



Consultative Group on International Agricultural Research (CGIAR)

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***STAKEHOLDER MEETING***

**Climate Change and the CGIAR  
Report of the CG InterCenter Working Group on Climate Change  
And  
Recommendation for a Challenge Program**

**Agenda Item:** 6a – Program Initiatives, Climate Change

**This item is for:** Information  Discussion  Decision

**Proposed Action:** None

**Background:** An Inter-Center Working Group has been addressing climate change issues that impact on agriculture. Early this year, it started a process to formulate a program initiative on climate change which is being suggested as a potential theme for challenge program. The attached report provides a summary of the progress made so far. It will be presented and discussed in Parallel Session I.

**Comments:**

# Climate Change and the CGIAR

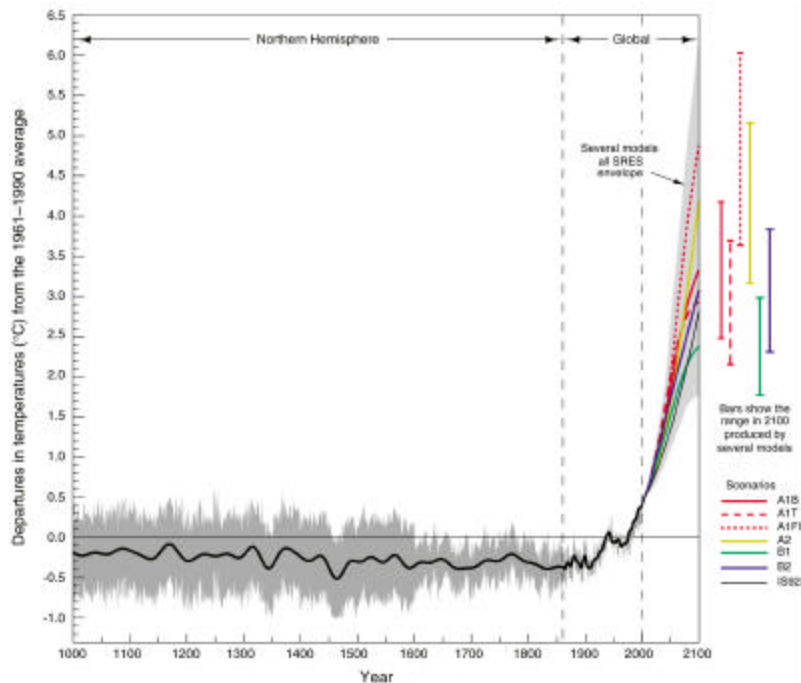
## Report of the CG InterCenter Working Group on Climate Change and recommendation for a challenge program

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### Climate Change is a Reality

The Third Assessment Report of the IPCC leaves no doubt that the Earth's climate is changing, and it is changing as a result of human-induced activity. The reports of three Working Groups were published in July and the recently-completed Summary Report will be published before the end of the year.

### Variations of the Earth's Surface Temperature: 1000 to 2100



- 1000 to 1861, N. Hemisphere, proxy data;
- 1861 to 2000 Global, Instrumental;
- 2000 to 2100, SRES projections

In brief, the last sixty years were the warmest in at least the last 1000 years (Figure 1); patterns of precipitation are changing with a greater incidence of both floods and droughts.

The Third Assessment Report concluded that the observed changes cannot be explained by natural phenomena and that there is now a clear evidence of human influence. The question is not whether or not the climate is changing but by how much will it change, how soon and where will the damage be greatest.

### **Climate change is a development problem**

Climate change will impact disproportionately on poorer countries. The poorest people in those countries will suffer the greatest consequences. Those least able to cope will be hit the hardest. Economic activity in these countries is principally rural-based, relying on agriculture, fisheries and forestry, which are vulnerable to the effects of climate change. It is the poor in the developing world that the CGIAR and its partners champion. It is they who will see the possibilities of escape from poverty become increasingly more difficult to achieve due to climate change brought about almost entirely by other, richer, people living elsewhere.

There are determined efforts to place climate change more centrally within the context of sustainable development, and to assess its linkages with the other global environmental issues. There is also increasing emphasis on the regional aspects of climate change. These trends make research vital. The repositioning of agricultural systems and forestry in developing countries in response to climate change is not currently part of the international agricultural research agenda. Climate change will cause many places to encounter climates that do not exist today. Varieties of food crops adapted to these new climates will be needed, although many crops in the tropics are already at or above the temperature thresholds at which yields declines seriously. The effects of temperature and rainfall are anticipated to be different among regions. The needs will be different in parts of Southern Africa and the Mediterranean region, which are anticipated to be both hotter and drier than at present, than in Central Africa and other tropical regions where increased temperatures will pre-dominate. Impacts on coral reefs and the poor of small island states and low-lying coastal areas are likely to be profound.

Over the last three years, the ICWG-CC has undertaken a retrospective analysis of the consequences of the green revolution on climate change. It concluded that the achievements of the green revolution have saved the clearing of some 450 million ha of land in the last 30 years. Building on this analysis, and as a preliminary step in the process of confronting future climate change, the ICWG-CC drew up a list of themes that it perceived to be the most likely areas where climate change would affect the livelihoods and well being of the poor in their client developing countries. The group selected lead authors who are expert scientists within the CGIAR to describe each theme in more detail, in collaboration with other Center scientists. The themes were then grouped under the three IPCC topics of vulnerability/impact, adaptation and mitigation. Although these themes represent areas of interest and expertise associated with the Centers, the activity has generated considerable cross-Center interest and collaboration. The current themes are seen to provide a starting point that will be used as a framework to generate discussion. Partners will be encouraged to identify other themes that are not represented currently.

At its meeting in June, 2001, the ICWG-CC, in conjunction with observers from the World Bank and UNDP, identified a list of 30 experts in climate change from developing and developed countries. The people on this list have been invited to indicate their willingness to participate in the activities of the ICWG-CC as it proceeds to develop a full proposal. It is anticipated that

they may fill various roles as, inter alia, consultants, members of the IAC, and expert peer reviewers.

## **Challenge Program Proposal**

The ICWG-CC proposes an international, collaborative research project aimed at addressing climate change issues regarding agriculture, forestry and fisheries in the developing world. The research project will determine:

- How climate change, especially climate variability, affects the agriculturally- and forestry-based livelihoods of the rural poor;
- What options can be used to adapt the major crop and livestock species and agricultural, forest and fisheries production systems to prevent yield and productivity losses due to increasing temperatures and frequency and severity of drought;
- What livelihood strategies and policies will minimize its effects; and
- What management and policy options there are to (i) minimize the contributions of agriculture in the tropics to climate forcing and (ii) maximize the ways in which managed production systems can sequester carbon so as to remove carbon dioxide from the atmosphere.

The Centers and their partners believe that the tools that they have developed, and will continue to develop in strengthened collaboration with research partners worldwide, can be used to (i) assess vulnerability and forecast the *impact* of climate change on vulnerable people and the systems that they depend on; (ii) provide innovative new technologies and guidance to policy makers that can assist the poor to cope with and *adapt* to climate change so as to improve livelihoods and minimize suffering; and (iii) provide new technologies, and advice on policy instruments, that can help *mitigation* measures be more effective.

In the face of global climate change, the work will provide

- Systems for monitoring biodiversity conservation, especially of the wild relatives of crop and forage plants and of livestock breeds,
- Probabilistic predictions of the magnitude of changed climates that food crops and forestry systems will have to confront, providing clear objectives for plant breeders and system agronomists,
- Predictions of the hotspots of methane emissions and carbon sequestration potentials
- Crop varieties and livestock breeds able to maintain yields under higher temperatures,
- Systems of coping with more frequent and more severe droughts,
- Predictions of shifts in plant pests, diseases and weeds and livestock diseases and their vectors and predictions of hotspots where people and key ecosystems will become vulnerable,
- Understanding of how the rural poor and institutions adapt their livelihoods to cope with climate change, and how public policy can help mitigate adverse impacts and protect livelihood options,
- Systems of plant and animal production that emit less GHG, principally carbon dioxide, nitrous oxides and methane, and cost-effective systems for sequestering carbon both in biomass and in the soil,
- Pilot projects of C sequestration by small-holders in CDM-like projects,

- Solutions to the known constraints to the use of land use, land-use change and forestry (LULUCF) in terms of baselines, additionality, leakage and permanence as they relate to the Clean Development Mechanism,
- Macroeconomic policies to avoid deforestation, and
- Innovative systems for recuperating degraded lands with modern biomass plantations.

The ICWG-CC proposes to:

- a) Implement a peer-reviewed global program between CGIAR Centers and non-CGIAR institutions in both developing countries and developed countries. The program will comprise a prioritized series of research themes in a modular structure under the three IPCC topics of impact, adaptation and mitigation.
- b) Implement a system of governance of the program that address the issues of climate change influencing food crops, livestock and food production systems, and people's livelihoods, and that ensures world class innovative research in the area of climate change as it affects vulnerable people.

The first priority will be to make sure that the research agenda is relevant to and reflects the concerns of the end users, i.e. the poor of developing countries that will be affected by climate change. The second step is to identify how this agenda can be executed with the greatest scientific rigor and creativity. This entails identifying which research institutes in the developing and developed countries can best contribute, and to partner with them to develop the research proposals that address the agenda set in the first step.

The ICWG-CC has developed a Project Development Facility Block B proposal for submission to the Global Environment Facility to enable wide-ranging consultations with developing and developed country partners. The proposal would enable the establishment of an Interim Advisory Committee of outside experts and representatives of developing country partners, to advise on the appropriate themes and priorities, and it will embark on procedures for confirmation of stakeholder institutions, evolution of a business plan, and Program governance.

The Challenge Program on Climate Change will fulfill the Phase 1 and Phase 2 criteria that have been proposed by the Interim Executive Committee. The Program will address an issue of overwhelming significance; the issues are global, regional, and sub-regional in importance; it fits within the CGIAR mission and goals; and it is likely to generate significant outputs and impact. In addition, it will be time bound with clearly defined research outputs and mechanisms for the delivery of and dissemination of research outputs; it is based on science that is excellent and relevant and requires logical integration of multiple disciplines to address issues of great complexity; it will involve both CGIAR centers and their partners, and will be based on the core competence and comparative advantage of the collaborating partners; it will add value to existing research and produces synergies between existing core competencies of the Centers and the partners; it is collaborative and cooperative in nature, with no overwhelming dominance by a single institution; there will be major stakeholder involvement in problem identification with links to bottom-up priority setting mechanisms, including regional priority setting; it will involve active participation of NARS from the South and will contribute to capacity building of NARI's from the South; and there is reasonable evidence that donors will be willing to commit significant new funding up-front.

Therefore, the InterCenter Working Group on Climate Change proposes that the CGIAR approves the fast-tracking of this initiative by requesting a full proposal be prepared. The full proposal will be developed on the basis of two design and stakeholder workshops that will be convened during the first half of 2002.