

**Speech by Achim Steiner, UN Under-Secretary General and Executive Director, UN Environment Programme (UNEP)**

**The Global Green Economy and Israel**

**Tel Aviv, April 2009**—Distinguished guests, ladies and gentlemen,

Thank you for inviting me to your distinguished University, home to close to 30,000 students and cutting edge research in fields ranging from nanotechnology and medicine to the humanities, astronomy and crop research.

My theme this evening is the Green Economy.

So it is fitting that it is held in a centre of excellence in learning and research.

Many of the transformational technological opportunities emerging across the globe right now—from renewables such as wind and solar power to desalination and smart, energy efficient materials and processes—were originally incubated in the world's universities, colleges and research institutes.

Why some ideas move from that 'Eureka' moment onto commercialization can be a source of fascination.

Time after time resource efficient, low carbon and environmentally-friendly products and processes have often languished on the research shelves.

We are told that unfortunately they did not pass mustard in terms of the market—giving the market a quasi-religious or semi-mythical power of ultimate arbiter of what society wants and needs.

During the oil crisis of the late 1970s-early 1980s around \$1 billion was invested research and development in photo voltaics.

In a few short years, these investments halved the cost per unit of the electricity but not far enough to achieve commercialization.

The oil price dropped and so did wide-spread enthusiasm for solar power—only now are generation prices begin to fall towards competitiveness: we have wasted nearly three precious decades.

The Compact Fluorescent Light Bulb is also a case in point—the traditional light bulb which wastes over 90 per cent of the energy consumed in heat rather than light can trace its origins back to the British physicist Michael Faraday and the United States inventor Edison over a century ago.

Nobody seemed to care that far more efficient options have existed for decades until now—the market essentially failed to factor in externalities such as energy wastage and pollution.

Manufacturers of traditional light bulbs also had little interest in switching large production facilities into compacts until the market woke up to issues such as climate change and energy security.

So the market is not always so far-seeing, perceptive in terms of medium and long term trends or able to respond speedily to new realities and wider societal and environmental imperatives.

Governments have a clear role to play in shaping and focusing markets to deliver wider benefits and longer term goals. In short the Green Economy.

A point to which I will return in a moment.

Ladies and gentlemen ,

### **Resource Scarce Economies—the First Green Shoots**

There are some economies and some governments that in a sense have been forced by virtue of their circumstances, by virtue of operating in constrained resource landscapes, towards being more resource efficient ones.

If not Green Economies, they have at least some green hue and planted in some sectors green shoots well before anyone else.

While the world in large part pressed the brake pedal on photovoltaics in the early 1980s as a result of the oil price fall, a country like Iceland took a more long term, transformational view in terms of another renewable resource.

Iceland has few forests from which to generate biomass-fueled energy, nor does it have any oil or coal. But it does have volcanoes and hot geothermal springs.

Today that country generates over 90 per cent of its electricity from hydro and geothermal.

Japan, another resource-constrained economy, is a leader in recycling under its 3 R's concept—reduce, re-use and recycle.

Today it is also the producer of some of the most high-tech fuel efficient cars including the iconic Prius.

Japanese car makers have also overtaken many of the big names in the US car market where, as a result of decades of seeming resource abundance and weak if not zero market signals on the price of fuel, its car makers are now reeling.

The market failed to read the writing on the wall or see the climate and energy security street signs coming up fast on the international highway.

Ladies and gentlemen,

**Israel—Innovation and Resource Scarcity**

Israel too is among those nations that have shown innovation in the face of scarcity and have seen opportunity in crisis.

I understand that 90 per cent of your homes have solar water heaters with installation backed by laws.

Earlier today I had the pleasure of visiting the Ashkelon reverse osmosis desalination plant.

Here I was told that the facility produces some 320,000 cubic metres of water per day from seawater—equal to around 13 per cent of Israel’s domestic consumer demand and at one of the lowest costs in the world.

Visited too the Hiriya landfill site where electricity is being produced from methane with an aim of 10 megawatts and where some of the most state of the art battery collection; tyre recycling and materials re-use systems are being pioneered and show-cased.

Israel’s desert-based farming systems are also legendary, utilizing warm and brackish waters under the Negev to produce fish and crops.

Technologies and techniques that can contribute to employment at home and abroad; exports in sustainable industries and opportunities for assisting currently less advanced societies in the Middle East and beyond, including Africa, achieve the UN Millennium Development Goals.

In Kenya, for example, where UNEP is headquartered we have been assisting the local power company in pioneering new and advanced drilling techniques for geothermal electricity generation up and along the Great Rift Valley.

That is one of our contributions, overcoming the hurdles to clean energy expansion in order to encourage governments and the private sector to get involved.

In Kenya the expansion is now underway—35 megawatts have been just installed and financing last month of an initial \$90 million for a third phase has been secured. The technology provider is the Israeli company Ormat.

Ladies and gentlemen,

This project in many ways crystallizes the Green Economy approach in which multilateral, bilateral and private sector support—in this case the UN, European Development Finance Institutions and Deutsche Bank—comes together to solve multiple challenges.

Kenya, with under 15 per cent of its population with access to the Grid, is now scaling up an indigenous source of electricity, while cutting its fuel bill and saving overseas development aid for the purposes to which it was originally intended—namely health and education to agriculture and development projects.

Meanwhile, the geothermal is assisting the international community to cut its greenhouse gas emissions, bring much needed energy and economic activity to a developing economy and also generating employment.

### **Resource Scarcity is Going Global**

Ladies and gentlemen,

these are the kinds of transformational, resource efficient and lower carbon societies that have been in part emerging as a result of relatively ‘soft’ market signals and triggered in part and in some economies by historical resource constraints.

What might happen to national, regional and the global economies if those market signals get a little harder?

There are indications that the world could achieve quite a lot: This begs the question why we might, as an international community and as national administrations wish to take this path.

Let me make a few suggestions as to why such market signals are needed.

And why, after several decades of loose regulation and a ‘stand back and watch’ attitude by many governments, the time has come for globalization to be given a make-over and a more intelligent, thoughtful and perhaps structured face.

Firstly, the kinds of resource scarcities faced by a country such as Israel, are becoming increasingly wide-spread and global.

In part as a result of a global population of now over six billion people and in part as a result of wasteful production and consumption patterns inherited from the previous century.

Certainly if the current economic models prevail-- in a world heading towards over nine billion people by 2050 and if the ecological footprint of nine billion mirror the consumption patterns of the United States or of Europe-- then we are heading for trouble on an almost unimaginable, perhaps Biblical scale.

Indeed on many fronts, we are already pushing if not pushing past the limits in terms of what the planet and its natural life-support systems and services can support and renew.

- In 1987, around 15 per cent of global fish stocks were classed as collapsed. UNEP's recent Global Environment Outlook-4 says this has roughly doubled to 30 per cent.
- 20 years ago around a fifth of fish stocks were deemed over-exploited this has now risen to about 40 per cent.
- In Latin America and the Caribbean, desertification—caused by deforestation, over grazing and inadequate irrigation—affects a quarter of the region.
- Available freshwater resources are declining; by 2025, close to two billion people are likely to live with 'absolute' water scarcity.
- Populations of freshwater vertebrates have declined on average by nearly 50 per cent since 1987 as compared with an around 30 per cent decline for terrestrial and marine species.
- About 40 per cent of big estuaries in the United States including those that link to the Gulf of Mexico and Chesapeake Bay suffer severe eutrophication—which can lead to deoxygenated 'dead zones'—because of nitrogen enrichment linked to excessive fertilizer use, sewage pollution and transport emissions.
- Dead zones globally are spreading up to around 150 with big increases noted in Asia and to an extent in West Asia.
- In the Caribbean, over 60 per cent of economically important coral reefs are threatened by sediments, pollution and over-fishing.

These are just some of the facts and figures.

Now we have the challenge of climate change. In 2007, the Intergovernmental Panel on Climate Change (IPCC) established and supported by UNEP and the World Meteorological Organization, published its fourth assessment.

The likely impacts-- from the loss of much of the glaciers and thus water supplies in the Himalayas by the 2030s to a third of Africa's coastline under threat from sea level rise-- was sobering enough then.

But in two short years the science has become ever more sobering and ever more worrisome from the accelerated melting of Greenland to the impact of rising levels of acidity on the productivity of the seas and oceans.

**Is a Green Economy via a Global Green New Deal the Solution?**

Ladies and gentlemen,

Many of these trends have been in the making for decades and the world has responded with agreements on everything from protecting the ozone layer, to the Convention on Biological Diversity and the UN Framework Convention on Climate Change and its emission reduction treaty the Kyoto Protocol.

But the scale of the response has failed to match the magnitude of the challenge.

However, something quite remarkable has occurred in less than 12 months.

The convergence of first the food and fuel crises followed by the financial and now economic crisis have triggered a global response in terms of political cooperation and the mobilizing of stimulus packages of almost unimaginable proportions.

The question now is how will the around \$3 trillion-worth of stimulus packages be spent—on the old brown economy or a new Green one that might set the stage for a truly sustainable century?

An economy able to deal with multiple challenges—from food and fuel to climate change, employment and natural resource constraints—as integrated and inter-linked ones.

#### **UNEP's Contribution**

In response to these various crises UNEP launched its Global Green New Deal/Green Economy initiative in October last year and have been sharpening its focus ever since.

At our last Governing Council/Global Ministerial Environment Forum in February—a meeting of the world's environment ministers which was also the trigger for my visit here today and to Gaza and the West Bank in the coming days—we presented our Policy Brief for a Global Green New Deal.

It has been compiled in cooperation with well over 20 UN agencies, the World Bank, International Monetary Fund, OECD, economists and Non Governmental Organizations.

The policy brief spotlights how some economies, such as China, the Republic of Korea, the United Kingdom and the United States, are already committing part of their stimulus packages to green investments.

The brief underlines even more transformational potential if more economies are prepared to

I would like to share some of the findings.

- Investing one per cent of global GDP, or around \$750 billion, into five key sectors could be the key to a Global Green New Deal.

Broadly those five sectors are:-

- Raising the energy efficiency of old and new buildings
- Renewable energies including wind, solar, geothermal and biomass
- Sustainable transport including hybrid vehicles; high speed rail and bus rapid transit systems
- The planet's ecological infrastructure including freshwaters, forests, soils and coral reefs
- Sustainable agriculture including organic production

The Policy Brief also calls for a range of specific measures aimed at assisting poorer countries to reach the Millennium Development Goals (MDGs) and green their economies.

These include an expansion of microcredit schemes for clean energy: reform of subsidies from fossil fuels to fisheries and the greening of overseas development aid.

Japan, which has already launched a multi-billion green stimulus package for its economy, has just announced a \$5 billion loan fund for developing economies seeking to boost their renewable energy sector.

### **Energy Efficient Buildings**

The global construction industry has an annual turnover of \$3 trillion and employs large numbers of people. Many of these jobs are now under threat as a result of the financial and economic crisis.

Buildings are also responsible for 30 per cent to 40 per cent of global greenhouse gas emissions—reducing this impact represents one of the most cost effective measures to combat global warming, according to the Intergovernmental Panel on Climate Change (IPCC).

In the United States, where the new government is planning to spend close to \$900 billion stimulating the economy, a large portion of these funds will be focused on greening the economy, including plans to cut energy demand by one fifth from all federal buildings at an estimated cost of \$9.4 billion.

Likewise, the US government is investing \$6.2 billion to 'weatherise' a million homes at an average cost of just over \$1,600 per property.

The brief estimates that \$100 billion invested over four year in improving energy efficiency in buildings and cities across the United States will generate two million jobs.

Globally a world-wide transition to energy-efficient buildings would create millions of jobs as well as 'greening' existing jobs for an estimated 111 million people employed in the sector.

The brief calls on world leaders to not only back such large-scale investments but to also invest in training, capacity building and transfer of green building skills, technologies and materials to

developing economies including local authorities who are a key partner in passing regulations and promoting energy efficiency measures.

### **Renewable Energy**

An estimated \$45 trillion will be needed up to 2025 if increasing energy demand is to be met while simultaneously moving to climate-friendly generation—the current stimulus packages can lay the foundation for a green energy revolution.

The brief estimates that \$630 billion invested in renewables by 2030 would translate into at least 20 million additional jobs of which over two million would be in wind energy; 6.3 million in solar photovoltaics and 12 million in biofuels.

This compares with total employment in oil and gas industries, currently estimated at just over two million.

Developing economies are already benefiting from backing renewable energy. In China the sector generates \$17 billion and already employs one million people.

A biofuels industry based on cassava and sugar cane could generate 200,000 jobs in Nigeria and India has the potential to create 900,000 jobs by 2025 in biomass gasification.

At least 20,000 jobs have been generated in Bangladesh as a result of the installation of some 200,000 photovoltaic solar home systems; 6,000 biogas plants and 20,000 more energy efficient cooking stoves.

The policy brief calls for a greater roll out of microcredit schemes alongside a reform of the Clean Development Mechanism (CDM) of the Kyoto Protocol, the greenhouse gas-cutting treaty.

### **Sustainable Transport**

The global car fleet is expected to triple by 2050 with more than 90 per cent of the growth in non-OECD countries.

The IPCC has recommended that vehicle fuel economy needs to improve by 50 per cent.

The policy brief suggests that accelerated investments in high fuel efficiency vehicles including hybrids and ones powered by alternative fuels could create close to four million jobs world-wide with an additional 19 million jobs in areas such as sales, repairs and servicing.

UNEP has launched a global initiative to double the fuel economy of the global vehicle fleet - in line with IPCC and G8 recommendations.

Together with the International Energy Agency, FIA Foundation and the International Transport Forum the Global Fuel Economy Initiative (GFEI) promotes the investments in green, efficient cars.

Applying technologies available today, this could save 6 billion barrels of oil, or 2 gigatonnes of CO<sub>2</sub> emissions per year (similar to half of all EU emissions today).

Meanwhile investments in cleaner, more efficient and less polluting urban public transport has even more potential prospects as sustainable public transport systems have secondary employment generation multipliers of up to four jobs per direct job created.

- The report says that in the United States a 10-year federal investment in new high-speed rail could generate 250,000 jobs.
- In the Republic of Korea, the \$7 billion to be invested in mass transit and railways over the next three years—as part of its ‘green new deal’ –is expected to create 138,000 jobs.

Railways can, with forward-looking reforms and modernization, be profitable enterprises. Indian railways, which employs 1.4 million people, has been recently transformed into a ‘cash-rich enterprise’ and is undergoing a major modernization effort.

The policy brief argues that the stimulus packages, allied to incentives and fiscal measures, could accelerate these transitions by triggering changes in consumer and public behaviour and raising additional funds for sustainable transport.

- Reducing or scrapping the close to \$300 billion-worth of annual, global fuel subsidies could generate investment funds for sustainable transport and clean energies
- Measures such as the gasoline or carbon tax on fuels like those introduced in Poland and Sweden.
- Other possible actions include Japan and the United States’ clean car rebates; London’s congestion charge; Singapore’s electronic road pricing or France’s insurance specific auto tax.

### **Freshwaters and Ecological Infrastructure**

Investments in the water sector can be profitable not only for the people benefiting from clean water and sanitation but also the businesses involved.

The global water market for supply, sanitation and water efficiency is estimated to be worth over \$250 billion and is likely to grow to nearly \$660 billion by 2020.

- An investment of \$15 billion a year towards meeting the MDG of halving by 2015 the number of people without sustainable access to safe water and basic sanitation could generate global economic benefits worth \$38 billion annually--\$15 billion of which would be in sub-Saharan Africa alone.

Some stimulus packages are targeting this sector:

- In the United States \$4 billion for clean water infrastructure and \$2 billion for drinking water infrastructure is to be provided.
- The Republic of Korea’s stimulus package includes nearly \$12 billion for improvements for four major rivers.
- In Australia, the most recent stimulus package was only passed by parliament when provisions for investing in the Murray-Darling River system, which underpins almost half of the nation’s agricultural output, were included.

The brief also calls on developing country governments and international development organizations to back investments in other ecological infrastructure such as soils, forests, oceans, coral reefs and wetlands.

Currently their contribution to national economies and global economic output and in particular to the livelihoods of the poor are undervalued despite their importance.

- It is estimated that the ecological services provided by India's forests account for over seven per cent of its overall GDP and account for close to 60 per cent of the "GDP of the poor".

"Evidence is however accumulating to show that it makes economic sense to invest in ecological infrastructure," says the policy brief.

- A global marine protected area network, involving the closure of 20 per cent of the total fishing grounds, could sustain fisheries worth \$80 to \$100 billion a year while ensuring a future for 27 million fishing-related jobs and generating one million more in areas such as conservation.
- The world's wetlands, which have suffered extensive drainage over the past 100 years, produce 25 per cent of the world's food from activities like fishing, farming and hunting.

### **Sustainable Agriculture**

The report urges developed economies to invest part of their stimulus packages to develop sustainable agriculture, both at home and in developing economies.

This should be allied to the opening up of markets to sustainably made produce from developing economies as this will not only support poverty reduction efforts but also improve food security and minimize pressure on ecosystems including soils, and climate.

The report cites the case of organic agriculture in which four guiding principles are health, ecology, fairness and care.

A study of 114 cases of conversion to organic or near organic production method in Africa, surveyed by UNEP and the UN Conference on Trade and Development, found that yields had risen by over 100 per cent after switching to organic or near organic production.

The data on organic production and trade is now available for more than 140 countries. Sales of organic products have increased by over \$5 billion a year for the last few years, reaching more than \$46 billion by 2007.

"Organic agriculture offers a real trade and poverty reduction opportunity for developing countries, as more than 97 per cent of the revenues are generated in Europe and North America whereas more than 80 per cent of the producers are in Africa, Asia and Latin America," says the report. The countries with the most producers are Uganda, followed by India, Ethiopia and Mexico

Sustainable agriculture also offers the potential to mitigate climate change through decreased emission of greenhouse gases, improved energy efficiency and increased carbon sequestering.

According to one study conducted by the UN's Food and Agricultural Organisation: "CO2 emissions per hectare of organic agriculture systems are 48 per cent to 68 per cent lower than in conventional systems".

Various studies have shown that organic fields sequester 3- 8 tone more carbon per hectare compared to conventional agriculture.

As a climate change adaptation strategy, organic agriculture already addresses the key consequences of climate change, namely increased water stress, drought, flooding and extreme temperatures by increasing water filtration and retention capacity as well as organic nutrient content of organic fields.

The policy brief also points out that organic agriculture also uses 30 per cent more labour than conventional agriculture. In Mexico over 170,000 jobs were created by organic agriculture in 2007.

Ladies and gentlemen,

Israel is part of this Global Green New Deal in which governments do what they were elected to do—namely decide on the economic, social and environmental future they want and put in place the laws, regulations and arrangements that can focus the markets and unleash innovation and entrepreneurship to achieve those ends.

Your new 10 per cent target for renewables, backed by tax-incentives and a feed-in tariff is a case in point—feed-in tariffs have turned countries like Germany and Spain into world leaders.

The decision to designate the Arava and Negev as renewable energy zones, backed by tax benefits, may also prove an extraordinary economic move.

By some estimates an area 800 square km by 800 square km of desert has enough solar power striking it to supply all the world's electricity needs.

Harnessing just a fraction of this could supply electricity nationally and regionally either as electricity or as a source of power to produce other clean fuels—for example hydrogen.

Indeed, some proportion of Israel's renewable energy expansion might be usefully harnessed to reduce fossil fuel use in, for example, desalination.

Some may say the economics do not stack up—Brazil was told the same 30 years ago when they launched their ethanol economy.

Even now, there are punters and commentators who question the competitiveness of for example solar power.

At the last UN climate convention meeting in Poznan, Poland, UNEP hosted three leading solar companies at a press conference.

The CEOs of China's Suntech; America's First Solar and Europe's Solar Century avowed competitiveness not in 15 years or 30 years—but in less than five years.

Already First Solar, with its thin film technology, is rolling out roof-top photovoltaics in California that are claimed to be generating electricity as cheaply as fossil fuels.

Again, innovation, resource efficient and low carbon transformations supported by clear policies and strong market mechanisms and signals—indeed California, like Denmark, are two examples of economies that have in recent decades grown without a single increase in carbon emissions.

### **Environment and Peacebuilding**

Ladies and gentlemen,

There is another aspect to the Green Economy and to the sustainable development agenda as a whole—one that goes to the heart of the UN's mandate and its charter.

This is role of the environment in conflict but also in peacebuilding.

There is an increasing body of academic and empirical research linking these areas.

A new UNEP report, entitled from Conflict to Peacebuilding, notes that since 1990 at least 18 violent conflicts have been fuelled by the exploitation of natural resources.

It also concludes that over the past 60 years at least 40 per cent of all intrastate conflicts—for example in Liberia, Angola and the Democratic Republic of Congo—have centred on high value resources such as oil and timber.

A recent study by UNEP's Post Conflict and Disaster Management Branch on the Sudan has linked climate change and shifts in rainfall patterns in Darfur as an important factor in the conflict there, bringing communities and groups living in acute resource scarcity, into clashes.

In an increasingly resource constrained world, and one facing destabilizing climate change, such tensions are likely to swell and spread.

How will the world cope with over 30 million people in Bangladesh deprived of their land and their livelihoods by sea level rise—where will they go?

How will the world cope when entire river systems across Asia, Latin America and elsewhere no longer run all year round but become seasonal because they are no longer fed by the spring meltwaters of shrunken, lost glaciers?

But ladies and gentlemen, there is another side to this environment and resource conundrum.

Water, perhaps the most essential natural resource of them all, has often been a source of cooperation rather than tensions—indeed research by UNEP and Oregon State University shows that over the past 50 years cooperation on shared, transboundary waters has outnumbered conflict by two-to-one.

This has often been the case in your region. Despite tensions between Israel and Palestinian authorities, you too have often cooperated on those essential natural resources such as water and waste management.

In the final analysis perhaps because of mutual self interest—because water shortages as a result of over-exploitation or contamination of rivers or underground aquifers are rarely confined to one community or country and pollution, such as sewage or chemicals, and thus their impacts, often know no bounds.

I hope that on my mission here to this region I can listen and see how those cooperative channels on basic and shared environmental concerns can be re-opened and resumed.

### **Environment and the Green Economy as a Basis for Global Cooperation**

Perhaps it is now time to disentangle the environment from geopolitics, not just in the regional context but also at the global level.

In somewhere around 230 days more than 190 countries will meet in Copenhagen for the crucial UN climate convention meeting.

The world needs to Seal the Deal on a comprehensive, scientifically-credible and economically defensible new climate agreement.

One that can pave the way towards stabilizing the atmosphere and assisting vulnerable communities to climate-proof their economies.

A deal too that can accelerate and broaden the scope of the carbon markets and in turn play a big part in embedding a global Green Economy.

Currently the negotiations remain bogged down in minutia and in the kind of debates that all too often characterize international negotiations including suspicions that someone might be a loser and another a winner.

Ladies and gentlemen,

Climate change is the challenge for this generation—there will be no winners, only losers if Copenhagen fails to match the realities we all face.

But if nations can put aside the narrow differences that divide them and unite behind the coming challenges and seize the opportunities facing them, six billion plus people will be winners.

And governments will have delivered perhaps the biggest Green Economy stimulus package of 2009 and beyond.

Thank you