CLIMATE CHANGE AND OFFICIAL STATISTICS:

TOWARDS AN AGENDA FOR ACTION

A. BACKGROUND

While certain aspects of climate change are still debated, authoritative scientific evidence and recent climate events have elevated the issue of climate change high up in the political agenda. The Fourth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) concludes that our climate system is warming as a result of human activities. Rising greenhouse gas emissions not only threaten our environment, but undermine development and have dramatic and negative consequences for our economic and social well-being, with the most negative effects being felt by the poor.

The Parties to the United Nations Framework Convention on Climate Change (UNFCCC) agreed at the United Nations Climate Change Conference in Bali last December to step up international efforts to combat climate change and lay down measures and obligations for the world after the first commitment period of the Kyoto Protocol expires at the end of 2012. They decided on both the timeline and the main elements of a stronger climate change deal, including a shared long-term vision and enhanced action on the four building blocks: mitigation, adaptation, technology transfer and financing. The Bali process has to develop the basis for action needed after 2012 to effectively adapt to inevitable climate change impacts and to mitigate its causes.

The main challenge is to integrate climate change and development action into a common framework, and to develop and implement effectively integrated social, economic and environmental policies on mitigating and adapting to climate change. We need to understand the linkages between climate change and our future social, economic and environmental well being: our sustainable development.

Policy makers, civil society, businesses, and even the recently established carbon markets, want to know what the future holds. We can not provide these data. However, we can provide timely data on what is happening in our societies, economies and environments today. These data are essential for understanding and managing the impacts of climate change in each of our countries and the world as a whole.

The global official statistics community presently engages the issues of climate change in an ad hoc manner. There is a need to start a consultation process to discuss how official statistics can contribute to the understanding, measurement and monitoring of the different aspects of climate change and to bring together all current activities into a coherent framework.

B. THE NEED FOR A CONSULTATION PROCESS ON THE ROLE OF OFFICIAL STATISTICS IN THE ANALYSIS OF CLIMATE CHANGE

There is a huge demand for new, more, better statistics to understand the driving forces, pressures, impacts of and responses to climate change. However, a lot of this demand is beyond the competence of official statistics and national statistical offices. While official statistics have an important role to contribute to the analysis of climate change, it cannot be the only provider of information and analysis. There should be a clear distinction between tasks of official statistics and those of the researchers. Therefore there is the need for improved engagement between the official statistical community and the policy makers and scientists involved in climate change.

As a first step in a world-wide consultation process the Conference on Climate Change and Official Statistics was held in Oslo, Norway, from 14 to 16 April 2008. The Conference recognized the importance of climate change as a major global and national policy issue and also recognized the value of good quality statistical information to support analysis, decision making and monitoring of climate change. Sustainable development policies addressing climate change must be based on sound statistical information systems. On the other hand, the Conference noted the underutilization of official statistics, both internationally and nationally, to support climate change analysis.

Many offices do not have the resources to deal with these issues and do not even have environment statistics programmes. On the other hand, the existence of national climate change strategies in more and more countries as well as the high interest in this conference suggest that there is a change in momentum and the countries' interest in environment statistics is increasing.

The Conference agreed that there should be an agenda for action to improve the usefulness, and increase the use, of official statistics to climate change policy and monitoring. However, the growth of environment and climate change related statistics has to be organic, countries must feel the need and have the will to develop these statistics; the Statistical Commission should not impose a stringent agenda on the countries. A global statistical programme that allows for the differing capacities of national statistical offices and the related agenda for action should develop through a consultation process within the global official statistics community and with the users of official statistics such as the climate change research community.

The following recommendations are to serve as the basis for discussions in the consultation process at different international and regional statistical fora. The output of these discussions is expected to be a recommended roadmap for the development of official climate change statistics both at the national and the international level, to be submitted to the 40th session of the UN Statistical Commission in March 2009.

C. RECOMMENDED MAIN AREAS AND AGENDA FOR ACTION ON CLIMATE CHANGE AND OFFICIAL STATISTICS

The role of official statistics is to provide quality basic statistics necessary for the analysis of the different aspects of climate change; to provide standard methodologies and tools that integrate official statistical information on the society, the economy and the environment; and to engage in the work of the research community and other users to better understand the requirements and thus increase and advocate the usefulness of official statistics. The following actions are recommended as part of the agenda on climate change and official statistics.

I. Mainstream and integrate the environment and climate change dimension in official statistics and strengthening countries capabilities to produce high quality basic statistics following standard concepts and classifications

There is an urgent need to review sectoral statistics to assess whether our statistical standards (concepts, methods, classifications, data items and tabulations) require updating to reflect the importance of environmental and climate change analysis. High priorities should be accorded to reviews of energy, transport, agriculture and forestry, land use and land cover, water and waste statistics, and research and development statistics as well as to the reviews of our activity/purpose/product classifications, trade classifications and the classification of environment protection activities. The review should be followed by an implementation strategy that focuses on strengthening countries' capabilities to improve basic statistics for use in environmental and climate change analysis.

This work should be built into the work programme of the UN Statistical Commission and should be carried out as part of the ongoing revision of the different statistical programmes, standards and classifications and as part of the programme on capacity building.

II. Improve the availability, quality and timeliness of greenhouse gas emission estimates through the provision of high quality official statistics for the calculations and strengthening the role of official statistics in the production of emission inventories

Official statistics have to demonstrate their relevance. A lot of basic statistics are collected but more serious efforts have to be made to organize these data. This is especially true for the statistics needed for the emission calculations. Statistical offices have to understand the methodology of these calculations and contribute to its improvement by offering the analytical capacity provided by the use of standard statistical classifications that are applied in economic statistics.

Reliable GHG emission estimates are crucial for meeting international obligations as well as the development of adequate mitigation policies and for the monitoring of their

implementation and effectiveness. That is essential for the Annex I countries, but will become more and more important also to the developing countries. The Conference felt that there was potential for the National Statistical Offices to play a greater role in the estimation of GHG emissions in most countries. Where National Statistical Offices have played a significant role, easy access to the data and statistical expertise and the existence of quality principles have been a great advantage. To advance this, the most important requirement is **improved engagement at national level.**

NSOs need to be involved intimately in understanding the emission statistics and how they are calculated. They have to understand the special needs for sectoral statistics such as energy, transport, industry, agriculture, forestry, land use, waste and other statistics and ensure that basic statistics are established in such a way that they can be used for multiple purposes, including emission inventories. On the other hand, classification differences between the IPCC guidelines and official statistics have to be bridged.

Statistics on emissions should become part of the regular production and dissemination process of official statistics at national level, even if the NSOs are not the formal reporting agency to the UNFCCC. Therefore it is recommended that the Statistical Commission set up a working group to look into these issues and to develop the knowledge base of national statistical offices in this area.

III. Support the analysis of the impacts of climate change, vulnerability and adaptation by the exchange and discussion of good practices

The measurement of the impacts of climate change require information from basically all areas of official statistics as well as a lot of information that is to a large extent based on sources outside the statistical system such as meteorological and hydrological information, physical environmental data and data from scientific research. The assessment of impacts and vulnerability contains a lot of scientific and statistical uncertainties. Impacts of climate change affect each country, or each group of countries, in a different way; therefore the statistical response will also be different.

In order to support the assessment of these impacts and the capacity to react to them, there is a need to **establish new data collections and databases**, depending on the major policy concerns and priorities of the countries. There are examples of ongoing work such as the development of the statistical database on natural disasters in India that is without doubt within the competence of official statistics and national statistical offices.

In the analysis of the impacts of and vulnerability to climate change one of the key challenges with regard to statistics is the need to bring together different types of information from very different sources. **Linking social, environmental and economic information** is essential for these types of analyses and NSO-s can and should play a role in that. Tools such as spatial analysis, the use of geo-referenced official statistics is essential for the assessment of the social and environmental impacts, vulnerability, and their regional variations. Indicators also play an important role in the assessment of

impacts and vulnerability. The SNA (Input-Output tables) and the SEEA, if they are well established, offer the possibility to analyse the linkages between the environment and the economy in a consistent fashion.

To improve the support to the analysis of the impacts of, vulnerability and adaptation to climate change, the major task is to pull up examples from the world and learn about them by establishing a knowledge base on new approaches, to gather, compile and share experience. Therefore it is recommended that an electronic platform is set up for the dissemination of good practices and an international forum (regular expert group meetings or workshops) is established for their discussion.

IV. Support the monitoring of emission trading schemes and other mitigation measures by the advanced analysis of existing tools and by developing new statistics

The monitoring of emission trading and other mitigation measures, the use of the UNFCCC and Kyoto funds and mechanisms by countries and especially the monitoring of technology transfer create **new demands for statistics and integration frameworks** that are capable also to assess the impacts of these measures on the society, the economy and the environment. To allocate permits and to assess the effectiveness of mitigation measures requires very high quality GHG emission estimates. The mitigation potential of the different industries and sectors has to be assessed. Statistics are needed on the available technologies, the contribution of R&D, on financial flows and carbon finance. **National statistical offices have to establish the collection of a set of well selected variables that provide a clear picture, both in physical and monetary terms, of the countries' efforts to combat climate change. It is recommended that a set of standard statistical tables be developed for the collection of this information.**

There is an important role for statistical offices in the understanding of emission trading schemes and other mitigation measures. This requires sophisticated, **advanced analysis of standard tools** such as the input-output tables or energy supply and use tables, the existence of which is the prerequisite to the analysis. **Not many countries have the possibility for this but it is an important development work that has to be pushed forward. It is recommended that the London Group on Environmental Economic Accounting includes this work in their agenda.**

V. Develop further and implement the System of Integrated Environmental-Economic Accounting

As evidenced by the country presentations during the Conference, the SEEA is a useful tool for monitoring, measuring and analyzing climate change by providing consistent time series of data, tables and accounts from which consistent indicators can be derived and scenario modeling can be built to design fiscal, price and monetary instruments and regulations for climate change policies. The use of an accounting framework such as the

SEEA as the basis for deriving indicators further improves internal consistency of environmental and economic data when basic statistics are systemized and aggregated.

It is recommended therefore **to move forward urgently on the further development and implementation of the System of integrated Environmental-Economic Accounts**, taking into account the requirements for climate change related statistics in the **revision of the SEEA 2003** towards an international statistical standard. It is a framework that has proven its potential and added value in many areas of environmental-economic analysis and it is the most practical way forward.

There is an increasing requirement for the development of simple statistical tools for countries with less developed statistical systems and resources. A **stepwise approach and the development of simplified standard tables** that many countries can implement is an essential part of this agenda.

VI. Improve and promote the use of Geographic Information Systems and Spatial Data Infrastructure for spatial analysis

It was recommended that **much more has to be done on the use of geographical information systems and on the development of spatial data infrastructures.** Demographic, social, economic, environmental and cartographic information is integrated in Geographical Information Systems (GIS). GIS brings together the different types of information by presenting them as layers on the basis of their geographical attributes. There is a great potential in the use of GIS for spatial analysis of the impacts of and vulnerability to climate change and for the integrated analysis of different types of information. Many of the data sets held by National Statistical Offices are essential from this perspective. These include among others population, agriculture and economic censuses, but the data from these sources will need to be over-layed using a spatial framework. This requires the development of spatial frameworks in many countries as well as designing the relevant statistical collections so that they can support these frameworks. To this end, the following actions are recommended:

(a) workshops on the development of spatial frameworks and the coding systems that need to be established to support these frameworks;
(b) building on existing Census based workshops on the utilization of GIS systems to cover their use for analysis of climate change, and
(c) developing a module on the use of spatial frameworks and GIS systems for the analysis of climate change for training workshops on environment statistics.

These types of initiatives may be of particular importance to developing countries as it will enable better use of statistical collections that they already undertake. **UNSD will engage all stakeholders to initiate this process as soon as possible.**

VII. Improve indicators at the national level for advocacy and to convey messages

The development and compilation of a core set of sound indicators related to climate change, focusing on the pressures, impacts, vulnerability and adaptation, and mitigation, is a useful way to **convey the main messages to policy and decision makers and the general public** and also a good way to **start statistical work on national priority areas**. Such work has already started in many countries, frequently as part of a larger set of sustainable development indicators.

Indicator sets are policy driven and country specific, and they must have practical value for the countries. Close collaboration with policy makers as well as with the other major partners, both indicator producers and users, is fundamental for this work. **It was agreed that indicator development has the most added value at the national level** and there is no need for the development of a new set of climate change related indicators at the international level.

VIII. Promote and improve the use of official statistics for scenario development and modeling

The main driving forces behind the pressures that affect our climate are the growth of the population and the economies, and the related production and consumption activities. Statistics on these activities that are essential for climate change scenario development and modeling are traditionally part of national and international official statistics. Increasingly, statistics on energy use by type of energy are also becoming available. This enables estimates of energy intensity and carbon intensity which are also essential inputs into scenario modeling. There should be a dialogue and collaboration between the IPCC and official statisticians. This collaboration would contribute to the improvement of the internal consistency of the variables used and thus improve the probability of a given scenario. On the other hand, the better involvement of official statistics in the IPCC work would contribute to the improvement of the statistics that are needed for scenario development and modelling.

Consequently, **there has to be a dialogue between the scientists and the official statistical community to enhance the usage, and improve the usefulness, of official statistics for scenario development and modeling. It is recommended that the UN Statistical Commission urgently initiates a dialogue with IPCC in order to improve the use of official statistics in future assessments of climate change, scenarios and modeling.**

IX. Establish an enabling structure for the governance of the agenda on climate change and official statistics

The execution and implementation of these tasks, including engaging with IPCC and UNFCCC on a more formal basis as well as the transfer of knowledge to countries will require proper governance. The process needs global leadership at the level of the UN Statistical Commission and should be governed by a body of senior statisticians from the

countries. The United Nations Committee of Experts on Environmental Economic Accounting (UNCEEA) offers a structure for governing the work on the development of climate change related official statistics. Comprising senior level experts in environment statistics and accounting, this body had been created by the UN Statistical Commission for advocating the SEEA.

It is recommended that the name, mandate, terms of reference and membership of the UNCEEA and its Bureau be amended and extended with a new focus on environment statistics, and to trust this new Committee with the governance of the statistical tasks related to climate change including engagement with IPCC and other stakeholders.