



## Generating High Resolution Climate Change Scenarios Using PRECIS

In order to make informed decisions about adaptation options, countries must first carry out vulnerability assessments. Assessment of vulnerability requires an estimate of the impacts of climate change, which in turn is based on scenarios of future climate. These scenarios are generally derived from predictions of climate change from Global Climate Models (GCMs) however, many non-Annex I Parties report that GCMs do not always capture the local detail needed for national or regional impact assessments.

One of the techniques for adding small-scale detailed information to these large-scale global projections is through the use of **Regional Climate Models** (RCMs) however, until now, most non-Annex I Parties have not had either the resources or the capacity to use this approach.

Responding to this need, the UNDP-GEF National Communications Support Unit (NCSU) has collaborated with the Hadley Centre in the UK to make widely available a portable RCM that can be run on a personal computer. *PRECIS (Providing Regional Climates for Impacts Studies)* is a flexible, user-friendly RCM designed to provide detailed climate scenarios.

A PRECIS Workbook, "*Generating High Resolution Climate Change Scenarios Using PRECIS*", a companion Technical Manual and the RCM will be disseminated in early 2004 to more than 130 countries for use in vulnerability and adaptation studies. The Hadley Centre will also offer internet-based help. The ultimate objective of the Workbook is to describe the steps required to generate high-resolution climate change scenarios using PRECIS, taking into account gaps in information and understanding.

It must be stressed that an RCM does not replace GCMs, but it is a tool that can be used in collaboration with GCMs to add fine-scale detail to the broader projections.

In common with other techniques, RCMs do not yet provide all the solutions for generating climate change scenarios. There will be errors in their representation of the climate system and their resolution will not be sufficient for some applications. The Technical Manual provides guidance on overcoming these limitations.

Although the PRECIS package has been developed for non-Annex I countries, users should take into account the following considerations:

- In the standard PRECIS set-up, there is an implicit maximum resolution of 25 km and thus countries or regions (e.g. islands) smaller than this will not be resolved (although the Technical Manual explains an option of specifying land points for land areas which approach this scale).
- In order to check at the local level that the PRECIS model is providing realistic information, it is desirable to have good observations of the climate relevant to the region or application that PRECIS is being used for.
- In addition to the basic computing resource of one or more fast PCs, it is necessary to have expertise to maintain these hardware and support systems.
- Running the model, interpreting and disseminating results from the PRECIS experiments will require time allocated from people with relevant experience.
- PRECIS experiments require several months to run and so PRECIS cannot be used to provide instant climate scenarios.

The Hadley Centre is working to improve the resolution of both its global model, which drives the PRECIS RCM, and PRECIS itself.

The final draft of the PRECIS Workbook can be downloaded from the NCSU website at: [www.undp.org/cc/COP9.htm](http://www.undp.org/cc/COP9.htm).

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### Acknowledgements

The development of PRECIS by the Hadley Centre was funded by the UK Department for Environment, Food and Rural Affairs (DEFRA), and the UK Department for International Development (DFID). The PRECIS Workbook was funded by the United Nations Development Programme Global Environment Facility (UNDP-GEF).

