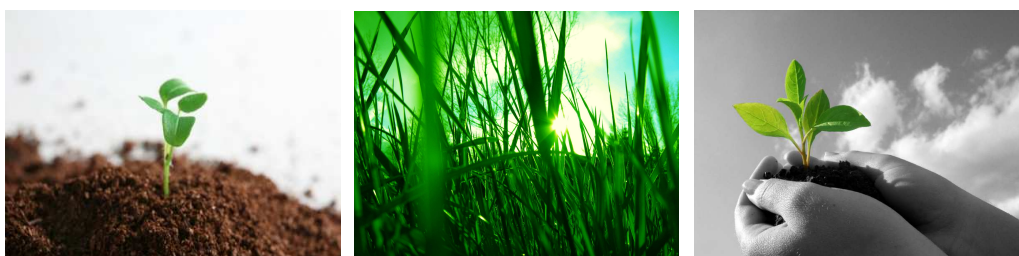


Sustainability Matters

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Progress towards Green Growth, its challenges and opportunities

The UN Earth Summit Rio +20 in June put Green Growth on the international agenda. But even before the conference, governments as well as international and local organizations have already made considerable progress towards greening economic growth: political measures have been taken and strategies set out. Structural changes towards greener markets are clearly visible and technological progress is moving at a relatively fast pace.

But despite this good news, global economic growth is still far from being truly green. More consistent and stricter political framework conditions are needed. Technological progress is well on the way, but many problems, e.g. efficient energy storage options, are yet to be solved. Green markets need to expand further and consumption behaviour needs to be reformed so that eco-efficiency gains are not lost. And, last but not least, such a reconstruction of our society requires enormous investment.

Nevertheless, the current dynamics towards Green Growth are high and create enormous opportunities and risks for companies and investors. In this report we will explain which economic sectors are most affected by these structural shifts. Important cleantech solutions are listed and examples of companies providing interesting and innovative technical solutions and products are given.

Dr. David N. Bresch, Director and Head of Sustainability & Political Risk Management at Swiss Re, attended the Rio +20 conference. In an expert interview, he provides his insight view into the conference outcome, the implications of Green Growth for the financial services industry and the special role of insurance companies.

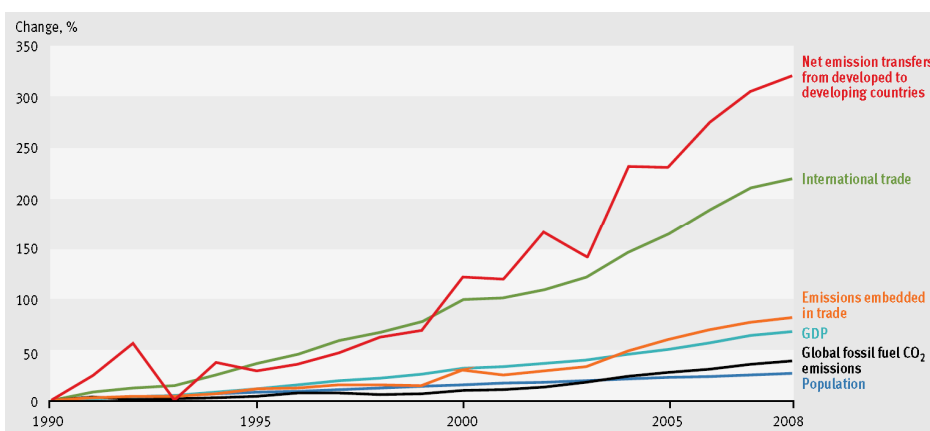
How Green is our Growth?

The UN Earth Summit Rio +20, held from June 20-22, stressed “Green Growth” – in the context of poverty issues (such as food security and unemployment) and adequate institutional frameworks for sustainable development. Renowned politicians, company and NGO experts discussed the major problems that still need to be addressed and suggested possible solutions. The reason for this focus was the fact that, even though Green Growth has been dealt with long before by governments and international organizations, economic growth is still far from growing in a green way.

Green Growth primarily has two targets: firstly, to use resources (e.g. water and materials) sustainably, so that future generations also have sufficient resources. Secondly, to limit emissions so that future generations can also profit from ecosystem services. Thus, for example greenhouse gas (GHG) emissions causing climate change or toxic emissions damaging ecosystems and ultimately human health are not sustainable. The United Nations Environmental Program (UNEP 2012) recently published its “Global Environmental Outlook GEO 5” which points to some alarming trends. Global fossil fuel CO₂ emissions, for example, from 1990 to 2008 increased by approximately 40% (see graph 1). Efficiency gains were considerable, though: CO₂ efficiency (GDP/CO₂ emissions) could be improved by around 90%. However, gross domestic product (GDP) growth could not be decoupled from CO₂ emissions, which would be the prerequisite for

Green Growth. In other words: emissions could not be decreased in spite of growing GDP. Important reasons for this included population growth (of approx. 30%) and the consumption behaviour of the world’s population (CO₂ emissions per person increased by a third). This shows that eco-efficiency is only one sustainability lever – population growth and consumption behaviour are also critical. Some countries such as the EU-15 are well on track to meet their Kyoto reduction targets, while other large economies have not ratified the protocol (the USA), fail to meet their Kyoto targets (Canada) or are still being allowed to increase their CO₂ emissions (Australia) (UNEP 2012).

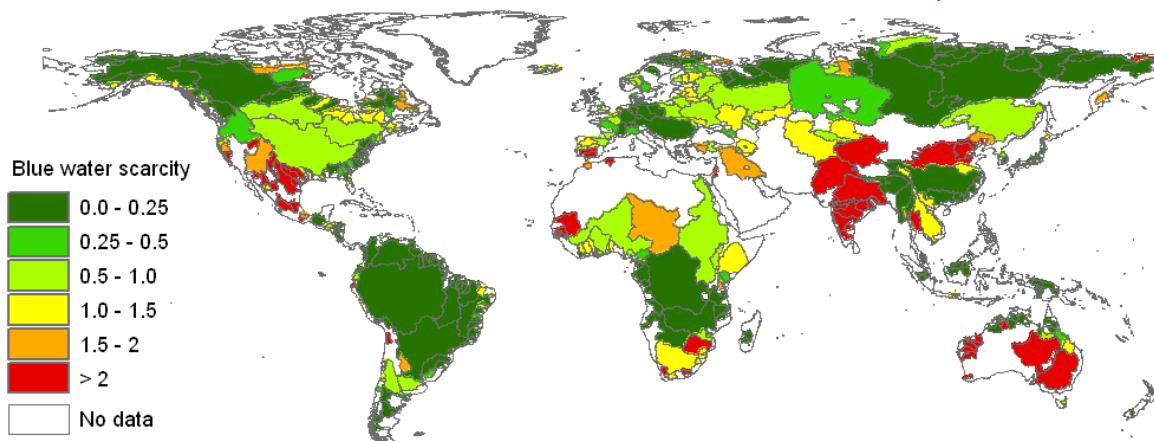
GROWTH OF GLOBAL CO₂-EMISSIONS, POPULATION, GDP AND INTERNATIONAL TRADE 1990-2008



Graph 1 Source: EEA 2011.

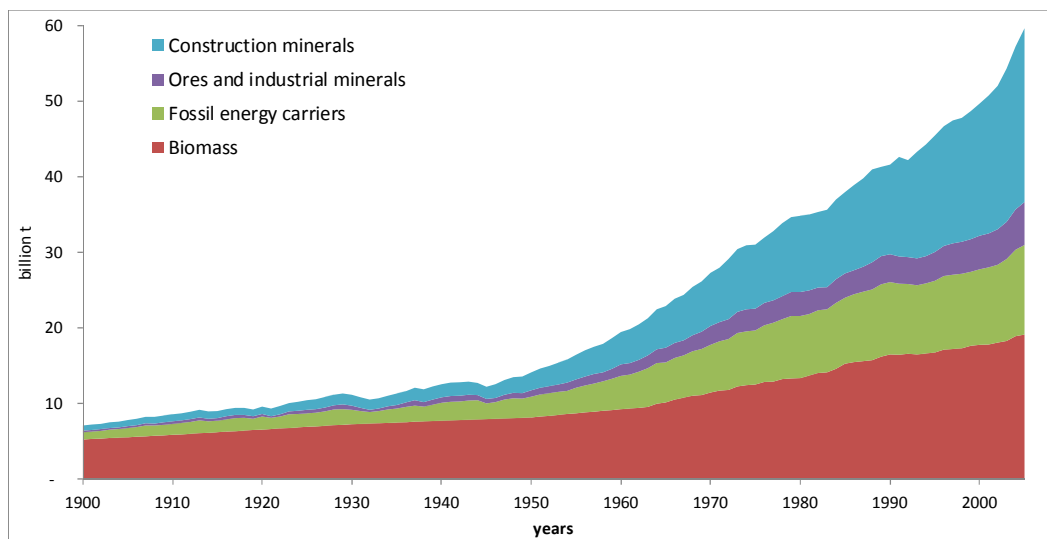
Of special interest are the effects of international trade on CO₂ emissions shown in graph 1: international trade more than doubled during these 18 years, whereas the net shift of emissions from industrial to developing countries through international trade tripled (UNEP 2012). This proves that industrial countries shifted large parts of their CO₂

ANNUAL AVERAGE WATER SCARCITY IN MAJOR RIVER BASINS, 1996–2005



Graph 2 Blue water scarcity is the proportion of groundwater and surface water consumed relative to the sustainable water available for human use, after accounting for environmental flows. The annual average is calculated from monthly values. Source: Hoekstra/Mekonnen 2011

GLOBAL MATERIAL EXTRACTION 1900-2005



Graph 3 Global Material Extraction in billion tonnes. Source: Krausmann et al. 2009.

emissions into developing countries (“spill over”) and that their “true” climate balance encompassing direct and indirect emissions is even worse. Thus, in order to be effective mitigation measures need to include indirect emissions. These climate measures certainly have to take into account poverty reduction and economic wealth targets of developing countries as well, as developing countries obviously rely a lot on eco-intensively produced goods. If climate and other ecological regulations were merely imposed on these countries, this would slow down or even hamper their badly needed wealth growth. Possible solutions could be ecological measures combined with eco-efficient technology transfers to developing countries.

International climate measures need to take these social effects into account, e.g. by the transfer of eco-efficient technologies to developing countries.

In many regions of the world, water usage is also unsustainable. Water usage is a complex issue: the amount of used freshwater is only one component, locally available freshwater resources another. Graph 2 shows that from 1996 to 2005 in many regions water scarcity in larger river basins ranged from moderate to severe. This gives an indication that in these regions water had not been used sustainably. About a fifth of the global population is living in areas with physical water scarcity (Comprehensive Assessment of Water Management in Agriculture 2007), with West Asia, South Asia, Mesoamerica, Australia, Northern Africa and the Middle East as the regions of greatest concern (UNEP 2012, FAO 2008). Water scarcity is a major threat to the environment, human

health, development, energy security and global food supply (Pereira et al. 2009). And the problems will increase, if further effective measures are not taken: the OECD’s baseline scenario assumes that from 2000 to 2050 global water demand will increase by more than 50% from approx. 3’500 km³ to 5’500 km³ (OECD 2012b).

Global material extraction represents another major sustainability concern (see graph 3). Since the early 1960’s until 2000, material extraction tripled from approx. 20 to 60 billion tonnes. This shows that a lot of action is needed concerning material efficiency, substitution of non-renewable with renewable materials and of material-intensive products with more service-intensive products (“dematerialization”, e.g. by sharing approaches like carpooling etc.) and recycling.

MEASURES FOSTERING GREEN GROWTH (EXAMPLES)

Measure	Country/Region	Sphere	Description of measure and effect
Carbon taxes	Countries such as Denmark, Finland, Germany, Italy, Sweden, Switzerland, UK	Climate change	Through carbon taxes, governments aim to reduce GHG emissions by internalizing negative effects. Many countries have implemented carbon taxes as a response to their commitments under the United Nations Framework Convention on Climate Change. However, taxes remain rather low and, thus, incentives are limited. Additionally, in some countries the most eco-intensive industries are tax-exempt.
Cleantech incentive programs	United States, China, Europe	Cleantech	State-sponsored economic stimulus packages are increasing the demand for cleantech solutions. E.g. the US government has allocated 11 billion USD, the Chinese government will allocate over 150 billion USD over the next three years and the EU has set aside USD 15 billion to the cleantech sector (DETEC 2012).
Tax incentives on Volatile Organic Compounds	Switzerland	Air quality	Volatile Organic Compounds (VOCs) have negative effects on air quality and human health. The Swiss government introduced an incentive tax on VOCs in 2000. VOC emissions have declined since then. Nevertheless, the intended reduction goal is not met yet (FOEN 2012).
Measures to promote renewable energies	EU countries	Energy, climate change	Basically all EU countries have implemented measures to promote renewable energies. Feed-in tariff systems are set up in e.g. Austria, Bulgaria, Denmark, Germany, Greece, Portugal and Spain. Belgium, Italy, Poland, Romania, Sweden and the UK have quota systems in place. Several countries such as Finland, Netherlands and Slovakia provide tax incentives or investment grants.
European Union Emission Trading Scheme (EU ETS)	EU member states plus Iceland, Norway and Liechtenstein	Climate change	The EU ETS was launched in 2005 and is one of the main pillars of the EU’s climate policy. The scheme covers more than 11’000 factories, power stations and other installations at present, receiving trading credits from their national allowance plans. If carbon emissions exceed an installation’s permitted credits, it can purchase trading credits from other factories or countries. On the other side, if a factory has performed well, it can sell its leftover credits. The caps (numbers of credits allowed) are still relatively high, so that allowance prices tend to be low and mitigation effects rather limited.

Table 1 Measures fostering Green Growth (samples)

MEASURES HINDERING GREEN GROWTH (EXAMPLES)

Measure	Country/Region	Sphere	Description of Effect
Fossil fuel subsidies	Numerous countries worldwide	Climate change	Fossil fuels are subsidized in numerous countries worldwide. According to an estimation of the International Energy Agency, the total amount of fossil fuel subsidies accounted for 409 billion USD in 2010, whereas renewable energy was subsidized with 66 billion USD (IEA 2011).
Tax exemption of kerosene	Global	Climate change	Commercial civil aviation is still exempt from paying fuel taxes on kerosene, despite the fact that it accounts for 2% of global CO ₂ emissions at present (Valsecchi C. et al. 2009).
Tax deduction for commuting between home and workplace	E.g. Germany and Switzerland	Climate change, land use	In some countries, taxpayers can deduct the costs for commuting between home and workplace from their income. This fosters urban sprawl and additional traffic (Ecoplan 2010).
Subsidies to irrigation water	Spain	Water	Water costs and tariffs in Spain vary from region to region. In some regions, water pricing is based on area size rather than on the actual volume of water used. It therefore does not provide incentives to farmers to improve water efficiency and leads to higher water consumption.

and Japan as global precursors. Policies like market-oriented certificate trading systems have stood the test (Deloitte 2009). Nevertheless, current measures are mostly insufficient for entirely greening growth, and other measures with counter-productive effects are still in place. To achieve sustainable growth, more consistent and stricter political framework conditions are needed.

Are strategies paving the way for Greening our Growth?

The need for further political action is largely unchal-

lenged. This becomes apparent as, on both national and international levels, Green Growth strategies have been passed. Table 3 gives an overview of the various strategies and initiatives. It explains the strategies and the sustainability spheres they are aimed at.

These strategies and initiatives point in the right direction. Some strategies contain concrete targets, such as the European Commission's "Europe 2020 targets". Others remain rather vague such as the French "Strategy for a sustainable development". Yet, other major players such as the USA have not committed themselves to any Green Growth strategy at all. The OECD's "Green Growth Strategies" encompass all critical facets of environmental concerns, whereas the "Europe 2020 targets" of the European Commission focus only climate change and energy.

It would be, of course, too optimistic to believe that these strategies will all be realized within the next years, especially considering that most of them remain rather vague. The reason for their vagueness is that they imply major structural shifts in the economy, the reconstruction of infrastructure and considerable changes in people's lifestyles. And counter-interests are working on slowing down or even preventing their realization. But, nevertheless, the dynamics towards Green Growth are clearly visible on a global scale: urgent needs to prevent high ecological costs and risks in the future (e.g. for adaptation measures to climate change) limit the time for action. And the limited window of opportunity for first movers to achieve international competitive advantages requires early actions as well. Thus, it seems probable that global political framework conditions for the economy will continue to get greener on a large scale – though probably at a rather slow pace.

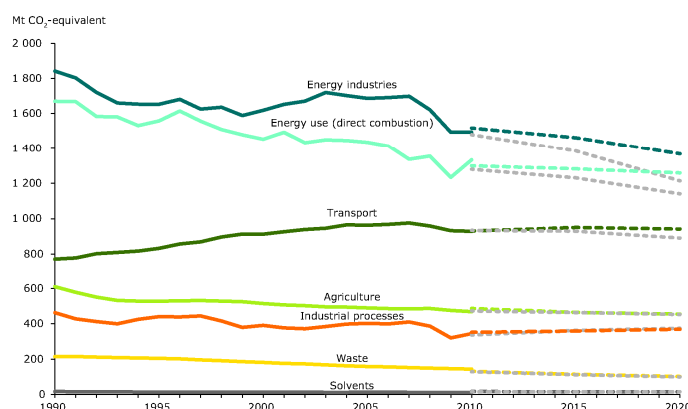
Table 2 Measures hindering Green Growth (samples)

Are political framework conditions fostering Green Growth?

Meanwhile, political frameworks to foster Green Growth have been established in many countries (see table 1). Despite this, the same countries often have political measures in place hindering Green Growth (see table 2).

Past policy trends in industrial countries point towards greener growth. Meanwhile, governments are further synchronizing their measures, with Europe

SECTORAL TRENDS AND PROJECTIONS FOR EU-27 GREENHOUSE GAS EMISSIONS, 1990–2020



Graph 4 CO₂ equivalents in million tonnes. Greenhouse gas emission projections are shown as dashed lines under existing policy measures and black dotted lines with additional measures. Source: EEA 2011.

Which markets are concerned by Green Growth?

The markets that are most concerned by this structural change are, in the first place, the most ecologically-intensive sectors: energy production, housing, transport, agriculture and some other industries (esp. the chemical, steel, oil and cement industries). Within the EU-27, energy industries, energy use (direct combustion) and transport were by far the highest GHG emitters in 2010, but agriculture and

industrial processes also emitted considerable amounts of GHGs (see graph 4) (UNEP 2012).

Agriculture and energy production are also responsible for the main global water demand today, with the industrial sector gaining in importance: in 2000, agriculture (irrigation and livestock) and energy production both accounted for more than 90% of global water usage in 2000 and will, in the OECD baseline scenario (i.e. if no further political action is taken), account for about two thirds of the world's water demand in 2050. The importance of manufacturing

GREEN GROWTH STRATEGIES (EXAMPLES)

Actor	Strategy	Sustainability Sphere		
		Economy	Ecology	Social
UNEP (2009)	The "Global Green New Deal" contains concepts, measures and several initiatives to achieve green growth.	- Contribution to reviving the World economy	- Millennium Development Goals (MDGs) - Reducing carbon dependency and ecosystem degradation	- Jobs - Protecting vulnerable groups - MDGs
UNEP (2011)	The "Green Economy Initiative" aims at analysing major aspects of green growth and providing policy support (advisory services) and research.		- Encompassing ecological issues (e.g. energy and resource efficiency)	
OECD (2010)	The "Green Growth Strategies" suggest a policy framework for green growth. They include achieving an understanding for political and measurement needs as well as suggestions for critical political framework conditions and measurement requirements.		- Encompassing ecological issues (e.g. developing new green industries)	
European Commission (2012)	The "Europe 2020 targets" contain concrete sustainability targets.	- Research & Development	- Climate change and energy	- Employment - Education - Poverty / social exclusion
The Swiss Federal Council (2010)	The mandate of the Federal Council for a green economy ("Bundesratsauftrag zur grünen Wirtschaft") contains fields of action and in some cases concrete aims.		- Cleantech - Increasing eco-efficiency of information and communication technologies (ICT) - Greening the tax system - Including ecological information into wealth measurement - Environmental impact assessment of new regulations	
The Swiss Federal Council (2012)	The "Strategy for a sustainable Development" contains mostly rough strategies and only one concrete aim.	- Education, research on interdependencies between society, politics, economy and environment and innovation	- Energy, climate change and natural hazards - Spatial development and transport - Greening production and consumption - Use of natural resources - Overuse of ecosystems	- Global development (e.g. decreasing poverty) - Social cohesion, demography and migration - Public health, sport
WBCSD (2010)	The "Vision 2050 Report" identifies critical field of action and provides strategies towards sustainable development.		- Internalization of externalities - Forest protection - Halving carbon emissions - Energy efficiency	- Food security
Federal Ministry for the Environment, Nature Conservation and Nuclear Safety of Germany (2007)	The "Strategy for a sustainable development" contains management rules, monitoring needs and regulatory impact assessments.	- Structural change needs to integrate economic, ecological and social aims	- Use of natural resources - Decoupling energy and resource use as well as the transport services from economic growth - Sustainable agriculture	- Avoiding risks and hazards for human health - Intergenerational justice - Social cohesion - International framework for poverty reduction and protection of human rights
Ecology, Sustainable Development and Energy Department of France (2010)	The "Strategy for a sustainable development" defines strategies to achieve green growth without mentioning concrete targets.	- Knowledge society - Governance	- Climate change and energy - Sustainable production and consumption - Sustainable transport and mobility - Natural resource protection and biodiversity preservation - International challenges concerning sustainable	- Public health and risk prevention - Social cohesion, demography and migration - International challenges concerning poverty reduction

Table 3 Green Growth strategies and initiatives (examples)

processes will increase up to 20% in 2050 (OECD 2012b). Last, but not least, approaches that measure overall ecological impacts (e.g. the ecological scarcity method) come to the same conclusion: housing, energy and water supplies, nutrition and private mobility are the consumption categories causing by far the highest ecological impacts. And they show that large parts – in Switzerland about 50% – of ecological impacts are caused abroad, which again stresses the international dimension, esp. the North-South aspects, of Green Growth (Jungbluth et al. 2011).

Cleantech solutions for Green Growth

The figures above show that the main sectors that need to get greener if growth is to become more sustainable are housing, energy production, mobility, agriculture and some eco-intensive industrial sectors. The challenge is to decrease ecological impacts by increasing eco-efficiency and by substitut-

ing ecologically intensive resources with natural (renewable) or at least less ecologically-intensive resources. Cleantech provides solutions for this through technologies, processes, products and services. Important clean technologies and solutions needed for Green Growth are listed in table 4.

The Cleantech market is growing rapidly

Cleantech is a rapidly growing market globally. In 2008, for example, almost 8.5 billion USD were invested in new cleantech companies, 38% more than in 2007, in spite of recession and the financial crisis. Since 2002, investments have grown tenfold. The dash to build cleantech company production sites has started, and it is expected that, till 2030, environmental technologies will be the highest growing sector overall (Deloitte 2009). Long-run market growth rates are hard to predict, but it is considered possible that the market volume for environmental technologies will double by 2020 and is expected to

CLEANTECH SOLUTIONS FOR GREEN GROWTH	
CLEANTECH STRATEGIES	CLEANTECH SOLUTIONS (EXAMPLES)
ENERGY SECTOR	
Renewable energies	Wind power plants, photovoltaic cells, heat pumps
Efficient power production	Power-heat cogeneration
Reconstruction of energy infrastructure	Smart power grids, power stations for cars
Power storages	Batteries, dam reservoirs, hydrogen-oxygen fuel cells, heat storage within water tanks
Measurement of energy usage	Energy efficiency metering, process measuring and control technologies
INDUSTRIAL SECTOR	
Reduction of direct emissions and resource usage during production	Modernization of techniques (e.g. propulsion systems), energy and resource management systems, avoidance of toxic substances, waste-water treatment, filtering
Reduction of indirect emissions through supplies, heat and power usage	Energy and resource management systems, renewable energies
HOUSING SECTOR	
Energy and water efficiency of buildings	Suitable construction materials, insulation, efficient sanitary systems
Smart building techniques	“Intelligent building techniques“ allow for an encompassing management of heating, cooling, ventilation, lighting systems and household appliances in order to increase efficiency and use cheap power
Energy and water management	Changing consumption behaviour of residents concerning ventilation, heating and water usage
Renewable energy production	See above
TRANSPORT AND TRAFFIC	
Reduction of traffic, efficient traffic	Logistic systems, alternative logistic concepts such as carpooling
Efficiency, introduction of new technologies	Lighter materials, efficient propulsions, electrical engines, regenerative braking
Alternative fuels	Biomass, hydrogen-oxygen fuel, e-mobility
AGRICULTURE	
Water and energy efficiency	Efficient irrigation systems such as drip irrigation, avoidance of heated greenhouses
Pollution reduction of water and soil through organic farming methods	Substitution of mineral fertilizers with farmyard manure, avoidance of pesticides and mono cultures, sustainable soil management to avoid erosion (e.g. through terracing)
CLEANTECH SECTOR (Environmental technologies and services providers)	
Technical and management solutions for ecologically intensive industries	Green IT (eco-efficient Information and Communication Technologies), Smart Metering, Smart Traffic Solutions, eco-efficient products such as household appliances and sanitary systems, consulting e.g. on energy and water management systems

Table 4 Cleantech strategies and solutions to foster Green Growth

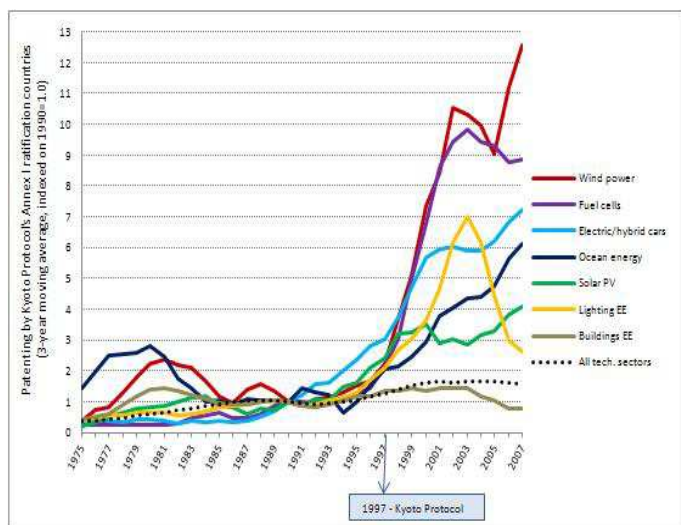
reach around 3 trillion EUR (Krannich Media 2011, DETEC 2012). This creates jobs. In Germany, for example, early in 2008 there were more than 1.8 million so-called "green jobs". In other words: every 20th employee owed her or his job to environmental protection. Of these, 280'000 jobs alone were in the field of renewable energies (Deloitte 2009).

This market dynamic is reflected in the high technical progress rate for cleantech. With the example of climate change mitigation technologies, the following graph 5 shows technological progress in the cleantech sector. Since the adoption of the Kyoto Protocol in 1997, technological progress in climate change mitigation technologies was well above the technological progress for all technology sectors. This concerned the fields of energy production (especially wind, but also solar PV), mobility (fuel cells and electric/hybrid cars) and housing (lighting and buildings energy efficiency).

These trends show that structural changes in the economy towards greener growth have started and show a rather high dynamic. Nevertheless, several open challenges remain: as shown above, the ecological impacts of the economy are in many respects still growing, in spite of efficiency gains. Thus further efficiency gains are needed if rebound effects overcompensating efficiency gains are to be avoided. Rebound effects evolve through the consumption of more goods and services, e.g. if the living space or traffic per person increases and if new IT equipment or clothing is being bought at shorter intervals. Here consumers are required to consume in a more sustainable manner and political measures are required to foster sustainable consumer behaviour. Additionally, as the debates in the Rio +20 conference have

again shown, the link between Green Growth and poverty reduction in developing countries is not yet made. This needs political, economic and civil actions from the supranational down to the national level, i.e. from international agreements on technology transfers and direct investments to local organic and fair trade initiatives and consumption.

INNOVATION TREND IN CLIMATE CHANGE MITIGATION TECHNOLOGIES, COMPARED TO ALL SECTORS



Graph 5 Number of patent applications by Annex I ratification countries, 3-year moving average, indexed on 100=1.0.

Source: OECD Project on Environmental Policy and Technological Innovation.

Examples of companies showing the way

Many companies are showing the way towards Green Growth by providing interesting and innovative technical solutions and products.

Novozymes

Novozymes is a Danish biotech company with approximately 6'000 employees. The company produces enzymes that enable lower wash temperatures while maintaining washing performance. Laundry washing is one of the most energy-intensive activities in an ordinary household. By washing at 30°C rather than 60°C or 40°C, the energy-savings potential is considerable.

BioteQ

BioteQ is a Canadian water treatment company specializing in the treatment of wastewater from mining, power generation as well as oil and gas activities. Used in the mining sector, BioteQ's water treatment plants are able to remove metals and solids from the wastewater as well as recover metals such as copper or zinc. This generates extra revenues for mining companies and at the same time lowers their environmental impacts.

Enernoc

Enernoc is a US-based company with around 600 employees. The company provides energy management equipment and services such as advanced metering and monitoring equipment. These techniques allow its customers to manage energy usage in real time.

NTT Communications

NTT Communications is a Japanese telecommunications company. The company provides green ICT solutions such as eco-efficient data centers and enterprise-oriented hosting services. Both solutions lead to power savings compared to conventional (in-house) solutions. NTT also provides communication tools enabling teleconferencing, web conferencing and mobile connection services, allowing companies to reduce their travel activities.

The role of the financial sector

Interview with Dr. David N. Bresch, Director and Head of Sustainability & Political Risk Management at Swiss Re

Inrate: Mr. Bresch, you attended the Rio +20 conference recently as a representative of the financial services industry. What are your general impressions of the conference?

D. Bresch: In Rio, the UN Principles for Sustainable Insurance (PSI, www.unepfi.org/psi) have been launched. We focused on the area where we can make a difference as private players. Achim Steiner, director of UNEP, captured the situation in Rio at the launch of the PSI as follows: "We are a world divided; where the reality is that political leadership is falling behind our own societies. What we together can do is bring the world of economics and markets together with the world of science, and try to succeed in raising understanding of what the true implications are of what is happening today" (IIS Daily 2012). Or in brief: to internalize (known!) externalities into our decision making. The Principles for Sustainable Insurance (PSI) provide insurance companies with an aspirational framework to do so, as the first principle states that "we will embed in our decision-making environmental, social and governance issues relevant to our insurance business."

Inrate: Did the conference in your opinion achieve some progress towards the greening of growth in general and in particular for the financial sector?

D. Bresch: No, not in a tangible way in the wider sense. But speaking for the industry we are part of, the launch of the UN Principles for Sustainable Insurance (PSI) marks a breakthrough, showing that sectoral progress, advanced by leading companies, can be achieved. But more – much more – remains to be done, private players can by no means sort it out on their own. But rather than sit and wait for 'the others' to move, it's worth paving the way – not least because a forward-looking approach to risks and opportunities is the only way to create value also in the future.

Inrate: What is the role of financial services providers and specifically insurers for Green Growth?

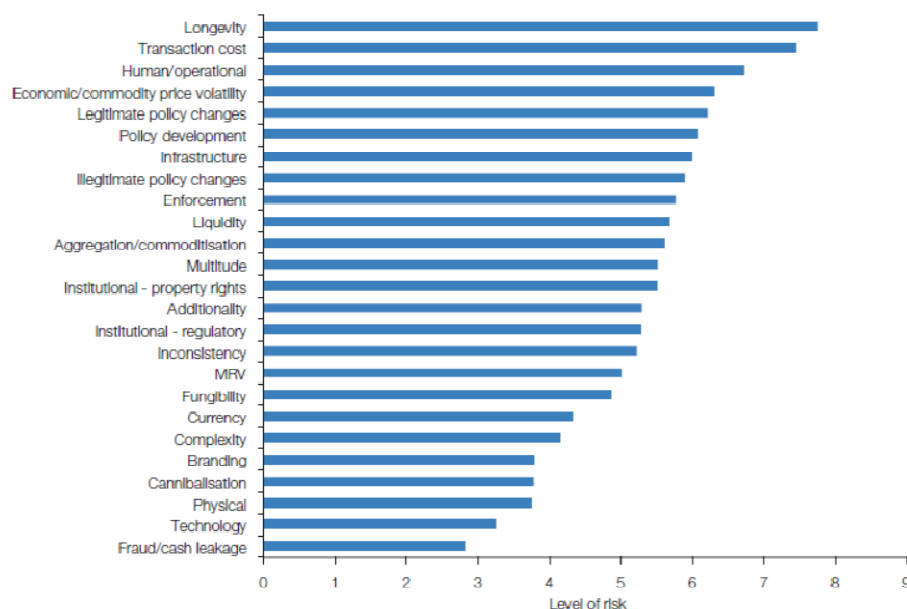
D. Bresch: One of the key issues is the potential of renewable energy for Green Growth. But the increase in the total contribution of renewable sources to global energy production will develop slowly. The main reasons for this are the enormous investments required for new infrastructure, with up to 70-80% financed through debt, as well as the associated investment risks and the insufficiency of current risk management practices to manage them. This is where insurance

comes in. Insurance plays a key role in enabling risk taking essential to investments and technological innovation in the sector. It does so by minimizing the risk of financial losses due to unexpected incidents, such as construction failures, business interruption, or natural hazards. Nevertheless, there are certain risks, including political and regulatory risk, that cannot be tackled by the insurance industry but require intervention by policymakers and regulators.

Inrate: What are the current initiatives in the insurance industry towards fostering Green Growth?

D. Bresch: Our main focus is on helping to make investments in green technologies more attractive. One way is to provide affordable and commercially viable insurance products to investors and operators of renewable energy projects. A number of them are

RANKING OF RISKS IN GREEN FINANCE



Graph 6 Source: OECDa 2012.

already available. For example, Swiss Re offers products to manage weather volume risks and risks associated with the construction and operation of renewable power infrastructure, including third party liability, contractor plant and equipment and assets (www.swissre.com/risksandrenewables). This is in line with the second principle of the UN PSI, namely that "we will work together with our clients and business partners to manage risk and develop solutions". But besides providing insurance solutions, the insurance industry has been instrumental in pushing for more concerted action on the issue of climate change, including sustainable growth, and extreme weather because it goes to the core of its business. Swiss Re has been at the forefront of many of these initiatives, being one of the first companies to identify the dangers of climate change more than 20 years ago. We continue to be active in shaping the global climate agenda through research and dialogue with key stakeholders, including through two flagship projects on the Economics of Climate Adaptation (www.swissre.com/rethinking/climate) and Climate & Energy Futures.

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