Green jobs
Facing up to “an inconvenient truth”

Over the last year or so, it has dawned on policy makers, businesses and the public around the world that climate change looks set to become the biggest social and environmental challenge of the 21st century. Peter Poschen, ILO Senior Policy Specialist and focal point on climate change, looks at the social and labour impacts of this complex global challenge.

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GENEVA – Tackling climate change requires major economic, social and environmental transformations, most of which are interlinked. It raises complex issues about justice, reflecting the historical responsibility of industrialized countries for climate change and the need for a common effort into the future. It also involves thinking and action on a different time scale: decades and even centuries rather than the usual business or electoral cycles.

Climate change is accelerating and needs to be tackled while the world approaches the “bottleneck” that will be reached around the year 2050. Until then the world population will continue to grow, but then stabilize at 9 or 10 billion people. Over the same period the world aspires to a significant increase in material well-being and to the eradication of the poverty that still affects almost half of today’s population. These goals can only be achieved through economic growth which generates more and better jobs for the 1.4 billion working poor who now live on less than $2/day (ILO, 2006).

Turning on the heat – economic growth, energy and emissions

But the inconvenient truth is that economic development by doing business as usual is not sustainable. It will result in large-scale and lasting climate change caused by human activity with serious negative impacts for all life on earth, including humans. The main reason is the link between growth and the consumption of energy provided by fossil fuels such as coal, gas and petroleum. World gross domestic product (GDP) is widely expected to grow by 3 per cent annually and thus reach in the year 2030 some 240 per cent of what it was in 2000. In the past, economic growth and energy use have been closely correlated. Energy consumption is therefore expected to increase by 50 per cent until the year 2020.

Because of the energy sources and technology used today, energy consumption is also driving climate change. In 2001 around 80 per cent of all energy was supplied by fossil fuels, primarily coal, oil and natural gas. Burning these fuels in electrical power stations, cars, factories and homes releases carbon dioxide (CO_2), the most important cause of the “greenhouse effect” reducing the ability of the earth’s atmosphere to return part of the energy received from the sun back to space. More energy is retained and, over time, this leads to an overall rise in temperatures, i.e. global warming.

Fully three-quarters of CO_2 emissions are released through the burning of fossil fuels. The remaining 25 per cent comes mostly from land use change, particularly the destruction and conversion of forests. Both these types of emissions are the result of human activity. Prior to the Industrial Revolution, the atmospheric concentration of CO_2 was 280 ppm (parts per million). Today it is about 380 ppm, the highest concentration in 420,000 years. Emissions from human activities release some 6 billion tonnes of CO_2 per year to the atmosphere.

The consequences of these emissions have been periodically assessed by the Intergovernmental Panel on Climate Change (IPCC) (see box, p. 30). The Panel reports on the state of scientific knowledge based on inputs by some 2,500 scientists from around the world. The latest reports released in 2007 confirm earlier findings: temperatures are rising, rainfall patterns are changing, sea-levels are rising and extreme weather events are increasing.

These changes have major impacts on economies and settlement patterns and therefore also on livelihoods and jobs. Countries, businesses and individuals will have to adapt to cushion these impacts. But adaptation is only possible up to a point, and merely addresses the symptoms but not the cause of the problem. If far too little has been done so far to reduce emissions of greenhouse gases, it is to a large extent due to the time lag between emissions and climate change. As can be seen in the graph, decades pass before emissions translate into significant warming of the atmosphere; after a century rises in sea level ensue, initially because the oceans get warmer, then increasingly because of melting ice caps.

There are two important implications of this time lag. First, the world is already committed to significant climate change, even if emissions stopped today. Second, emissions need to be reduced sharply in the next

10–20 years if humanity is to contain global warming to levels where the changes do not become self-reinforcing and likely to spiral out of control. The thresholds which should avoid unmanageable climate change are believed to be a maximum of 2oC in atmospheric temperature and a maximum concentration of 550 ppm of CO2 by 2050. In order to remain below these thresholds, emissions will have to be reduced to a fraction of current levels. In industrialized countries, where per capita emissions are highest, they will have to be reduced by 60–80 per cent by 2050. Several European countries and also the state of California have adopted these levels as legally binding targets.

Such targets will be difficult to achieve. MIT scientist Dr. Socolow reckons that CO2 in the atmosphere at levels considered "safe" will mean emissions of 1 ton per person per year. The average US citizen produces that level of emissions just by using his or her car. In developing countries per capita emissions are low but rising rapidly. Using current technology and fuels, economic growth in developing countries produces almost 50 per cent more CO2 emissions per dollar of value-added than in industrialized ones. On current trends, developing will be responsible for more than two thirds of the increase in greenhouse gases. China is thought to have overtaken the United States as the biggest emitter for the first time in 2006.

Climate change will have significant impacts on the structure of economies, settlement patterns, livelihoods and employment. These impacts will come from three sources (see sidebars on pages 7-8):

- Changes in the climate, which have already started to cause significant suffering;
- Adaptation to these changes in an effort to "limit the suffering"; and
- Mitigation, i.e. measures to reduce emissions in order to "avoid the unmanageable" as Harvard's Professor Holdren puts it.

How far these impacts are going to affect the livelihoods of individuals will depend on the location, the economic sector and the social group.

"Suffering" – The social impact of climate change

Contrary to popular perception, the main social impacts from climate change itself over the next few decades will not come from the slow but steady rise in average annual temperatures, changes in rainfall and rise of sea levels. More erratic weather patterns will do most of the damage. Extreme events like droughts, floods and violent storms are all expected to become more frequent.

As the IPCC (2007) points out, worryingly little is known about the employment and livelihood impacts of climate change. The sectors most likely affected are the ones most directly dependent on the weather, agriculture and tourism. This is bad news for employment and livelihoods. While the share of agriculture in world employment has been falling for decades and more people now work in services than in agriculture for the first time in human history, agriculture continues to be the single largest employer in the world.

Extreme weather can cause severe and lasting damage. A storm which struck the mega-city of Karachi in Pakistan in June killed over 200 people, mostly in poor, densely populated areas with precarious housing. Damage to infrastructure like roads and powerlines disrupts economic activity and reduces incomes. Persistent drought has reduced the availability of hydropower from dams in developing countries such as Ghana and Uganda, provoking frequent load shedding and disrupting life and economic development. According to some prognoses, extreme weather could lead to the displacement of some 50 million people over the next few years. The lack of access to social security systems is one of the reasons why people have little choice but to migrate when faced with natural disasters.

Tourism has been one of the fastest growing employers in recent decades, including in developing countries. The consequences of Hurricane Katrina illustrate what extreme weather events can do to the tourism industry: New Orleans lost some 40,000 jobs and half of its population. Over two years after the event, many of the hotels are still in ruins.

Women stand to be disproportionately affected, not only because of their presence in agriculture, in agro-processing and in sectors like tourism, but also because of their family roles. Water is likely to become scarcer and fetching it may add to women's workload. Infectious diseases like malaria will increase, affecting the available labour force and the productivity of workers. There will be more care work for family members, a task that tends to fall on women. Among regions, Africa stands to be most affected, with large numbers of vulnerable people and a low capacity to adapt even though the continent has historically contributed little to climate change and will not become a major source of emissions for the foreseeable future. Coffee is still Uganda's most important export and one of its biggest employers. The map shows the areas suitable for coffee growing: with a 2o C rise in temperature there would be no suitable areas left in the country. This could happen by the middle of the century, implying a massive restructuring in the economy.

An important fact stressed in the IPCC report is hardly reflected yet in the media: at least in the short to medium term, the social impacts of climate change depend more on the development path of economies and societies than directly on the changes in natural systems. Most of these impacts can be cushioned or averted altogether if policies and measures to adapt to climate change integrate the repercussions for employment and income.

"Limiting the suffering" – Working to adapt to climate change

People, businesses, communities and countries have always adapted to changing conditions and so they will to alterations in the climate. Spontaneous as well as planned adaptation is already happening. Most of the planned adaptation concentrates on infrastructure like coastal defences and flood protection. Water harvesting and management will also be increasingly important. In these areas labour-based methods in public works programmes could create large numbers of jobs. The wages received in these works would help to make investments for adaptation in their jobs and small businesses.

In the tourism industry, adaptation will involve changes in the seasons. Cruise ships will avoid the Caribbean during the now extended hurricane season. The Mediterranean basin may become too hot during the summer months and tourists may prefer the cooler spring and fall. Labour peaks in hotels, restaurant, transport and so on will shift also. In the case of ski resorts, the change will be more radical. Low-lying resorts will no longer have enough snow and have to find alternative activities.

Farmers are changing their agricultural practices, sometimes switching to entirely new crops. So far most adaptations in farming systems have related to agronomic practices like seed selection and irrigation and to the economic viability of alternative crops. There can also be significant shifts in employment and income opportunities. A recent FAO study in semi-arid Bangladesh found that mango is a good alternative to rice from an agronomic and an economic point of view. But the prospects for employment are less encouraging: mango requires much less work than rice and labour demand is highly concentrated in two short periods per year. That is bad news for the one third of households in the region who depend on work as daily labourers in agriculture. Should the government assist the move into mango? If so, what could it do to assist the landless agricultural labourers?

This example shows that effective adaptation policies and programmes require a much better grasp of the problem and of options for tackling it. The "hotspots" need to be identified more clearly, i.e. the areas, sectors and population groups which will be most affected. The nature and dynamics of these effects need to be understood. This sort of mapping has been neglected in the past but has now started. The forthcoming Human Development Report by the United Nations Development Programme (UNDP), for example, will analyse the links between climate change, adaptation and poverty.

Information and even awareness in the industries and regions most concerned remains low. Even in Europe, a recent study found a general lack of preparedness and failed to put any numbers on the labour market consequences of adaptation. Much more work will be needed to chart these shifts to enable employers, workers and governments to anticipate and smooth these transitions.

"Mitigation" – Green jobs in low-carbon economies

The world cannot deal with climate change by adaptation alone. A major reduction of emissions, known as "mitigation" in climate change jargon, is necessary and the first steps are being taken. One of the main challenges is to delink economic growth and development from emissions and to usher in low-carbon economies based on a much more efficient use of energy and raw materials. The review of climate change by former World Bank Chief Economist Nicholas Stern has concluded that mitigation is technically possible. The review also concludes that the cost of stabilizing emissions at safe levels is rather modest and in any case far lower than the cost of inaction.

The IPCC has identified the technical and market potential for reducing emissions by sector. The biggest potential by far in both industrialized and developing countries is better energy efficiency in buildings. This is mostly insulation to reduce the need for heating and cooling, representing 20-30 per cent of the total mitigation potential. Other sectors with significant potential are energy, agriculture, industry and transport. A low-carbon economy will not only use more efficient technology and more sources of energy with low or zero emissions but also reduce the proportion of energy-intensive goods and services, such as iron and steel, aluminium, cement, pulp and paper and transport.

While the cost may not be high, the changes in production and consumption patterns are likely to be far-reaching. That has provoked fears that mitigation may turn out to be a job killer and might curtail the

prospects for developing countries. These fears look unfounded. A study published earlier this year by the European trade unions suggests that there will be major transitions in the labour market, but that there should be a small gain in total employment rather than a loss. Opportunities for new jobs outweigh the risks of job losses. The study finds that most of these shifts will be within rather than between economic sectors. Transport systems for example will shift towards more public transport and de-emphasize individual transport in cars. Additional jobs in public transport services and manufacturing of the equipment will more than compensate for the relative decline in the car industry. Research for the Apollo Alliance in the United States has come to similar conclusions.

Picking the low-hanging fruit

Progress in tackling climate change will depend to a large extent on the ability to allay the fears surrounding the future for jobs, for poverty reduction and for development. This has been one of the main stumbling blocks for adopting national policies and for progress in international negotiations about climate policies. It will continue to loom large when talks about a post-Kyoto regime begin later this year under the United Nations Framework Convention on Climate Change (UNFCCC). Decent, green jobs contribute to sustainable economic growth and lift people out of poverty. They are central to the positive link that needs to be established between climate change and development.

Decent jobs, with high labour productivity but also with high eco-efficiency and low emissions, hold the promise to provide good conditions and incomes, be good for growth and help to protect the climate. Such “green jobs” already exist and some have known spectacular growth (see sidebar). They are found in sectors like renewable energy generation, in energy efficiency services and equipment manufacturing, in mass transportation, in smart urban growth, in the reclaiming of brown-field sites and in recycling. These sectors are far from marginal. In Germany, there are already 1.6 million green jobs, more than in the country’s large auto industry.

Fortunately, many green jobs belong to the “low-hanging fruit”. They are measures based on existing technology, where the benefits exceed the cost and which can generate large numbers of jobs. An example is the upgrading of buildings to reduce their emissions, as demonstrated by the Alliance for Work and the Environment in Germany. A joint initiative by trade unions, employers, government and environmental groups, it has improved insulation in 265,000 apartments. This has created 190,000 jobs, saved 2 million tonnes of CO2 emissions and reduced heating bills. Total benefits from reduced unemployment, reduced heating and increased taxes are estimated at US$4 billion, produced through initial government funding of only US$1.8 billion. The scheme has been scaled up with government investment from 2006–2009 increasing more than fourfold to US$8 billion.

Government policies and public-private partnerships will often be necessary to overcome obstacles. An example is the fact that prices of fossil fuel do not take into account the environmental cost of their use. Government investment in technology and incentives for the adoption of renewable energy have helped to level the playing field. Investment in renewable energy leapt to US$100 billion in 2006, shedding the image of a fringe technology.

Government policies also play a role in attempts to demonstrate that measures to arrest climate change can be engines of development. The biodiesel programme in Brazil has been explicitly designed to provide access to large numbers of smallholder producers in poor rural areas of the country. Similarly, investment and concerted efforts are often needed to transfer technology and to develop the new skills required, particularly in small enterprises. In the absence of such measures, employment effects may be rather limited and income and wealth can become more concentrated rather than widely distributed.

Climate change and labour market transitions – a vital role for social dialogue

The world can ill afford to invest the massive resources required to address the climate crisis in ways that do nothing to tackle the global job crisis and poverty. Not only would such policies be costly, they would also be socially unsustainable. A much better outcome is possible. Action on climate change, economic and social development and employment do not have to be competing needs. Investments in mitigating climate change have enormous potential to create productive and gainful employment for the 1.4 billion working poor in the developing world, but also for the tens of millions of unemployed in industrialized countries. The opportunities for win-win and co-benefits for growth with employment and poverty reduction are most obvious in climate change mitigation, but we believe the case can and must be made for adaptation as well.

But the kind of broad-based, inclusive growth and fair transition which benefits the billions of workers, smallholder farmers and small businesses who most need them, will not happen by default. It will take

deliberate steps, policies for energy, industrialization and climate change designed to explicitly include green jobs as a goal and as a way of delivering development.

These policies and programmes will be most effective if they are designed and implemented with the active participation of those whose lives they affect: employers, workers and farmers from the national level down to the ground on farms and factory floors. They can help create large numbers of green jobs quickly and assist those whose jobs are not compatible with climate protection through a fair transition to other sources of work and income. The participation of the social partners in the allocation of carbon credits in Spain shows how valuable social dialogue can be for dealing with climate change. Tripartite consensus to guide the transitions in both growing and shrinking sectors and occupations could be the most effective way of tackling the challenge.

The ILO is joining forces with the United Nations Environment Programme (UNEP) as well as with other UN agencies and partners to help realize the potential for green jobs and a positive labour market transition in the face of climate change. In his report to the International Labour Conference on “Decent Work for Sustainable Development”, ILO Director-General Juan Somavia called for a major ILO programme on climate change. This ILO initiative responds to climate change as one of the three priorities for the UN system established by UN Secretary-General Ban Ki-moon. The ILO programme will help to fill the knowledge gaps, contribute to policy formulation and assist member countries as part of the Decent Work Country Programmes.