





The Employment Effects of Climate Change and Climate Change Responses: A Role for International Labour Standards?

Lene Olsen



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TABLE OF CONTENTS

1.	INTRODUCTION	1
2.	CLIMATE CHANGE IMPACT ON EMPLOYMENT	4
2.1	How different sectors are affected	4
2.1.1	Agriculture	4
2.1.2	Tourism	5
2.2	Adaptation	6
2.3	Mitigation	7
2.4	"Just transition"	7
3.	WHAT ARE INTERNATIONAL LABOUR STANDARDS?	11
3.1	Background	11
3.2	Supervisory mechanism	11
4.	WHY INTERNATIONAL LABOUR STANDARDS ARE	
	RELEVANT TO CLIMATE CHANGE AND HOW THEY SUPPORT	
	SUSTAINABLE DEVELOPMENT PRINCIPLES AND LAWS	12
4.1	Directly relevant conventions	13
4.2	Indirectly relevant conventions	15
4.2.1	Just Transition – equity – international labour standards	15
4.2.2	Policy Coherence - sustainable development – international	
	labour standards	19
4.2.3	Good governance - public participation – international	
	labour standards	22
5.	CONCLUSION	24
6.	REFERENCES	25

1. INTRODUCTION

This paper describes how International Labour Standards could be made more relevant to climate change in terms of its impact on employment and the labour market. It addresses the transition to a low carbon economy through a framework of policy coherence and good governance using International Labour Standards as guidelines for supporting not only the social dimension of sustainable development, but the economic and environmental ones as well. Two economic sectors, agriculture and tourism, will be looked at in particular and a special focus is put on workers and their social conditions throughout the transition.

We are living in a globalized world where huge changes in production and consumption patterns have dramatically affected not only the economy and the environment, but also our social conditions. Even though economic transitions and growth have lifted some out of poverty, there are still 1.3 billion workers, 43.5 per cent of all workers, who live below US\$2 per day (ILO 2008a). According to the International Labour Organization (ILO) this figure could increase by more than 100 million as a result of the current financial crisis and global unemployment might rise from 190 million in 2007 to 210 million in 2009 (ILO 2008b). Social inequalities are still huge, and the financial crisis will continue to have an enormous impact on social conditions, employment and the labour market in coming years. The global challenges of climate change will be just as significant. Not only when it comes to structural changes resulting from adaptation and mitigation measures directly, but also in the process of change from old jobs to new ones. In the 21st century we are facing a period of huge transitions similar to those faced by the industrial revolution in the 19th century and to some extent the shift to more use of information technology (IT) in the 20th century.

Having assessed studies and observations of the global climate system, the Intergovernmental Panel on Climate Change (IPCC) - a scientific body with climate scientists form all over the world - has in its Fourth Assessment Report (AR4) (IPCC 2007) provided more than sufficient evidence regarding the serious risks of continued global warming. The predictions of consequences such as increased global average air and ocean temperatures, extensive melting of snow and ice and rising global average sea levels have already proven correct as people now suffer from more droughts, floods and violent storms. There is also no doubt about the main causes of global warming. The AR4 by the IPCC shows an increase of 70% of Global Green House Gas (GHG) between 1970 and 2004 due to human activities. The report says that "there is very high confidence that the global average net effect of human activities since 1750 has been one of warming". In order to stop this process, human activity patterns must change, both in terms of private consumption but also in relation to industrial consumption and production.

Up until the outbreak of the financial crisis in 2008 we had witnessed growing interest and investment in the "green economy", investment aiming at reducing Green House Gas (GHG) emissions and changing the negative impact on the

climate. The negotiations on the follow up to the Kyoto Protocol (adopted in 1997 and entered into force in 2005) had made some progress and we had also begun to see social issues better included in these negotiations. With the financial crisis there was a fear that some of the positive work that had been done in terms of green investments would be undermined by a new narrow focus on the crisis itself. This was particularly striking during the United Nations Climate Change Conference (UNCCC) in Poznań, Poland, in December 2008. In contrast to the UNCCC in Bali in 2007 where the atmosphere was characterized by a sense of urgency about climate change, the Poznań Conference was overshadowed by the financial crisis and many observers expressed concerns about climate policy falling victim to the crisis (Akanle et al 2008). In order to address it many governments were willing to bail out the financial sector with substantial funds – the United States alone intervened with \$700 billion (Herszenhorn 2008). Voices were raised stressing the importance of not forgetting the climate change agenda. "If this crisis consumes all of our attention, it might definitely impact the speed at which [global warming] legislation could be passed," said Wiley Barbour, the founder of the American Carbon Registry in Time (Walsh 2008).

Rather than dealing with the crisis from an economic perspective alone, we should see this as an opportunity for change and an occasion to address the issue of "just transition" 1 towards a sustainable world – finally linking economic growth with environmental protection and social equity in practice. Now, more than ever, it is time for policy coherence in terms of sustainable development and better governance in terms of will. Governments have been investing billions of dollars (BBC 2008) in stimulus packages to kickstart the economy. A number of countries, including China, Japan, Portugal and the United States, have included energy efficiency and green technologies as part of their fiscal stimulus investment programmes. Many more countries already invest in green technologies (ILO 2009). To counter the crisis and increase consumption and production, governments are also investing in the public sector, in areas such as job-intensive infrastructure. The creation of such employment is important in this regard, but it is vital that the jobs created are decent – meaning that they provide an adequate income for workers, that the working conditions are good and that the workers have a say in issues related to their work. This could be a driver for change. However, it will be very important to link the present crisis response to the climate change agenda. Otherwise, we might end up seeing much of the effort expended to date wasted, when in a few years we have a new crisis from the effects of climate change - a crisis which in the short term would be much more difficult to "bail out" with a few billion dollars. As the Global Unions' statement (ITUC 2008) to the G20 Crisis Summit in Washington in November 2008 says: "Now is the time to move forward with a "Green New Deal" to create jobs through alternative energy development and energy saving and conservation."

¹ The concept of "just transition" will be further developed under section 2.4.

Addressing the social aspects of climate changes linked to the labour market demands that we more than ever have to take into account "the three pillars" of sustainable development, i.e. environmental protection, social development and economic growth. This should be addressed through "just transition", policy coherence and good governance. However, without sufficient rules to regulate the market and global governance to tackle global challenges, governments and multilateral institutions will not be able to address their stated sustainable development goals, whether in terms of economic growth, environmental protection or social equity. A sound policy framework, based in legislation, could-if respected and followed - greatly reduce the negative consequences of climate change for employment and the labour market. It will also improve the likelihood of winning support of all the tripartite partners (governments, workers and employers) in addressing climate change challenges.

Climate change impact on employment will be explained in the following section in relation to two specific sectors, agriculture and tourism, and then the measures developed to deal with those impacts will be further linked to the International Labour Standards.

 $^{^2}$ Concept established at the United Nations Conference on Environment and Development (UNCED), Rio de Janeiro, Brazil 3-14 June 1992.

2. CLIMATE CHANGE IMPACT ON EMPLOYMENT

Much has been written about the environmental consequences of climate change. The Stern Review on the Economics of Climate Change directly addressed the economic costs of climate change action and inaction. What has been less discussed is the way that climate change will affect social conditions and particularly the labour market, jobs and workers. The social costs, both financial and human, will substantially add to the environmental and economic ones. In September 2008 the International Labour Organization (ILO), the United Nations Environment Programme (UNEP), the International Trade Union Confederation (ITUC) and the International Organisation of Employers (IOE) launched the report Green Jobs: Towards Decent work in a Sustainable, Low-This document makes an important contribution to Carbon World. understanding the challenges associated with the transition to so called "green jobs" worldwide3. It illustrates the tremendous potential for job creation and transformation of existing jobs, as well as some destruction of jobs across virtually all economic sectors in low- and high-income countries. It sets out a policy framework to harness this potential (ILO 2009).

2.1 How different sectors are affected

The world has experienced structural changes in the labour market before. However, changes in the climate will have an enormous impact on employment and the labour market in general, especially in developing countries. Even though the largest share of Green House Gases (GHG) affecting the climate is coming from developed countries and countries in transition, it is the developing world which will be the hardest hit – also already poor and financially weak with respect to what the measures they would be able to take to tackle climate change effects. In an interview in the *Financial Times* in December 2008 (Harvey 2008), Nicholas Stern suggested that "there are two big challenges for this century and they are world poverty and climate change." He argues that we will have to address both or we might fail in both areas. This is important as all economic sectors will be affected by climate change, although some sectors are more weather sensitive than others and will have more impact on people's lives and income possibilities. This is particularly true for agriculture and tourism.

2.1.1 Agriculture

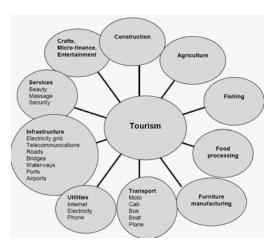
Over 1 billion people are employed in the agriculture sector which is the second greatest source of employment worldwide after services. Asia accounts for more than 70 per cent of the world total and sub-Saharan Africa for almost 20 per cent. China and India together represented almost 60 per cent of the world's total agricultural labour force. Of the total workforce about 40 per cent are women (ILO 2008c).

³ It is noted that employment figures, and therefore the effects of this transition, are less available for the developing countries.

It is clear that climate changes such as extreme weather events, increased incidence of droughts and floods, variability in rainfall patterns and degradation of marginal lands will have an influence on the agriculture sector and its many workers. Cereal production, for instance is particularly sensitive to changes in temperature and precipitation and the Least Developed Countries (LDCs), sub-Saharan Africa and many poor island States are particularly at risk from the effects of climate change (ILO 2008c). Increased sea levels may also lead to salinazation of irrigation water, estuaries and freshwater systems. The many millions of people working in the agriculture sector will have to face change in the way crops are produced or even look for new pastures elsewhere. The agriculture sector is known for its growing job insecurity, low rates of pay, poor working conditions and growing levels of poverty. Climate change challenges will place an enormous burden on already affected workers.

2.1.2 Tourism

The hotel, catering and tourism (HCT) sector is one of the fastest growing industries globally. As at the end of 2007 the wider travel and tourism industry accounted for 10.3 per cent of global gross domestic product (GDP). Not only is it a large and fast-growing industry, the sector is itself human-resource intensive and therefore a major generator of jobs in most economies.



Further, as the figure (Bolwell & Weinz 2008a) indicates one job in the direct tourism industry creates roughly one and a half additional (indirect) jobs in the wider related economy. In fact the industry creates more than 230 million direct and indirect jobs, which represent some 8 per cent of the entire global workforce. Women make up between 60 and 70 per cent of the labour force in the industry

(Bolwell & Weinz 2008a).

However the HCT sector is often characterized by low pay, difficult working conditions and many clandestine jobs. In many countries tourism contributes to the exploitation of child labour and women, local communities often derive little benefit from the industry and it can have significant negative environmental impacts (Bolwell & Weinz 2008b).

The tourism sector is highly affected by climate change. As a result of rising sea levels, many coastal areas and small islands will have to address changes in relation to jobs. Sea-level rises in the Maldives (where tourism provides 18 per cent of GDP, 60 per cent of foreign exchange earnings and 90 per cent of government tax revenue) will mean, at best, severe coastal erosion, and at worst,

that a large proportion of the land mass will disappear over the next 30 years and salt water intrusion will make the islands uninhabitable (UNWTO 2003).

Coastal zones are not the only places affected; mountain regions will also face disruptions of economic activities and employment. A recent study by the Organisation for Economic Co-Operation and Development (OECD) shows that the skiing industry, for example, is sensitive to climate change. The Alps are particularly at risk and climate model projections show even greater changes in the coming decades, with less snow at low altitudes and receding glaciers and melting permafrost higher up. Tourism in the Alps is important for the economy with 60-80 million tourists and 160 million ski days in France, Austria, Switzerland and Germany each year. Winter tourism in the mountains of North America may face the same problems (OECD 2006). This will have an enormous impact on employees in this sector – travel guides, workers in hotels and restaurants and even in the transport sector, will be faced with greener pastures than they want (Olsen 2007).

2.2 Adaptation

Adaptation to climate change refers to the collection of measures put in place to deal with and remedy its effects. These measures could be structural, managerial and political and they could be short- and/or long term. Adjustments can be both behavioural (human) and technical. The aim is to minimize the consequences of climate change.

Adaptation measures in the agriculture sector are not new. Farmers have been adapting to weather conditions for as long as farming has existed. However, the new challenges might be more extreme than earlier, cover larger geographical areas and take place more rapidly. Adaptation measures could include: reduction of risks for flooding; alteration of crops or relocation; improvement of land management; the institutionalisation of land reform, capacity building, financial incentives (subsidies taxes, etc.) (IPCC 2007a); and measures to help workers cope with the loss of employment.

In fact, measures such as capacity building, financial incentives, and measures to help workers cope with the loss of employment are valid for all sectors, including tourism. Particular adaptation measures for tourism could include an increased diversification of tourism attractions. Winter sport areas could for instance explore the addition of alternative activities for the summer season. Some ski stations and slopes have moved their installations to higher altitudes and glaciers. In terms of financial incentives, support could include tax breaks on adaptation investments as well as subsidies for capacity building in relation to development of new skills.

2.3 Mitigation

Adaptation measures do not necessarily reverse global warming, nor does it have a direct impact on the climate. If we want to reverse global warming, we will not only have to adapt but to find measures to reduce the Green House Gas (GHG) emissions which lead to global warming. These measures are called mitigation measures.

Agriculture is an important contributor to GHG emissions, but differs in the type of gases it releases into the atmosphere. Methane (CH4) is the main gas emitted by this sector, and measures to reduce its emissions are currently not being promoted as much as CO2 emissions. Another difference is the regional distribution of these emissions. While emissions coming from industry, energy production or transport are still primarily emitted by the developed countries, emissions from agriculture (and those of forestry, as we will see below) are mainly originated in developing countries (Sustainlabour, 2008).

Mitigation measures in the agriculture sector include improvement of crop and grazing land management to increase soil carbon storage; restoration of cultivated peaty soils and degraded lands; improved rice cultivation techniques and livestock and manure management to reduce CH4 emissions; improved nitrogen fertilizer application techniques to reduce N2O emissions; dedicated energy crops to replace fossil fuel use; improved energy efficiency; mulch farming, conservation tillage, cover cropping and recycling of bio-solids. Environmentally effective policies, measures and instruments, financial incentives and regulations for improving land management, maintaining soil carbon content, and making efficient use of fertilizers and irrigation (FAO 2008). Even though most mitigation measures in the agriculture sector relate to changes in farming methods there are also voices for food consumption issues such as diet changes by for example reduction of meat consumption. This is especially relevant for developed countries. However, in developing countries such changes may be unlikely to happen a given that meat consumption tends to rise as countries get richer.

Within the tourism sector mitigation measures have been developed around reduction of transport volumes, energy efficiency improvement and efficiency in air travel. As the tourism sector is an industry that generates significant secondary employment, there is scope for improvements related to mitigation measures in this industry.

2.4 "Just transition"

Many of the impacts of these adaptation and mitigation efforts on employment and investment are addressed in the report *Green Jobs: Towards Decent work in a Sustainable, Low-Carbon World* (ILO 2008d). It describes how its effects are generating new jobs in many sectors and economies. However, environmental transition will also result in both the disappearance and transformation of so-called "old jobs". There will be a shift in the location of jobs between sectors and in the types of jobs done within sectors. Though the report is generally optimistic

about the creation of new jobs to address climate change, it also warns that many of these new jobs can be "dirty, dangerous and difficult". Sectors of concern, especially but not exclusively in developing economies, include agriculture and recycling where all too often low pay, insecure employment contracts and exposure to hazardous materials are the norm. It is also important to make sure that environmental initiatives not necessarily related to employment – for example, green taxes – do not negatively affect lower income groups (TUC 2008).

In order to find solutions to the negative social consequences that climate change policies might have on people and their incomes, several questions need to be addressed and included in policy debates and decisions:

- What will happen to workers and workplaces in weather sensitive sectors in the different regions of the world?
- What alternative jobs are there for laid-off workers?
- What are the working conditions (wages, health and safety, working time, etc.) in the new jobs created? Will they offer "decent work"?
- What kind of unemployment benefits for workers laid off and workers in transition between jobs are in place?
- What kind of education and training initiatives are provided for workers who want to change?
- What will happen to workers who have to migrate because jobs or even land do not exist any more?
- Who will finance the social costs of environmental change and how will it be done?

The challenges and answers to these questions are important to address as they might provide tools for a socially "just transition". The term "just transition" used in relation to the process of economic restructuring towards a more environmental and social sustainable economy has been mainly used by environmental organizations and trade unions. The Canadian Labour Congress (CLC) was one of the first union organizations to develop and organize around the concept of "just transition". It has been used as a *principle*, *process*, and *practice* to ensure there is justice for workers and communities during change (Evans 2008).

The overall aim of "just transition" is to manage a change process in a manner that is consistent with social justice and equity. It is important to balance social, environmental and economic concerns in order to address the consequences of climate changes in a fair and equitable way.

The practical element of "just transition" is the set of concrete measures adopted to balance these concerns. They include, inter alia:

- Social protection (unemployment benefits, health and safety measures, etc.).
- Education and training.
- Support policies (for migrant workers, and other vulnerable groups such as women).

However, the practical element of "just transition" is not enough. It is not only about *what* kind of technical tools and policies we put in place, but to a large extent also about *how* we put them in place. It is about the entire process of change.

The process of "just transition", how we put in place adaptation and mitigation measures, is first and foremost about policy coherence, good governance and participation. "At the heart of the Just Transition concept is recognition that ensuring social justice in the transition to a low carbon economy cannot be based on the vain hope that the market alone will provide. Planning and proactive policies by government to take full economic advantage of the global environmental transition is a basic precondition of a Just Transition." (TUC 2008) Good governance is thus key to "just transition". At the same time, participation of all stakeholders in policy decisions is important for good governance. In a recent publication (TUC, 2008), the British Trade Union Congress enumerates three detailed arguments for a "just transition", one of them is particularly focussing on participation and the need to genuinely seek out and obtain workers' active involvement and support. "Substantial evidence exists that environmental transition happens fastest and most efficiently when workers are involved, so that those affected by environmental policy are secure in the knowledge that their views and needs are being fully considered and responded to. Involving employee representatives, such as trade unions, in the planning of environmental measures – as advocated by Just Transition – is one way to make better use of employees as drivers of environmental change."

"Researchers at the European Trade Union Institute (ETUI) have developed a new tool called the European Participation Index (EPI) designed to examine the relationship between worker participation and social cohesion, economic performance and sustainable development in Europe. The Index shows that companies located in countries that recognise a greater participatory role for workers operate more in coherence with social and ecological objectives and this has a beneficial effect on European society as a whole. Europe needs skilled, mobile, committed, responsible workers that are able to identify with the objective of increasing competitiveness and quality without fear of losing their job. The 'strong rights' group of countries surpassed the other in a wide variety of key indicators: GDP per capita, labour productivity, overall employment rate, employment rate of older workers, youth educational attainment, expenditures on R&D, progress on the reduction of greenhouse gas emissions and consumption of energy." (ETUI 2009)

Having looked at the principle and process of "just transition" it is evident that the concept can be viewed as consistent with, and perhaps a constitutive element of the concept of sustainable development and also the concept of decent work, which will be addressed later. They all aim at ensuring social equity and justice while addressing economic concerns and environmental protection. The need for good governance and participation is also embodied in the three concepts.

The concept of sustainable development addresses the coherent approach of economic, social and environmental concerns and the objectives of Agenda 21 (UN 1992) to accelerate sustainable development recognize the importance of broad public participation in decision-making relating to sustainable development. The Agenda 21 highlights the strengthening of the role of major groups in its preamble of chapter 23:

"One of the fundamental prerequisites for the achievement of sustainable development is broad public participation in decision-making. Furthermore, in the more specific context of environment and development, the need for new forms of participation has emerged. This includes the need of individuals, groups and organizations to participate in environmental impact assessment procedures and to know about and participate in decisions, particularly those which potentially affect the communities in which they live and work. Individuals, groups and organizations should have access to information relevant to environment and development held by national authorities, including information on products and activities that have or are likely to have a significant impact on the environment, and information on environmental protection measures."

The decent work concept, developed by the ILO in 1999, also includes a notion of governance and participation, especially in its principles and rights to social dialogue and tripartism. This will be further developed under the section on good governance.

The role of governments and how democratic policies are implemented will determine the outcome of the measures taken. A clear legal framework is needed in order to take the concept of sustainable development further and implement its principles.

International Labour Standards can support this framework, especially in so far as they could form a part of the foundation for its social dimension. However, linkages to environmental principles and laws show that they also support the environmental dimension and notably the international climate change agenda.

The following section will give a brief introduction to International Labour Standards and describe how they support the rights based approach to "just transition" good governance and participation in relation to climate change.

3. WHAT ARE INTERNATIONAL LABOUR STANDARDS?

International Labour Standards are legal instruments developed and adopted by the tripartite constituents of the International Labour Organization (governments, workers and employers) at its annual International Labour Conference.

3.1 Background

The standards cover a large number of fields and sectors related to the labour market, employment, workplaces and workers. The standards are either conventions or recommendations. The conventions are binding upon ratification by member states whether the recommendations are non-binding guidelines. Conventions and recommendations are often developed in combination, with recommendations thus serving as further guidelines for their respective convention. However, some recommendations are developed on an independent basis. The ILO has to date⁴ adopted 188 conventions (of which 76 are up-to-date) and 199 recommendations⁵.

3.2 Supervisory mechanism

Once a convention is adopted it is open for ratification by Member States. States having ratified the conventions are committed to include the convention to its national legislation and to report on implementation at regular intervals. Member states may request assistance from the ILO to help them in this work. The ILO does also have a supervisory mechanism to ensure that conventions are applied and respected. Three special committees are set up in that respect: the Committee of Experts on the Application of Conventions and Recommendations involving 20 independent jurists from different geographical regions meeting once a year; the Conference Committee on the Application of Standards involving the tripartite constituents of the ILO and meeting in June every year; and the special Committee on Freedom of Association form a Governing Body Committee which meets three times a year. Representations and complaint procedures can be initiated against Member States for violations of a convention they have ratified in these foras (ILO 2005).

⁴ At 25 January 2009.

⁵ Full text of conventions and recommendations can be found online in the ILO's database of International Labour Standards (ILOLEX) at: http://www.ilo.org/ilolex/english [accessed 25 January 2009]

4. WHY INTERNATIONAL LABOUR STANDARDS ARE RELEVANT TO CLIMATE CHANGE AND HOW THEY SUPPORT SUSTAINABLE DEVELOPMENT PRINCIPLES AND LAWS

International Labour Standards are relevant to climate change because they can be useful to regulate the labour market and set rules for challenges faced by governments, workers and employers in relation to workplaces and employment issues affected by climate change. They can be important in responding to the question of *how* to tackle these challenges. The role of international law is important in a globalized world because it not only provides a set of guidelines which are common to all (thus requiring a level of transparency among all relevant actors), but also establishes a basis for a level playing field which allows fair competition among nations as well as better social conditions. It also provides a set of measures through the supervisory mechanisms which provide for a fair and universal implementation of the rules.

International Labour Standards are already expanded to some fields through other agencies and institutions (bilateral development agencies, etc.). For many years the ILO has also made efforts to include International Labour Standards in the work and activities of the International Financial Institutions. There have been attempts to better link economic and social aspects of sustainable development, and it would be useful to also look closer at International Labour Standards in relation to environmental policies and especially the linkages to climate change policies.

This paper does not aim to illustrate how all ILO standards are relevant, but uses a few selected examples related to health and safety, social protection, training and education, migration, employment, freedom of association, social dialogue, collective bargaining and tripartite consultation. Labour standards can be directly or indirectly linked with the issue of climate change. The conventions that are indirectly linked are explained within a framework of three areas where sustainable development principles and environmental law can take advantage of the labour standards and vice versa. These three areas include "just transition", policy coherence, and good governance. The directly linked standards are illustrated by occupational safety and health conventions and are firmly grounded by the precautionary principle.

	Areas	Environment Principles	International Labour Standards
	Climate change	Precautionary Principle	Occupational Safety and Health
DIRECTLY			
INDIRECTLY	Just transition	Intergenerational Equity	Social Protection/Security
		Intra-generational	Education and Training
		Equity	Migration
	Policy Coherence	Sustainable	Employment
		Development	
	Good	Public Participation	Freedom of Association
	Governance		Collective Bargaining
			Tripartite consultation

4.1 Directly relevant conventions

Some International Labour Standards are relevant to the climate change agenda as they have a direct impact on the climate. These can be illustrated by some of the occupational safety and health conventions which are primarily used to protect human health, but also the environment. Three of the conventions presented are general, while the fourth is specifically related to the agriculture sector. They all have a preventative aspect and are guided by and supportive of the precautionary principle. The precautionary principle is most often applied in the context of the impact of human actions on the environment and human health, as both involve complex systems where the consequences of actions may be unpredictable (Wikipedia 2008).

There are many definitions of the precautionary principle. In Principle 15 of the *Rio Declaration* (UN 1992) it has been defined as:

"Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation."

ILO Convention No 148 on the Working Environment (Air Pollution, Noise and Vibration) (1977) deals specifically with the working environment but is not limited only to this. For example, it specifically addresses the threat to human health posed by air pollution and also refers to "otherwise dangerous" harm. The convention defines the term air pollution in its article 3 to cover "all air contaminated by substances, whatever their physical state, which are harmful to health or otherwise dangerous". The term "otherwise dangerous" can be interpreted to include the harm presented by atmospheric pollution that exists

outside the workplace. Gases such as carbon dioxide, which contribute to global warming, have recently gained recognition as pollutants by climate scientists (Wikipedia 2008) and this could in the future be an issue addressed by this convention. Airborne pollution in the working environment could have an impact on the external environment as well unless "replaced by less harmful or harmless substances" as the guiding Recommendation No 156 on Working Environment (Air Pollution, Noise and Vibration) (1977) indicates.

Another convention dealing directly with environmental issues which might relate directly to the climate is the Chemicals Convention No 170 from 1990. Article 14, in particular, covers the disposal of hazardous chemicals and its handling to preserve the environment. "Hazardous chemicals which are no longer required and containers which have been emptied but which may contain residues of hazardous chemicals, shall be handled or disposed of in a manner which eliminates or minimizes the risk to safety and health and to the environment, in accordance with national law and practice." In this field the International Labour Organization (ILO) is already cooperating in environmental matters through its close working relationship with the United Nations Environment Programme (UNEP). Along with the World Health Organization (WHO), the three agencies established the International Programme on Chemical Safety (IPCS) in 1980. Even though the Convention primarily addresses the safe handling and disposal of harmful chemicals and do not necessarily prevent the use of them in the first place, the implementation of the Convention might generate discussion about how to eventually replace them with alternative and less harmful chemicals both for the workplace and the external environment. Safe disposal will certainly prevent external environmental damage.

The Prevention of Major Industrial Accidents Convention No 174 (1993) and its accompanying Recommendation No 181 (1993) aims to protect workers, the public and the environment from major industrial accidents, in particular through the prevention of major accidents involving hazardous substances and the limitation of the consequences of such accidents. It applies to major hazard installations with the exception of nuclear installations and radioactive materials processing, military installations and transport outside the site of an installation other than pipeline (ILO 2008e). Its article 4 gives provisions to the Member States of the ILO to "formulate, implement and periodically review a coherent national policy concerning the protection of workers, the public and the environment against the risk of major accidents." The policy encourages the promtion of the use of the best available safety technologies and the competent national authority must have the right to suspend any operation which poses an imminent threat of a major accident (ILO 2008i).

Agriculture is one of the largest sectors in terms of workforce and is also a sector which is very weather sensitive. Not only are millions of the world's 1.3 billion agricultural workers seriously injured in workplace accidents each year, or poisoned by pesticides and other agro-chemicals (ILO 2008f), but the sector is also responsible for significant greenhouse gas (GHG) emissions. In 2000, 14% of

GHG emissions came from agriculture (Stern 2006b). The ILO Convention on Safety and Health in Agriculture No 184 from 2001 can for that reason be a valuable tool in efforts to advance climate change policies. Such implications can be direct, in terms of the general concern about GHG emissions, and indirect, with respect to working conditions for agricultural workers as a result of climate change. According to the Stern report (2006b), fertilizers are the largest single source (38%) of emissions from agriculture. Agricultural soils release nitrous oxide (N2O) during the natural processes of nitrification and de-nitrification. Fertilizers (both man made and natural) increase the output of nitrous oxide from these processes. The ILO convention is useful in this regard as it calls for "safe collection, recycling and disposal of chemical waste, obsolete chemicals and empty containers of chemicals so as to avoid their use for other purposes and to eliminate or minimize the risks to safety and health and to the environment." The Convention's reference to "the environment" in general terms underlines the point that protections do not stop at the limits of the workplace, but extend also to the larger external environment as well (such as in the prevention of toxic waste polluting waterways, etc.) It might also have the effect of phasing out chemical fertilizers which are a significant source of greenhouse gas emissions.

The precautionary principle is also implicated within the ILO Recommendation No. 192 (2001) which accompanies Convention No. 184. Addressing the management of chemicals, the Recommendation suggests that a competent authority should establish a national system for occupational safety and health surveillance which includes the necessary risk assessments with respect to, among other things: hazardous chemicals, hazardous waste, and risks from new technologies.

The precautionary principle could be useful when dealing with new technologies in relation to climate change mitigation efforts in the agriculture sector such as the production of biofuels. As the Convention also covers the forestry sector this might also be relevant for new technologies in the forestry sector.

4.2 Indirectly relevant conventions

Some labour standards are more indirectly linked to the issue of climate change. However, they are highly relevant as they support sustainable development principles and environmental laws through the framework of just transition, good governance and public participation. The conventions presented under the heading on governance, related to public participation are enabling conventions for all the other ones.

4.2.1 Just Transition – equity – international labour standards

As mentioned earlier "just transition" is about social equity. It supports the environmental principle of equity as used in the Rio Declaration (UN 1992) in Principle 3: "The right to development must be fulfilled so as to equitably meet developmental and environmental needs of present and future generations." It includes both intergenerational equity and intra-generational equity. The intergenerational equity is about how "the present generation owes a duty to

generations yet unborn to preserve the diversity and quality of our planet's life sustaining environmental resources" (Busingye 2008). The intra-generational equity involves considerations of equity within the present generation. The use of natural resources by one country (or sector or class within a country) needs to take account of the needs of other countries (or sectors or classes within other countries). Intra-generational equity involves people within the present generation having equal rights to benefit from the use of natural resources and from the enjoyment of a clean and healthy environment; it is a key dimension of environmental justice (Preston 2006).

International Labour Standards are clearly linked to specific development issues and equity. Conventions on social protection, training and education, and migration are especially supporting both intergenerational and intragenerational equity.

Social security

A globalized world with global markets requires global standards in order to provide equal and just conditions for all. It is unlikely that measures aiming at reducing green house gases (GHG) to influence climate change will be universally accepted if people remain in constant fear of the consequences of change. A worldwide level playing field for social conditions needs to be established through standard setting so as to prevent the leveling down of social systems at the national level. Social security is declared as a human right in the major United Nations human rights instruments and must be put in place. In addition, it is essential to face the negative consequences of climate change measures. However, at the beginning of the twenty-first century, 80 per cent of the world's population does not have access to any form of social protection (ILO 2008g).

ILO Convention N°. 102 on minimum standards of Social Security (1952) is of particular importance in this regard. It provides guidelines on how states can establish social security measures in a number of branches such as basic income in cases of unemployment, illness, injury, old age, invalidity and pregnancy. Some of the consequences of the climate change transition will include disruption of employment and unemployment for many; as such, to facilitate needed measures but also make them "just", certain social security measures such as those called for by various ILO conventions must be respected. In the case of unemployment, Convention N°. 102 can be used as guideline to secure unemployment benefits. It provides for protection when persons who are capable and available for work are not able to obtain suitable employment.

These provisions are important as they can provide an income guarantee which allows both the worker and his or her family sustained living conditions until the worker finds a new job. In this way it provides for intra-generational equity among all citizens – employed and unemployed, and intra-generational equity as it allows children of unemployed workers to live within a certain minimum standard for social conditions. This is particularly important to fight poverty. In poor countries where parents are unemployed, there is a risk that children are

forced to work instead of going to school in order to provide the family with an income. A society which denies its children the opportunity to go to school also deprives its future generation of educated adults and, therefore, a "sustainable" development. In considering the lack of respect for social security standards, we can also see that the ILO conventions dealing with child labour might be relevant here.

Education, knowledge and capacity building

Education is important for awareness and knowledge about climate change, especially to make informed policy decisions about adaptation and mitigation measures. It is also important for the re-tooling of skills of the workforce in order to enable workers to adjust to the policies put in place. Education is a fundamental human right. Everyone has the right to free elementary education, whereas technical and professional education shall be made generally available. This right is important to the process of "just transition" and sustainable development in relation to climate change.

The Kyoto Protocol to the United Nations Framework Convention on Climate Change (1997) makes reference to these rights in its insistence that, in order to advance the implementation of the commitments in the protocol, all parties shall: "Cooperate in and promote at the international level, and, where appropriate, using existing bodies, the development and implementation of education and training programmes, including the strengthening of national capacity building, in particular human and institutional capacities and the exchange or secondment of personnel to train experts in this field, in particular for developing countries, and facilitate at the national level public awareness of, and public access to information on, climate change."

This is further underlined in relation to the working and social environment in ILO Convention N°. 142 on Human Resources Development (1975), which in its article 1 provides that Member States shall: "adopt and develop comprehensive and coordinated policies and programmes of vocational guidance and vocational training, closely linked with employment, in particular through public employment services." This Convention also requires that such policies and programmes should take account of "employment needs, opportunities and problems, both regional and national" and "be designed to improve the ability of the individual to understand and, individually or collectively, to influence the working and social environment."

To facilitate education and training to address climate change challenges it will sometimes be necessary for workers to take time off to be able to follow and attend courses and activities in relation to re-tooling of their skills. Convention Nº. 140 on Paid Educational Leave (1974) provides a legal framework for time off during working hours, with adequate financial entitlements. Its article 3 says that the national policy on this shall be geared "to the acquisition, improvement and adaptation of occupational and functional skills, and the promotion of employment and job security in conditions of scientific and technological

development and economic and structural change", not only for the general "human, social and cultural advancement of workers", but also "the promotion of appropriate continuing education and training, helping workers to adjust to contemporary requirements."

Workers' training needs when adjusting to, for instance, technological change in relation to adaptation and mitigation measures of GHG reductions, can be interpreted as "contemporary requirements".

Migration

Workers will not only have to adapt to new and cleaner production methods, but in many cases workplaces may disappear due to unsustainable production or even because a particular geographical area no longer exists. In this scenario, whole communities might even be forced to migrate (Olsen 2007). In 1990, the Intergovernmental Panel on Climate Change (IPCC) noted that the greatest single impact of climate change could be on human migration—with millions of people displaced by shoreline erosion, coastal flooding and agricultural disruption. Since then, various analysts have tried to compile accurate projections of the future flows of climate migrants (sometimes called "climate refugees")—the most widely repeated prediction being 200 million by 2050 (IOM 2008).

Migration due to climate change is not a new phenomenon, but one that often challenges social equity and intra-generational solidarity. Future migration flows might even increase this further. The influential Stern report cited above (Stern, 2006) gives several examples of past experiences with huge migration flows. One example is the organized resettlement of populations from Montserrat after volcanic eruptions in the 1990s. The eruptions made housing uninhabitable and the population were given the possibility to move either to the United Kingdom or Antigua. This is an example of relative success as more than half of the population resettled. However, as Montserrat is a British overseas territory, responsibility for action was relatively clear.

When huge flows of people migrate to other countries, full resettlement can be difficult. Social and economic marginalization is often the result if the settlements are not managed properly. Co-operation, cost sharing and political will is required. Sending and receiving countries should develop reception and resettlement terms and strategies, with possible cost sharing across a broader range of countries on equity grounds. International responses are needed and the parties to the UNFCCC have clearly acknowledged this where they suggest that "the global nature of climate change challenges call for the widest possible cooperation by all countries and their participation in an effective international response". There is clearly a scope for cooperation in relation to the challenge of migration.

The revised international labour standard on Migration for Employment, Convention N°. 97 (1949), is valuable effecting this respect. It requires that states shall take appropriate measures within their jurisdiction to "facilitate the departure, journey and reception of migrants for employment."

In order to overcome discrimination and decent work deficits among migrant workers, the Migrant Workers (Supplementary Provisions) Convention No 143 (1975) was adopted to promote equality of opportunity and treatment for migrant workers. Part II of the Convention specifies that ratifying member States must:

"...pursue a national policy designed to promote and guarantee equality of opportunity and treatment for migrant workers and members of their family who are lawfully within its territory in respect of:

- employment and occupation;
- social security;
- trade union and cultural rights; and
- individual and collective freedoms."

With the current knowledge of future migration flows it would be important to already now discuss, ratify and seek to implement these conventions.

4.2.2 Policy Coherence - sustainable development - international labour standards

Actions to combat climate change are very complex as positive measures taken in one area may have negative effects on others. Considerations for such effects demand coordination in all areas and levels of society. At the national level different ministries have to cooperate. At the international level, institutions and treaties are tools which should be better used by all states to coordinate and cooperate on the global challenges of climate change. Many international organizations and fora have been promoting the need for better policy coherence in the framework of sustainable development and most environmental laws and treaties also do include the principles of sustainable development and policy coherence.

The preamble of the United Nations Framework Convention on Climate Change (UNFCCC) affirms that: "responses to climate change should be coordinated with social and economic development in an integrated manner with a view to avoiding adverse impacts on the latter." (UN 1992b) Not only does it stress the integrated manner of action, but it also says that activities in one area should not have negative effects on other areas.

Considering commitments, it continues to stress in its article 4 that all parties shall:

"Take climate change considerations into account, to the extent feasible, in their relevant social, economic and environmental policies and actions, and employ appropriate methods, for example impact assessments, formulated and determined nationally, with a view to minimizing adverse effects on the economy, on public health and on the quality of the environment, of projects or measures undertaken by them to mitigate or adapt to climate change;"

Before putting in place national policies, it suggests that parties should assess any negative effects from adaptation and mitigation measures. Finally it also highlights the need for cooperation in research also to reduce negative social consequences. It urges parties to:

"Promote and cooperate in scientific, technological, technical, socioeconomic and other research, systematic observation and development of data archives related to the climate system and intended to further the understanding and to reduce or eliminate the remaining uncertainties regarding the causes, effects, magnitude and timing of climate change and the economic and social consequences of various response strategies;"

In June 2008, the 97th Session of the International Labour Conference adopted the ILO Declaration on Social Justice for a Fair Globalization. The Declaration further commits all the Members of the Organization 6 to pursue the implementation of the Decent Work Agenda⁷ and to base all of its policies on the Declaration's four strategic objectives: international labour standards; employment; social protection; and social dialogue. The Declaration underlines that these objectives are "inseparable, interrelated and mutually supportive". Failure to promote any one of these objectives would constitute a hindrance to progress towards achieving the others. The ILO has promoted the decent work agenda among other international organizations and the concept has been largely adopted through the United Nations' Economic and Social Council's Ministerial declaration of the high-level segment in June 2007. The principle of policy coherence in the ILO Declaration is an important step in the direction of policy coherence for sustainable development between social, environmental and economic objectives among international organizations. In light of this, International Labour Standards reflect a part of the objective of integrating economic, social and environmental policies.

As conventions on social protection are dealt with especially under the "just transition" heading and as conventions related to social dialogue will be addressed under the section of governance and participation, only conventions related to employment will be dealt with here. However, the other conventions already mentioned are also very relevant for policy coherence as they will have to be taken into account to address various policy areas.

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⁶ 182 countries (30.11.08)

⁷ The Decent Work concept was formulated by the ILO's constituents – governments and employers' and workers' organizations – as a means to identify the Organization's major priorities and to modernize its approach for the twenty-first century. The Decent Work Agenda is setting out how to implement the concepts' four strategic objectives (employment, fundamental principles and rights, social protection and social dialogue), with gender equality as a crosscutting objective.

More information available at: (http://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/documents/publication/wcms 082654.pdf) [accessed 25 January 2009].

Convention N°. 122 on Employment Policy (1964) is noteworthy as it stipulates in its first article that, in the development of a Member States' employment policy, due account should be taken of "the mutual relationships between employment objectives and other economic and social objectives".

In relation to the principle of participation addressed in the next section, it adds:

"In the application of this Convention, representatives of the persons affected by the measures to be taken, and in particular representatives of employers and workers, shall be consulted concerning employment policies, with a view to taking fully into account their experience and views and securing their full co-operation in formulating and enlisting support for such policies."

Another employment convention which merits consideration is Convention N°. 158 on Termination of Employment (1982). This convention includes provisions concerning terminations of employment for economic, technological, structural or similar reasons which are also mandatory. The principle guiding the establishment of this convention could be relevant in the event of employment losses as a result of structural changes in the labour market generated by climate change adaptation and mitigation measures. Not only is the loss of jobs difficult for workers, but it can also have an impact on the workers' family. This Convention provides for rights regarding an appropriate period of notice, which can be very important in circumstances where the affected worker needs to find alternative employment. Division D, article 11 of this same convention also provides that:

"A worker whose employment is to be terminated shall be entitled to a reasonable period of notice or compensation in lieu thereof, unless he is guilty of serious misconduct, that is, misconduct of such a nature that it would be unreasonable to require the employer to continue his employment during the notice period."

In order to minimize further negative impact on the worker the Convention also includes provisions for severance allowance and other income protection. A worker is entitled to:

- "(a) a severance allowance or other separation benefits, the amount of which shall be based inter alia on length of service and the level of wages, and paid directly by the employer or by a fund constituted by employers' contributions; or
- (b) benefits from unemployment insurance or assistance or other forms of social security, such as old-age or invalidity benefits, under the normal conditions to which such benefits are subject; or
- (c) a combination of such allowance and benefits."

Improving the coordination of such socio-economic and environmental policies should reduce the negative social consequences of transition policies on workers.

4.2.3 Good governance - public participation – international labour standards

There are many definitions of "good governance". The United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) - the regional development arm of the United Nations for the Asia-Pacific region - includes eight elements in its definition of good governance (UNESCAP 2008). It is participatory, consensus oriented, accountable, transparent, responsive, effective and efficient, equitable and inclusive and follows the rule of law. It first of all ensures that all voices are heard in decision making and responds to the sustainable development principle.

The principle of public participation is at the heart of good governance. Without public participation society can not be equitable and inclusive – it can not be democratic. Public participation endeavors to include those potentially affected by decisions to contribute and eventually influence decisions. In order to bring about sustainable development and address climate changes in a coherent and socially equitable way public participation is essential. Everyone is part of today's environmental problems and there is a need to better implement the principle of public participation. Every individual has a right to participate in public policy decision-making – even though this right is not universally, or even widely, recognized and exercised. Improving participation and the respect for these rights requires legal frameworks which are implemented by all.

When it comes to workers' participation in decision making related to climate change policies affecting their workplaces or the labour market in general, ILO conventions provide for valuable legal guidelines. The ILO is the only UN organization or agency with stakeholder involvement in its governing organs - governments, workers' and employers' organizations are represented. It is a tripartite organization and all of its conventions are premised on the rights to participation of all constituents in relation to the conventions' different provisions.

Two of its fundamental conventions ⁸ are cornerstones for participation in decision-making. One is Convention N°. 87, on Freedom of Association and the Right of Collective Bargaining (1948) and the Convention N°. 98 on the Right to Organize and Collective Bargaining (1949). The right to organize is also a right proclaimed in the Universal Declaration of Human Rights (1948).

Article 2 of Convention No. 87 asserts that:

"Workers and employers, without distinction whatsoever, shall have the right to establish and, subject only to the rules of the organisation concerned, to join organisations of their own choosing without previous authorisation."

⁸ The ILO's Governing Body has identified eight conventions as "fundamental", covering subjects that are considered as fundamental principles and rights at work: freedom of association and the effective recognition of the right to collective bargaining; the elimination of all forms of forced or compulsory labour; the effective abolition of child labour; and the elimination of discrimination in respect of employment and occupation. These principles are also covered in the ILO's *Declaration on Fundamental Principles and Rights at Work* (1998)

Another Convention dealing with the way that the tripartite constituents of the ILO (i.e. governments, workers and employers) shall cooperate on matters related to the implementation of ILO standards is Convention N°. 144 on Tripartite Consultation (1976). It provides guidelines on how to set up consultative procedures and structures and highlight the participation of the three constituents in this work.

Unless the principles of Conventions N°. 87 and N°. 98 are respected there can not be democratic decision-making dealing with climate change policies. In Argentina, the General Confederation of Labour (CGT) has signed a "Framework Environmental Agreement" with the Government that guarantees the participation of workers in policy processes to achieve sustainable development, including climate change issues, as well as the incorporation of environmental clauses in collective agreements (TUC 2008). Other countries have developed similar agreements and processes to address the climate change agenda. However, workers' rights to establish their own independent organizations and to bargain collectively are still denied in many countries. It is important that these rights are respected in order for trade unions and their representatives to be part of the climate change negotiations at all levels; at the workplace, at national, regional and international level.

Environmental treaties may also be used to advocate for this right. The UNFCCC (1992b) included provisions for public participation in addressing climate change and its effects when responses to its challenges are developed.

In 1998 at the Fourth Ministerial Conference in the "Environment for Europe" process, the United Nations Economic Commission for Europe (UNECE) adopted the Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters – the Aarhus Convention. This Convention links environmental rights and human rights as it acknowledges that sustainable development can only be achieved through the involvement of all stakeholders. It focuses on interactions between the public and public authorities in a democratic context and it is forging a new process for public participation in the negotiation and implementation of international agreements. Trade unions and their representatives could use this convention as well as the different Aarhus information centres in their fight for their right to participate.

5. CONCLUSION

As climate change will have an enormous impact on employment and the labour market, it is important that adaptation and mitigation measures are in compliance with the principle of sustainable development and take into account its "three pillars"; i.e. environmental protection, social development and economic growth. Policy coherence at both the local and global levels will better ensure that the negative effects from adaptation and mitigation measures on employment and the labour market are reduced.

Without regulations and labour market efforts to address this impact, especially in relation to participation, social protection and working conditions, unemployment and poverty may increase. International Labour Standards, if applied globally, can provide a set of regulations which would limit the negative social implications of adaptation and mitigation efforts to reduce climate change. This point was indirectly illustrated when ILO studies of the Asian financial crisis of the mid-1990s showed that

"...the crash had been much deeper and much longer than necessary, essentially because of the lack of standards of social protection for workers, for unemployment insurance and to regulate the conditions under which workers could be laid off. The cushion that had once been there in social structures had disappeared, and those States had done little to replace it with a social safety net." (Swepston 2002)

It is important that standards are applied globally in order to avoid a situation where some populations remain victims because of unequal respect for and uneven enforcement of these rights. The most vulnerable and poorest populations and workers are often those that are the hardest hit by the effects of climate change. A rights-based approach in the form of International Labour Standards would offer protection that would shield affected workers from also suffering from structural changes to the labour market resulting from climate change. People, and especially workers, have to be recognized as active participants in the climate policy debate and be part of the decision making bodies, rather than simply passive victims of what is happening. This right is fundamental if we want to address the climate change challenges in a coherent way.

Key political decisions about climate change are being made as governments are in the process of negotiating a new international climate regime for the period after 2012 (ILO 2008h). Including "just transition" measures that respect international labour standards in these decisions will ensure policy coherence and public participation which in the long run will hopefully lead to the effective realization of sustainable development goals.

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