☞ Under today's conditions, such measures will be deemed unrealistic. But denial cannot change the reality, only increase its dangers. What seems unrealistic today will become inevitable tomorrow, too late to change. The need for such actions is real and urgent. Rio+20 cannot do it all but it can and must set these processes in motion and give them the support and impetus they require.
- ☞ On the issue of governance, there is a real need to clarify and strengthen the role of UNEP by agreeing to accord it the status of a specialized agency, without treating the environment, which is essentially a systemic issue, as a sector. This could lead to establishment of a World Environment Organization as some have proposed.

An alternative to the proposal to establish a strong and high-level Council on Sustainable Development would be to provide a new and rejuvenated mandate to the Trusteeship Council which has fulfilled its original purposes and could become the forum in which Member States



Supachai Panitchpakdi, Secretary-General of the United Nations Conference on Trade and Development (UNCTAD)

exercise their trusteeship for the global environment, the commons and the Earth's life-support systems.

Of a different nature is the need to create much greater public interest and awareness in Rio+20 as an event in itself. This is what helped to attract unprecedented numbers of world leaders, media and non-governmental organizations to the Earth Summit in 1992 and encouraged more governments to take decisions beyond original expectations. But time is short and the resources available to the Secretariat and others preparing for Rio+20 are meager.

Much can still be done to give greater visibility, public awareness and political priority to Rio+20 by making the event itself more attractive. This could be done, for the example, by using the occasion to present very prestigious and high level awards for exceptional contributions to sustainable development: an Earth Gala in which

leading stars would perform at the time of the Conference and other accompanying events. These would enhance the global awareness of and public attention to Rio+20 and provide further incentive for world leaders to participate.

The United Nations alone cannot be expected to undertake such initiatives but it can reach out to the many others around the world that are willing and able to engage. The fact that UN Secretary-General Ban Ki-moon has himself accorded Rio+20 highest priority will ensure a positive response by others. The work of the preparatory Committee and those like UNCTAD which are already engaged can help to mobilize the widespread support needed to ensure that the Conference succeeds. We cannot afford failure. The security and sustainability of life on Earth depends on our success. If our actions at are too little they will surely be too late $\Delta\Delta\Delta$

About the author

Maurice Strong was Secretary General of both the 1972 United Nations Conference on the Human Environment and the 1992 United Nations Conference on Environment and Development (Rio 92). In addition to his critical and ground-breaking role in globalising the sustainable development movement, Maurice Strong has had a distinguished career in both business and public service, primarily in the fields of international development, energy, climate finance and world diplomacy.



Rio+20: where the world comes together for a sustainable future

Sha Zukang

Sha Zukang focuses on the potential of Rio+20 and the green economy to further the cause of sustainable development and poverty eradication and highlights the crucial role of trade in the transfer of technology, best practices and in reducing costs. He acknowledges concerns over green protectionism and emphasises the need for an open multilateral trade regime and international financial support to accelerate development and ensure its sustainability.

II



Justin Manjer

The United Nations Conference on Sustainable Development, or Rio+20, is a rare opportunity for the world's leaders to renew their political commitment to sustainable development. Taking place in Rio de Janeiro, Brazil, from 20 to 22 June 2012, the Conference will take decisions on advancing a green economy within the context of sustainable development and poverty eradication and on strengthening the institutional framework.

To complement the official outcome, governments and stakeholders are expected to launch a large number of new, voluntary initiatives that aim to make a difference in peoples' lives and in the planet's ecosystems.

Towards an inclusive green economy

One of the two themes of Rio+20 is a green economy within the context of sustainable development and poverty eradication. An inclusive green economy that is adapted to national circumstances has the potential to advance poverty eradication and improve human well-being, while also limiting, repairing and even reversing damage to the earth's ecosystems. It can lead to more intelligent product design, greater resource efficiency, reductions of greenhouse gas emissions, less waste and pollution, and greater economic opportunities for poor and vulnerable groups.

The opportunities of an inclusive green economy will vary by country. In the transition to a green economy, developing countries face financial, technological and capacity challenges. They will require increased support from the international community in terms of capacity building, technology transfer, funding and technical support. Furthermore, investments in green economic sectors need to be productive, creating decent jobs that offer paths to skill and knowledge.

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Trade is what greases the wheels of the global economy...The challenge that we now have is how to ensure that trade lubricates the wheels of a green economy, poverty eradication and sustainable development

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Freiburg-im-Breisgau, Germany (47°58'N - 7°50'E)
© Yann Arthus-Bertrand / Altitude - Paris

Green economy and trade

Over the past few decades, trade has been undeniably important to global economic growth. Trade is what greases the wheels of the global economy. It facilitates the transfer of technology embodied in machinery, in wind turbines, in solar panels, as well as in best practices and knowledge. Without trade, these technologies and knowledge would be much more expensive than they are. They would also be much less accessible.

The challenge that we now have is how to ensure that trade lubricates the wheels of a green economy, poverty eradication and sustainable development. Right now, one concern seems to be that a green economy should not clog the channels of trade through protectionism. An open multilateral trade regime with enhanced market access for developing countries is crucial both to accelerating their development and ensuring the sustainability of that development.

Beyond the economic and social development benefits of an inclusive, fair, and open international trade system, trade is also—together with investment—a vital channel of green technology flows between countries. Furthermore, the costs of those technologies are being driven down in no small measure by large-scale production for a global market (as for example with solar photovoltaic panels and wind turbines). Trade offers benefits to the suppliers of green technologies in the form of a larger market and, to buyers, in the form of lower prices.

However, concerns over a green economy transition remain, as it will mean structural changes in economies, in the same way that the process of economic development involves structural changes. Concerns have been voiced in various quarters that a green economy transition could become justification for interference with the rules of international trade, or 'green protectionism'.

Now is time for action and
Rio+20 is where the world should
come together to renew political
commitment

An open and fair multilateral trade system is an integral part of an international architecture of sustainable development. Discussions of how to promote a green economy through trade without concerns over trade protectionism need to start from that premise.

Technology and financing

For developing countries to acquire technologies to build greener infrastructure and industries, financial assistance will be needed. International financial support is essential to move towards a green economy that advances sustainable development and poverty eradication, especially in the Least Developed Countries.

Many countries have expressed the hope that Rio+20 will launch new public and private financing initiatives, like a global green economy fund.

Time for action

Rio+20 offers a rare opportunity for governments and major groups, including business and industry, to announce new and measurable commitments to make sustainable development a reality. From climate change to the loss of biodiversity, and from land degradation to depleting freshwater, many of the challenges that were already apparent in 1992 have become even more alarming.

Food security, increased frequency and intensity of disasters, energy, oceans and urbanisation, as well as the need for creating green jobs are among the emerging challenges that add to the urgency for action. Fortunately, the tools to address these challenges have also been created. Now is time for action and Rio+20 is where the world should come together to renew political commitment and to ensure that we work together for a sustainable future — a future we all want ▲▲▲

About the author

Sha Zukang is Secretary-General of Rio+20 and United Nations Under-Secretary-General for Economic and Social Affairs. A career diplomat, he has served in numerous international conferences as President, Vice-president, Chairperson, Coordinator and Expert in field such as arms control, trade, intellectual property, social affairs and telecommunications.



A future worth choosing

Janos Pasztor and Frank Schroeder

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The authors outline proposals on sustainability in the January 2012 report of the High-level Panel on Global Sustainability (GSP). They include the need to empower people to make sustainable choices, mainstream sustainable development and green growth into economic decision making, focus on the long-term in investment and devise indicators that go beyond gross domestic product (GDP). The Panel report also defines priority areas for action to build better governance, coherence and accountability for sustainable development at national and global levels.



Nonthaburi region, Thailand (13°59'7.10"N -100°24'53.56"E)
© Yann Arthus-Bertrand / Altitude - Paris

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We need to prepare for a rough ride ahead because extreme weather, resource scarcity, and price volatility have become the “new norm”

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Introduction

World leaders will be gathering in Rio de Janeiro, Brazil, to renew their political commitment to sustainable development. Rio+20 is a historic conference. It offers an opportunity for an integrated review of a number of interconnected global challenges such as poverty, economic growth and prosperity, water-, energy-, and food-security, health, disaster prevention, oceans, fisheries, gender empowerment and urbanization.

But there is also a need for high-level political commitment, not just at the Conference but at the implementation stage. The world is on an unsustainable path and must urgently chart a new course forward, one that brings equity and environmental concerns into the economic mainstream. To do so, it will be important to put sustainable development into practice now, not in spite of the economic crisis but because of it.

Our challenges today are many. Economies are teetering, ecosystems are under siege, and inequality –within and between countries– is soaring. Taken together, these are symptoms that share a root cause: speculative and often narrow interests have superseded common interests, common responsibilities and common sense.

With many democratic transitions currently underway, there is hope that Rio+20 will herald another transformation –a definitive, irreversible and much-needed move towards a more sustainable path for all.



© UN Photo / Paolo Filgueiras

Secretary-General Launches High-Level Panel on Global Sustainability

The global record on sustainable development

A quarter-century ago, the Brundtland report, named after former Norwegian Prime Minister Gro Brundtland, called for a new paradigm of sustainable development. It stated that durable economic growth, social equality and environmental sustainability are mutually interdependent. Human well-being depends on their integration.

Furthermore, 20 years ago, the Rio Earth Summit compelled the world to face up to the environmental, social and economic crisis of its own making. While the global dialogue for a paradigm shift continues, the problem remains that sustainable development continues to be a generally agreed concept, rather than a day-to-day, on the ground practical reality.

The Global Sustainability Panel argues not only that the concept of sustainable development is sound, but also that it remains more relevant than ever. The Panel states that it is now up to governments to put theory into practice by moving sustainable development into mainstream economics and making clear the costs of action—and inaction—today and in the future. There is no better place than the Rio+20 Conference for governments to show clear commitments, as well as concrete deliverables towards a more sustainable path for all.

The Secretary General's Global Sustainability Panel

On 9 August 2010, the United Nations Secretary-General launched the High-level Panel on Global Sustainability (GSP), bringing together renowned world figures to formulate a new blueprint for a sustainable future on a planet under increasing stress from human activities.

The Panel recognized that climate change, water scarcity, loss of biodiversity, the destruction of ecosystems and shifting demographic and consumption patterns require bold new approaches to ensure that the world can meet the Millennium Development Goals and other development objectives. It therefore explored a new paradigm for building a low-carbon, green and resilient economy that can “eradicate poverty, reduce inequality and make growth inclusive, and production and consumption more sustainable, while combating climate change and respecting a range of other planetary boundaries.

The Panel was co-chaired by President Tarja Halonen of Finland and President Jacob Zuma of South Africa. Its report 'Resilient People, Resilient Planet: A Future Worth Choosing' was presented to the UN Secretary General on 30 January 2012. The document contains 56 recommendations to put sustainable development into practice and to mainstream it into economic policy as quickly as possible.

The launch of the report was a timely effort by Panel members to feed inputs, besides other fora, into the inter-governmental process of the Rio+20 conference. By making clear that sustainable development is more important than ever, given the multiple crises now enveloping the world, the Panel presented to governments, civil society and the private sector concrete proposals on how to provide greater opportunity for more people with less impact on our planet.

By 2030, as the human population swells and appetites increase, the world will need at least 50% more food, 45% more energy, and 30% more water. Our planet is approaching and even exceeding scientific tipping points. This has serious implications for how we manage the global commons—and reducing poverty. If developing countries are to realize their legitimate growth aspirations, they will need more time, as well as financial and technological support, to make the transition to sustainability.

Yet the report of the Global Sustainability Panel remains optimistic. It argues that representative democracy is now the world's dominant form of government. Advances in science have given us a better understanding of climate and ecosystem risks. Billions of people are connected by technologies that have shrunk the world and expanded the notion of a global neighbourhood. The panel states that we can summon the wit and the will to choose our future rather than have it choose us.

The greatest risk lies in continuing down our current path. The report argues that a child born this year will come of age in 2030 and we cannot mortgage his/her future to pay for an inherently unsustainable and inequitable way of life. That is why the Panel suggests tackling the massive challenge of retooling our global economy now, preserving the environment, and providing greater opportunity and equity, including gender equality. The Panel's report, 'Resilient People, Resilient Planet', offers the following concrete suggestions:



Nonthaburi region, Thailand (13°59'3.35"N - 100°25'13.43"E)
© Yann Arthus-Bertrand / Altitude - Paris

Empowering people

The truth is that sustainable development is fundamentally a question of people's opportunities to influence their future, claim their rights and voice their concerns. The Panel's report makes the case that democratic governance and full respect for human rights are key prerequisites for empowering people to make sustainable choices.

The peoples of the world will simply not tolerate continued environmental devastation or the persistent inequality which offends deeply held universal principles of social justice. Citizens will no longer accept governments and corporations breaching their compact with them as custodians of a sustainable future for all.

Moreover, it is crucial to value equity as opportunity. Inequality and exclusion of women, young people and the poor undermines global growth and threatens to unravel the compact between society and its institutions.

Empowering women has the potential to reap tremendous benefits, not least for the global economy. The Panel's report makes the case for half of humankind's collective intelligence and capacity as a resource that must be nurtured and developed for the sake of multiple generations to come. The next increment of global growth could well come from the full economic empowerment of women.

Equity needs to be at the forefront. Ensuring that developing countries have the time—and the financial and technical support—to make the transition to sustainable development ultimately benefits all. The Panel further argues that promoting fairness and inclusion is the right thing to do—and the smart thing to do for lasting prosperity and stability.

Additionally, the Panel's report says that we need to prepare for a rough ride ahead because extreme weather, resource scarcity and price volatility have become the "new norm". Therefore, it will be important to strengthen our resilience by promoting disaster risk reduction, adaptation and sound safety nets for the most vulnerable. All these measures would represent a crucial investment in people and our common future.

Towards a sustainable economy

The Panel makes the case for embracing a new approach to the political economy of sustainable development in order to bring the sustainable development paradigm from the margins to the mainstream of the global economic debate.

It argues that the current global economic crisis—which has led many to question the performance of existing global economic governance—offers an opportunity for root and branch reform as well as a decisive shift towards green growth, which can contribute to sustainable development not just in the financial system but in the real economy as well.

The Panel's report argues that green growth should be envisioned as an engine for sustainable development across the board. This should include the promotion of energy from low-carbon and renewable sources and ensuring that it is used efficiently. Furthermore, it states that where traditional growth paths are heavily skewed towards short-term interests, green growth could explicitly set out to take a long-term view.

Last, but not least, where the old growth patterns leave social and environmental costs out of pricing mechanisms, green growth should actively seek to include them so that prices send accurate signals.



Street market in Caruaru, Pernambuco, Brazil

Thus, only when the cost of action and the cost of inaction become transparent will the political process be able to summon both the arguments and the political will necessary to act for a sustainable future. Therefore, the Panel is demanding that our marketplace reflect the full ecological and human costs of economic decisions and establish price signals that make transparent the consequences of action—and inaction. Pollution—including carbon emissions—must no longer be free.

To set the right incentives and modify price signals, the Panel is calling on governments to adopt sustainable public procurement policies and to phase out fossil fuels subsidies by 2020. With governments everywhere under increasing pressure to reduce public expenditure, an unprecedented political opportunity exists to eliminate subsidies that fail to reflect the economic value of natural and social resources.

The panel further argues that we need to provide incentives to focus on the long-term. The tyranny of the urgent is never more absolute than during tough times. We need to place long-term thinking above short-term demands both in the marketplace and in the polling booth. Experience has shown that the current financial crisis is the result of an overconcentration on “short-termism.”

The Panel is calling on governments to encourage in particular institutional investors such as sovereign wealth funds and public and private pension funds to invest for the longer term. This should include creating incentives and making boards of directors aware of sustainability criteria.

Furthermore, limited public funds should be used strategically to unlock greater private investment flows, share risks, and expand access to the building blocks of prosperity, including modern energy services. The UN’s Millennium Development Goals—aimed at, among other things, halving global poverty by 2015—have served us well. Governments should develop a post-2015 set of universally applicable Sustainable Development Goals that can galvanize long-term action beyond electoral cycles, covering all three dimensions of sustainable development.

Many argue that if something cannot be measured, it cannot be managed. The Panel is calling on the international community to measure development beyond gross domestic product (GDP) and to develop a new sustainable development index or set of indicators. It argues that, to decouple production and consumption from natural resource use and environmental degradation, narrow concepts of GDP need to be supplemented.

Strengthening institutional governance

To achieve sustainable development, the Panel also addresses the need to build an effective framework of institutions and decision-making processes at the local, national, regional and global levels. The Panel is calling for far reaching reform to overcome the legacy of fragmented institutions established around single-issue “silos”; deficits of both leadership and political space; and lack of flexibility in adapting to new kinds of challenges and opportunities—all of which undermine both policy-making and delivery on the ground.

Priority areas for action to build better governance, coherence and accountability for sustainable development at national and global level include:

- ☞ Improving coherence at subnational, national and international level;
- ☞ Creating a set of sustainable development goals;
- ☞ Making a new commitment to revitalize and reform the international institutional framework, including considering the creation of a global sustainable development council at the United Nations.

Furthermore, the Panel is calling for science to be placed at the centre of sustainability. We live in an era of unprecedented human impact on the planet coupled with unprecedented technological change. According to the Panel, science must point the way to more informed and integrated policy-making, notably on climate change, biodiversity, ocean and coastal management, water and food scarcities and planetary “boundaries” (the scientific thresholds that define a “safe operating space” for humanity).

The Panel is also proposing a regular Global Sustainability Outlook integrating knowledge across sectors and institutions as means of viewing the bigger picture. Such a report could integrate information and assessments on sustainability that are currently dispersed across institutions.



Second meeting of the High-level Panel on Global Sustainability held on 24-25 February 2011 in Cape Town, South Africa

Conclusion

No expert panel has all the answers. As the report of the High-level Panel on Global Sustainability shows, it is possible to provide fresh ideas to help steer our world onto a safer, more equitable and more prosperous course. The Panel's vision of global sustainability creating both resilient people and planet relates well to the integrated review of a number of inter-connected global challenges in the Rio+20 process by governments, civil society and the private sector.

Sustainable development has undoubtedly suffered from a failure of political will. It is difficult to argue against the principle but there are few incentives to put it into practice when our policies, politics and institutions disproportionately reward the short term. Governments need to seize the opportunity at the Rio+20 Conference to demonstrate clear long-term commitments and concrete deliverables towards a more sustainable path for all.

The main challenge is that the concept of sustainable development has not yet been incorporated into mainstream national and international economic policy debate. Most economic decision-makers still regard sustainable development as extraneous to their core responsibilities for macroeconomic management and other branches of economic policy. Yet integrating environmental and social issues into economic decisions is vital to success and the Rio+20 Conference offers the opportunity to shift the prevailing mindset.

For too long, economists, social activists and environmental scientists have simply talked past each other—almost speaking different languages or at least different dialects. The time has come to unify the disciplines and develop a common language for sustainable development that transcends the warring camps; in other words, to bring the sustainable development paradigm into mainstream economics. That way, politicians and policymakers will find it much harder to ignore ▲▲▲

About the authors

Janos Pasztor is the Executive Secretary of the UN Secretary-General's High-level Panel on Global Sustainability. Mr. Pasztor has worked for numerous agencies within the United Nations system (UNEP, UNFCCC and UNCTAD) as well as for leading think tanks (Stockholm Environment Institute and Beijer Institute). During his career he also participated in the Brundtland Commission and in the organization of Rio-92. Janos Pasztor has a Bachelor of Science in Nuclear Engineering and a Master of Science in Nuclear Engineering from the Massachusetts Institute of Technology.

Frank Schroeder is a Senior Advisor in climate change and sustainable development matters at the Executive Office of the UN Secretary-General in New York. Previously, Mr. Schroeder has worked for UN DESA and as a researcher for the Stiglitz Commission, among other distinguished positions. He has a degree in Economics from the Hamburg School of Economics and Politics and a Masters degree in Finance from the New School for Social Research in New York.







Making business sense of green

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Rio+20: a time for action

Paul Polman

Paul Polman describes Unilever's Sustainable Living Plan, through which it aims to halve the environmental impact of its products, improve access to hygiene and drinking water to millions, sustainably source raw materials and improve the livelihoods of the smallholder farmers in its supply chain. These are turbulent times for the world and for the business community, he says. Addressing this requires governments and business to work together to create the right framework for sustainable development at Rio+20, for example, by launching negotiations on Sustainable Development Goals (SDGs).



© Marc Günther

The world's population has passed the seven billion mark and will reach nine billion by 2050. Pressure on the world's resources is intensifying –within two decades the collective human demand for water will exceed foreseen supply by about 40%, while global food production will need to increase by 70% to feed a growing population.

Increased competition for resources is compounded by the effects of climate change –desertification, floods and drought reduce agricultural yields and threaten livelihoods. Since 2000 there has been a 147% increase in real commodity prices, hitting the most vulnerable hardest—almost one billion go hungry each day.

Poverty and food scarcity are set against a rapid increase in the desire for resources, as new members of the middle class in emerging markets demand the goods enjoyed by those in the developed world. However, the Worldwide Fund for Nature (WWF) states that if we all lived in the way people do in the US, we will need five planets to support us.

We need to find a new model of growth –one that is equally conscious of the needs of people and of the planet– and puts sustainability and equality at the heart of consumption. Sustainable growth must benefit the world's hungriest billion people as well as the rising middle classes.

The time for talk is over. Businesses, governments and civil society must now act to ensure sustainability is embedded in business strategies and is at the centre of public policy making. The Rio+20 Summit is a key milestone that presents an important opportunity to galvanize public and private sector support, elicit commitment to a future of sustainable consumption and ensure the transition to a green economy begins in earnest.

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We need to find a new model of growth –one that is equally conscious of the needs of people and of the planet...

The time for talk is over
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Business and sustainable growth: Unilever's Sustainable Living Plan

Unilever is a EUR 45 billion company whose food, household and personal care brands –such as Knorr, Dove, Lipton, Becel, Rexona and Cif– are used 2 billion times a day in over half the households on the planet.

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At Unilever, we believe that sustainable, equitable growth is the only acceptable model. We have set ourselves a challenging vision: to develop a new business model which decouples our business growth from our environmental impact. Our aim is to double the size of our business while cutting our environmental impact in half and increasing the social benefits delivered by our products. We have set out how we intend to do this in our Sustainable Living Plan, which we announced in 2010.

Spanning our entire portfolio of products and all the countries in which we operate, the plan sets out detailed actions to grow our brands, reduce costs, support our customers and open up new markets in a sustainable way. It is oriented around three central goals, to be achieved by 2020:

- 👉 Halve the environmental footprint (across water, waste and energy) of our products.
- 👉 Help more than a billion people to improve their hygiene habits and bring safe drinking water to 500 million people.
- 👉 Source 100% of our agricultural raw materials sustainably and enhance the livelihoods of 500,000 smallholder farmers in our supply chain.

These broad goals are supported by more than fifty quantitative, time-bound public targets against which we will report regularly and expect to be judged.

In our first year, we made good progress in many areas: at the end of 2011, 64% of the palm oil we purchased came from certified sustainable sources, all the electricity purchased for Unilever sites in Europe came from renewable sources and we helped change the hygiene behaviour of over 48 million people through our public health promotion.

The Unilever Sustainable Living Plan is not just a programme to manage the company more sustainably; it is also a catalyst for new ways of doing business –it is demonstrating the transition businesses must make to fuel the green economy.

Business and government at Rio+20: Making it happen

No business can act in isolation. Organizations such as the the Consumer Goods Forum and the World Economic Forum are bringing companies together to share best practice and drive concerted, cross-sector change.

At Rio+20, Unilever and other companies introducing similar sustainability models, from Accenture to Walmart, must make the business case for sustainability absolutely clear. More, we must demonstrate action by committing to ambitious plans across industries and sectors to introduce and deliver sustainable models of growth.

Action from business is best initiated and, more importantly, scaled up, if supported by a framework of public policies that encourages and rewards action. At Rio+20 governments should consider a range of policy measures such as:



Food & nutritional security	Sustainable production & consumption economy	Climate change & green economy	Public health & sanitation
Developing multi-stakeholder partnerships in order to:	Developing new incentives for forest conservation.	Ensuring a legal, multilateral climate change treaty is agreed by 2015 (2020) and keeps the global temperature rise to 2 degrees.	Increasing collaboration with the private sector in improving access to safe water and basic sanitation, and in policies to address key hygiene behaviour changes such as handwashing with soap.
a) increase public-private investment in sustainable food value chains, by 50% by 2015.	Incentivizing demand for sustainably-sourced products through preferential import/export tariffs and improved regulation.	Providing a domestic policy framework that supports the transition to a green (low carbon) economy.	Increasing investment in the water, sanitation and hygiene sectors.
b) enable smallholder farmers, including women, to benefit from participating in agricultural supply chains.	Working with business to incentivize consumers to switch to sustainably-sourced goods and services.	Incentivizing innovation in low carbon technology by putting a price on carbon.	
c) promote sustainable sourcing practices and value chains.		Devising policy frameworks to increase recycling, ensure organized collection of municipal waste and increase investment in waste management.	
Developing country governments should devise long-term national programmes on nutritional security and work with the private sector to address micronutrient deficiencies, particularly in the first 1000 days of a child's life.			



Sustainable Development Goals: a public-private policy framework

A concrete step forward at Rio+20 would be the beginning of a negotiation to agree on Sustainable Development Goals (SDGs). Specific goals for human development and environmental performance will turn capacity building, innovations, investments, production and consumption in the right direction.

SDGs should build directly from the UN's Millennium Development Goals (MDGs)—a series of eight development goals with specific targets to reduce global poverty. The focus they have given the world has played a major role in halving the number of people living in poverty from 1990 levels. They have ensured more children, especially girls, are in school, fewer children die before their 5th birthday and more people have access to basic sanitation and clean water. The MDGs may not be met in each country and progress has been patchy, but they have provided a roadmap to greater prosperity and equality.

Unilever believes that, in a similar way, Sustainable Development Goals could provide the overarching global framework the world needs to ensure governments and businesses continue to reduce poverty and improve livelihoods, while also protecting the Earth's resources for generations to come.

Rio+20 should kickstart this process by agreeing on:

- ☞ The range of issues to be covered by SDGs. These should include targets for reducing poverty and food insecurity, reducing our carbon and water use, conserving biodiversity, protecting the forests, while increasing our use of renewable energy and recycling.
- ☞ The process to refine these goals into measurable targets by 2015, agree to ensure SDGs are adopted by all UN Member States and commit to achieve the goals by 2030.
- ☞ A framework for collaborating with business. SDGs should ensure that business action complements public policy.

Sustainable development is complex but Unilever is already demonstrating the business case for addressing sustainability. Rio+20 should build on business efforts and raise the ambition of governments to deliver a roadmap to a green economy. We will all be winners.

For more details of Unilever's sustainable living plan visit:
www.sustainable-living.unilever.com ▲▲▲

About the author

Paul Polman is Chief Executive Officer of Unilever and has held executive posts with Nestlé S.A. and Procter & Gamble. He is President of the Kilimanjaro Blind Trust and Chairman of Perkins International Advisory Board as well as member of the Executive Committee of the World Business Council for Sustainable Development. He co-chairs the Board Strategy and the Sustainability Committees of the Consumer Goods Forum and is a member of the European Round Table, the International Business Council of the World Economic Forum and the Swiss American Chamber of Commerce. He is the recipient of a number of business awards including the WSJ/CNBC European Business Leader of the Year (2003).



Yann Arthus-Bertrand GoodPlanet Foundation

Born in 1946, Yann Arthus-Bertrand has always had a passion for the animal world and the natural environment. In 1967, he settled in central France and became the director of a nature reserve. During an overseas experience in Kenya where he studied a family of lions, he started taking photos from a hot-air balloon and discovered aerial photography.

He then created the foundation [GoodPlanet](http://www.goodplanet.org) in 2005, a non-profit organization that aims to raise public awareness of environmental issues and to develop concrete solutions towards a more sustainable way of life - one that is more respectful of our planet and its inhabitants.

www.goodplanet.org • 2005

2003

In 2003, Yann Arthus-Bertrand launched the project [Six Billion Others](http://www.6billionothers.org), which was exhibited in Paris's Grand Palais in January and February 2009 and is now on tour around the world. A team of film directors went to meet men and women all over the world and recorded on video the testimonies they received on general themes (such as life, death, love, hate, etc).

www.6billionothers.org

1991



In 1991 he founded [Altitude](http://www.altitude.com), the world's first aerial photography agency. In his own work, he turned his attention towards long-term projects, books and exhibitions, that examined the links between man and nature. His book *The Earth from Above* is the highlight of this new perspective and led the way to future projects.

2012

As an independant film Director, Yann Arthus-Bertrand has just founded a non profit production company «[Hope production](http://www.hopeproduction.com)».

For the World Water Forum in March 2012, Yann Arthus-Bertrand, in collaboration with Baptiste Rouget Luchaire and Thierry Piantanida, is producing a film narrating the history of water and reminding us that reasoned management of water is a crucial challenge for our century.

For [Rio+20](http://www.rio20.org), Yann is also working with the director Michael Pitiot on the film "[Planet Ocean](http://www.planet-ocean.com)". This film aims to promote understanding of the importance of the oceans in the ecosystem and recognition of their strategic value, leading to the conclusion that international governance of the oceans is now a vital necessity.

2011

To launch the official UN declaration of year 2011 as the International Year of the Forest, Yann Arthus-Bertrand produced a short-film, a book, an educational poster campaign and an exhibition on the theme of [FORESTS AND PEOPLE](http://www.forestsandpeople.org) in parallel with the United Nations Forum on Forests (UNFF), as well as participating as a distinguished member of the jury at the UN International Forest Film Festival.

www.goodplanet.org/forests

2010



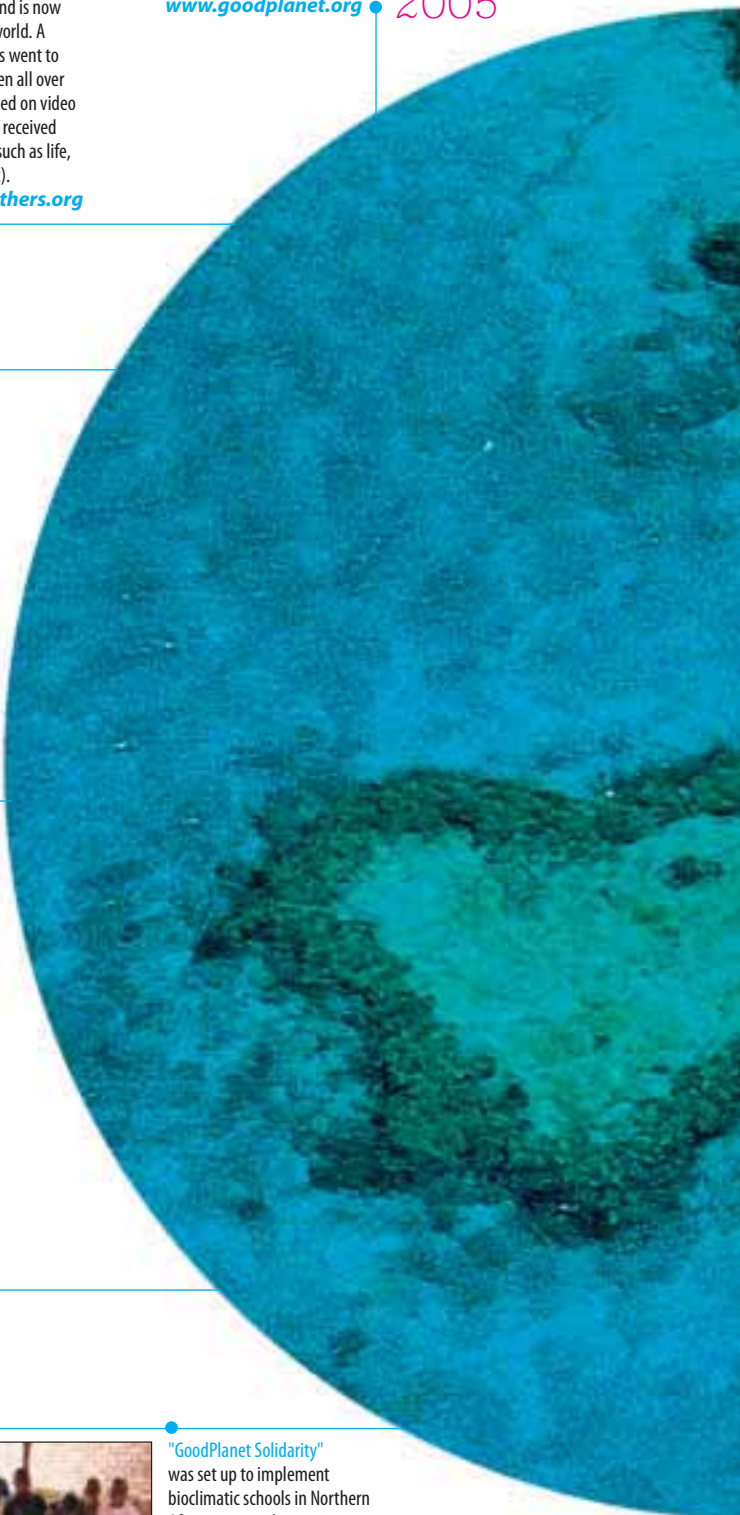
GoodPlanet Foundation launched [10:10](http://www.1010.fr/) in France, a campaign to get individuals, companies and institutions to reduce their carbon footprints by 10% during 2010.

www.1010.fr/



"[GoodPlanet Solidarity](http://www.goodplanet.org/spip.php?article348)" was set up to implement bioclimatic schools in Northern Africa among others projects in developing countries.

www.goodplanet.org/spip.php?article348



In partnership with ADEME (the French Agency of the Environment and Energy Management) he developed [Action Carbone](#), which offers institutions, companies and individuals the possibility to calculate, reduce and offset their greenhouse gas emissions by changing their own impact and by funding renewable energies, energy efficiency or reforestation projects, carried out by NGOs in the global South.

www.goodplanet.org/actioncarbone-en.html



2006

This was followed by projects such as [Why Sustainable Development?](#) in collaboration with the French ministries of Education and of Environment. This is an educational exhibition free to schools, which includes his aerial photographs accompanied by a series of texts that can be used for educational purposes by teachers.

www.goodplanet.org/sustainable-development-why.html



In August 2008, the project [GoodPlanet Junior](#) was launched in collaboration with the French League of Education. It offers vacation schemes to disadvantaged youngsters and teaches them about eco-citizenship whilst spending time in protected natural surroundings.

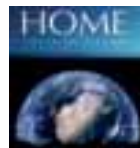
2008 www.goodplanet.org/goodplanetjunior-en.html

These projects have one common thread: The GoodPlanet Foundation's desire to act by suggesting concrete solutions to the public that will enable us to put the environment at the core of our consciences

2009



Yann Arthus-Bertrand was designated [Goodwill Ambassador](#) for the United Nations Environment Programme on Earth Day (April 22nd, 2009) in recognition of his outstanding advocacy work for the environment. He was also named a UNEP 2009 Champion of the Earth in the category "[Inspiration and Action](#)."

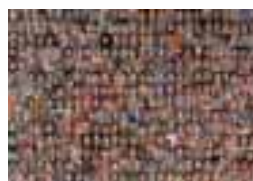


Yann Arthus-Bertrand undertook the production of a full-length feature film: [HOME](#). It deals with the state of our planet and the challenges we will have to face if we do not protect it.

www.homethemovie.org

Home

The GoodPlanet Foundation attended the UN climate conference in Copenhagen in December 2009 with a new film "[6 Billion Others - Climate Voices](#)," and organized a film festival showing documentaries on climate and the environment at the Danish Film Institute.



2009



The transition to a green economy and the outcomes expected from Rio+20: the perspective of a private conglomerate

Otavio Azevedo

Otavio Azevedo, CEO of Andrade Gutierrez S.A., a Brazilian holding company, defines the signals and incentives that business needs from Rio+20, stated in concrete terms. He details the firm's various projects developed within the context of the green economy, noting that a sustainable strategy is not an act of altruism, rather an imperative to achieve the company's economic and social goals.

For those with the spirit of innovation, the emerging green economy is not a threat; it is a challenge and

a tremendous opportunity. Those who dismiss sweeping trends in current production and consumption patterns towards sustainable practices in day-to-day operations and lifestyle are doing so at the cost of lagging behind. Those, however who embrace an early, inclusive transition to a green economy, even with limited knowledge and a lot of uncertainties, will remain relevant and become a model as genuine leaders.



Andrade Gutierrez Group has enterprises in Latin America, Europe, Africa and Asia. It is proud to be recognised in countless markets for offering integrated infrastructure solutions at all levels of complexity. In addition to its financial structure, excellence and quality standards and socio-environmental responsibility, the Group maintains a permanent focus on innovation.

The Andrade Gutierrez S.A. Holding Company (AG) is 100% privately owned and has positioned itself as one of the main Brazilian infrastructure conglomerates. It operates on diversified business fronts –Engineering and Construction, Concessions, Telecommunications, Energy and Health– and accumulates 63 years of experience. Its engineering and construction portfolio contains approximately 650 projects and commercial operations in more than 30 countries. AG has equally established itself as an investor group, with distinct assets and operations in the entire infrastructure chain.

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Those who embrace an early, inclusive transition to a green economy will remain relevant and become... genuine leaders
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In doing so, AG can be described as a private group addicted to innovation. The company has established research, development and innovation centres and participates in the development of new products with partner companies, with special consideration given to sustainability aspects. We also support initiatives on new sustainable product development in companies in which we participate in the engineering and construction, oil and gas, energy, transportation, mining and petrochemical sectors.



Aerial view of Rio de Janeiro city center, Brazil

© Rodrigo Saldou

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Rio must send a clear signal and provide policy direction to both the private sector and the real economy at large

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Our belief in the green economy stems from our business experience and the culture at AG both in our Brazilian offices and abroad. As a holding company, we are still going through a consolidation process and have used it to reaffirm our strategic commitment to sustainability. The Group has progressively incorporated the business and social benefits derived from the green economy transition into the entire range of companies we own, have invested in or are associated with through partnerships.

Business and Rio+20

New ways of thinking, technological improvements and the quest for singularity and originality are all challenges that move business leaders. Rather than discriminating against certain economic sectors and stigmatising some manufactures or parts of the business community, the emerging green economy is enabling a constructive dialogue across economic sectors within and across countries. Common objectives towards a green economy will mitigate uncertainties and provide effective solutions with responsible achievement of social and economic benefits. There is urgency to move from conflict resolution to conflict prevention.

The convergence between business interests and the Rio+20 agenda is clear. Both recognise the imperative necessity to move towards a green and inclusive economy. The associations representing business, working cooperatively with national governments and the UN, have voiced and articulated their positions in the elaboration of the “zero draft” of Rio’s outcome document.

Since the concept of the green economy is intrinsically linked to technological innovation, the responsibility of the private sector has increased. The private sector is the one that supports, develops and owns most of the existing innovative green technologies.

However, a prompt and effective transfer and sharing of technology is needed. The business community can play a fundamental role in mobilising new investments and is indirectly responsible for the creation of new jobs and the

dissemination of new cleaner technologies. But, to speed up the process, new financial mechanisms are still missing, such as seed government finance, agile green funds and emissions trading systems.

In view of the need to promote a convergence between business interests and Rio+20, companies need an incentive to operate according to sustainability standards that go beyond local legislation as well as measures to ensure that early movers are not penalised for introducing more advanced sustainability practices.

Yet the business community is only one group of stakeholders in the preparatory process. During the Rio+20 Summit, intergovernmental discussions among Member States will shape the green economy institutional framework, hopefully taking into account the varied levels of development across countries and cultures worldwide.


One of the outcomes of the Rio+20 Summit will likely be the introduction of safeguards to protect the less developed and emerging, market-based economies in the transition to a global green economy. It is easier to have significant technology transfer among countries with robust macroeconomic conditions, good governance, financial and regulatory stability and protection systems for intellectual property rights (IPR). However, the benefits of the green economy must be available to all and, for that reason, the recognition of the different stages of development across countries is essential.

To ensure the successful implementation of the green economy during its infancy, a concerted plan of action should be put in place. An effective governance system is therefore important so that the needs and different starting points of countries and stakeholder groups are duly taken into account. It is worth emphasizing, however, that business leaders focus their attention on workable solutions and tend to disregard wishful thinking. Hence, Rio+20 outcomes must be translated into practical and concrete terms so that the private sector can be real enablers of change.

There is a consensus that governments must play an active role in setting the pace and scope for the transition to a green economy, making it possible to evolve from the business-as-usual model towards a sustainable and



The benefits of the green economy must be available to all and, for that reason, the recognition of the different stages of development across countries is essential



inclusive economy. Rather than steering or constraining business, governments should leverage opportunities through public-induced private investment, direct support to R&D green technologies, capacity building programmes, incentive-based mechanisms and effective regulation. These are essential to ensure a stable environment to attract investments and move to sustainable growth paths for all.

The lack of technical assistance, widely available information, dissemination of low environmental footprint technologies and distribution of green goods and services (domestically and across national borders) are common barriers in developing countries. They impact the choices of consumers and the trade volumes of environmental goods and services.

Brazil and the green economy

In the midst of this worldwide rethinking about which future economic development model to embrace, Brazil will host the Rio+20 Summit and soon after two world sports events—the 2014 Soccer World Cup and the 2016 Olympic Games. These events will highlight the commitment of this emerging economy to social inclusion, responsible environmental management and a green economy that gives new impetus to sustainable development and poverty eradication.

In this regard, the construction of new stadiums and the retrofitting of existing installations, lighting and decoration have incorporated basic concepts of green building. Lessons learned from previous Olympic Games, for instance, have been incorporated and considered under an overall sustainability umbrella.

Brazil is a geographically widespread country with 190 million inhabitants. According to the IMF, the country rose to become the 6th largest economy in the world in 2011, with a GDP of USD 2.4 trillion. This ascension resulted mainly from the current situation of the global economy and from Brazil's own efforts in recent decades. Still, much remains to be done, particularly in terms of infrastructure and logistics. Efficiency in logistics is intrinsically linked to the green economy.

In order to grow 4% annually during the next 10 years, Brazil will need over USD 180 billion per year in new investments. Total current investments account for almost half of that. The lack of infrastructure leads to inefficiencies, slows economic activity and affects supply chain management—with high costs of transportation, limited storage capacity for medium and heavy loads and the high costs of dock work. This unfavourable business environment impacts sustainability as a whole. An illustrative example is the occasional 10-kilometre line of trucks waiting to load and unload in Brazilian ports, with the resulting green gas emissions, air and water pollution, waste disposal and poor land use.

Today, commodities represent 8% of Brazil's GDP due to mining and high-technology-based agriculture. The National Development Bank (BNDES), with an impressive annual disbursement capacity of USD 100 billion, plays an important role in promoting sustainable development and dynamism in natural resource management and agricultural and industrial activity. The fact that the greater part of the population is concentrated along the Atlantic coast requires targeted mitigation and adaptation policies to prevent the further degradation of rain forests and depletion of other natural resources.

Likewise, the development of isolated, remote areas (i.e. the Amazon region and Wetlands Pantanal region) require concerted consensus-building among civil society groups, local governments and the private sector on ways to promote and manage the impacts of infrastructure, mining and agricultural projects. This includes taking into account the protection and sustainable use of biodiversity and respect for traditional knowledge, among other sensitive issues. The role of BNDES and other private actors is essential in shaping development strategies that include long-term and inter-generational perspectives.

As an example, large-scale hydro projects such as Santo Antonio and the Belo Monte will involve an additional USD 6 billion to the original budget to address mitigation and adaptation issues.

The Andrade Gutierrez Group

AG, a Brazilian holding company, has embraced the green economy strategically, building upon its numerous and significant experiences. In 2009, the company annual report adopted the Global Reporting Initiative (GRI) methodology with external verification as part of its disclosure policy. This is not an act of altruism; it is an imperative for achieving the group's economic and social objectives. Rio must send a clear signal to the private sector and should provide real economy agents with policy direction towards a fair and inclusive green economy.

Areas of work

☞ *Technological innovation in the construction sector is vital.* The Andrade Gutierrez Technological Innovation Programme (PAGIT) aims at disseminating the AG culture and encouraging innovation, which impacts competitiveness. Based on specific legislation, Construtora Andrade Gutierrez is expected to obtain USD 3.1 million in tax incentives from 121 technological innovation projects executed in 2011. Through the programme, several goals have been achieved: (a) an increase in the number of people involved in innovation processes; (b) an increase in the percentage of radical innovations in relation to incremental innovations; (c) new technologies used by other plants in other parts of the world; (d) a greater learning capacity of the organisation with innovation projects; (e) a spotlight on the innovations that are priorities to the company; and (f) the acquisition of incentives.

Moreover, the existence of an Integrated Management System certified by the main international standards ensures that company objectives, including those associated with socio-environmental issues, are met. The system, which is being used globally, has met the requirements of all stakeholders, including the Performance Standards of the International Finance Corporation (IFC), the global benchmark for sustainable performance. It covers important issues such as poverty eradication and community inclusion, among others.

An important practice in this regard is the leadership of the AG on the issue of social responsibility in accordance with the SA 8000 standard, which ensures a fair and respectful relationship with employees directly employed by the company, as well as ensuring the same compliance from suppliers and subcontractors. Also noteworthy is the use of important inclusion programmes, one of which includes an innovative programme in the construction industry for people with disabilities.

In the public concession business, the Companhia de Concessões Rodoviárias (CCR) is the major infrastructure concession company operating in Brazil. It was the first to establish partnerships with university research centres to develop sustainable road pavement materials, using construction debris and rubber from discarded tires. The CCR Group manages 2,440 kilometres of roads in three Brazilian states where traffic volume exceeds 860 million vehicles per year.

☞ CCR considers sustainability as part of its strategy and this approach has proven worthwhile. Transparency, good governance, and social and environmental programmes have increased profitability and brought recognition from the Brazilian Stock Exchange Commission Sustainability Index (ISE Bovespa). The education campaign for the communities situated near CCR-administered roads, which was developed in partnership with local schools, has been recognised as an effective social benefit, attended by 1.2 million children. The Inter-American Development Bank (IDB) considers this as a reference programme and is providing financial support in the form of free medical assistance for truck drivers and management of wild animals, and several permanent social and environmental programmes are underway.

☞ AG participates in the Companhia Energética de Minas Gerais (CEMIG) and Light, two of the major Brazilian energy companies that have embraced the challenge of reducing their carbon footprint. These companies have increased the presence of wind power in their energy mix; sought to minimise their environmental impact on projects and construction of dams; and started social initiatives in partnership with local government and community leaders to informally bring consumers to the "social bill". Continuously over ten years, CEMIG has been in the Dow Jones Sustainability Index. Light has published annual reports with continuous social and environmental improvements using GRI methodologies and indicators.

☞ AG is involved in the recent IT revolution, which has provided millions of people access to a mobile phone allowing instantaneous communication among individuals, between employers and employees, and with services and public institutions. It has also created new jobs. India, Brazil and other emerging economies have been major providers of new jobs in domestic companies and transnational holding companies.



▼
 The Company Oi is the only integrated carrier in the country that offers services for fixed and mobile telephones, broadband and video
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The Company Oi is the only integrated carrier in the country that offers services for fixed and mobile telephones, broadband and video. To be the only player that offers four product strategies is a significant competitive advantage. This package is provided by Oi Conta Total, which, in 2010 had 1.44 million customers.

☞ Contax, one of Brazil's largest employers, has created the most job opportunities in the country since 2000. At the end of 2011, the number of its employees reached 120,000, including men and women of all ages, different social and cultural backgrounds, and a larger proportion of young people enjoying their first

work experience (40%). Each employee, with unique skills, talent and disposition, comprises the valuable human capital fundamental to the company's activities. Contax is the only Business Process Outsourcing (BPO) company that specialises in Customer Relationship Management (CRM).

☞ Health Logistics – Logimed is Brazil's only provider of hospital supplies and logistics with a model focused on efficiency and cost reduction. Its activities include the supply of equipment, drugs and materials for the management and control of warehouses and pharmacies ▲▲▲

About the author

Otávio Azevedo has been President of the Andrade Gutierrez SA Group (AGSA) as of 2007 and, since its foundation in 1993, President of AG TELECOM (Andrade Gutierrez Telecomunicações Ltd.), both headquartered in Brazil. He is a member of various business associations and, with over 20 years of experience in the telecommunications sector, has been a Counsellor at the Brazilian Telecommunications Agency (ANATEL) and occupied various management positions at large Brazilian telecommunication companies, such as TELEMIG, TELEMAR and TELEBRAS.



Resource efficiency for sustained livelihood: leaving the silos behind

Peter Brabeck-Letmathe

In his analysis of population, natural resources and sustainability, Peter Brabeck-Letmathe deplores the 'silo' thinking, characterized by dealing with interrelated issues in isolation. Further, he cautions against the belief in biofuels as a panacea for resolving the energy crisis, highlighting, in particular, its vast consumption of water during the growth/production process in the light of potential future water shortages. Food products, he maintains, should be allocated to feeding people.

Sustainability is about protecting future generations.



Today, these future generations are no longer a vague, theoretical notion. They are the more than 10 billion people who will be populating our planet by 2100 – our children and grandchildren. This sets the context for discussion about the increasing strain on resources driven by greater prosperity and the continued growth in world population, and about approaches to addressing this strain. One way is resource productivity: one study estimates that this could meet up to 30% of global demand for natural resources in 2030.¹ In the case of water for agriculture, which is the main user of freshwater, savings could even be in the order of 40 to 60%.

I am convinced that food insecurity resulting from resource inefficiency will be one of the key challenges for sustained livelihood in the decades to come. This challenge is not new, but it has changed over time as can be seen when taking a look back into the history of food availability over the last 200 years.

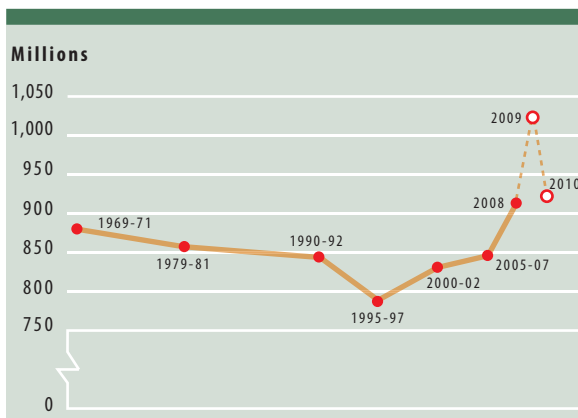
By 1804, the world population had reached 1 billion; 123 years later it had doubled. What was then seen as very high pace of demographic growth, perceived as an enormous strain on global resources, caused more than 30 major famines, with between 55 and 70 million people dying from hunger during this period.



Schoolchildren in Bobo-Dioulasso, Burkina Faso (11°10'N, 4°18'W)
© Yann Arthus-Bertrand / Altitude - Paris

Population growth has continued to accelerate; the three decades up to 2010 turned out to be among the ones with the highest global population growth in human history, with two and a half billion people added; we passed seven billion during the course of 2011. However, the agro-industrial revolution, with the full mobilization of new ideas and available resources, particularly water, fertilizers, plant protection and higher-yield varieties, led to growth in agricultural productivity that exceeded growth in population. With the resulting increase in per capita availability of food, much better distribution and more open trade across borders, both the percentage and absolute number of people going hungry decreased.

This positive trend started losing steam somewhere around 2000. Contrary to targets formulated as part of the Millennium Development Goals, the number of chronically undernourished people started to increase again, a deterioration accelerating in 2008/09, then again in 2011.²



These were years of massive increases in prices of basic food. Many saw these price hikes as a severe early warning of further increasing structural imbalances, with problems on the resource side facing further increases in demand. Already in 1995 growth in per-hectare productivity slowed down and fell below the also decreasing, but still high rate of population growth. According to the UN Population Division, within less than 90 years, another 3 billion people will be added, bringing the population count to more than 10 billion by 2100.

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To be clear, I am not a supporter of Malthusian doomsday scenarios. I am convinced that we can feed these 10 billion, but only if we now rigorously move from resource mobilization to comprehensive resource efficiency. However, this will be a challenging task.

In order to achieve broad resource efficiency –beyond food– we must **break up silos**, characterized by lack of dialogue and interaction, and unnecessary segmentation/ segregation of access to, and use and management of, resources (natural resources, goods, services, capital, knowledge, labour, etc.). Silos are characterized by narrow thinking that goes far beyond necessary specialization; often dogmatism, political correctness and parochialism further bolster these silo walls and make them less penetrable. As a result, new ideas, critical thinking and questioning are being blocked.

From economic literature, we know how silos, fragmentation and segmentation **affect peoples' prosperity**. There is the research based on partial equilibrium models developed by Jules Dupuit and Alfred Marshall, estimating the deadweight loss and the transfers of prosperity from consumers to inefficient producers (agriculture and industry).³ All forms of tariffs, quotas and subsidies mainly serve to protect local producer interests (e.g., farmers) but the impact of silos goes beyond that; it leads to a lack of comprehensive understanding, to the sub-optimal and therefore inefficient use of resources, and to the fragmentation of approaches and practical solutions.⁴ These are all elements of academic discourse. Translated into practical terms and real-world language, this is all about waste of resources with a negative impact on nature and, more often than not, the poorest.

Let me illustrate this with **biofuels**. Here, several silos are at work simultaneously: the one with exclusive CO₂ focus, the one protecting farmers, and the one aiming for national energy security. With facts instead of dogmatic assumptions, and with a clearer understanding of relative orders of magnitude, we would not even talk about using food to increase energy security. Food is also energy, Kcal are important for us to survive by keeping our organs running, to move, and to maintain the right body temperature. Energy for cars and planes, for heating and all other uses can be measured in the same Kcal, in total twenty times the size of energy in food. This means: only



400 participants from 21 countries on October 13th, 2011, adopted the Copenhagen Manifesto on Sustainable Growth, presented by The Green Growth Leaders at the "Take Lead" Conference in Copenhagen

5% of energy supplied as first-generation biofuel globally—which is clearly not an amount leading to energy security—would be the energy equivalent of the whole food market. Markets seem to understand that better than politicians. The price hikes of 2008/9 and 2011 were also the result of several years of policies to divert food to fuel production (subsidies, legal targets and mandatory mixing requirements),⁵ and of ambitious announcements by governments and others of future goals of biofuel production (e.g., IPCC, WWF). The critical factor is water. To give an example of the magnitude involved, it takes some 4.5 litres of water to extract one litre of crude oil from oil sands—something that triggers much discussion amongst environmentalists. At the same time, it takes up to 9,000 litres of water to grow the soy for 1 litre of biodiesel—a fact that goes mostly unnoticed.

Biofuel policies developed by well-meaning people in silos have been pushing hundreds of millions of people to hunger, with an at best marginal impact on the global energy supply. We can use waste for fuel, but we must reserve food for consumption by people.

Meanwhile and fortunately, as of 2011, several important and highly **encouraging new developments** are under way.

What is particularly encouraging is that, like in 1992, together with other stakeholders, business too will be invited to participate in the Rio discussions. Business can contribute a different view, ideas and also experience with best practice on all three pillars. At Nestlé, we want to go beyond sustainability. Thinking and acting long-term, our approach is Creating Shared Value (CSV), which involves

creating economic value in a way that also creates value for society by addressing its needs and challenges. It re-connects company success with social progress; it is not on the margin of what companies do but at the centre of it. Many companies have the same long-term orientation, and increasingly more are starting to use the CSV concept.

I also saw encouraging signals coming out of events preparing for Rio+20, such as those in Copenhagen and Bonn in autumn 2011.

In Denmark a new government is taking a fresh look at things in a bid to overcome dogma and ideology. The intergovernmental and stakeholder meeting on Green Growth set up in Copenhagen in mid-October 2011 brought the necessary widening and opening up of perspective. For me, integrating water was a real breakthrough towards truly sustainable green growth.

I also want to congratulate the German Government for organizing the Bonn Conference on the water/energy/food security nexus in November 2011, again combining intergovernmental institutions and involving stakeholders. It started to see the world as it is: complex, difficult and interconnected. Silos were explicitly addressed, with the conclusion that they were no longer “acceptable ways to approach our targets, because solutions based on only one sector or discipline will unavoidably affect other sectors, whether by design or accident.”⁶

And this brings me to **water** and the need to work in **partnership**. After all that has been said, we have to avoid creating a new silo, and we have to promote an



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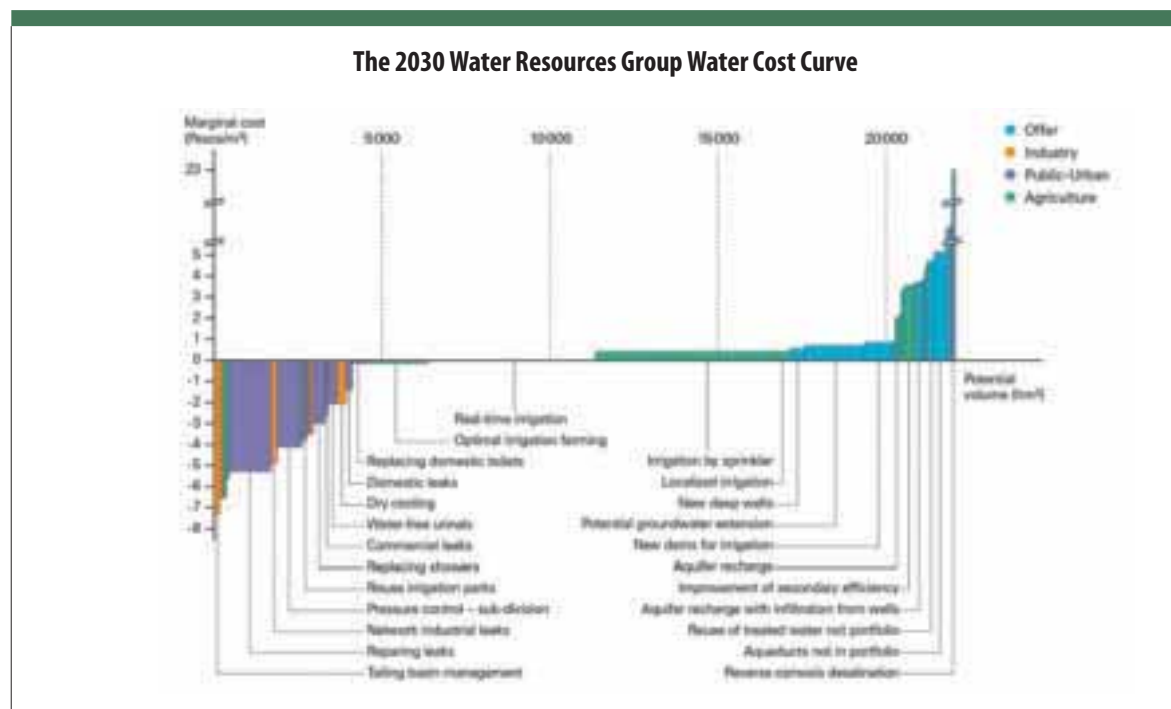
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It is quite amazing how little attention has been given to the massive overuse of water, drying lakes and rivers over the last decades
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understanding of water in its complexity. First and foremost, water is a human right: the amount required for basic needs, usually defined as about 25 to 50 litres per person per day for drinking, cooking and basic hygiene (which is about 1.5% of total water withdrawals for human use).⁷ Second, water is an environmental good –drying lakes (Chad and Aral) and rivers no longer reaching the sea are powerful reminders of this. Third, water is also a commercial good. In this latter role, water acts as the linchpin between the parts of the nexus. It is needed for almost all forms of energy (to cool thermal and solar plants, to extract coal and oil, etc.). Today, about 10% of freshwater withdrawals for human use worldwide go to energy– not including biofuels. Water is necessary to run industry and to extract minerals, which accounts globally for another 10% of water withdrawals. Last but not least, water is essential and irreplaceable to grow food– which accounts for about 70% of the withdrawals.

Today, water withdrawals exceed natural renewal by some 7%. In a quite reasonable scenario of some 1.7% annual growth in total withdrawals, by 2030 the demand would exceed availabilities by more than 60%. The structural

overuse of water is first and foremost an environmental issue that risks increasingly turning into a social problem. Some scenarios expect shortfalls in cereal crops worldwide due to water shortage on the order of 30% by 2025. It is therefore quite amazing how little attention has been given to the massive overuse of water, drying lakes and rivers, and sinking water tables over the last decades.

The problem can be solved if water is used more efficiently –in a broader understanding, opening the way for new coalitions. We at Nestlé have been actively participating in the discussions for a new governance model for “People Public Private Partnership”. The WEF 2030 Water Resources Group (WRG),¹⁰ which I have the privilege to chair, is one of the initiatives that takes such a broader view. Its water cost curve analysis is offered to governments as a tool to set up watershed-related, fact-based and cost-effective strategies to bring water withdrawals back into line with natural renewal. For each lever –supply and demand side for freshwater combined– the potential positive impact as well as the cost per cubic meter of freshwater saved is estimated. The chart below illustrates this for one river basin in Mexico.



Source: 2030 Water Agenda (National Water Commission of Mexico)



© UN Photo / Tim Michaluk

solutions are only possible watershed by watershed. The stakeholders are, in the first place, the population in the communities living within this watershed, the farmers who produce the food with water, environmental groups looking after the environmental flows and, last but not least, industry, interested in better water management and also willing to contribute to solutions for bringing freshwater withdrawals back into line with natural renewal.

It is then up to governments, in consultation with local stakeholders, to select the levers to act on and to develop strategies, taking into account political realities and emotions –without letting these seize the upper hand. Business and other actors will then come in where cost-effective action can contribute to the common goal. Nestlé is part of the group, both globally and within local coalitions set up within the WRG. At the same time we also take direct, independent action; withdrawals by the Nestlé Group were reduced from 4.5 litres freshwater per US dollar of sales 10 years ago to less than 1.5 litres today.

Who should the stakeholders be to be actively involved when addressing water scarcity issues? Water is local;

In **conclusion**, I am really convinced that, with our thinking in silos today, we tend to take wrong or distorted decisions. We must accept the complexities and major interdependencies of our world, a challenge where silo thinking and fragmented action will no longer work. I expect Rio+20 to achieve an important step forward in the development of new strategies for more resource-efficient growth, including again all three pillars of sustainability to set clear, fact-based priorities within the food-water-energy nexus.

The two main outcomes I would hope to see are: government and non-government participants in Rio+20 paying much more attention to the key role of water for environmental, social and economic sustainability, and the agreement that no food should be used to produce fuels ▲▲▲

End Notes

- 1 http://www.mckinsey.com/Features/Resource_revolution
- 2 Meanwhile, the FAO has stopped updating these statistics - we are told, in order to re-evaluate the underlying methods.
- 3 E.g., Feenstra, Robert C., How Costly is Protectionism? *Journal of Economic Perspectives* Vol. 6 Number 3, 1992, pages 159-178.
- 4 Leibenstein, Harvey, Allocative Efficiency vs. X-Efficiency, *American Economic Review* Vol. 56 Number 3, pages 392-415.
- 5 Leading are the US and EU, but there are close to 20 more developing and developed countries setting targets and subsidizing biofuels www.greenfuels.org, including countries such as Ethiopia that frequently suffer from famine, where government identified 20% of arable land for biofuel production. *The biofuel development and utilisation strategy of Ethiopia, Ministry of Mines and Energy September 2007.*
- 6 Bonn 2011 Conference, The Water, Energy and Food Security Nexus, Solutions for the Green Economy, 16 to 18 November 2011, Conference Synopsis, Bonn March 2012, page 4.
- 7 Total water withdrawals for households are in the order of 10% of total withdrawals. This includes the water for pools, washing the car and watering lawns.
- 8 The value generated per litre of water differs between these uses, even within the same watershed. JP Morgan Watching Water, New York 2008, and US Academy of Science. http://books.nap.edu/openbook.php?record_id=10994&page=67
- 9 2030 Water Resources Group, Charting our future water needs. A new economic framework to decision making, Nov. 2009.
- 10 http://www1.ifc.org/wps/wcm/connect/industry_ext_content/ifc_external_corporate_site/industries/infrastructure/news/infra_newsflashplus_011312_wrg

About the author

Peter Brabeck-Letmathe led the Nestlé Group from 1997 to 2008, first as CEO, until 2005, and then as Chairman and CEO. In April 2008, he handed over the office of CEO and remained Chairman of the Board of Nestlé S.A. Born in 1944 in Austria, Peter Brabeck-Letmathe graduated from the University of World Trade in Vienna with a degree in Economics. After joining the Nestlé Group in 1968, he spent a significant part of his career in Latin America, moving from Sales Manager and Marketing Director in Chile, to CEO of Nestlé Ecuador and later to Chairman/CEO of Nestlé Venezuela.



BIOTRADE CONGRESS

JUNE 18, 2012 RIO DE JANEIRO



BIODIVERSITY THE LIFE OF THE GREEN ECONOMY



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Sustainable business opportunities in the green economy: the case of BioTrade

Claudia Esperanza Berch, Lorena Jaramillo Castro and Eduardo Escobedo

Biodiversity plays an important role in the well-being of human beings and, if managed sustainably, can become a sustainable development engine that captures the market and business opportunities arising from the green economy. The UNCTAD BioTrade Initiative is a distinct example of how developing countries are transitioning to greener biodiversity-based sectors in Africa, Asia and Latin America.

BIO'TRADE



Through Jambi Kiwa, the association produces and sells medicinal herbs, tea and derived products to national and international markets

I. Introduction

There is no doubt that the transition to a greener economy will be accompanied by significant changes. By definition, transition means changes; and changes give rise to a range of questions. The UN Conference on Sustainable Development, Rio+20, provides a unique opportunity to seek and find answers to many of the questions that will inevitably accompany the transition to an economy that aims at reducing poverty, improving social, economic and human development while lowering mankind's environmental footprint.

With more than 15 years of experience working to make biodiversity-based sectors more environmentally, socially and economically sustainable, UNCTAD's BioTrade Initiative can help to provide answers to many of these questions. Since its establishment, the Initiative has supported the development of sustainable business practices, the creation of employment opportunities and the improvement of livelihoods of local and rural communities. This has been achieved through the prospect that socio-economic development opportunities can be enhanced by inclusive and sound management practices that ensure the sustainable use and conservation of biological resources. As such, BioTrade is a clear example that a Green Economy is possible and well underway.

2. Green economy and biodiversity: a clear-cut link

Biodiversity, which provides for food security, human health, the provision of clean air and water; and contributes to local livelihoods and economic development,¹ is being lost at unprecedented rates. As the Millennium Ecosystem Assessment indicates, not only were reductions in biodiversity due to human activities more rapid in the past 50 years than at any time in human history but, more importantly, biodiversity loss is projected to accelerate.²



The link between biodiversity and the Green Economy (GE) is clear-cut. Preventing the loss of biodiversity and promoting its sustainable use and conservation constitute a top priority and a key component of the GE. The adoption of the Strategic Plan for Biodiversity 2011-2020, including the Aichi Biodiversity Targets, as the overarching framework on biodiversity for the entire United Nations system will play a fundamental role in shaping the transition. For example, advancements in furthering the valuation of biodiversity (Aichi Target 2), the design and implementation of positive incentives for the conservation and sustainable use of biodiversity (Aichi Target 3) and the steps taken to achieve or implement plans for sustainable production and consumption (Aichi Target 4 and Objective Plan B) are essential targets. As the UN Secretary General pointed out, for a green economy to deliver its benefits, it should be part of an overall movement towards production and consumption systems that are compatible with sustainable development.³

3. Green economy and BioTrade

Common goals and principles

UNCTAD created the BioTrade Initiative (BTI) in 1996 to support sustainable development through trade and investment in biodiversity. The Initiative enables developing countries to achieve some of their development objectives through the exploitation of the growth opportunities generated by the use of their biodiversity. More than fifteen countries have benefited from UNCTAD's BioTrade activities, implemented in biodiversity sectors such as cosmetic and personal care, food, medicinal, handicrafts, garments and sustainable tourism.

By promoting the conservation and sustainable use of biodiversity, the BTI is contributing to achieving a fundamental GE goal: preventing the loss of biodiversity. But the most remarkable aspect of the BTI is that it reveals ways for countries to prevent biodiversity loss, not by pure protection mechanisms but rather by promoting its sustainable use as a means to generate sustainable business practices, create employment opportunities and improve the livelihood of local and rural communities. BioTrade is an economic and development engine that supports a GE by alleviating poverty, improving social, economic and human development, while enhancing mankind's ability to conserve its environmental capital and lower its environmental footprint.

BioTrade activities include the collection/production, transformation, and commercialisation of goods and services derived from native biodiversity (species and ecosystems) under criteria of environmental, social and economic sustainability. It encompasses a wide range of activities associated with the development of a product and its evolution through various stages along its supply chain. They are performed by a variety of value chain actors such as producers/hunters/collectors, intermediaries, processors, distributors and traders.

BioTrade is not, as sometimes described, the mere commercialisation of biodiversity-based products. It is clear that this does not contribute to the conservation of biodiversity or to sustainable development per se. It is the environmental, social and economic sustainability criteria that define BioTrade and explain its contribution to sustainable development and to a GE.⁴

To ensure these sustainability criteria, the BTI, its national BioTrade programmes, and other national and international partners have defined the BioTrade Principles and Criteria (P&C). These drive BioTrade processes to promote the conservation of biodiversity through sustainable commercial use. The P&C are at the core of the conceptual framework that supports BTI activities and are in line with the objectives and principles of the CBD, the Commission on Sustainable Development and the Millennium Development Goals.





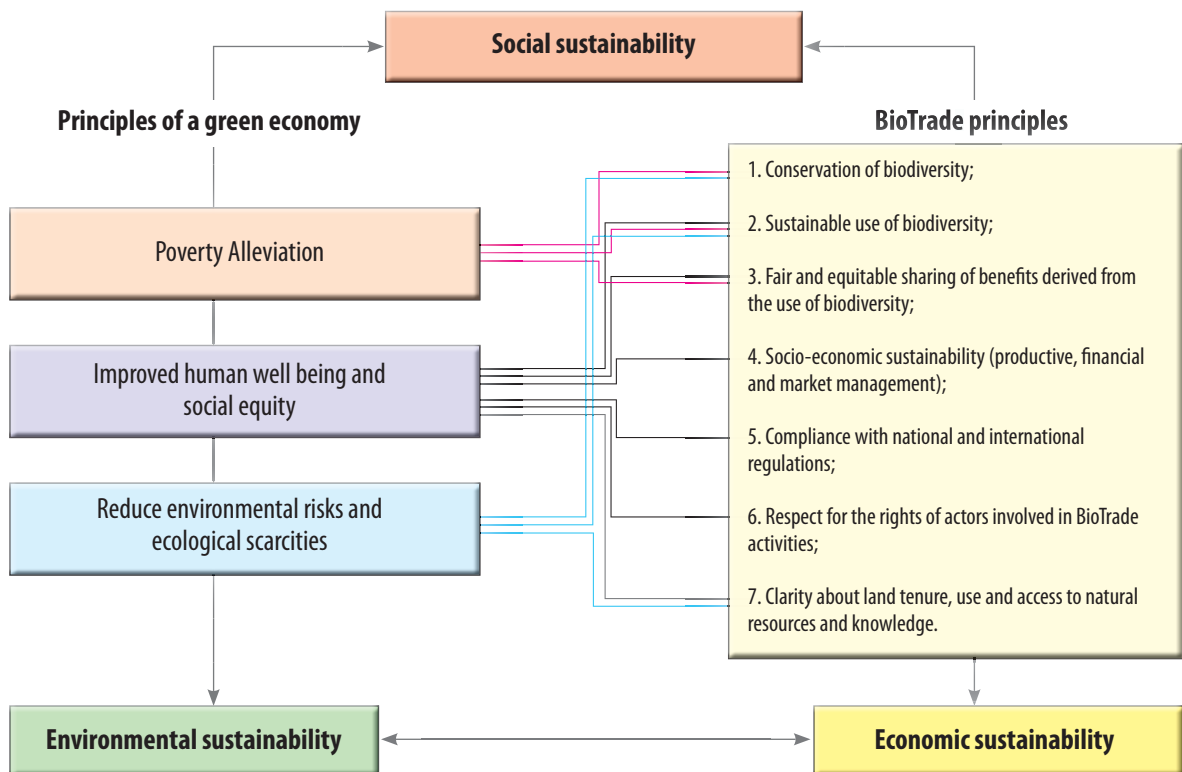
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The BTI principles are:

1. Conservation of biodiversity;
2. Sustainable use of biodiversity;
3. Fair and equitable sharing of benefits derived from the use of biodiversity;
4. Socio-economic sustainability (productive, financial and market management);
5. Compliance with national and international regulations;
6. Respect for the rights of actors involved in BioTrade activities;
7. Clarity about land tenure, use and access to natural resources and knowledge.⁵

The interrelationship between these principles and the principles that underlie a GE makes it clear how one contributes to the other.





© birdingecuator

BioTrade's benefits

At the UN Rio+20 Conference, Member States will assess the GE in the context of sustainable development and poverty alleviation. It is possible to suggest that BioTrade's contribution to the GE will also be assessed in the same context. Measuring its impact/contribution on sustainable development has been and continues to be a key priority for the BTI and its partners. While it is clear that BioTrade's contribution to GDP is and should always be taken into consideration, it is important to understand its contribution to sustainable development as a whole.

Data collected by different countries in recent years show that the implementation of BioTrade practices in selected biodiversity sectors has generated social, economic and environmental benefits in particular to local and rural communities.

☞ The work undertaken during 2007 with the Bolivian BioTrade Programme in strengthening the natural ingredients, sustainable leather, and construction value chains, benefited over **392** communities, **33** indigenous associations and some **21** companies;

☞ In Colombia, from 2001-2004, **15,850** people and **529** initiatives, including companies (SMEs or Micro-SMEs), formal or informal associations, and foundations working in sustainable agricultural systems, non-timber forest products, ecotourism and timber products benefited from BioTrade. The work undertaken by the Fondo Biocomercio Colombia from 2007 to 2009 has benefited almost **60** companies, generating direct employment for over **700** people and directly impacting over **3,200** families. BioTrade practices also have important and measurable effects on the environment as over **19** thousand hectares are being sustainably managed;

☞ Work undertaken from 2006 to 2008 by the Sustainable BioTrade Programme in Ecuador has benefited over **11,000** families grouped in SMEs, associations or foundations, working with national "Arriba" cocoa,

Amazon fruits, natural ingredients for the cosmetic and food industries and birdwatching;

☞ In Peru between 2003 and 2007 approximately **2,550** families were involved in BioTrade activities in the natural ingredients sector for the food, cosmetic and pharmaceutical industries, accounting for over **54,000** hectares under sustainable management;

☞ In Southern Africa, the Southern Africa Natural Products Trade Association – trading as PhytoTrade Africa – working with plant-derived natural products, is supporting more than **50** organisations that work with approximately **20,000** harvesters (approximately **85** per cent of these harvesters are women).⁶

These results show that BioTrade contributes to the development of biodiversity-based sectors, generates additional income and employment opportunities to producers and local populations, and fosters sustainable practices that enhance the use of biodiversity and its ecosystems. Its measurable impacts provide essential elements to supporting the creation of enabling policies and increasing the knowledge and capacity of producers, companies and government officials in its implementing and monitoring. Results therefore demonstrate that the promotion of trade and investment in biodiversity, under certain principles and criteria, contributes positively to sustainable development.

Assessing BioTrade's contribution to a green economy

In view of the need to measure the impact and contribution to the conservation of biodiversity and sustainable development in a harmonized and structured manner, UNCTAD, together with its partners, has recently developed the BioTrade Impact Assessment System (BT IAS). It is an information management tool that compiles information during field survey activities, processes all the data received from various countries and regions, and prepares reports on its impact worldwide.



The conceptual basis of the system includes the:

- 👉 **sustainable livelihood approach** - which strengthens the human, social, physical, financial and natural capital of people and communities;
- 👉 **value-chain approach** - where the strengthening of value chain is a critical element in implementing BioTrade Principles and Criteria;
- 👉 **adaptive management approach** - when implementing sustainable practices, it is crucial to consider the identification of impacts on species and ecosystems and the continual improvement of BioTrade initiatives; and
- 👉 **ecosystem approach** - the planning of productive processes related to BioTrade initiatives are environmentally and socially responsible with regard to their impact on species, habitats, ecosystems and local communities.

The seven BioTrade Principles and Criteria constitute its core conceptual framework and thus the impact assessment system and the indicators proposed to measure and track the changes generated. The ten indicators below respond to these principles grouped under environmental, socio-economic and governance categories.

In order to implement the BT IAS with the ten impact indicators, countries are developing the baseline by gathering data from BioTrade beneficiary companies, associations or organisations (BTO) supported by BioTrade programmes and partners. It is expected that the BT IAS will provide very valuable knowledge to inform policy and corporate decision-making. Its results will help validate the underlying principle that trade and investment in biodiversity using defined principles and criteria contribute positively to sustainable development. It is clear, however, that to evaluate impacts, subsequent comparisons must be made analysing causality of the observed changes. What needs to be highlighted, however, is that BioTrade environmental, social and governance indicators can and should play an important role in measuring progress towards the green economy in the context of poverty alleviation and sustainable development. Results and comparisons to be made under the BT IAS in the next couple of years in various countries in Africa, Asia and Latin America will shed light on the precise impact that BioTrade practices have on the conservation and sustainable use of biodiversity and on sustainable development as a whole.

Indicator

Environment indicators

- 1.1 Conservation area under the management of BioTrade organisation (BTO)
- 1.2 Conservation and sustainable use of in-situ biodiversity (wild species)
- 1.3 Usage or harvest rates of resources are defined according to the species characteristics (wild species)
- 1.4 Environmental sustainability of the ex-situ production systems
- 1.5 Level of use of toxic or dangerous substances in agricultural/breeding practices

Social indicators

- 2.1 Trends in average annual income for actors at the first stage of the value chain involved in BioTrade
- 2.2 Trends in employment generated by the BTO at the producer level (first stage of the value chain)
- 2.3 Trends in annual sales of the BTO
- 2.4 BTO has established partnerships with suppliers that comply with BioTrade requirements of traceability, inclusion, transparency and fair pricing

Governance indicator

- 3.1 Level of compliance with legal requirements and adoption of additional social and environmental responsibility activities



CORPEI - Programa Nacional de Biocomercio Sostenible - natural ingredients

4. The Green Economy: comparative advantages of biodiversity-rich developing countries

While there is little doubt that a transition to a GE will continue to pose challenges for developing countries, it is possible to see many opportunities, particularly for biodiversity-rich developing countries. The market for biodiversity-derived products and services has increased in recent years and market data show this trend will continue. Products that are based on the sustainable use of biodiversity are increasingly sourced and requested for instance by cosmetics, pharmaceutical, food, fashion and tourism industries. Green services markets are also expanding. A growing number of consumers purchase environmentally-responsible products and look for ethical, social, natural and healthy products.

BTOs in Latin America and Africa have also been able to capture these markets trends for environmentally-sound products and services as reported by the BT IAS. For 2010, annual sales of BTOs amounted to over USD 2,3 billion from both domestic and international markets and benefited over 37 thousand actors in rural areas (e.g. producers, collectors, breeders) that managed over 22 million hectares under sustainable practices. This still represents a small proportion if we consider the substantial market potential for biodiversity products and services estimated at USD 141.3 billion by *Fondo Biocomercio Colombia*.⁷

Developing countries rich in biodiversity should take full advantage of these opportunities and concentrate their efforts towards producing green goods and services for which they have comparative advantages. They should implement strategies to enhance their productive capacity in key products and services. BioTrade can enable countries to transition to the GE by exploiting these market opportunities and at the same time achieve many of their development objectives. It allows countries to use their natural base more sustainably, capture the market potential for environmentally friendly products and services and transform their natural resources industries into a sustainable development engine.

Preventing the loss of biodiversity and promoting its sustainable use and conservation constitute a top priority and a key component of the GE

BioTrade methodologies and tools allow countries to identify and select key and promising products and value chains. Related sectors include agriculture and species collected in the wild (natural ingredients and products for cosmetics, pharmaceuticals, food, handicrafts and clothing), fisheries (fish products: paiche - and ornamental fish); animal breeding (reptile skin and meat) and tourism (sustainable tourism: ecotourism, nature-based tourism, birdwatching). These are important sectors of a GE, which also include renewable energy, low-carbon transport, energy efficient buildings, clean technologies, improved waste management, improved freshwater provision, sustainable agriculture and forest management and sustainable fisheries. BioTrade practices and activities undertaken in these different sectors can contribute in general to achieving key overall objectives of a GE. For instance, more efficient use of natural resources and available inputs reduce the use of wood as charcoal for distillation processes and contribute to a low carbon economy. For its part, sustainable tourism practices contribute to lower water intensity.

5. Conclusions and recommendations

UNCTAD's Member States have reaffirmed that the conservation and sustainable use of biodiversity provide opportunities in trade, investment and development for developing countries and that strategies to facilitate trade in products and services related to biodiversity should be considered, as appropriate, to promote trade and sustainable development.⁸ UNCTAD's Member States transitioning to the GE need to identify (a) how their comparative advantages position them to capture opportunities that the GE offers; and (b) what strategies they should adopt to take full advantage of those opportunities.

As an economy where biodiversity and ecosystem services are valued and conserved, the GE offers significant opportunities for biodiversity-rich developing countries. These countries should see their biodiversity as a key comparative advantage. BioTrade can provide the knowledge, strategies and management tools to identify and enhance the market and development potential of specific value chains/products allowing countries to take full advantage of those business opportunities ▲▲▲



The Orinoco River near the Esmeralda (Amazon Rain Forest), Amazonas (3°10' N, 65°33' W). © Yann Arthus-Bertrand / Altitude - Paris

Endnotes

- 1 Strategic Plan for Biodiversity 2011–2020 and the Aichi Targets. <http://www.cbd.int/doc/strategic-plan/2011-2020/Aichi-Targets-EN.pdf>
- 2 Millennium Ecosystem Assessment "Ecosystems and Human Well-being". Biodiversity Synthesis. Key messages.
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- 6 Fondo Biocomercio. "Biodiversidad y Competitividad". Brochure Comité Técnico Nacional de Biodiversidad y Competitividad. The study prepared reviewed information from World Trade Organization (WTO), International Trade Centre (UNCTAD/WTO), Organic Monitor, BioFach, Forest Stewardship Council (FSC) and Tropenbos.
- 7 UNCTAD - ACCRA DECLARATION (2008/59). Emphasis added.

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Workers spraying pesticide on a field, Jeju-Do, South Korea (33°27' N, 126°34' E). © Yann Arthus-Bertrand / Altitude - Paris





Green ambitions and indicators

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and why national green reputations matter**
Jeremy Tamanini

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– getting to where we want to be**
Paul Hodson



The Global Green Economy Index (GGEI) and why national green reputations matter

Jeremy Tamanini

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Jeremy Tamanini introduces the Global Green Economy Index (GGEI), an annual analytic tool measuring expert perceptions of 27 green economies against an index of quantitative and qualitative indicators measuring their actual performance.



Agricultural irrigation. Homestead, Florida, United States (25°23'50.54"N - 80°32'13.39"W). © Yann Arthus-Bertrand / Altitude - Paris

Multi-stakeholder gatherings like the Rio+20 Conference offer a forum for defining what we mean by green economy and exploring diverse approaches to hasten its development. This is a long-term, complex challenge requiring a wide range of perspectives on how to provide incentives to governments, business interests and global citizenry to catalyze this transition.

Our perspective on these incentives focuses on the realm of reputation. We believe that the extent to which nations and their leaders embrace green growth and

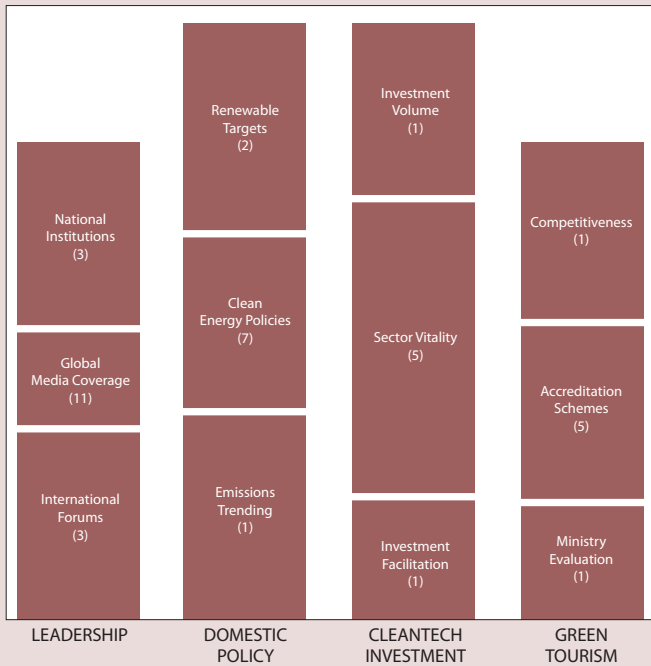
foster vital domestic green economies will increasingly define their national 'brands' on the global stage. More specifically, green reputations will continue to impact the political fortunes of national leaders and influence investment decisions by private actors facing shareholder pressure to embrace sustainable supply chains. Global media and tourists alike will direct editorial and travel decisions to destinations with a reputation for taking green policies and tourism seriously.

National and city governments are capable of influencing green economic growth,

although their powers remain limited without private cooperation. The Global Green Economy Index (GGEI) is designed to assess and inform actions and decision-making by these public entities. The 27 countries and associated cities tracked by the GGEI represent a large share of the green economy today and their leadership, green policies, cleantech investment opportunities and commitment to green tourism represent meaningful inputs to the broader business-led green economy.

Index Design

The 2011 Global Green Economy Index includes 4 primary dimensions, 12 sub-categories and over 35 datasets as follows:



Top Green Reputations

The rankings below reveal the top 10 national green reputations as judged by our survey of experts as compared to the top 10 national performers as calculated by the GGEI



The GGEI is an index defined by both quantitative and qualitative indicators that permits establishing comparisons of national green reputations in these 27 countries. Green economic growth continues to suffer from a communications shortcoming as this emerging model for development copes with finding common language to define the frameworks and sub-sectors underlying its evolution. In a similar way, experts responding to GGEI surveys hold perceptions about national and city green economies that often underestimate their actual performance.

Of course, not all countries suffer from perceptions that under-recognize their actual performance; in some cases, the opposite is true. For example, the 2011 GGEI shows that experts credit Germany with having a strong aggregate national green reputation. The German results on a category basis reinforce this finding, presenting a case where perceptions slightly exceed actual index performance. In cases like this, the GGEI gap analysis would reveal both areas for performance improvements and opportunities to employ communications to solidify Germany's already solid perceived position. China and the United States –two other cases where expert perceptions generally outpace actual performance– should pursue a similar path.

That said, many countries exhibit negative gaps between the perception and actual performance of their green economies, implying clear directions for strategic communications. Unlike Denmark, Mexico and South Africa did not fully take advantage of the broad exposure provided by hosting the annual Conference of Parties (COP). Both nations received significant press coverage and demonstrated measurable leadership in parallel to COP 16 (Cancun) and COP 17 (Durban). Yet expert practitioners do not appear to credit these nations adequately for their efforts, according to the GGEI results in 2011.

The Nordic nations –particularly Denmark, Sweden and Finland– have a huge opportunity to better communicate the robust and growing cleantech sectors in their domestic markets. Despite performing well across most of the GGEI, these Nordic nations are largely ignored as vital targets for cleantech investment, overshadowed by larger markets in the United States, China and Germany. Better communications coordination among national, business and cluster-based entities in the Nordic region is crucial to reversing this misconception. Israel faces a similar opportunity as the small nation ranked 4th in the cleantech investment performance index, but only 23rd of 27 nations in the perception rankings.

And, while New Zealand consistently dominates both the perception and performance side of the green tourism category, other nations have strong stories that need to be better communicated. New Zealand's high score in this category relates to a variety of factors, including a robust, government-backed green accreditation scheme and a genuine focus on promoting green tourism through government ministries and bodies.

Yet neighbouring Australia, the United Kingdom, South Africa and the Netherlands each demonstrate concrete commitments to genuine, long-term sustainable tourism programmes within their borders. Tourism specialists in these nations should focus resources on advancing both the substance and communication of these efforts.

Beyond various national efforts to employ strategic communications to bridge some of the gaps exposed by tools like the GGEI, forward-thinking leaders are already beginning to formalize green growth within their country branding efforts. Denmark's focus on its national green brand took a step forward with the recent establishment of State of Green, designed to strengthen awareness of the solutions and competencies of Danish business and industry within energy, climate and the environment.



© Wikimedia Commons user:Ineich

São Paulo, home to over 19 million people, hosted the fourth biennial C40 Large Cities Mayors Summit

South Korea’s former Prime Minister, Dr. Han Seung-soo, founded the Global Green Growth Institute to integrate economic growth and environmental sustainability through models of green growth furthered by public-private partnerships. New Zealand continues to articulate its 100% Pure tourism campaign through initiatives like Pure Advantage that engage citizens and social media with advancing the country’s green brand. And the C40 Cities Climate Leadership Group (C40), a network of large and engaged cities from around the world committed to

implementing meaningful and sustainable climate-related actions locally, continues to highlight and coordinate green city branding.

As these examples illustrate, one-size does not fit all for nations serious about articulating their commitment to green growth. Smaller nations with green economies focused in their capital cities face the additional challenge of coordinating city-level and national-level efforts. Just as every nation faces a unique set of challenges and opportunities related to developing

a green economy, the pathway to best employ strategic communications to advance one’s national green reputation is nuanced and particular.

As case studies and success stories become more numerous, nations will become increasingly focused on leveraging their green growth story to further national reputations and, in the process, bring greater understanding globally of both the importance and benefits to this emerging development model ▲▲▲

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Just as every nation faces a unique set of challenges and opportunities related to developing a green economy, the pathway to ... advance one’s national green reputation is nuanced and particular
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About the author

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Energy Efficiency in Europe – getting to where we want to be

Paul Hodson

Paul Hodson outlines current ambitious objectives for energy savings by 2020 within the European Union. To achieve them, public bodies must lead by example in energy reduction, energy sales must drop through increased efficiency, energy audits must take on a greater role and measures must be introduced to dramatically increase the uptake of co-generation.



The Kungbronhusen Office Building is a 13-storey property in the centre of Stockholm, near the Stockholm Central Station. The objective of the project is to create a development where the environment and energy-efficiency are central considerations.

As the world's population continues to grow, more than one billion more people will enter the middle class within 40 years from now. If all these people were to use the production technology and adopt the consumption patterns that prevail in industrialized countries today, we would need far more scarce resources than are presently available to us to meet this future demand. Building more sustainable models of development and adopting sustainable patterns of energy consumption and production are the obvious answers to this challenge. The Rio+20 Conference in June 2012 will be an important opportunity to accelerate this process.

Energy policy created the original European Union (EU) in the days when

indigenous coal powered its nations. In the past, seemingly endless and affordable energy enabled Europe to develop in peace and stability. If Europe wants to continue with a stable, secure and sustainable economy in today's energy markets, we need the energy policies to match these aspirations.

This is why the EU has set itself a target for 2020 of saving 20% of its primary energy consumption compared to projections. Europe's leaders have recognized this more than once by consistently expressing their firm determination to tap the considerable potential for higher energy savings in sectors such as buildings, transport and products. Improved energy efficiency are the key words here. The

positive effects are multifaceted in terms of improved security of supply, improved competitiveness and sustainability as reduced conventional energy use leads to reduced CO₂ emissions and the limitation of environmental degradation.

To achieve its goal, the EU has deployed a large variety of policy instruments for almost a decade now. A series of laws to bring about major changes in areas such as buildings, cars, energy labels and 'eco-design' for a wide range of products have been put in place. In addition, the EU uses targeted financing, the provision of information and networks like the Covenant of Mayors, to promote its objectives. Taken together, and including the Emissions Trading Scheme mechanism applicable to the industrial sector, these measures help us to make the necessary strides towards meeting the 20% target.

Although there is widespread consensus that this goal is vital to allow us to continue to live the lives we are used to, reaching it on time is quite another matter. Indeed, last year the European Commission calculated that on implementation trends by the EU and its Member States, our savings objective will not be met eight years from now. Confronted with this predicament, the Commission swiftly tabled a new Energy Efficiency Plan as well as a proposal for a new directive on energy efficiency in a comprehensive effort to remedy the situation.

The proposed directive is an ambitious attempt that covers both demand and supply side issues which were hitherto



https://www.saltzburgerland.com

Salzburg city at night, Austria

regulated in various pieces of legislation. It builds on the experience the EU has had with the results –in terms of energy saving– in different policy areas such as the provision of energy services, the simultaneous generation of heat and power, the energy performance of buildings and public procurement. The common denominator for these areas is that each of them has significant unused potential to benefit from.

It would be impossible to list all new measures here but I will mention just four of them so as to give an idea of the watershed that may be brought about. First, public bodies would be required to lead by example by renovating 3% of their total floor area each and every year. This is about twice the current renovation rate in the EU! Second, energy efficiency obligation schemes would ensure that all energy services providers in the EU will achieve annual energy savings equal to 1.5% of their annual sales by volume. To put it differently: energy retailers will need to sell less, not more energy.

Third, a larger role for energy audits in large and small companies; this would increase awareness of energy used and savings that can be made. Fourth, the uptake of co-generation will need to improve dramatically by better planning, a waste heat recovery obligation for power and industrial plants and the consistent deployment of the best available technologies.

If Europe wants to
continue with a stable,
secure and sustainable
economy in today's
energy markets, we need
the energy policies to
match these aspirations

Once put into place, the combined effects of the full implementation of the new measures may well transform our

daily lives and create 400,000 new jobs that cannot be relocated elsewhere. Thus, growth is supported in all EU regions and expected to amount to the hefty sum of EUR 34bn in 2020.

At the time of writing, intense discussions are ongoing with the institutions responsible for taking the decisions on new EU legislation: the Council –in which the EU's 27 Member States are represented– and the European Parliament.

Whatever the outcome of the present discussions, the European Commission is determined to continue its efforts towards achieving the overall EU target. To this effect, it will review progress in energy efficiency made at intermediate stages between now and 2020. And, once we have arrived at that almost magical year for our yardstick, we will hopefully be able to establish with some satisfaction that the EU has done a proper job. But surely, by then, a new challenge will have been defined. The end of our work is certainly not in sight ▲▲▲

About the author

Paul Hodson is head of the European Commission's Energy Efficiency Unit. He previously worked for the Commission on Renewable Energy; Urban transport; and as a speechwriter. Before joining the Commission, he was head of transport policy at Manchester City Council and Transport Policy Manager at Reading Borough Council, both in the United Kingdom.







Making business sense of green

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Sugarcane as a renewable resource for African development

Francis X. Johnson and Vikram Seebaluck

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Francis X. Johnson and Vikram Seebaluck contend that agro-industrial low-carbon development based on sugar cane and other energy-rich crops offers a commercially proven pathway towards a green economy in Africa. They point out that, nonetheless, significant levels of technology transfer and investment in infrastructure and institutions, as well as greater regional and international cooperation will be required to make significant progress on such a pathway.

The biomass-poverty belt

Sub-Saharan Africa (excluding South Africa) lies at the heart of the global biomass-poverty belt—the tropical and sub-tropical regions where extreme poverty coincides with great bioenergy potential. It is ironic that low quality energy services from traditional biomass dominate sub-Saharan Africa's energy use while at the same time it has the greatest biomass energy potential of any world region. The exploitation of this potential through modern bioenergy applications can bring employment to rural areas while also reducing forest degradation and climate impacts associated with the low efficiency of traditional biomass use.

Energy security and climate change

The twin challenges of energy insecurity and climate change are particularly daunting for oil-importing African countries that may also lack basic energy and transport infrastructure and institutional capacity. These countries suffer severely when higher energy prices increase the costs of trade and transport while their populations rely on subsistence agriculture, making them even more vulnerable to economic and climatic changes. Agro-energy development based on a highly productive crop like sugar cane can help to modernise the agricultural sector while also contributing to improved infrastructure and energy access.

Sugar cane as a renewable resource

Sugar cane has high photosynthetic efficiency and is the most commercially important energy crop in the world. However, the long historical emphasis on sugar (sucrose) accompanied by preferential trading arrangements have contributed to the result that only a few countries have made significant progress in optimising the crop's overall productivity.

The modern concept of a biorefinery has drawn considerable inspiration from the case of sugar cane as a feedstock. Such a biorefinery can provide many different energy and non-energy products and services, which are produced in tandem and with the maximum level of energy and water efficiency, recycling and ecological resource management.

Approximately 100 kg of sugar is recovered from each tonne of sugar cane processed, while the fibrous fraction (bagasse) can provide around 130 kWh of surplus electricity for export to the grid. Advanced technologies can increase the available electricity production to five times this level. Approximately 8 litres of bioethanol can be produced per tonne of cane in distilleries using the final molasses by-product as a feedstock. The yield of bioethanol can be increased by devoting less of the cane juice to crystalline sugar production: up to 80 litres per tonne of cane when all of the juice is used directly, as is common in Brazil.



It is ironic that low quality energy services from traditional biomass dominate sub-Saharan Africa's energy use while... it has the greatest biomass energy potential of any world region

Downstream facilities can potentially provide dozens of bio-based products, ranging from fertilisers to bio-plastics. Sugar cane is among the few first-generation biofuel crops that achieve highly significant GHG savings, due to its excellent energy balance and the efficient cascading of resource use in modern sugar cane processing systems.

As markets develop for products other than sugar and as climatic conditions change, the breeding of new varieties with properties such as higher fibre and lower water requirements becomes crucial in optimising the value of the sugar cane resource. New varieties can be matched to particular sub-climates and soils; the most productive physical locations can be chosen while aiming to avoid ecologically sensitive areas.

The tool of agro-ecological zoning (AEZ) has been applied in Brazil and elsewhere to identify suitable and available lands so as to maximise the benefits and minimise the risks. Care must be taken to avoid areas of water stress or water scarcity; in such cases, bioenergy development may still be feasible with crops such as sweet sorghum that require significantly less water per unit of energy output.

Regional agro-industrial development

Sugar cane has been used to make sugar (sucrose) at industrial scale for hundreds of years, but only in the past few decades has it been exploited for renewable energy on a similar scale. Some countries have played a pioneering role: Brazil for fuel ethanol, Mauritius and India for bagasse cogeneration, and a number of countries for various other value-added products.

A number of African countries have endeavoured over the past few decades to develop new sugar cane bioenergy applications and markets. However, major advances in competitiveness have been elusive due to the small scale at national levels: greater regional cooperation on technology, infrastructure and institutional development is needed.

The countries that have dominated sugar cane production in the past, such as South Africa and Mauritius, do not necessarily have the best inherent agricultural conditions: what they had which others did not is the industrial

infrastructure and institutional architecture to develop and exploit sugar cane commercially. Other countries in the region that do have excellent conditions still lack the infrastructure and institutions and therefore a considerable amount of investment will be required.

Strengthening regional economic organisations and reducing intra-African trade barriers can allow agro-industries such as sugar cane to gravitate to more productive and economically competitive regions, regardless of national borders.

Local to global

Although local use of biomass for energy will continue to be important in Africa for many decades to come, modern bioenergy applications based on sugar cane—along with other productive agricultural or forestry feedstocks crops—open up opportunities for development and/or trade across all scales from local to global. The use of waste residues and the substitution of ethanol for fuelwood can reduce pressure on forest resources at the community level.

At national level, bioenergy from sugar cane can contribute to modernisation in the energy and agricultural sectors while creating new export opportunities. Regional economic integration can support an approach that takes advantage of differing potentials and agro-industrial architectures to promote regional competitiveness as well as national competitiveness.

The agricultural importance of sugar cane in Africa in combination with many African countries' vulnerability to external shocks highlights important linkages between agro-industrial development and the energy/climate forces that are driving new markets both domestically and for export. The claim that domestic markets should take precedence is flawed in the case of most African countries because the scale of demand—especially when it comes to bioethanol—is too small to be competitive: export markets will in some cases need to precede domestic markets. As domestic markets grow, the share devoted to exports will decrease and the benefits can be captured through new economic linkages to allied industries.



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Sugar cane has been used to make sugar at industrial scale for hundreds of years but only in the past few decades has it been exploited for renewable energy on a similar scale
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Concluding comments

A highly productive and dispersed biomass resource such as sugar cane has strategic value in sub-Saharan Africa as a concrete example of an agro-industrial sector whose advancement can address the triple challenge of energy insecurity, climate change and rural poverty. Sugar cane is not only about agriculture, energy, climate and technology—important those these issues are—but also illustrates some fundamental issues concerning future pathways for economic growth and development in sub-Saharan Africa.

The fossil fuel pathways followed by the developed countries are neither feasible nor desirable in the future: not only are these resources non-renewable but their socio-economic and environmental costs have begun to exceed their benefits.

Productive and versatile biomass resources such as sugar cane can support a green economy that is better matched to local needs but also integrated into regional and global markets. Energy-importing countries in Africa are extremely vulnerable to external shocks: the bio-based economy of the future can empower them through better utilisation of local resources and knowledge, just as the local reliance of their economies cushioned them from the financial crisis of 2008.

Achieving the potential of sugar cane and other bioenergy resources in Africa will require a significant amount of well-targeted investment in infrastructure, technology deployment and human capacity, which, in turn, will require more effective policies and institutions at multiple scales. Dwindling fossil resources along with climate constraints mean that the time to act is now ▲▲▲



The article is based in part on the following book:
**Bioenergy for Sustainable Development and International Competitiveness:
*The Role of Sugar Cane in Africa***
Edited by Francis X. Johnson and Vikram Seebaluck
Earthscan from Routledge, 2012
<http://www.routledge.com/books/details/9781849711036/>

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Ecuador's Yasuni-ITT Initiative: an option towards equity and sustainability

Carlos Larrea

Professor Carlos Larrea summarises the contributions of the Yasuni-ITT Initiative –an innovative proposal presented by Ecuador with UNDP participation– to global mitigation and biodiversity conservation, as well as sustainable economic development in Ecuador. The Yasuni-ITT Initiative offers new ways of promoting climate change mitigation by not exploiting certain fossil fuel reserves in biologically sensitive regions in developing countries, while simultaneously promoting biodiversity conservation and equitable human development.



Yasuni National Park
(dark green) and the Huaorani territory (green)
Location: Ecuador, Napo and Pastaza province
Coordinates: 1° 5' 0" S : 75° 55' 0" W
Area: 9,823 km²
Established: July 26, 1979

Introduction

As Jeffrey Sachs points out, the global economy is not only following an unsustainable path but is also affected by interrelated social, environmental and financial crises (Sachs, 2011). New ideas and initiatives are required for a shift towards an equitable and sustainable global economy. Ecuador's Yasuni-ITT Initiative is an innovative and feasible proposal that aims to do this by simultaneously addressing global climate change mitigation, biodiversity preservation and equitable social development for Ecuador. This article summarises the Initiative, with an emphasis on those three contributions.

As a large heavy oil reserve was confirmed in the Yasuni National Park, considered the most biodiverse hotspot in the Western Hemisphere (Bass, Finer, Jenkins, et al. 2010), President Rafael Correa announced to the United Nations in 2007 Ecuador's decision to keep the crude oil indefinitely underground, provided that the international community cooperates by contributing at least half of the revenue that the State would earn by extracting the oil (Correa, 2007). The UNDP now administers the Yasuni Fund, guaranteeing its efficiency and transparency.

The Fund's capital will be invested exclusively in renewable energy in Ecuador and the interest earned will be devoted to effectively preserving the Yasuni Park and the 35% of Ecuador's land area that is still covered by undisturbed rainforests and original ecosystems, thereby promoting sustainable social development in the Amazon, fostering energy efficiency and sponsoring scientific research aimed towards ensuring sustainability.

Oil and development in Ecuador

Ecuador, a small South American country, ranks 83rd out of the 187 countries on the UN Human Development Index. In Latin America, it is clearly a less developed country with a per capita income well below the regional average (UNDP, 2011).¹ Ecuador's economic diversification remains at a low level and, according to ECLAC, primary products still represent 92% of exports, mostly crude oil, bananas, shrimp, coffee, cacao, fish and flowers (ECLAC, 2009). Petroleum, the single most important product in the economy, accounted for 57% of total export revenue between 2004 and 2010 and oil revenues made up on average 26% of the government's revenues between 2000 and 2010 (Banco Central, 2011).

In 1967, large oil reserves were discovered in the Amazon region and from 1972 onwards Ecuador has been an oil exporter. Almost four decades later, it can be concluded that oil contributed little to equitable and sustainable development. Economic growth remained evasive, with an average growth rate of 1.6% in per capita income between 1971 and 2009. The social, ethnic, and regional disparities that have historically affected the country remained pervasive, as 39% of the population lived below the poverty line in 2010, underemployment affected 47% of the urban labour force (INEC, 2011), and social inequality did not decline, as the Gini coefficient remained at 0.5 in 2009 (CEPALSTAT, 2011, Larrea, 2010, Falconi, Vallejo, Larrea, and Burbano, 2011).

Since oil extraction in Ecuador is located in a formerly undisturbed region in the Amazon basin, the environmental effects of oil activity have been severe, particularly regarding deforestation, loss of biodiversity, pollution and human health hazards (Herbert, 2010).

Most oil exporter developing countries share difficulties in reaching sustained and equitable growth. Several studies have found that oil exports have had negative impacts on development. A comparative World Bank investigation



concluded that most oil-exporting countries failed to efficiently channel oil revenues to development during the 1970s. In general, the economic results for national development were disappointing, as “Dutch Disease”² and other shared problems reduced the possibilities of economic diversification and stability (Gelb et al, 1988).

Jeffrey Sachs, based on a sample of 97 developing countries between 1971 and 1989, found a negative and significant correlation between natural resource exports and economic growth (Sachs, 1995). Albert Berry, based on a comparative analysis of Indonesia, Venezuela, Chile, and Nigeria, found poor outcomes in job creation and income distribution in oil and mineral exporting countries. Rosemary Thorp points out that mining and oil producing countries have serious long-term institutional development problems. In general, countries that are dependent on oil or mineral exports are vulnerable and fragile, and they share poor records in economic growth, diversification, institutional development, job creation and equity (Berry, 2008; Thorp, 2009, Larrea and Warnars, 2009).

Future oil exports in Ecuador are also constrained by limited reserves. Currently, proven and probable reserves reach about 6.5 billion barrels (Energy Information Administration, 2011), which will permit less than 30 years of continued exports, depending on future discoveries. Oil exports have already declined by 25% since 2004. Therefore, a turn to alternative development strategies is required.

Ecuador’s Biodiversity³

Ecuador has one of the most biodiverse natural and cultural endowments in the world, with the highest number of vertebrates per square kilometre on earth. Additionally, Ecuador ranks among the first ten most abundant countries in the absolute number of amphibians, birds, and butterflies. Ecuador also has a rich cultural diversity, with 14 indigenous nationalities and 13 spoken languages.

In all, Ecuador has 17 different ecosystems and about 35% of its land still remains covered by undisturbed

ecosystems, mostly in the Amazonian region. Within this region, the Yasuni National Park is the most important biological reserve.

According to recent research, the Yasuni National Park is the most biologically diverse hotspot in the Western Hemisphere (Bass, Finer, Jenkins, et al., 2010). It was created in 1979 and declared a UNESCO World Biosphere Reserve in 1989. The Park is located in the upper Napo basin in the western Amazon region and has an area of 928,000 ha. Its strategic position, close to the equator and the Andean mountains, provides unique climatic conditions in the Amazon basin, with relatively high and uniform temperatures and rainfall levels.

Scientists agree on the park’s unique value due to its extraordinary biodiversity, state of conservation and cultural heritage. The reserve has an estimated 2,274 tree and bush species, and 655 species have been counted in just one hectare; this is similar to the total number of native tree species in the United States and Canada combined. The park has 593 recorded bird species, making it one of the world’s most diverse avian sites. There are 80 bat, 150 amphibian and 121 reptile species as well as 4,000 vascular plant species per million hectares. The number of insect species is estimated to be 100,000 per hectare, the highest concentration on the planet. Furthermore, the species found in the park have a high level of endemism.

The park has the highest density of amphibious, mammal, bird, and plant species in the Amazon region. In addition to high biodiversity, the projected temperature rise in the park due to climate change will be comparatively moderate, which makes the region strategically important for the future conservation of species (Bass, Finer, Jenkins, et al., 2010; Hoorn, 2006).

It has been suggested that the territory was a refuge in the Pleistocene era, when glaciers drastically cooled the earth, converting most of the Amazon into grassland. Species concentrated in a few places like Yasuni—“the Pleistocene refuges”—where jungle still flourished, leading to a process of speciation.



© Derek Kremo

Yasuni is home to living treasures, hundreds of varieties of trees, animals, insects. Source: *Fondation Chirac*

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Ecuador has one of the most biodiverse natural and cultural endowments in the world, with the highest number of vertebrates per square kilometre on earth
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The Yasuni-ITT Initiative

Large deposits of heavy crude petroleum have been recently confirmed in the ITT (Ishpingo-Tambococha-Tiuputini) field, located in the Yasuni National Park. President Rafael Correa announced to the United Nations that Ecuador had decided to maintain the crude petroleum in the ITT field indefinitely underground, in order to place social and environmental values first, and that it was exploring other ways to benefit economically from the Amazon and its conservation. If the international community cooperates with Ecuador by contributing at least half of the revenue that the State would receive by extracting the petroleum, the State would initially assume up to half of the opportunity cost of keeping the petroleum in the ground (Correa, 2007).

This original initiative proposes:

- a. An innovative option for combating global warming, by avoiding the production of fossil fuels in areas which are biologically and culturally highly sensitive in developing countries;
- b. Protecting the biodiversity of Ecuador and supporting the voluntary isolation of uncontacted indigenous peoples that live in the Yasuni Park (the Tagaeri and Taromenane);
- c. Social development, nature conservation, and turning to the use of renewable energy sources as part of a strategy aimed at consolidating a new model of sustainable human development in the country.

Ecuador commits itself to indefinitely refrain from extracting the 846 million barrels of petroleum reserves in the ITT field within the Yasuni National Park. The international community helps by providing a financial contribution, creating a capital fund to be administered by UNDP, with the participation of the Ecuadorian government, Ecuadorian civil society, and international contributors.

The Fund's capital investment

The Fund's capital will be invested in renewable energy projects in Ecuador that can promise stable and safe returns, taking advantage of the country's vast hydroelectric, geothermal, wind, and solar potential, in order to overcome its current dependence on fossil fuels, which currently account for 47% of all power generation. The interest earned from this fund will be invested by the state in the following objectives, within the guidelines of the National Development Plan:

1. The effective conservation and prevented deforestation of the Yasuni Park and other 44 protected areas, which account for 4.8 million hectares, along with other remaining ecosystems. The total area protected amounts to at least 19% of Ecuador's territory, one of the highest percentages in the world, and the total area covered by pristine forests to be conserved reaches 35% of the national territory. Properly conserving Yasuni Park would also allow the Tagaeri and Taromenane peoples to remain in voluntary isolation. A substantial reduction in the deforestation rate, currently regarded as one of the highest in South America, will be pursued.
2. The natural regeneration, reforestation, and afforestation of one million hectares of forest managed by small landholders, on land currently threatened with degradation.
3. An increase in national energy efficiency and energy savings.
4. Social development in the zones of influence of the three preceding objectives, with programmes in education and training, health, technical assistance, and productive job creation in sustainable businesses, such as ecotourism and agro-forestry.
5. Research and development in science and technology aimed at ensuring sustainability.

The Yasuni-ITT fund will promote the transition from the current development model, based on petroleum extraction, to a new strategy based on equality and sustainability (Larrea, 2008).



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In 1989, UNESCO designated the Yasuni Park a "biosphere reserve"; it covers an area of 10 000 km², in the Ecuadorian Andes. Source: *Fondation Chirac*

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The Yasuni-ITT Initiative will foster the transition to a sustainable development model in Ecuador, in a post-petroleum phase

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Support

The project has received the official support of various internationally recognised individuals, including; Nobel Peace laureates Muhammad Yunus, Desmond Tutu, Jody Williams and Rigoberta Menchú; Rita Levi Montalcini, Nobel laureate in Medicine; Ban Ki-Moon, Secretary General of the United Nations; ex-presidents Mikhail Gorbachev (USSR), Felipe González (Spain), Fernando Henrique Cardoso (Brazil), Ricardo Lagos (Chile); Prince Charles of Great Britain and Danielle Mitterrand, President of the France Libertés Foundation, among others.

It has also received formal backing from the German Parliament, with unanimous support from all political parties, as well as the European Union and other international bodies such as the Organization of Petroleum Exporting Countries (OPEC), the Andean Community of Nations (CAN), the Andean Development Corporation (CAF), the Organization of American States (OAS), numerous international organizations, such as the IUCN (International Union for Conservation of Nature and Natural Resources), and various indigenous organisations and ecological groups in Ecuador.

Chile became the first country in the world to contribute financially to the Initiative, followed by Spain. Other countries such as Italy, Colombia, Georgia, Turkey and Peru also have contributed to the Fund, as well as the Wallonia regional government in Belgium and several local governments in France. Non-governmental organisations (NGOs) such as AVINA also participate in the Initiative.

Contributions to the Yasuni Fund

The Fund is expected to reach at least 3.6 billion US dollars, equivalent to half of the present value of oil revenues, in a 13-year period. Current contributions are voluntary, and come from national governments, regions and cities,

private corporations, NGOs, and individuals. Future funds may come from multilateral sources, based on a Post-Kyoto binding agreement on climate change or biodiversity conservation resources.

If the United Nations Framework Convention on Climate Change (UNFCCC) accepts the concept of avoided emissions from unexploited fossil fuel reserves in sensitive areas in developing countries, financial recourse can be provided by multilateral institutions or new market-based mechanisms.

The Yasuni-ITT Initiative as a mitigation tool

The ITT field contains proven reserves of at least 846 million barrels of heavy oil. By avoiding the extraction and burning of this oil, 407 million tonnes of CO₂ emissions will be prevented. This amount is large and significant, surpassing the annual emissions of Brazil (332 million tonnes) and France (373 million tonnes), and the equivalent of Ecuador's emissions (29 million) over 13 years (UNDP, 2011).

Using a representative value of the European Emission Allowances (EUA) on the recent European market, i.e. USD 19.81 per tonne of CO₂-eq⁴, the economic value of the emissions prevented by the Initiative would amount to USD 8.067 billion.⁵

Avoided deforestation and achieved reforestation. Ecuador is one of the countries with the highest proportion of undisturbed rainforests in its territory. According to ECLAC, the figure is 35%. Moreover, protected areas account for 20% of national territory. Most of the remaining forests are located in the Amazon region. However, Ecuador is also affected by a very high deforestation rate (1.4% per year), the third highest in Latin America (ECLAC, 2010, FAO, 2010) that results largely from oil extraction in the Amazon region.

The goal is to significantly reduce deforestation in Ecuador, eliminating it over a 30-year period. The total avoided deforested areas over 30 years amount to 1.35 million

hectares, with an avoided emission of 791 million tons of CO₂. The reforestation of one million hectares adds 68 million tons of reduced emissions.

Additional mitigation from renewable energy sources. The Yasuni Fund will be invested exclusively in renewable energy facilities in Ecuador (hydroelectric, solar, wind and geothermal). The country's electricity demand is growing at 6% per year and, given weak investment between 1990 and 2006, fossil fuel generation accounted for 47% of the electricity supply in 2006. The current government fostered investment in hydroelectric projects, increasing the share of renewable sources to 59% in 2008.

Ecuador's hydroelectric facilities tap only 10% of the country's potential hydro capacity. Additionally, Ecuador has very large untapped renewable energy resources. The areas that have received attention include geothermal and solar energy and, more recently, wind energy. The Yasuni Fund will accelerate the total conversion of the power supply to renewable sources. The contribution of energy conversion to mitigation has been estimated to reduce 43 million tons of CO₂ emissions, from which at least 30% will be the direct result of the Initiative.

In conclusion, the direct mitigation of 407 million tons from keeping the ITT reserves unexploited will be complemented with the indirect mitigation of 791 million tons from avoided deforestation, 68 million tons from reforestation, and at least 12 million tons from building renewable energy facilities, over a 30 year period. The indirect mitigation adds up to 871 million tons of CO₂, bringing the total mitigation to 1,207 million tons of CO₂, about three times higher than the direct mitigation.

Replicability of the Yasuni-ITT Initiative

The Yasuni-ITT initiative is pioneering a mitigation activity in a developing country. It involves keeping fossil fuel reserves underground indefinitely in areas of high environmental and/or cultural fragility.

The Initiative is applicable in the following groups of countries:

1. Developing countries. A critical element of the Initiative is that it seeks to simultaneously achieve three aims: to combat climate change, maintain biodiversity and reduce poverty and inequality in a developing country. The Initiative promotes sustainable development.
2. Megadiverse countries. These countries hold most of the planet's biodiversity.
3. Countries with significant fossil fuel reserves in areas of high biological and cultural sensitivity.

Countries that meet all these criteria include Brazil, Colombia, Costa Rica, the Democratic Republic of

Congo, Ecuador, India, Indonesia, Madagascar, Malaysia, Papua New Guinea, Peru, Bolivia, the Philippines, and Venezuela.

Protecting biodiversity

The Yasuni-ITT Initiative will not only allow the protection of the Yasuni Park but also the effective conservation of Ecuador's Amazon rainforests, currently jeopardised by oil extraction, illegal logging, hunting and new settlements. The Amazon is the largest remaining rainforest on the planet.

Biodiversity does not only have an intrinsic value; it also constitutes the very origin of our existence as a species. The benefits of ecosystems in terms of regulating the weather, providing water, food, wood, pharmaceutical resources and other renewable goods directly benefit 1.6 billion people worldwide, mainly in developing countries (World Bank, 2003, Chivian and Bernstein, 2010).

Tropical rainforests make up the greatest reserve of biodiversity on the planet, harbouring 28% of all land vertebrate species and an even greater percentage of invertebrates and other living species (UNEP, 2005). Human activity in the last 50 years has dealt a severe blow to biodiversity, in particular in tropical rainforests.

The current rates of species extinction are 1,000 times higher than those from natural causes (UNEP, 2005), posing the greatest threat to planetary biodiversity since the extinction of dinosaurs 65 million years ago. The worldwide deterioration of biodiversity between 1970 and 2005 has been estimated at 30%, based on population counts of a high number of representative species. This problem is even more serious in tropical ecosystems, where the reduction reaches 51%.

Towards equitable and sustainable development in Ecuador

The Yasuni-ITT Initiative will foster the transition to a sustainable development model in Ecuador, in a post-petroleum phase. Shifting energy supply to renewable sources, preserving the most important asset of Ecuador, its biodiversity, effectively conserving undisturbed ecosystems, and encouraging sustainable employment and social development are the specific means toward this goal.

The shift towards equitable and sustainable development is an integrated and coherent strategy in Ecuador. The new constitution, approved in a referendum with the support of two thirds of voters in 2008, became the first in the world to recognise rights for nature, guaranteeing ecosystems the right to exist and thrive. The new Constitution also establishes the concept of *buenvivir* (the possibility of living well) as the goal for participatory, intercultural, equitable and sustainable development. *Buenvivir* has been a central tenet of indigenous cultures

in Ecuador, entailing living in harmony with nature, recognising environmental limits and fostering community participation.

The National Development Plan (SENPLADES, 2008) is the principal instrument for implementing the concept of *buenvivir* in Ecuador. According to ECLAC, poverty in Ecuador declined from 48% to 42% between 2005 and 2009, as did income inequality (CEPALSTAT, 2011). Significant achievements have as well been made in education, health, employment and housing. The plan also set

up a goal for a 30% reduction in the deforestation rate by 2013 and includes a policy towards expanding renewable energy sources and promoting energy efficiency.

The post-petroleum economy will be based on tourism, ecotourism, scientific research and other services linked to the conservation of biodiversity. Most of these activities generate sustainable employment and are responsive to investments in education, health and human development. Economic diversification, biodiversity conservation and social equity will complement each other in a new path towards a sustainable society ▲▲▲

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Endnotes

- Ecuador's per capita GDP was 8,268 PPP Dollars, compared with the Latin American average of 10,739 dollars in 2011.
- The "Dutch Disease" theory refers to the negative effects of primary export booms on long-term development prospects for industrialisation and economic diversification. Booming export activities generate effects on the exchange rate and domestic demand, which over-expand both the booming traded and shielded sectors, making other traded and import-competing activities less competitive. Once the boom is over, the economy is affected by low diversification and de-industrialisation. The term originated in the Netherlands after the discovery of North Sea gas (Gelb, 1988).
- Parts of this and the following sections are based on official documents of the Yasuni-ITT Initiative, written by the author (Larrea, 2008).
- 14 September 2010.
- If the emissions prevented are distributed over a 13-year period, their current net value would be USD 5.37 billion, using a social discount rate of 6% per annum. Taking the recent EUA price, as of 18 February 2011, of USD 20.31 per tonne, the present value is USD 5.51 billion.

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Building green bridges: the Mesoamerican Biological Corridor and the Mexican experience

José Sarukhán and Pedro Alvarez-Icaza

The authors describe sustainable development activities carried out in Mexico's Mesoamerican Biological Corridor, one of the world's earliest examples of a functional, biological corridor. The aim is to integrate environmental imperatives, notably conservation of biodiversity, into the economic development of rural communities. Key is recognizing such communities' crucial role and providing appropriate support and training.

In the last 20 years, Mexico has made sustained progress towards the goals set in the Rio Summit. This progress has taken place in spite of serious challenges such as poverty alleviation, sustainable use of its natural capital, and mitigation and prevention of climate change. Today, Mexico has the necessary knowledge about processes and models that will enable it to reach much needed change in rural development and biodiversity conservation.

The Mesoamerican Biological Corridor in Mexico (CBMM, its acronym in Spanish) is an initiative directly related to the experiences obtained during this period. It originated ten years ago with the support of international funding and today is part of the conservation and development policies in the southern Mexican states, which strive to reconcile environmental protection with economic development in communities located in high biodiversity areas. The challenges are enormous in the face of the complex realities prevailing in the ecosystems of the Mexican southern tropical wet forest regions; however, progress is already significant.

Background

Geologically, the territories that are now Central America where formed 25 million years ago, but it was only three million years ago that they became part of the American continent. Central America, a region now formed by Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panama and Southern Mexico, is the one of the youngest parts of the American continent. This event, according to the geologist Anthony Coates,¹ is the most important one to have occurred in the last 60 million

years on the earth's surface because it established a natural corridor for the transit of plants and animals between the sub-continent of North and South America. It represents, in a sense, one of the earliest examples of a functional, biological corridor in the world. Later on, after the last ice age, humans arrived and created what is now known as the cultural region of Mesoamerica, which includes most of Central America.

Mesoamerica possesses extensive topographic and climate variations, as well as a very rich biodiversity, distinguished by tropical and sub-tropical vegetation. Not many other regions on the planet have more biodiversity per unit area—0.5 percent of the Earth's surface, somewhere between 7 and 10 percent of the planet's known plant and animal species,² many of which live in the *Lacandonia* and *Montes Azules* forests in southern Mexico and the Petén region in northern Guatemala.³

The conservation of biodiversity, the sustainable use of biological resources and the fair and equitable sharing of the benefits arising from the utilization of genetic resources, the Framework Convention on Climate Change and Agenda 21 of the United Nations are among the objectives and initiatives derived from the celebration of the Earth Summit in Rio, June 1992. They represent commitments signed by 172 governments, NGO's and thousands of citizens. Mesoamerica was an early candidate to establish a multi-nationally sponsored biological corridor since the concept was first conceived in the 1960's.⁴

During the Earth Summit, NGO's and civil society voiced concerns about the financial and social consequences of



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Every Central American country and Mexico established a Mesoamerican Biological Corridor according to its specific needs. Nevertheless, all the corridors share a regional vision for their development

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the establishment of protected areas, a public policy trend at the time, in view of the exclusion or displacement of communities in the name of conservationism. As a result, the concept of biological corridors gained popularity as a solution to balance human impact in natural areas because an important goal of a biological corridor is to strengthen the health of an ecosystem where humans live or carry out activities.

This context was considered when setting up the Mesoamerican Biological Corridor; first, under the initiative of the Central American Committee of Protected Areas in 1992, then in the Joint Declaration of the governments of Central America and Mexico during the XVII Meeting in 1995 of the Central American Commission of Environment and Development Framework (created in 1989, just before the Earth Summit). This Commission has a mandate to support its country members to set up their own national commitments for UN Agenda 21.

Consequently, every Central American country and Mexico established a Mesoamerican Biological Corridor according to its own studies and specific needs. Nevertheless, all the corridors share a regional vision for their development.

Mesoamerican Biological Corridor in Mexico

The Mesoamerican Biological Corridor in Mexico (CBMM) was launched in 2001 with a Global Environment Facility (GEF) grant, sponsored by donations from the Earth Summit signatory countries, with the World Bank serving as the implementing agency and the Mexican National Commission for the Knowledge and Use of Biodiversity (Comisión Nacional para el Conocimiento y Uso de la Biodiversidad, CONABIO) as the executing agency. The Ministry of the Environment (Secretaría de Medio Ambiente y Recursos Naturales, SEMARNAT) and its Commission for National Protected Areas (Comisión Nacional de Áreas Naturales Protegidas, CONANP) provided support and facilitated coordination at all times during that period.

The initiative began with five biological corridors in four Mexican states:

- ☞ Campeche, Sian Ka'an-Calakmul.
- ☞ Chiapas, Maya-Zoque Tropical Forest and Sierra Madre Sur.
- ☞ Quintana Roo, Calakmul-Sian Ka'an.
- ☞ Yucatán, North Coast of Yucatan.



Figure 1

These corridors connect 23 protected areas and comprise a total of 6.8 million hectares of land and 448,798 hectares of shoreline, see Figure 1. These States were chosen because of their ecological regions and biodiversity, which include the deciduous forest in Yucatan, the wetlands of Quintana Roo and the cloud forest in Chiapas. Furthermore, the Mexican corridors possess the largest continuous tropical forest mass in Mesoamerica (together with Guatemala and Belize).

There is an important indigenous population in this region that has played a salient role in the conservation and development of biodiversity and resources at the local level. Because the domestication of different species of plants has created genetic diversity and is an ongoing process, it is a basic principle to recognize their contribution to the knowledge and practices relevant to the



"Agua Azul" is a long series of glittering cascades coursing over kilometers of lush valleys in the "Sierra Madre" of Chiapas Mountains



Figure 2. Yaxchilán, Natural Federal Protected Area

conservation of biodiversity. While these indigenous people continue to maintain their traditional knowledge, they also contribute to deforestation due to unsustainable agriculture and livestock practices; moreover, large tourism projects have contributed to this process. This is consequence of poverty and lack of opportunities these indigenous populations face. Furthermore, certain government development programmes (such as agriculture, stockbreeding and tourism) to reduce poverty and increase productivity caused negative impacts on biodiversity.

Under these circumstances, the CBMM's general objective is the conservation and sustainable use of the biodiversity in its five corridors. The strategy has been to reorient public investments, fostering territorial planning and implementing sustainable projects with the participation of local and indigenous communities and organizations.

As a result, the CBMM became one of the first projects worldwide in which the conservation of biodiversity was associated with the social and economic development of local communities. To strengthen it, the communities involved have received training to develop both technical and managerial capacities to improve the sustainability of their livelihoods.

International funding for the CBMM ended in December 2009 but a new phase is now beginning. The project has been extended to the Mexican state of Tabasco to include the following corridors: Costeros-Sierra Wetlands of Humanguillo, Centla-Usumacinta Canyon Swamps, and the Tabasco Ridge. These cover an additional 1.4 million hectares and include three natural federally-protected areas and one private one, see Figure 2.

Achievements

Deforestation has been a prevailing practice in Mesoamerica due to the continued support to economic activities that yield 'higher' returns than activities compatible with tropical forest preservation.⁵ Intensive stockbreeding is an important example and is, in fact, one of the main activities responsible for the destruction of tropical forests in the Americas. In Mexico, extensive stockbreeding has been supported for decades by different

governmental programmes to raise income levels of the poor.

As a result, one of the main strategies of the CBMM has been to integrate environmental criteria into other government policies, such as farming, to create synergies to foster economic development with a united view at the territorial level.

After many years of coordination and cooperation (favoured also by "green" global trends), the Ministry of Agriculture, Livestock, Rural Development, Fisheries and Food (*Secretaría de Agricultura, Ganadería, Desarrollo Rural, Pesca y Alimentación, SAGARPA*) has incorporated criteria to protect biodiversity and included the "biological corridor" concept in its operational rules. Also, the National Forestry Commission (*Comisión Nacional Forestal, CONAFOR*) gives priority to financial support for all those projects established in the CBMM territories. These achievements are significant because SAGARPA is the federal institution that provides most of the financial aid to rural development through agricultural and livestock programmes.

In addition, the CBMM joined forces with SAGARPA in 2008 to implement some of its programmes in the Mexican tropical forest through the CBMM. This was enabled by the agreement signed between SAGARPA and the Ministry for Environment and Natural Resources (*Secretaría de Medio Ambiente y Recursos Naturales, SEMARNAT*) to stop the expansion of agricultural and ranching activities in the Mexican tropical forest.⁶ The enactment of the 'Programme for Sustainable Rural Development in the Biological Corridors of Chiapas' is part of this agreement and is renewed every year. This programme works directly with the indigenous communities of the Lancazona Tropical Forest in the Eastern limits of the Montes Azules Biosphere Reserve.

In this area, the CBMM works with conservation-development agreements both with communities and agricultural and livestock production units, in which they reach agreements to implement agro-ecological practices in their lands, and agro-pastoral systems in which ranching is carried out along with forestland activities in such a way as to minimize the impact on the environment.



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The preservation of ecosystem and biodiversity services is a challenging problem... there are several government incentives and programs that act in different and opposing directions
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As a result, after the first quarter of 2011, there are **88,630** hectares of Lancandona tropical forest under sustainable management practices. This includes compensation for environmental services programmes, agreements with indigenous communities for the preservation of tropical forest, reforestation and implementation of sustainable practices in agriculture.

The actions taken under the umbrella of the CBMM have produced environmental benefits such as increasing the connection between isolated patches of forest, increasing reforestation, and reducing slash and burn practices. In particular, these actions constitute a positive example of the strategies needed for adapting and mitigating the effects of climate change; most of these actions have taken place under the Mexican Special Programme of Climatic Change.

Lessons learned

The biological richness in Mesoamerica provides valuable and diverse environmental services. Its tropical forests significantly help regulate hydrological cycles, aquifer replenishment, carbon capture, soil preservation, erosion control, biodiversity preservation, and the reduction of vulnerability to natural disasters. Its mangroves are important for both preserving the productivity of fisheries and diminishing the intensity of meteorological phenomena on land. Finally, the Mesoamerican ecosystems provide a wealth of genetic resources with the potential of offering new opportunities in medical treatments and food alternatives; their development requires principles of equity and the creation of public goods.

These environmental services are in jeopardy when the intra and inter connections among ecosystems break down, since their health is dependent upon both genetic information and the appropriate exchange of water, nutrients and energy between different organization levels.

Habitat fragmentation, on the other hand, threatens the survival of all species living within them. There are documented examples of the fragile relation between different trophic levels but the relationship between the Chicozapote tree (*Manilkara zapota*) and the tapir (*Tapirus bairdi*) is a compelling one: chicozapote seeds have a better chance of dispersion and germination if a tapir eats them first. Other examples are provided by the huge variety of specific pollinator-plant relationships that exist in the tropical forest.

The preservation of ecosystem and biodiversity services is a challenge because there are several government incentives and programmes that act in different and opposing directions (e.g. some may have positive effects on ecosystem conservation while others contribute to their deterioration). Therefore, it is necessary to have both coordination and cooperation among all levels of government, research and local organization structures.

Moreover, we have documented ten years of experience and there remain many issues to be addressed such as cases where local inhabitants are no longer the beneficiaries of the conservation efforts and have returned to previous practices⁷. Such situations occur as a result of the operating schemes of 'compensation programmes' such as payment for environmental services that favour the owners of large plots of land and, on the other hand, commercial plantations' support programmes such as palm oil, which have a negative impact on biodiversity and ecosystems and even on public health at the local level.

An important strategy of the CBMM is to boost the training of local communities so that they contribute to the design and implementation of their projects aimed at sustainability. A necessary complement is the recognition and support that local communities deserve as stewards of their resources and biodiversity.



Baird's Tapir (*Tapirus bairdii*)



Isla Contoy is a small island, sanctuary of 150 tropical marine birds, both migrating and resident

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The concept of biological corridors gained popularity as a solution to balance human impact in natural areas

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Challenges

Twenty years after the Earth Summit there are still many challenges, but for the Mesoamerican Biological Corridor-Mexico there are mainly two: incorporating “green” production processes into the market to obtain benefits for the local production units, and the financing and promotion of scientific research to appropriately measure the results of the actions taken.

The mid-term goal for the Mesoamerican Biological Corridor-Mexico is to systematically incorporate “green” productive processes promoted in recent years into local, national and international markets, establishing vertical and horizontal production chains centered on the quality, origin and identity of each product.

The project 'Fostering Sustainable and Competitive Production Systems Consistent with the Conservation of Biodiversity', recently approved by the GEF, is the most recent instrument in the quest for the aforementioned goal. This project is planned for the period 2011-2015 to support local initiatives and promote the formation of regional skills. The main pillars of the project are: sustainable use of biological resources, sustainable production chains, integrated goals of biodiversity conservation, “green” production and markets, and strengthening of institutions and standards to facilitate innovative and sustainable manufacturing practices.

Many stages of the project are now completed, many still under way while a few are being programmed for the near future. The diagnostic studies of the project finished in June 2011, thematic studies and inquiries for participatory planning at the local level are under way,

and the development of specific social and environmental safeguards has begun. The systematic evaluation of the expected impact of CBMM actions, such as positive changes in welfare or integrity of the forest, represents an important challenge that will be addressed through science-based and common-sense local participatory indicators.

It is imperative to support social networks and obtain funding for sound research on ways to mitigate the negative effects of climate change on the Mexican tropical wet forest in the light of social, political and economical realities and the complex interventions of diverse government programmes that, more often than not, are contradictory in terms of land use and environmental objectives.

It is essential to create a monitoring system that incorporates indicators, geographic information, records of changes in signals, and databases that assist in establishing baselines to measure and evaluate change. At the same time, it is fundamental to coordinate different institutions nationwide to generate the appropriate scientific knowledge for developing such a system.

In its implementation completion report, the World Bank recognizes that “the Mesoamerican Biological Corridor – Mexico is helping to shape the future initiatives of biodiversity preservation and climate changes in Mexico Ten years after the Rio Earth Summit (Johannesburg 2002), the concept of the regional Mesoamerican Biological Corridor was introduced as a model of sustainable development that offers benefits at the local and global level by preserving the services offered by both forests and migratory species ▲▲▲



Bean field with coffee farm in background, Matagalpa, Nicaragua



Chicozapote
Manilkara zapota

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I am convinced that food insecurity resulting from resource inefficiency will be one of the key challenges for sustained livelihood in the decades to come

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End Notes

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Xóchitl Ramírez studied Agricultural engineering at the Universidad Autónoma Metropolitana and an MBA at the Instituto Tecnológico Autónomo de México, both in Mexico City. She has worked in the social sphere, as an advisor of the forest communities of the Mexican province of Oaxaca, and for more than three decades in the public sphere as Technical Director of the Corredor Biológico Mesoamericano – México.

Dora Almeida studied journalism and worked in Radio Mundo, El Universal and news agencies EFE and Notimex. In 1995 she moved to Paris, France, as a correspondent for Mexican newspaper El Universal and Mexican news agency Notimex, covering stories in all areas, but always finding special interest in the Environment.



Accelerating green and low-carbon development in China to safeguard the Earth, our beautiful home

Xie Zhenhua

The author stresses the need for nations to accept their environmental responsibilities, participate in consensus building on climate change, advance the cause of green and low-carbon development and build a resource-saving and environmentally-friendly society. He highlights rapid and ongoing progress in China in respect of these principles.

Humankind has only one Earth.

It is the responsibility of all nations to cherish the resources on Earth and protect the environment. Since the beginning of the industrial revolution, the unsustainable development pattern of humanity has brought about a series of severe environmental problems such as damage to ecosystems, pollution and global warming.

This has created a profound introspection and is transforming humankind's concept of development and the relationship between humans and nature. Pursuing sustainable development and promoting green, low-carbon growth has become an issue of global consensus and an international trend.

Protecting the environment on Earth is one of the most important global issues and joint efforts of international society to address the environmental issue have continuously intensified. The 17th Conference of the Parties (COP17) to the United Nations Framework Convention on Climate Change (UNFCCC) held last year in Durban, South Africa, made positive progress and achieved more consensus for all nations to jointly address climate change and advance green and low-carbon development.

Although at different stages of development, all countries are faced with multiple challenges of developing their economy, improving people's welfare, utilising resources efficiently and protecting the environment. It is imperative for all nations to transform traditional development



The Great Wall of China, one of the greatest wonders of the world, was listed as a World Heritage by UNESCO in 1987



The UN Climate Change Conference in Durban, South Africa (also referred to as COP17/CMP7). 28 November 2011

patterns, ways of life and consumption models. It is also crucial for them to adjust their economic, industrial and energy mix by pursuing a green, low-carbon and circular development path in order to achieve increased production, a prosperous life and sound ecosystems while building a resource-saving and environmentally-friendly society.

China is a responsible developing country and has attached great importance to sustainable development while advancing its economy and improving people's welfare. Viewing green and low-carbon development as a practical solution to promote development, China has adopted many crucial measures and made remarkable achievements. During the period 2006 to 2010, its energy intensity dropped by 19.1 per cent and its emissions of sulphur dioxide (SO₂) and carbon dioxide (CO₂) fell by 14.29 and 12.45 per cent, respectively.

The 12th Five-year Plan, approved by the National People's Congress in March 2011, has set obligatory targets to reduce energy consumption and CO₂ emissions per unit of GDP respectively by 16 and 17 per cent from 2010

levels by 2015, lower the total emission of major pollutants by 8 to 10 per cent and raise the share of non-fossil fuel in primary energy to 11.4 per cent. The Plan also specifies the anticipatory target of growing the economy by 7 per cent, and clarifies the policy guidance of lowering the resource-to-output ratio by 15 per cent and limiting the aggregate of energy consumption to reasonable levels.

In the future, China will expedite the transformation of its economic development pattern, optimise its industrial structure and energy mix, strive to develop a green, circular and low-carbon economy, strengthen resource conservation and environmental protection and make a greater contribution to global green and low-carbon development.

The United Nations Conference on Environment and Development held in Rio de Janeiro, Brazil, 20 years ago exerted a profound impact upon the development of humankind. The Rio+20 Summit will push the undertaking of humankind's sustainable development to a new stage ▲▲▲

About the author

Xie Zhenhua was appointed Vice-Chairman of the National Development and Reform Commission, China's top economic planning body, in 2007. Prior to that, he was Administrator of National Environmental Protection Agency of China and Vice-Chairman and Secretary General of the State Council Committee of Environmental Protection. Mr. Xie Zhenhua was the lead negotiator for the People's Republic of China in the last three United Nations Climate Change Conferences in Copenhagen, Cancun and Durban. He has received a number of honours including the UNEP Sasakawa Environment Prize, the Global Leadership Award, the Special Green Award, and the Energy Efficiency Visionary Award.



Development that meets the needs
of the present without compromising
the ability of future generations
to meet their own needs



Sustainable Development as defined in
Our Common Future
also known as the Brundtland Report,
from the United Nations World Commission
on Environment and Development
1987



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