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Summary Report of the First International Seminar on the 1997-98 El Niño Event: Evaluations and Projections

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Implementation of UNGA Resolution 52/200

IDNDR Summary Report

First International Seminar on the 1997-98 El Niño Event: Evaluation and Projections

Guayaquil, Ecuador: 9-13 November 1998

This IDNDR summary report on the First International Seminar on the 1997-98 El Niño Event, held in Guayaquil, Ecuador, 9-13 November 1998 is presented to the ... th Intersessional meeting of the Commission on Sustainable Development in part fulfilment of UNGA Resolution A/RES/53/185, operative paragraph 5. It provides a summary of the proceedings and conclusions emanating from the various sessions of the Seminar. The main report of the meeting will be available as an information document from the IDNDR Secretariat, in March 1999.

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I. EXECUTIVE SUMMARY

In pursuance of UNGA Resolution 52/200 which calls for an intergovernmental meeting of experts on El Niño, and through the generous support of the Government of Ecuador, this meeting was held in Guayaquil from 9 to 13 November 1998 within the framework of the UN Interagency Task Force on El Niño As indicated in report A/53/487 of the Secretary General, its overall objectives were threefold.

I. To evaluate how well the internationally coordinated systems for providing current and advance climatological and weather related information performed during the 1997-98 El Niño, and to recommend priorities and initiatives to improve the effectiveness of those systems for future El Niño and other climate related emergencies,

II. To assess climate risk in the context of various dimensions of society, and to formulate long-term strategies that integrate climate impact preparedness and risk management into development strategies;

III To link this scientific work with the United Nations system's responsibilities in the economic, social, environmental and development fields.

The meeting provided an international platform for a comprehensive scientific and technical retrospective. This included a global description of the El Niño phenomenon, an overview of the climate anomalies and socio-economic impacts for the various regions affected by the El Niño and the present state of climate predictability and the ability of applying such predictions to decision-making situations

The meeting also established a synergy between science and technology and the operational issues, in particular those concerning the most vulnerable communities. This was achieved through four panel discussions on, respectively, economic, environmental, developmental and societal concerns. It also provided the opportunity to share information with the people concerned, as well as improving the understanding of the problems of the populations affected. The meeting adopted the Declaration of Guayaquil, which was made available to the 53rd session of UNGA as document A/C.2/53/10

II. PROCEEDINGS

The meeting was organised by the Government of Ecuador with assistance from the National Committees of the Permanent Commission to the South Pacific (CPPS) of Colombia, Ecuador, Peru and Chili, and the National Institute of Meteorology and Hydrology of Ecuador (INAMHI), within the framework of the International Decade for Natural Disaster Reduction (IDNDR) and with full support from the UN Inter-Agency Task Force on El Niño, in particular the World Meteorological Organization (WMO), UNESCO and its Intergovernmental Oceanographic Commission (IOC), the United Nations Development Programme (UNDP) and the Office of the Coordinator of Humanitarian Affairs (OCHA). Support was also rendered by the Food and Agriculture Organization of the United Nations (FAO), the World Food Programme (WFP), the World Health Organization (WHO), the United Nations Environment Programme (UNEP), the United Nations Centre for Human Settlements (UNCHS/Habitat), the United Nations Research Institute for Social Development (UNRISD), the International Atomic Energy Agency (IAEA) and the Economic Commission for Latin America and the Pacific (ECLAC).

Over 450 participants attended the meeting from 38 countries (i e., Argentina, Australia, Austria, Bangladesh, Bolivia, Botswana, Brazil, Brunei, Burundi, Cameroon, Chili, China, Colombia, Costa Rica, Cuba, Ecuador, Ethiopia, France, Germany, Indonesia, Italy, Jamaica, Kenya, Myanmar, Nicaragua, Panama, Paraguay, Peru, Philippines, Portugal, Republic of Korea, South

Africa, Spain, Sudan, Switzerland, United Kingdom, United States of America and Zimbabwe), representing all the regions affected by the El Niño phenomenon, and from international organisations in the United Nations system and from non-governmental organisations.

In his opening address the Vice-president of the Republic of Ecuador, Dr Gustavo Noboa Bejarano, emphasized the importance of inputs from the technical and scientific communities towards the reduction of El Niño impacts and proposed to create an international Center for Research on El Niño in Guayaquil under United Nations sponsorship.

The substantive parts of the programme on which this Summary Report is based were arranged around five major plenary sessions, of which one was organised in the form of a series of four panel discussions, embracing three broad thematic subjects as follows:

The El Niño Phenomenon:

Session 1: EL NIÑO, GENERAL OBSERVATIONS;

Session 2: CLIMATE ANOMALIES AND SOCIO-ECONOMIC IMPACTS;

Session 3: PREDICTABILITY OF CLIMATE VARIABILITY.

Societal Consequences of El Niño Risks:

Session 4: RISK AND SOCIETY;

- Panel 4.1: The economic dimension;
- Panel 4.2: The environmental dimension;
- Panel 4.3: The developmental dimension;
- Panel 4.4: The societal dimension

Conclusions and Recommendations.

Session 5: THE WAY FORWARD

In addition, one parallel session was held on Regional Aspects of the Marine Environment, arranged by the National Fisheries Institute of Ecuador, and one on Natural Disasters, arranged by the Santiago Catholic University of Guayaquil. The main outcomes of the deliberations are presented in the five following paragraphs.

The El Niño Phenomenon

III. EL NIÑO, GENERAL OBSERVATIONS

The El Niño Southern Oscillation (ENSO) is a global oceanic-atmospheric phenomenon which originates from fluctuating sea surface temperatures and air pressures in the Pacific Ocean, leading to "hot" and "cold" events lasting several seasons, better known as El Niño and La Niña,

respectively. Countries situated in and around the Pacific Ocean usually carry the brunt of the meteorological extremes resulting from these events, although repercussions can be experienced at greater distances as well.

Based on the analysis of historical records and monitoring data, the global weather patterns that characterise El Niño are largely predictable. Close observations of the extremely severe 1997-98 event have underscored the high degree of El Niño predictability, even though several anomalous conditions in some parts of the world had not been foreseen.

The papers presented during this session stressed the importance of continued monitoring of oceanic-atmospheric conditions using both fixed buoys and satellites. For improved forecasting of the onset and course of future El Niño's, the monitoring effort should be intensified in the oceanic fringe of South America and be extended to regions outside the tropics. Improving ocean-atmosphere models used for El Niño predictions would require the inclusion of monitoring data on oceanic-atmospheric oscillations in other parts of the world. It was argued that the development of regional models should be promoted in order to improve regional forecasting

In order to maximise the utility of El Niño predictions for disaster mitigation, it was concluded that educational programmes would be necessary at all levels of society. A fuller understanding of the phenomenon would help to identify mitigative approaches for the reduction of vulnerabilities in sensitive sectors and communities, and to take greater advantage of any opportunities El Niño events might produce (such as in agriculture or fisheries).

IV. CLIMATE ANOMALIES AND SOCIO-ECONOMIC IMPACTS

This theme was covered by sixteen case studies from various parts of the world (e.g., Pacific and Atlantic South America, central and east Africa, southern Africa, eastern and equatorial Asia, western Pacific and Australasia), highlighting the vast global diversity of socio-economic impacts suffered from climate extremes produced by the 1997-98 El Niño event, and indicating a variety of approaches developed to reduce these. The case studies demonstrated the importance of multisectoral approaches to disaster prevention, in which representatives of the science and technology sectors, work closely with public administrators and representatives of the affected communities at all levels, with support from donor agencies and the international organizations.

As part of one such approach, a series of regional Climate Outlook Fora were convened through WMO with support from other international agencies and donors to bring scientists, providers of climate information, prediction services together with sector decision- and policy-makers. Based on the same principles, the Drought Monitoring Centres in eastern and southern Africa (of WMO, UNDP and collaborating institutions) collect information on drought conditions and provide early warnings Although this region is usually prone to less than normal rainfall during an El Niño event, the 1997-98 El Niño produced excessive flooding in the eastern areas, extending southwards along the Indian Ocean coastline, destroying crops and bringing considerable economic loss. The experience helped to elucidate a number of weaknesses in communication between scientists and end users, inherent to such intersectoral approaches, and to suggest ways and means to improve on these on future occasions.

The session made a number of recommendations towards the improvement of regional climate predictions and adjusting these more appropriately to the needs of the communities served, leading to more truly user-focused services.

V. PREDICTABILITY OF CLIMATE VARIABILITY

In this session, the two principal classes of climate prediction were presented and discussed: (1) methods based on statistical approaches, and (2) methods based on physical and dynamical processes. Both classes of prediction have shown significant and useful skill over a range of time scales from a month or two up to a year, in specific geographical areas and under a range of climate regimes. The use of a combined approach, based on computer model predictions as well as statistical methodologies, is believed to provide the best prospects for future progress.

The 1997-98 El Niño event has once again demonstrated that perceptions of the scientific community, the user community and the media levels are not always in harmony. As the signal of the event grew, decayed and moved towards becoming typical for a La Niña event, the users were often confused by the flood of material becoming available from different sources. The lessons learned by the scientific community will hopefully lead to more user-focused seasonal forecast messages in the near future.

Recommendations emanating from this session covered a range of issues associated with the management of climate variability impacts, including the need to expand the oceanographic observation systems (including parts of GOOS and GCOS networks), the need for extended country-level climate observations, the need for country-level capacity building in preparing for and coping with El Niño events, and a plea to countries to take stock of the economic savings of pre-El Niño actions as compared to the cost of relief and recovery averted.

Societal Consequences of El Niño Risks

VI. RISK AND SOCIETY

While the preceding sessions focused on a scientific review of the state-of-the-art in the study of El Niño, its manifestations, predictability and impacts on socio-economics, this session was arranged as a series of four panel discussions, introduced by short presentations by a number of selected experts in order to maximise the exchange of ideas and concrete experiences with the many participants who had come from El Niño-affected countries worldwide and from institutions involved in the study and management of El Niño impacts. In her introduction, the Chairman, Mrs M. Dueñas alluded to the need of development to the fullest potential of the most vulnerable countries in the world Such development needs could be seriously impeded by repeated El Niño impacts, which often result in a shift in the utilisation of scarce resources towards the supply of goods and basic services to cope with response and limited *ad hoc* reconstruction. Better disaster management, through improved preparedness and vulnerability reduction, would help to cut the vicious circle of poverty and resource loss from disasters.

The economic dimension
Risk reduction and globalization

The panellists focused on a variety of economic issues in relation to El Niño and natural disasters, from both the macro- and micro-economic perspectives. This included a review of the IDNDR concept and the need to consider economic aspects in the Decade's evaluation in 1999. As risk reduction would contribute to business continuity and thus to job security and economic growth, the panel stressed the need for more private sector participation in integrated planning for disaster reduction and relief, in particular with regard to early warning measures. Risk reduction would also contribute to the creation of equal opportunities in international economic partnerships. A methodology for economic and social assessment was presented by means of an ECLAC model, developed within the context of El Niño preparedness in Latin America. The panel made a number of recommendations towards increased involvement of the economic sector in the reduction of natural disasters and the establishment of an International Fund for Risk Reduction.

The environmental dimension
Protecting natural resources, ensuring sustainable development

This panel discussion recognized the need for a broad definition of *environment*, comprising the built environment (i.e., infrastructures, housing), agriculture, forestry and fisheries, and human health. This broad definition helped to recognize the communities responsible for the protection of the human environment and, therefore, the potential users of El Niño information and prediction services: i.e., local government and the housing sector, the agriculture and natural resources protection sectors, and the public health sector. Key issues were how to "socialize" preparedness planning, through a greater involvement of target populations, and how to improve communications across the interfaces between science, policy and society.

Although some progress had been made in construction, agriculture, and public health, with the development of effective adaptive practices in response to El Niño, a still greater effort is required towards the full integration of El Niño information in inter-seasonal strategic planning in these and other sectors in vulnerable countries. The panel made some recommendations to this effect.

The development dimension
Building capacities to cope

This panel proposed that although human well-being was the objective of disaster reduction, as well as sustainable development, this is rarely reflected in development and risk reduction strategies. The panel reviewed case studies, contributed by UNDP, from Indonesia (the economic cost of forest fires), Peru (cost-effective prevention), Panama (economic adaptation in the face of disaster) and Ecuador (economic vulnerabilities to El Niño), followed by presentations on experiences of WFP (El Niño preparedness, vulnerability mapping) and ECLAC (adaptive approaches to disaster management cycle)

The panel concluded that human well-being and the prevention of natural hazards are components of sustainable development, requiring non-linear, holistic approaches to development planning at all sectoral levels. It also made a number of recommendations, relevant to the promotion of a "culture of prevention", through education, training, information and planning.

The social dimension
Bringing it to the community

This panel recognized that social structures and public policies and institutions at community, national and international levels were major determinants of vulnerability to impacts from climatic anomalies associated with El Niño. This makes it necessary in disaster prevention to consult with each community's diverse social components, including those most at risk because of socio-economic status, occupation, ethnicity, gender and age, and to engage these actively in the process. The panel also concluded that sustainable development requires institutional and policy reforms at all levels, involving the active participation of all relevant social actors, including the poor and the vulnerable. In accordance with these observations, good social science should contribute to natural disaster prevention and reduction by identifying vulnerable social groups and enlisting their involvement in the advocacy and implementation of institutional and policy reforms to reduce El Niño impacts.

Conclusions and Recommendations

VII. THE WAY FORWARD

The concluding plenary session was devoted to the presentation and the adoption of the *Declaration of Guayaquil* (reproduced in full as Annex I). In his closing address, Governor Guillermo Lasso expressed the hope that future efforts towards the prevention of El Niño impacts would rely on a growing understanding of the phenomenon, building on the recommendations made in the declaration

In initial direct follow-up to the outcome of the seminar, WMO has organized an expert evaluation of the scope and feasibility of the proposed Guayaquil Center for the Study of El Niño. The Government of Peru has offered to host the proposed second International Seminar on the 1997-98 El Niño, in Lima, in September 1999, which will focus on the institutional aspects, the role of decision-makers and the application of scientific knowledge and technological expertise in El Niño-related impact prevention.

The international community and United Nations system will continue the efforts towards improved international cooperation to reduce the impacts of the El Niño phenomenon within the concluding phase of the IDNDR. These efforts follow a concerted and integrated process approach, and are not limited to one-time, stand alone, activity. As such, the Guayaquil meeting was a starting point towards disaster prevention in connection with future El Niño/La Niña occurrences.

As an example, the Interagency Committee on the Climate Agenda (IACCA) will discuss the

results of the Guayaquil meeting and the follow-up process at its Third Session, to be held in Paris in March 1999. Links will also be established with the follow-up to the Potsdam Conference on Early Warning Systems for the Reduction of Natural Disasters (EWC '98, 7-11 September 1998), through furthering the integration of climate science and prediction data into disaster prevention and early-warning within the ongoing activities of the Decade to improve the "effectiveness and increase international coordination of early-warning systems with regard to natural and similar disasters with an adverse impact on the environment[1]". A comprehensive presentation and discussion of the outcome of the Guayaquil meeting at a specific El Niño/La Niña session, foreseen as part of the IDNDR Programme Forum (to be held in Geneva, 5-9 July 1999), will ensure that its findings will be taken into due account in the formulation of a Disaster Reduction Strategy for the 21st Century.

[1] As formulated in A/RES/52/200

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Letter dated 27 November 1998 from the Permanent Representative of Ecuador to the United Nations addressed to the Secretary-General

I have the honour to attach the text of the Guayaquil Declaration, which contains a message from the first Intergovernmental Meeting of Experts on El Niño, held in Guayaquil, Ecuador, from 9 to 13 November 1998, pursuant to General Assembly resolution 52/200 of 18 December 1997

In accordance with the decisions of that meeting and with the provisions of resolution 52/200 and draft resolution A/C.2/53/L.30, I should be grateful if you would have the Guayaquil Declaration distributed as a document of the United Nations during the present session under item 94 of the agenda of the Second Committee, entitled "Environment and Sustainable Development"

(*Signed*) Luis Valencia **Rodriguez**
Permanent Representative

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Annex

Declaration of Guayaquil

Guayaquil, Ecuador, 13 November 1998

The Government of Ecuador, representatives from public and governmental authorities from countries affected by El Niño, representatives from concerned agencies and organizations from within the United Nations system, the Permanent Commission of the South Pacific and experts from the international scientific community, as well as participants from other concerned sectors of society, assembled on the occasion of the first Intergovernmental Meeting of Experts on El Niño held at Guayaquil, Ecuador, from 9 to 13 November 1998, called for by the United Nations General Assembly in its resolution 52/200 of 18 December 1997;

Reaffirm their commitment to continue their efforts to reduce the negative impact of the El Niño phenomenon, in line with draft resolution A/C.2/53/L.30 of the fifty-third session of the United Nations General Assembly, which calls, *inter alia*, for the full and continued implementation of resolution 52/200;

Conclude that the global pattern of climatic extremes associated with the 1997–1998 El Niño event caused loss of life, destruction of shelter and food reserves, disruption of food production and transport systems and sudden exposure to extreme health risks and imposed continuing poverty on peoples and set back development in many parts of the globe;

Underline that natural disaster reduction forms an integral part of sustainable development strategies, at all levels, and must take into full consideration the interrelationship between climate variabilities such as the El Niño and the La Niña phenomena, the consequences of global climate change and the vulnerability of communities at risk from natural disasters that may be induced by extreme climatic conditions;

Emphasize the need for synergies between science and technology, public and private sector decision-makers and planners, as well as the public at large, in order to ensure the effective planning and implementation of measures that would prevent the negative impact of the El Niño phenomenon and similar climatic variables.

Call, at the same time, for integrated approaches to identify potential positive effects of such phenomena, in order to determine how to draw maximum benefits, where possible;

Recognize the opportunities for inter-disciplinary and multi-sectoral research, applied science and technology and preventive action, which are provided by the United Nations Inter-Agency Task Force on El Niño, within the framework of the International Decade for Natural Disaster Reduction;

Agree that natural disasters are of global concern and have their most severe impact on vulnerable communities, as well as on the economic and social infrastructures in the developing world, and can therefore contribute to increased poverty if no concrete action is taken towards integrated preventive strategies;

Expresses their strong conviction that it is necessary to strengthen scientific research on El Niño and related phenomena in order to improve forecasts and apply the results of scientific research towards the mitigation of damages and the realization of potential beneficial effects, particularly in support of vulnerable communities,

Express their concern for the loss of human life and the destruction of economic resources, in particular in the south-eastern Pacific region, which have occurred as a result

of the 1997–1998 El Niño event, as well as in other countries which have suffered recently from the devastating impacts of climatic extremes;

Reiterate their wish to intensify international cooperation, including multilateral projects for scientific cooperation and technology transfer designed to enhance the resilience of urban infrastructures and agricultural zones in order to lessen the negative impact of El Niño;

Conclude that urgent action is required to strengthen many existing intergovernmental programmes to achieve the objectives of General Assembly resolution 52/200:

- Improved monitoring of the climate system, particularly through the development of regional networks and the implementation of operational systems that have demonstrated proven value. Commitment of new funding for multi-purpose space-based systems and *in situ* observing networks of the Global Climate Observing System is necessary to achieve this objective.
- Expanded ongoing research directed towards improved prediction of climate variability on seasonal to inter-annual timescales. The World Climate Research Programme has demonstrated its effectiveness as a research framework and the commitment of new funds to the Climate Variability and Prediction study (CLIVAR) will give an important impetus to this established activity;
- Development and implementation of new climatic early warning systems at the regional levels, where required, and the strengthening of existing systems. The technological infrastructure, including specialized observing networks and regional communications and computing capabilities for data collection, analysis and prediction are costly and beyond the financial reach of most developing countries. Commitment of new funds will be necessary to establish a network of national and regional centres and is essential for supporting national climate services in countries of the developing world.
- Ensuring that the information needs of national sectors vulnerable to extremes of climate are met through regional and sector specific studies to develop the knowledge of vulnerability and sensitivity essential to underpin sound planning for protection, prevention and mitigation of the negative impact of El Niño and related events. Commitment of new funds for the purpose of impact assessments and the development of appropriate response strategies is required to reduce climate risk and establish safe community habitats.
- Capacity-building at the regional and national levels in the areas of observation techniques, data management and processing and in the use and interpretation of climate information and predictions for the early warning and prevention of natural disasters;

Emphasize the importance of developing regional models for the south-eastern Pacific and other affected areas to match the scientific aspects with the social and economic factors.

Also emphasize that the south-eastern Pacific region represents one natural, strategic and continuous case study platform for ongoing research on the prediction and monitoring of the El Niño phenomenon on the forecasting of its effects, on projecting its impacts and providing early warning and for developing and applying preventive measures;

Further emphasize that it is of utmost importance to join efforts of all countries affected by El Niño for the permanent study and monitoring of the phenomenon globally, in real time, which would enable the timely formulation of prevention and mitigation measures through the creation of an international specialized center in the south-eastern Pacific region;

Recommend immediate action to assess the feasibility of establishing an international center for the research of the El Niño phenomenon, in Guayaquil, as proposed by the Government of Ecuador, and suggest that such action be undertaken within the context of the United Nations Inter-Agency Task Force on El Niño, and that the results be reflected in the report on the implementation of the United Nations General Assembly draft resolution A/C.2/53/L.30 to the next session of the General Assembly through the 1999 substantive session of the Economic and Social Council:

Take note, with appreciation, of the results of the ninth session of the joint Intergovernmental Oceanographic Commission/World Meteorological Organization/ Permanent Commission for the South Pacific technical group, held at Guayaquil, from 5 to 7 November 1998;

Entrust the Government of Ecuador, the agencies and organizations of the United Nations involved and the Permanent Commission of the South Pacific to present the conclusions and the recommendations of the international seminar on the 1997–1998 El Niño Event: Evaluation and Projections in appropriate international forums related to the impact of El Niño and related climatic events;

Also entrust the Government of Ecuador to present the results of the first Intergovernmental Meeting of Experts on El Niño and the present Declaration to the fifty-third session of the United Nations General Assembly.