Towards a briefing note on the implications of the climate change agenda for polices and programmes related to skills development and SME development

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This document is divided into four sections:

- Causes
- Impacts
- Adaptation
- Transition

Each of these sections have captured available information -- reports, studies, initiatives and programmes – which have some relevance to the linkages between climate change and skills development and SME development.

At this stage of the research, of particular interest are the programmes underway by IDRC and US AID. These are highlighted in the section on adaptation.

The associated worksite to this document contains PDF copies of all the documents refered to in this paper. It can be found at:

http://earthmind.net/labour/briefing/note.htm

A. Causes

This section contains a selection of annotated references regarding the causes of climate change.

Climate Change 2007: The Physical Science Basis (IPCC, 2007)

The Intergovernmental Panel on Climate Change (IPCC) is now very confident that human actions are responsible for climate change:

> "Most of the observed increase in globally averaged temperatures since the mid-20th century is very likely due to the observed

increase in anthropogenic greenhouse gas concentrations. This is an advance since the TAR's conclusion that "most of the observed warming over the last 50 years is likely to have been due to the increase in greenhouse gas concentrations". Discernible human influences now extend to other aspects of climate, including ocean warming, continental-average temperatures, temperature extremes and wind patterns." (page 10)

IPCC website: http://www.ipcc.ch/

Introduction to climate change (2007)

This PowerPoint presentation by Sustainlabour - the International Labour Foundation for Sustainable Development - provides an overview of the issues, particularly from an African perspective.

Emissions from animal feeding operations (USEPA, 2001)

This report for the US Environmental Protection Agency is indicative of the type of focused analysis required to indentify sources of climate change emissions which may have direct or indirect impacts on rural employment and enterprise development. It explains:

> "This report presents the results of a preliminary investigation into air pollution from large animal feeding operations (AFOs) for the beef, dairy, swine, and poultry (broilers, layers, and turkeys) animal sectors. ...
>
> "Animal feeding operations can emit ammonia (NH3), nitrous oxide (N2O), hydrogen sulfide (H2S), carbon dioxide, methane (CH4), total reduced sulfur (TRS) compounds, volatile organic compounds (VOC), hazardous air pollutants (HAP), and particulate matter (including PM 10 and PM 2.5). The substances emitted and the quantity of emissions can vary substantially depending on the design and operation of each facility. Factors that influence emissions include feeding regiment, the type of confinement facility, type of manure management system (storage, handling, and stabilization), and the method of land application." (page xi)

B. Impacts

This section contains annotated references to the impacts of climate change.

Stern Review on the Economics of Climate Change

- **Website**:http://www.hm-treasury.gov.uk/independent_reviews/stern_review_economics_climate_change/sternreview_index.cfm
- Executive summary
- Summary of conclusions
- Chapter 5: Costs Of Climate Change In Developed Countries

In 2007, the UK government released a major report on the economics of climate change by Nicholas Stern. The summary of conclusions highlights the clear the impact that climate change will have on developing countries. However, it also highlights the business opportunities that can arise out of responses to climate change:

> "All countries will be affected. The most vulnerable – the poorest countries and populations – will suffer earliest and most ...
>
> "Adaptation to climate change – that is, taking steps to build resilience and minimise costs – is essential. ... Adaptation efforts, particularly in developing countries, should be accelerated." (page 2)
>
> "Action on climate change will also create significant business opportunities, as new markets are created in low-carbon energy technologies and other low-carbon goods and services. These markets could grow to be worth hundreds of billions of dollars each year, and employment in these sectors will expand accordingly.
>
> "The world does not need to choose between averting climate change and promoting growth and development. Changes in

energy technologies and in the structure of economies have created opportunities to decouple growth from greenhouse gas emissions. Indeed, ignoring climate change will eventually damage economic growth.

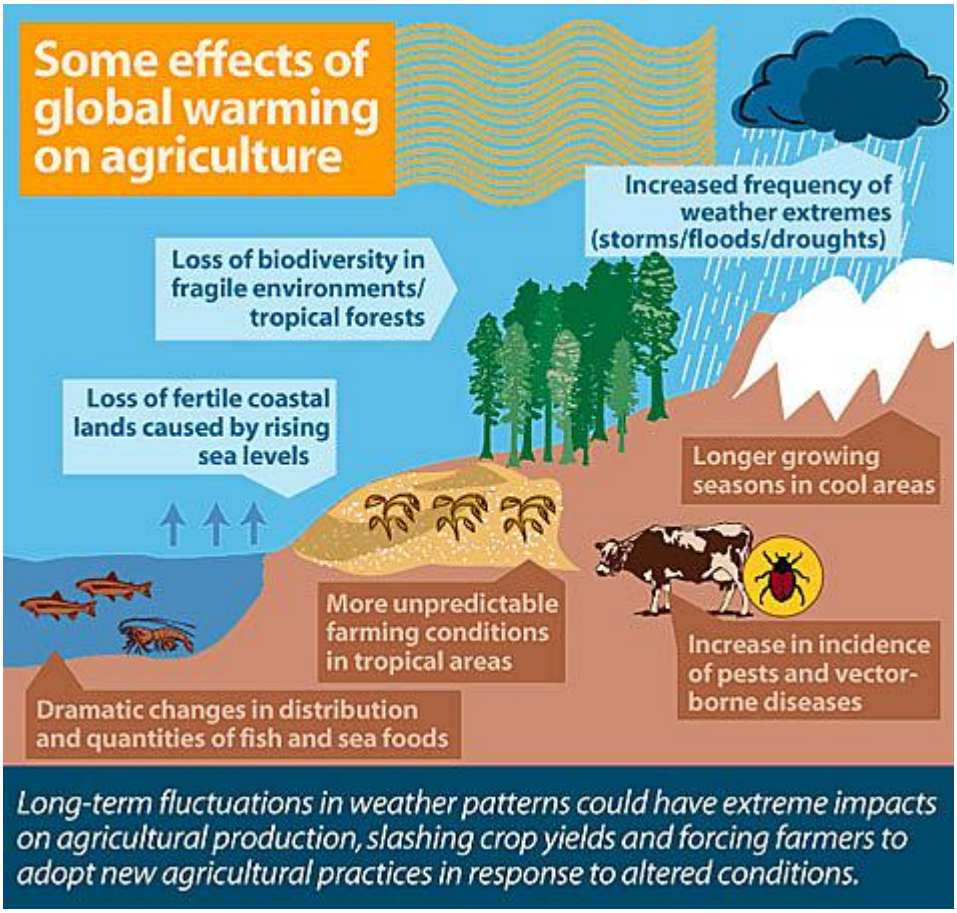
"Tackling climate change is the pro-growth strategy for the longer term, and it can be done in a way that does not cap the aspirations for growth of rich or poor countries." (page 3)

Nevertheless, the report does not assess the impact on employment and SMEs except for an occasional reference such as the following from Chapter 5:

"The poorest in developed countries will be the most vulnerable to climate change. … The most deprived proportion of the population are more likely to be employed in outdoor labour and therefore have little relief from the heat at work." (page 1)

"Lack of insurance could be particularly damaging for small and medium enterprises that will find it harder to access capital to protect against extreme events." (page 15)

From the FAO regarding the agriculture sector:



Original image: http://www.fao.org/NEWS/FACTFILE/FF9721-E.HTM

Global Warming and Agriculture: Impact Estimates by Country
Send to Printer by William R. Cline, 2007

Webpage: http://www.cgdev.org/content/publications/detail/14090

Webpage as a pdf

Press release

Press release - New York Times

Chapter 1: Introduction and overview

Chapter 2: Brief survey of existing literature

- Chapter 5: Country-level agricultural impact estimates

- Chapter 7: Conclusion

This new study contributes to the increasing evidence that global warming will have a negative impact on agriculture in developing countries:

> "This study reaches two fundamental conclusions. The first is that by late in this century unabated global warming would have at least a modest negative impact on global agriculture in the aggregate ... The second broad conclusion is that the composition of agricultural effects is likely to be seriously unfavourable to developing countries, with the most severe losses occurring in Africa, Latin America, and India. Although past studies have tended to recognize that losses will tend to be concentrated in developing countries, this study provides more comprehensive and detailed estimates on such losses than previously available." (page 2)
>
> "Confirming previous studies, the results here indicate that the losses would be most severe in Africa (estimated here at 17 percent average loss and 18 percent median loss in agricultural capacity) and Latin America (13 percent average and 16 percent median loss)." (page 96)

African Green Revolution Conference

- Website: http://www.africangreenrevolution.com/en/index.html

- Full conference report

- Section on "Catalyst for action"

> "The second African Green Revolution Conference was held in Oslo, Norway from August 30 - September 1. It gathered leading experts on sustainable agricultural development, including government representatives from across Africa ...
>
> "The Oslo Conference has become the prime venue for Public-Private Partnership (PPP) aimed at increasing agricultural productivity in Africa. ...

> "Under the theme of Partnership for Productivity, the 2007 Conference community reviewed the progress of recent initiatives, identified important innovations, and discussed potential public-private partnerships that could extend agricultural opportunities to more of Africa's people. A common thread throughout the conference was an emphasis on improving the productive environment for smallholder farmers." (from the website: http://www.africangreenrevolution.com/en/web_conference/2007/optimistic_agr_conference.html)

In the section of the conference report entitled "Catalyst for action" the challenge of climate change is highlight. Based on the findings of the Stern Report, this section makes clear that climate change needs to be taken into account in efforts to develop agricultural opportunities in Africa.

Climate change and employment: Impact on employment in the European Union-25 of climate change and CO2 emission reduction measures by 2030

- Full report
- Synthesis
- Press release

This report was produced by a consortium led by the European Trade Union Confederation (ETUC) and released early in 2007. Though focused on Europe and written from a trade union perspective, it offers one of the few in-depth analyses of the possible impacts of climate change on employment. As the report points out:

> "little is known about the connection between climate change and employment" and "decisions on climate policies are rarely assessed from the standpoint of employment." (page 182)

The report looks at employment from sectoral, regional and temporal perspectives and outlines where the impacts are likely to occur and how severe they are likely to be. The findings include the following observations:

"The analysis of the relation between the likely effects of climate change in Europe, on the one hand, and economic activity and jobs in different sectors (agriculture, forestry, fisheries, tourism, finance/insurance, health, infrastructure and energy), on the other, show that … there will be important redistribution effects between sectors and between countries. The impact will be more negative in southern Europe than in northern Europe. Primary sectors such as agriculture, forestry and fisheries will be affected more severely than others. The attraction of tourist destinations will change. ….

"In recent years, a number of signs have shown that the climate may well not evolve slowly and progressively as has often been supposed. In that case, without rapid attenuation and adaptation measures, climate change will have a significant impact on economic activity and employment, with criti cal consequences in the latter half of the century." (pages 182-3)

Climate change: Why is Africa the most vulnerable region? (2006)

This newsletter of SustainLabour highlights the impact that climate change will have on Africa. It also reports on a workshop organised by SustainLabour:

"to provide Kenyan trade unionists an introduction to the climate change agenda, to facilitate their intervention in discussions and negotiations and to provide a space for dialogue between developed and developing countries' trade unionists on climate change."

The impact of climate change policies on employment in the coalmining industry (ILO, 2000)

- **Paper on line**: http://www.ilo.org/public/english/dialogue/sector/papers/impact/index.htm
- **Summary**
- **Conclusions**

This paper published in 2000 by Cain Polidano of the Australian Bureau of Agricultural and Resource Economics is an early example of an ILO report focusing on the employment impacts of climate change. The paper's summary states:

> "An agreement under the United Nations Framework Convention on Climate Change for developed countries to curb greenhouse gas emissions is in the pipeline. The impact on sectoral production from such an agreement is projected to be significant. In particular, lower fossil fuel use in Annex I countries, so that they can meet their emission abatement targets, is projected to result in a 30 per cent fall in global coal production at 2010 under the less stringent emission reduction scenario ... Global coal production is projected to fall by 42 per cent at 2010 under the more stringent [scenario] ...
>
> "Falls in coal production lead inevitably to significant falls in coalmining employment. It is estimated that there will be between 1.5 million and 2.1 million fewer coalmining workers at 2010 under the less stringent and more stringent scenarios respectively, relative to the reference case."

C. Adaptation

This section contains annotated references relevant to adaptation, particularly in a developing country and rural context.

A content analysis reports on climate change impacts, vulnerability and adaptation in Uganda (DENIVA-Uganda, 2005)

This report is indicative of the situation within developing countries with respect to climate change responses. On page 16 it notes the "heavy dependency on natural resources and rain-fed agriculture" in Uganda coupled with an "inadequate human resources capacity for the enhancement of climate management systems. Overall, there are "low levels of awareness on climate change issues; and insufficient information dissemination on the existing indigenous adaptation knowledge/options" which means a good of deal of preparatory work needs to be undertaken to develop an adequate set of climate change responses.

Climate change, drought and pastoralism in the Sahel (WISP, 2006)

In this note commissioned by the World Initiative on Sustainable Pastoralism and prepared by Nick Brooks, the uncertainty of the impacts and adaptive capacities of pastoral communities is highlighted. The forward explains that:

> "... with the current marginalisation of pastoralists, their adaptive capacities may have been eroded and they may be more susceptible to climate change than other communities. Conversely, climate change could conceivably lead to the creation of more dryland resources that are suited to pastoralism, thus creating new opportunities for pastoralists to exploit. However, the likelihood and the implications of such changes are very uncertain." (page 1)

Climate Change Adaptation in Africa (CCAA)

Website: http://www.idrc.ca/en/ev-94424-201-1-DO_TOPIC.html

> "The Climate Change Adaptation in Africa (CCAA) research and capacity development program aims to improve the capacity of African countries to adapt to climate change in ways that benefit the most vulnerable. Building on existing initiatives and past experience, the CCAA program works to establish a self-sustained skilled body of expertise in Africa to enhance the ability of African countries to adapt.
>
> The CCAA is a joint program of the International Development Research Centre (IDRC), Canada, and the Department for International Development (DFID), U.K." (From the home page)

One of the objectives of the CCAA is to "To support adaptation by rural and urban people, particularly the most vulnerable, through action research." In support of this objective, a new activity on "Monitoring adaptive capacity" has been developed:

> "In June 2007, IDRC approved a research support project oriented towards monitoring and evaluation (M&E) of adaptive capacity. This project will help CCAA program staff and partners

better assess how their activities are contributing to adaptation, and to use M&E as a capacity strengthening tool. It will facilitate a community of practice that will involve M&E experts, CCAA-supported project teams, and program staff, in reflecting on ways to evaluate the capacity of vulnerable groups, organisations, governments and ecosystems to adapt to climate change." (See: http://www.idrc.ca/en/ev-114331-201-1-DO_TOPIC.html)

Summary of the first ten projects supported by the Climate Change Adaptation in Africa (CCAA) research and capacity development program (CCAA, 2007)

Managed by the IDRC with additional funding from DFID, this short document highlights some of the cutting-edge work underway by CCAA to support adaptation in Africa. For example, of one the projects:

> "assesses the vulnerability of smallholder farming communities in Sub-Saharan Africa (SSA) to the effects of climate change and variability on agricultural productivity and livelihoods and identifies opportunities for enhancing the adaptive capacity of different categories of households and communities."

Another of the projects:

> "intends to facilitate a process of interaction and learning where information/ knowledge from different sources (local, national, regional and international) is shared and integrated in a way that results in its novel use by stakeholders in agricultural innovation systems to better adapt to climate change and variability."

The CCAA is clearly undertaking adaptation work relevant to rural transitions and SME development in Africa.

USAID programme on adapting to climate variability and change

Website: http://www.usaid.gov/our_work/environment/climate/policies_prog/vulnerability.html

This programme is focused on strengthening the ability of USAID's programme to deal with climate change:

> "USAID's climate change adaptation program seeks to assist Missions and other development partners to build resilience to climate change through a variety of activities. Adapting to climate change requires a hierarchy of linked efforts. We are linking information from observation systems to those lacking such information, improving their understanding of current climate, climate variability and future climate change. We are working to make earth observation information readily applicable to development decisions, including creating innovative applications and appropriate tools to then communicate that information to stakeholders and decision makers. Through interaction with local partners and new tools, we can better understand how environmental changes may impact sectors critical for development. Once those impacts are understood, stakeholders need to assess and agree on preferred adaptation options. Then, on-the-ground actions are implemented to build the resilience of projects designed to promote economic development." (From the website)

Adapting to climate variability and change: A guidance manual for development planning (USAID, 2007)

The Preface explains that the manual was developed to:

> "to assist Missions and other partners to understand how climate change may affect their project outcomes and identify adaptation options to integrate into the design for more resilient projects." (page iii)

It presents a "six-step approach for assessing vulnerability and identifying and implementing climate change adaptations" which is labelled the "the V&A approach." Similar to a project cycle, the steps are:

> 1: Screen for vulnerability.
>
> 2: Identify adaptations.
>
> 3: Conduct analysis.
>
> 4: Select course of action.
>
> 5: Implement adaptations.
>
> 6: Evaluate adaptations.

The manual explains these six steps in detail and also shows their applicability to issues related to employment. For example, the manual notes that:

> "With agriculture accounting for half of GDP and 80% of jobs, the Ethiopian economy is sensitive to climate variability, particularly variations in rainfall." (page 1)

CRISTAL (Community-based Risk Screening Tool – Adaptation & Livelihoods)

➡ **Website**: http://www.iisd.org/security/es/resilience/climate_phase2.asp

➡ **Brochure**

This initiative is component of the International Institute for Sustainable Development (IISD) programme on livelihoods and climate change. The website explains that Cristal:

> "enables project planners and managers to (i) assess an intervention's impact on local capacity to cope with climate stress, and (ii) think about how to adjust project activities so that at the very least they don't undermine local coping capacity and, where possible, they further enhance coping capacity.
>
> "Field tests of CRiSTAL were conducted in Mali, Bangladesh, Tanzania, Nicaragua and Sri Lanka. Feedback from each of the tests allowed project partners to fine-tune CRiSTAL, rendering it more useful and usable for project managers interested in mainstreaming climate risk into their field work."

➡The **CRiSTAL Tool** can be downloaded from:
http://www.sei-us.org/Cristal/Cristal_Setup.exe

The brochure explains:

> "Community-level projects are rarely designed with a look to the implications of climate change, and especially how they might affect local adaptive capacity. Without a mechanism for assessing the role and impact of a project vis-à-vis climate adaptation, it is often difficult for project planners and managers

to design activities that actually foster adaptation and minimize maladaptation." (page 1)

Apollo Alliance

- **Website**: http://home.apolloalliance.org/home2.html
- **The Apollo jobs repor**t (2004)
- **Ten-point plan for good jobs and energy independence** (2007)
- **Community jobs in the green economy** (2007)

Based in the US:

> "The Apollo Alliance is a broad coalition within the labor, environmental, business, urban, and faith communities in support of good jobs and energy independence. It has been endorsed by the AFL-CIO and 23 international labor unions as well as a majority of national environmental organizations. ...
>
> The Apollo Alliance is pursuing a $300 billion, public-private program to create three million new, clean energy jobs to free America from foreign oil dependence in ten years. It is a program that reinvests in the competitiveness of American industry, rebuilds our cities, creates good jobs for working families, and ensures good stewardship of both the economy and our natural environment."
> (from the website: http://www.apolloalliance.org/ about_the_alliance/faqs.cfm)

Apollo is promoting a pro-active response to climate change by seeking ways to create new jobs in the "green economy" which at the same time reduce America's dependence on foreign oil. For example, a recently released report on "Community jobs in the green economy" explains:

> "The emerging green economy holds great promise for America's cities, and especially for our low-income, heavily minority urban communities. Every aspect of clean energy development, from manufacturing to construction, operating and maintenance, can create good jobs, clean up the air and water, and save consumers money on their energy bills. Every city and community

in the United States has some potential to capitalize on this new economy, whether through good wind or solar resources or through retrofit programs to bring old, dilapidated buildings up to energy efficiency codes." (page 19)

By linking decent job creation to energy self-sufficiency, Apollo is adopting both adaptation and mitigation responses that are sustainable in terms of enterprise development and employment creation.

Decoupling development of employment and use of nature (Wuppertal, 2007)

The PowerPoint presentation prepared by Prof. Dr. Peter Hennicke and Dr. Wolfgang Irrek for an ETUC conference addresses the challenges of "decoupling" employment creation from global warming. It looks at how energy efficiency can generate new jobs and proposes the following new paradigm:

> "Make kilowatt hours and tons redundant and not people!"

Global Mechanism

Website: http://www.global-mechanism.org/

Cashing in on the links between climate change and land degradation (GM, 2007)

> "The Global Mechanism (GM) was established under Article 21 of the United Nations Convention to Combat Desertification (UNCCD), and began its operations in October 1997. ...
>
> "[T]he GM is increasingly specializing in providing a range of financial advisory services to the country Parties to the Convention in close cooperation with International Finance Institutions (IFIs) - in particular the World Bank Group, the International Fund for Agricultural Development (IFAD) and the regional development banks."
>
> (From the website: http://www.global-mechanism.org/about-us/what-is-the-gm)

Climate change is an increasing issue in the context of desertification and the GM is accordingly engaging in both adaptation and mitigation activities under its programme on "Compensation for ecosystem services." The programme document entitled "Cashing in on the links" explores opportunities to link financial support for the climate and desertification agendas and highlights the following areas and opportunities:

> "**Forestry-related**
> - afforestation/reforestation;
> - avoided deforestation;
> - sustainable forest/land management; and
> - agro-forestry and silvopastoral systems.
>
> **Agricultural and rural sectors**
> - cropland and grazing land management; and
> - biodigestion and other methane-based projects in the agricultural sector.
>
> **Biodiversity, watershed and soil protection**
> - biodiversity conservation; and
> - watershed protection and management.
>
> **Energy-related**
> - (small) hydro projects (possibly combined with forestry activities as watershed protection);
> - biofuel, bio-energy projects contributing to SLM;
> - other (renewable) energy projects; and
> - other/new project types that are compliant with the intervention criteria." (page 13)

A guide to climate change for small- to medium-sized enterprises: How to plan for climate change, reduce operating costs and develop new business opportunities (2006)

The Canadian Chamber of Commerce has produced a guide to climate change for SMEs which explains risks and opportunities and explores both adaptation and mitigation responses. Regarding adaption the guide explains:

> "To anticipate and/or respond to the changing climate, businesses may need to make changes. These might include

such actions as re-locating a business to avoid the risk of flooding or planting new crops that can be grown in hotter, drier summer weather. Businesses and business sectors are particularly vulnerable to climate change if they are currently affected by weather events, and/or make long-term investments, especially in climate-sensitive infrastructure." (page 12)

Adapting to climate change: Natural resource management and vulnerability reduction (2002)

Produced by IUCN-The World Consevation Union in collaboration with is an example of the type of guidance coming out of the nature conservation/sustainable development community on climate change adaptation. It notes the employment impact on the poor and proposes that investing in natural resources may be a way to adapt to this challenge:

> "Agriculture, forestry and fishing are directly responsible for 50% of all jobs worldwide and 70% of jobs in sub-Saharan Africa, East Asia and the Pacific.80 Because the poor have a narrow and geographically concentrated set of livelihood sources, they are most vulnerable to losing their livelihoods during disasters. ...
>
> "The poor usually have the least choice among strategies, receive the least assistance from government authorities and are therefore most dependent on the state of the environment for providing alternative livelihoods. Thus, investing in the natural resource base that sustains their livelihoods may have a direct positive impact on their immediate lives and long-term resilience to climate variability." (page 28)

D. Transition

This section contains annotated references relevant to just transition.

Labour and the environment: A natural synergy (UNEP, 2007)

only Section 3.1 on **Climate change and energy**

This document which was co-produced with the ILO and the WHO provides a good introduction to climate change from a labour perspective, albeit a trade union one. It introduces the two climate change responses of adaptation and mitigation, and in reference to the latter emphasises:

> "Trade unions have been emphasizing the need for transition policies to help workers and others adapt to technological and structural changes. The later mitigation starts, the more difficult this will be since the changes will be more disruptive, including for employment." (page 50)

Clearly the trade unions are in a position to promote just transition policies with respect to climate change responses, but these efforts are probably unlikely to have much of a direct impact on rural skills.

Documents on the worksite as of 28 September 2007