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GREENHOUSE GAS EMISSION BASELINES AND REDUCTION POTENTIALS FROM BUILDINGS IN SOUTH AFRICA

A Discussion Document

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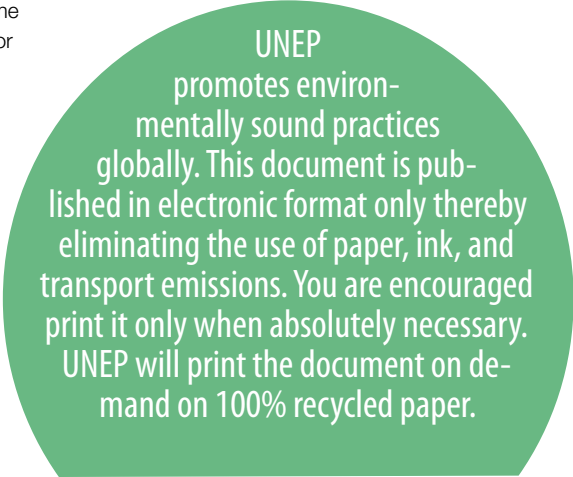
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Chapter 1

Key Outcomes: Summary for
Decision-makers

Key Outcomes: Summary for Decision-Makers

The Intergovernmental Panel on Climate Change (IPCC) has highlighted the important role of buildings in climate change and stated in its fourth assessment report that the building sector not only have the largest potential for significantly reducing greenhouse gas emissions but also that this potential is relatively independent of the cost per ton of CO₂-eq achieved.

However, despite the obvious need and opportunities for reducing energy consumption in buildings, the potential remains largely untapped in most countries, and the UNEP Sustainable Building and Construction Initiative (SBCI) notes that the barriers to energy-efficient buildings will not be removed unless Governments take action. UNEP SBCI released in September 2007 a global review of lessons learned from the use of existing policy instruments in more than 50 countries around the world and this report concludes that many policy instruments are not only effective in achieving emission reductions but they also result in net savings to society.

The important role of buildings and climate change has been highlighted at several side events at the UNFCCC COP 14 in Bali in December 2007 and in Poznań in December 2008 under the theme “Construction Counts for Climate”, and the important role of buildings in climate change is likely to receive increasing prominence in the renegotiation of the Kyoto Protocol.

In support of highlighting the important role of buildings in climate change, UNEP SBCI has begun a series of country specific reports on “Greenhouse Gas Emission Reduction Potentials from Buildings” of which this South African report has been undertaken in collaboration with the Construction Industry Development Board (cidb). This report aims to provide:

- a summary quantification of the influence of buildings on climate change in South Africa;
- base-line average emissions and relevant performance from selected building types;
- priorities for policy makers;
- opportunities for business;
- priorities for building design and construction;
- knowledge gaps, needs for research and development; and
- post 2012, how global emissions protocols could help.

The report concludes that the operation of non-residential and residential building sectors account for around 23% of total emissions. Of this, non-residential sector accounts for around 10% of total emissions and the urban and rural high-medium income residential sectors account for around 8%. In addition, it is estimated that the manufacture of building materials accounts for around 5% of total emissions.

Based on historical trends and anticipated government investment programmes, it is likely that investment in residential and non-residential buildings will grow on average at around 2% per year between 2008 and 2050 which would result in the total building stock doubling by 2050. If CO₂ emissions were unchecked, this would result in a twofold increase in emissions!

Estimates using current technologies suggest that energy efficiencies of around 40% to 50% could be obtained in new buildings in the commercial sector and around 30% to 40% in the residential sector, which can be impacted on through a range of policy instruments. Notwithstanding this, a major hurdle is the ability to effect energy changes in existing buildings and scenarios currently being used in South Africa suggest that overall reductions in energy use that could be achieved from existing buildings would only amount to around 10%. Under this scenario, it is estimated that existing buildings would still account for around 50% of annual emissions from this sector by 2050.

The commercial and the high-medium income residential sectors, together with the materials manufacturing sector, are therefore clearly sectors that require specific focus in terms of energy efficiency and reduction of greenhouse gas emissions.

The report then investigates the policy initiatives in South Africa furthering energy efficiency and reduction of greenhouse gas emissions, and it is noted that South Africa has a relatively well-developed climate change, energy-efficiency policy and legislative framework in place that will impact on the building sector, albeit that some of this is being driven by short-term energy management requirements. Importantly, the need for action to address climate change and energy efficiency is well recognised in the public and corporate sectors, and there are many examples at national, provincial and local level where the public sector is beginning to demonstrate leadership.

However, the challenge remains translating intent into action.

The report then concludes with high-level recommendations for furthering energy efficiency and reducing greenhouse gas emissions in the building sector, namely:

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