

## The Intergovernmental Panel on Climate Change (IPCC):

### Finalising the Fourth Assessment Report (AR4)

November 2007

Over the course of 2007, the United Nations Intergovernmental Panel on Climate Change (IPCC) has released three reports in its Fourth Assessment series, which together constitute the international scientific consensus on the science of climate, its impacts and the mitigation options.

The final report to complete the AR4 is the Synthesis Report, which will be finalised and released over the week of 12-17 November in Valencia, Spain.

#### Synthesis Report (SYR)

The Synthesis Report integrates and compacts the wealth of information contained in the three major volumes (detailed below) into a readable and concise document - explicitly targeted at policymakers.

This is the core factual document on climate science which will guide governments in deciding their climate policy in the near future.

The Synthesis Report provides vital input to the United Nations negotiations on climate change. The upcoming climate talks in Bali, Indonesia, were postponed until December 2007 in order for the IPCC to finalise its report and for its findings to be taken into consideration.

The Report is more than a summary of the three existing "Summaries for Policymakers" taken from the volumes released earlier this year: it can also include material from the body of the full working group reports over and above the summary. The Synthesis Report is divided into six different topics as set out here: <http://www.ipcc.ch/activity/ar4outline.htm>.

In Valencia the Synthesis Report and its "Summary for Policymakers" will be finalised. Both have been prepared by the IPCC scientists and experts and have been through two rounds of review by both governments and experts. The Synthesis Report as a whole must be adopted in Valencia. The "Summary for Policymakers" will be negotiated line by line at the meeting, and the content has to be agreed by both governments and IPCC scientists.

#### The other AR4 reports – a summary of findings

"Climate Change 2007: The Physical Science Basis", (released in February 2007) assesses the current scientific knowledge of the natural and human drivers of climate change, observed changes in climate and projections for future climate change.

This report expresses much greater confidence than past IPCC Assessments that most of the observed warming over the past half-century is caused by human activities (greater than 90 per cent certainty) and concludes that warming of the climate system is unequivocal. The report concludes that if we take no action to reduce emissions, there will be twice as much warming over the next two decades than if we had stabilized heat-trapping gases at year 2000 levels.

The full range of projected temperature increase is 1.1 to 6.4 degrees Celsius and the best estimate range, which reflects the centre point of the lowest and highest emissions scenarios, is 1.8 to 4.0 degrees Celsius.

The IPCC finds it is likely that future tropical cyclones (typhoons and hurricanes) will become more intense, with higher peak wind speeds and more heavy precipitation associated with warmer tropical

seas. There is a greater than 90 per cent likelihood that extreme heat, longer heat waves, and heavy precipitation events will continue to become more frequent.

**The second report, “Impacts, Adaptation and Vulnerability”**, (released in April 2007) is a detailed analysis of observed and projected impacts on natural and human systems in response to actual and expected climate change stimuli. It also looks at key vulnerabilities as well as adaptation measures for main sectors and regions.

It concludes that warming caused by human activities has likely had a discernible impact on the global level on many physical and biological systems and that many natural systems on all continents and some oceans are affected by regional climate change and rising temperatures.

Over the next decades the number of people at risk of water scarcity is likely to rise from tens of millions to billions. Projected reductions in food production capacity in the poorest parts of the world would bring more hunger and misery and undermine achievement of the Millennium Development Goals.

The loss of glaciers in Asia, Latin America and Europe are set to cause major water supply problems for a large fraction of the world’s population, as well as a massive increase in glacial lake outburst floods and other risks. Sea level rise, storm surges and river flooding threaten huge numbers of people in the Asian Megadeltas such as the Ganges-Brahmaputra (Bangladesh) and the Zhujiang (Pearl River).

**“Mitigation of Climate Change”, the third report in the series** (released in May 2007), analyses mitigation options for the main sectors in the near-term and provides information on long-term mitigation strategies for stabilising the atmospheric concentrations of greenhouse gases at various levels.

It concludes that if global mean temperature increases are to be limited to 2 to 2.4 degrees C above pre-industrial levels, this will require carbon dioxide (CO<sub>2</sub>) emissions to peak before 2015 and to be 50 to 85 per cent lower than 2000 levels by 2050.

The report also states, *“Mitigation efforts over the next two to three decades will have a large impact on opportunities to achieve lower stabilization levels.”*

It says that delaying action on reducing emissions often leads to governments making decisions in favour of investing in dirty energy, high emission options which are then difficult and costly to change.

*“It is often more cost-effective to invest in end-use energy efficiency improvement than in increasing energy supply to satisfy demand for energy services. Efficiency improvement has a positive effect on energy security, local and regional air pollution abatement, and employment.”*

The IPCC points out that renewable energy generally has a positive effect on energy security, employment and on air quality. The IPCC predicts that renewable energy could achieve a 30-35 per cent share of total electricity supply in 2030.

It also concludes that forests and agriculture can have a significant effect on lowering atmospheric concentrations of CO<sub>2</sub>.

While the report does not make specific recommendations to policymakers, it does summarise the range of options that they should consider when tackling climate change. These include energy efficiency, renewable energy, efficient ‘combined heat and power’ plants, fuel-efficient cars, public transport, energy-efficient lighting, improved crop & grazing land management and reducing deforestation.

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