# INTER-AMERICAN INSTITUTE FOR GLOBAL CHANGE RESEARCH



EC-XIX & CoP-XI

June 29 – July 2, 2004

Buenos Aires, Argentina

4\_CoPXI/DWD/English/Mayo 2004

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## Minutes of the Tenth Meeting of the IAI Conference of the Parties (CoP) Boulder, CO, USA June 3 and 5, 2003

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Note: This report is not strictly chronological record. For completeness, greater clarity and readability the IAI Directorate has grouped discussions of an agenda item together under the first occurrence of the topic.

## 10<sup>th</sup> Meeting of the IAI Conference of the Parties (CoP) June 3 and 5, 2003 – Boulder, CO, USA

#### **AGENDA**

Tuesday – June 3, 2003

Day 1

#### - Afternoon session (02:00 - 06:30) -

02:00 - 02:30 Registration

Opening ceremony

Organizational Issues:

- Election of the CoP Bureau
- Election of the Credentials Committee (3 Parties)

Approval of the Agenda

Approval of the Report of the 9<sup>th</sup> Meeting of the CoP

04:00 - 04:15 Coffee Break

Presentations:

- Parties to the Agreement
- Observers

Report of the Credentials Committee

IAI Anniversary Book - "A decade of achievement: responding to the challenge of Global Change in the Americas"

Gustavo V. Necco

#### Thursday- June 5, 2003

Day 2

#### - Morning Session (08:30 - 12:00) -

Report of the EC Chair:

A. Mac Dowell

- Activities charged to the EC by the CoP at its last meeting;
- EC activities, actions, and decisions;
- Issues brought forward from the 16th and 17th EC meetings.

#### Report of the IAI Directorate:

Gustavo V. Necco

- Summary of the presentation made during the 17<sup>th</sup> EC meeting;
- Annual Program for FY 2003/2004
- Budget for FY 2003/2004
- Country contribution 2003/2006

#### IAI External Review Committee

G. Taylor

Approval of items forwarded from the 16<sup>th</sup> and 17<sup>th</sup> EC meetings

A. Mac Dowell

10:15 - 10:30 Coffee Break

Donor's sesssion

- Country contributions to:
  - program and project activities;
  - the Core Budget.

12:00 - 02:00 Lunch and NCAR Tour

#### - Afternoon Session (02:00 - 06:30) -

Report of the Committee to select final candidates for the election of the IAI Scientific Advisory Committee (SAC) member

Election of the new SAC member

04:00 – 04:15 Coffee Break

Approval of the Action List of day 1

Future meetings and sites.

Adjourn

#### 1. Opening Session

The EC Chair, Antonio Mac Dowell, initiated the opening session of the Tenth Meeting of the Conference of the Parties. He welcomed all delegations, observers and members of the IAI staff and wished a successful meeting. He also thanked NSF and UCAR for their hospitality. The EC Chair then gave the floor to Margaret Leinen, member of the US delegation to the CoP X, who introduced Dr. Warren Washington, Chair of the National Science Board. Dr. Washington opened the Tenth Meeting of the IAI Conference of the Parties (CoP) on behalf of the Government of the United States, and also wished a fruitful meeting to all participants.

Finally, the EC Chair introduced the new IAI Director, Dr. Gustavo Necco, who attended the CoP meeting for the first time.

#### 2. Election of Bureau

The CoP elected the following members as the Bureau for its Tenth Meeting: Warren Washington from the USA as Chair, Oscar Brum from Uruguay as First Vice Chair, and Adrián Fernández from Mexico as Second Vice Chair. (Action 1, Day 1).

#### 3. Election of the Credentials Committee

The CoP elected the following Parties to integrate the Credentials Committee: Argentina, Canada and Costa Rica, who shall serve for a period of two years. (*Action 2 – Day 1*)

#### 4. Approval of the Agenda

The CoP approved the agenda of its Tenth Meeting with one modification in the morning session of the second day:

- The report of the IAI external Review Committee will be heard after the reports of the EC Chair and the IAI Directorate. (Action 3 – Day 1)

#### 5. Approval of the Report of the 8<sup>th</sup> CoP Meeting

The CoP approved the report of its Ninth Meeting with no modification. (Action 4 - Day 1)

#### 6. Country Presentations

The CoP Chair asked each Party to the IAI present at the meeting to give a brief presentation. Each country delegation made a brief presentation concerning global change aspects in their countries. The observers also described the work of their institutions related to global environmental change issues.

Participants at the meeting were:

#### **CoP Country Representatives**

- Argentina: Carlos Ereño

- Brazil: Luiz Bevilacqua, Antônio Mac Dowell, Gilberto Camara

- Canada: Bruce Angle, Michel Belánd, Alexandra Mallock

Chile: Renato Quiñones
 Colombia: Carlos Fonseca Zárate
 Costa Rica: Roberto Villalobos
 Jamaica: Gladstone Taylor

- Mexico: Adrián Fernández Bremauntz

- Panama: Lucía Chandeck

- United States: Margaret Leinen, James Buizer, Paul Filmer, Vanessa Richardson, Louis Brown

- Uruguay: Oscar Brum de Mello

#### Observers

- Emilio Sempris, CATHALAC
- Robert Worrest, CIESIN
- Louis B. Brown, Chair of the USGCRP Working Group on International Research Cooperation and representative of the APN;
- Federico García Brum, IAI External Review Committee

#### **IAI Directorate Staff**

- Gustavo Necco (Director),
- Gerhard Breulmann (Scientific Officer),
- Marcella Ohira Schwarz (Training, Communication and Outreach Officer)
- Silvio Bianchi (Administrative and Financial Officer),
- Eduardo Banús (CRN Manager),
- Elvira Gentile (support to the IAI Directorate).

#### 7. Report of the Credentials Committee

The Credentials Committee informed the CoP that at the end of the first day, 10 delegations had submitted the official credentials to participate in the meeting: Argentina, Brazil, Canada, Chile, Colombia, Costa Rica, Jamaica, Mexico, Uruguay and the USA. *(Action 5 – Day 1)* 

The eleventh credential (Panama) arrived on the afternoon session of the second day of the meeting. Since eleven official accredited delegations are needed to guarantee a quorum, all resolutions were taken during the second day.

#### 8. Report of the EC Chair

Antônio Mac Dowell, IAI EC Chair, gave a report to the CoP Representatives on the following issues:

- A) EC activities, actions, and decisions;
- B) Issues brought forward from the 14<sup>th</sup> and 15<sup>th</sup> EC meetings for CoP approval.

#### A) EC activities, actions, and decisions:

- According to Action 2 Day 2 of EC 16 (Panama, December 2002) The EC approved the dissolution
  of various working groups/committees that were providing advice to the Directorate (Communications,
  Country Contributions, Data Policy, Fund Raising and Training and Education. The EC considered
  that these groups had already completed their objectives or the IAI Directorate could perform its
  activities
- The EC Chair explained that the EC only maintained the Financial Working Group. The two groups from the CoP are: Credentials Committee and Standing Committee on Rules of Procedures.
- The EC Chair informed that all arrangements had been made for the signature of the three-year-contract of the IAI Director (in force since November 1, 2002).
- According to Action 4 & 5 Day 2 of EC 17 (Boulder, June 2003), the EC approved the change of name of the Financial and Administrative Working Group. The FAWG changed its name for Financial and Administrative Committee (FAC). The EC also approved its new charter and decided that the membership of the FAC is by country. The member countries that volunteered to participate in the FAC are: Argentina, Brazil, Chile and the USA. The EC also requested the IAI Director to send letters to the IAI member countries not present at the meeting asking them if they are interested in joining the committee. The deadline for nominations is on August 31, 2003. (Action 5 Day 2)
- Regarding *outstanding contributions*, the EC 17 (Boulder, June 2003) charged the IAI Director with developing a strategy to solve the problem of arrears in a year term (Action 6 Day 2) taking into account different alternatives, as the one proposed by Colombia (debt swap) (Action 4 day 1). The IAI Director will report back to the EC at future meetings regarding this process and future plans. The EC also asked the IAI Directorate to prepare a portfolio for all IAI member country representatives showing the benefits received by their countries -in terms of research, training and education, and capacity building- for their participation in the IAI. This portfolio should be presented to their national authorities (*Action 5, Day 1*).
- The EC 17 approved the composition of the Nominating Committee for the election of the IAI SAC member. This Committee would report back in the afternoon session (*Action 1, Day 2*).
- The EC 17 asked the IAI Directorate to study the implementation the trust fund mentioned in Document 12 to support delegate travel to EC/CoP meetings (in case the CoP does not approve the proposal from the SCRP) (Action 3, Day 2).

#### **B)** Issues brought forward from the 16<sup>th</sup> and 17<sup>th</sup> EC meetings for CoP approval:

- EC 16 approved the Auditors report of the Financial Statements as of June 30, 2002, (document 4 EC XVI).
- 2) The EC 17 approved the document 12\_ECXVIII/DID/English/May 20, 2003 containing four recommendations from the Standing Committee on Rules and Procedures ("basic support", travel of delegates to EC and CoP meetings, membership of SCRP, reduction in the number of EC/CoP meetings and its implementation)
- 3) The EC 17 approved the IAI Annual Program (Doc. 11\_CoPX/DWD/English/April 30, 2003) with a minor modification
- 4) The EC 17 approved the New IAI Science Agenda (Addendum Doc 7) with the suggestions from the EC sessional group that were already included in it.
- 5) The EC 17 endorsed the proposal of the delegate of Argentina, seconded by the delegation of the USA, to postpone the adoption of the 8 % increase in the level of contributions until next year.

#### 9. Report of the IAI Directorate

The IAI Director summarized his report to the EC and presented the Annual program for FY 2003/4 and the Budget and Country Contribution (with input from the Administrative & Financial Officer, Silvio Bianchi).

#### A) IAI Directorate Report:

The Directorate actions and activities were based in the six major strategies proposed by the Scientific Advisory Committee and endorsed by the EC-XVI:

- consolidation and enlarging of the CRNs by encouraging integration, by increasing funding through external sources or in-kind support and by fostering links and interactions with other regional and international projects;
- 2) regular renewal for project requests and the definition of new science agenda giving priority to projects clearly focusing on integrating global change research with sustainable development;
- targeting of scientifically weak member countries for more sustained and focused capacitybuilding efforts;
- 4) facilitation of studies synthesizing and assessing the state of knowledge of issues vital to the region and to under-studied sub-regions;
- 5) improvement of IAI's capabilities to disseminate research results through more publications and media ensuring their regional availability to decision makers and the public:
- 6) increase of IAI profile by expansion of its activities to include offering of expertise, information contacts to other institutions in the region and offering to administer appropriate projects for outside agencies and organizations.

IAI plans and activities based on these strategies plus recommendations made by the Working Group for Increasing Country Commitment to the IAI in its final report. In particular those related to the fostering and reactivation of MoU/agreements; the promotion of IAI meetings in countries that are not part of EC, and the diffusion of IAI activities.

As recommended by EC-XVI the Director sent letters to the IAI member countries part of the EC requesting them to formally nominate their corresponding representatives and alternates (in some cases, there was no response).

#### Visibility of IAI

Regarding Strategy Six, all Directorate staff was involved in improving IAI visibility and disseminating its work. During the period covered by the report, visits to institutions were performed, support was provided to several activities of sister institutions

#### Agreements with other organizations

- MoU with (UN affiliated) CRECTEALC (Regional Centre for Space Science and Technology Education in Latin America and the Caribbean) was finalized and officially signed on 14 April, 2003
- MoU between the IGBP and IAI was discussed and agreed. Official signature before the end of this year
- Support to two ENRICH bids (about one million Euro each) presented to the EU Framework 6 for a Specific Support Action: Project entitled "An Integrated Pan-Amazonian Contribution to the ENRICH" (PANAMAZONIA)" and CLARIS Project (strategy six)

#### Fund rising activities

- Organization of American States (OAS)/Inter-American Agency for Cooperation and Development (IACD):
- United Nations Development Programme (UNDP)/ BCPR
- Under negotiation: U.S. National Oceanic and Atmospheric Administration (NOAA)/Office of Global Programs (OGP); U.S.AID; United Nations International Strategy for Disasters Reduction (ISDR); Economic Council for Latin America and the Caribbean (ECLAC); Center of Investigation and Superior Studies in Social Anthropology (CIESAS), Mexico.

• In kind contributions: Brazil's Instituto Nacional de Pesquisa Espaciais (INPE), University of São Paulo/CENA and France's Institute for Research and Development (IRD)

#### Science activities

- 3rd CRN/IAI-IGBP Meeting "Building Global Change networks in the Americas", 27-28 January 2003, Mendoza, Argentina
- 17th Meeting of the IAI SAC, 29-30 January 2003, Mendoza
- PESCA: Final report submitted to NSF (approved)
- Initial Science Program Round 3 (ISP 3): Final report in preparation
- Small Grants Program (SGP): Expected to end by October 2003

#### Collaboration with other programs

- APN
- START (1st Young Scientists Conference, November 2003)
- LBA

#### Future programs

- Launching of a SGP II
- Preparations for a new round of Collaborative Research Networks

#### **CRN**

At its second or third year of implementation:

Considerable expansion in the number of researchers and institutions involved at the CRN:

Initial number of Investigators 171
Present number 347

Initial number of institutions 130
Present number 236

- Sound production of scientific results (see posters)
- Development of human resources through education and training
- Expansion of external sources to support ongoing research
- Complementary funds

#### Training, Education and Communications activities

- Planning and fund rising of capacity building activities:
  - "Land Cover–Land Use Change in the Amazonian Region: Patterns, Processes and (plausible) Scenarios", October 13-24, 2003, Cachoeira Paulista, Brazil
  - "Vulnerability associated with climate change and climate variability in Central America and the Caribbean", October 26-November 8, 2003, Santo Domingo, Dominican Republic
  - "Warming and global climate change causes and mitigation alternatives", November 10-22, 2003, Piracicaba, Brazil
- Planning for T&E activities for 2004 with organizations in Costa Rica, Mexico and other partners (IHDP, UNDP)
- Production of the IAI 10th Anniversary Book

#### Newsletter

- New set of Rules and Duties for the Newsletter Editorial Board and the Editor
- · New Membership of the Editorial Board

Detachment of Dr (Mrs.) Thelma Krug (to prepare ISP synthesis).

#### IAI's internal procedures and structure

Structure: Director; Scientific Officer; Administrative and Financial Officer; Training,
 Communications and Outreach Officer; CRN Manager; Information Technology Manager;
 Secretary to the Director; two Secretaries; Financial Assistant, a Clerk and a Computer Intern

- MBO approach, Cascade process
  - Mission and strategies
  - Annual objectives
  - · Task and duties
  - Evaluation through PAR

To be implemented in the 2003/2004 Financial Year

#### **Future Activities**

- Improving visibility through interactions with member countries and global change related institutions
- Synthesis of scientific programs (ISP-I and ISP-II)
- Renewal of projects (SGP-II, CRN-II?)
- Strengthening of DIS
- Continuation of training activities (Summer Institutes)

#### B) Annual Program 2003/2004

The IAI Director, presented the document "Annual Program for the year 2003/2004" (document: 11), which integrates suggestions from several IAI bodies. The main points of this document are:

#### Institutional

- Support for Directorate activities
- Holding of EC, CoP
- SAC and WGs meetings
- Missions (DIR & EC Chair)
- External auditing

#### Scientific Programs

- Synthesis and dissemination of results ISP and PESCA
- Continuation of CRN implementation
- Initiation SGP-II

#### Capacity Building

- Three short courses (Summer Institute type)
- Ad hoc advice training on administration of projects

#### Co-sponsorship

- START & IHDP conferences
- Support attendance to scientific or training events
- Attendance to institutional meetings, signature MoUs

#### Outreach and communications

- Production of materials (Newsletter, Annual Report, Info sheets)
- IAI Website upgrade
- DIS maintenance and update

It was reminded that the EC XVII (Boulder, June 2002) had approved the Annual Program to forward to the CoP X (Doc. 11\_CoPX/DWD/English/April 30, 2003) with one modification suggested by Canada: In Page 3, EC Chair and IAI Director's missions in member and non member countries, Expected Actions, add: "Report back on how to permanently address funding issues" (Action 7, day 2, EC XVII).

The CoP approved the modified Annual Program for the year 2003/2004 presented by the IAI Director (document: 11\_/CoPX/DWD/Eng/April 30, 2003). (Action 5 – Day 2)

#### C) Core Budget Request

The Administrative and Financial Officer presented document 9 (IAI Core Budget request for FY 2003/2004). He explained that the request had been developed around five major categories: Salaries & Benefits, Staff Travel, Dissemination Activities, Director's Fund and Other Costs.

Table 1: Budget Request for Fiscal Year 2003/2004

Category	Request 2002-2003	Request 2003-2004	Difference
Salaries & Benefits	544,820	543,020	( 1,800)
Staff Travel	108,600	108,600	-
Dissemination Activities	88,500	98,500	10,000
Director's Fund	50,000	75,000	25,000
Other	147,250	114,050	(33,200)
	939,170	939,170	-

As it is shown in Table 1, the request for the FY 2003/2004 is for the same amount as for the previous fiscal year. There are differences between the different categories which are explained as follows:

#### Salaries and Benefits

- Within this category we included an estimated cost for the annual salary adjustments, based on the performance appraisals, as well as the cost of the review of the salary levels as a result of the review of the job descriptions.
- The total cost of the Director's position (salary + benefits) is now adjusted to the actual cost of 1 staff + 1 dependent.
- Adjustment of the staff benefits according to the updated employee manual.
- The hiring of a professional Financial Assistant and a Computer Systems Assistant.

**Staff Travel:** This category only forecasts travel costs for the IAI staff. Is the same amount requested for the previous fiscal year.

**Dissemination Activities:** This category is introduced this year in order to show what is intended to invest in activities that will help to increase the visibility of IAI. This amount of \$ 98,500 is intended to be used to support the representation of IAI in different meetings by non-IAI staff (EC Chair, EC Members, SAC Members), printing of brochures and for the cost of the Newsletter and the Annual Report.

*Director's Fund:* These funds are for the discretionary use of the Director in order to support research/training activities that cannot be supported out of the regular research funds. These funds can also be used as "seed money" to involve other donors in larger research programs/activities. The fund is being increased up to \$75,000 due to the increasing number of requests to support small activities (participations in training/meetings, partial funding of workshops). By supporting this kind of activities IAI is increasing its visibility.

*Other Costs:* This category includes operational costs for the Directorate (professional services and the annual audit review, temporary help, office supplies, publications), a small fund for the renewal of equipments and for hospitality expenses. It also includes the costs associated to the support of the EC meetings and to its ad-hoc working groups. Efforts were done in order to streamline the expenses in this category to generate savings to increase the Director's Fund and the Dissemination Activities.

The CoP approved the Core Budget Request for Fiscal Year 2003/2004 as modified by EC- XVII (document: 9 ECXVII/CoPX/DWD/Eng/April 2003). *Action 2 – Day 2* 

The AFO then showed Statistics of behavior of countries contributing to the core budget. Some conclusions, among others, are that only nine countries contributed to the core budget that fiscal year, and that one country never paid his contribution.

The composition of core budget expenses is the following: 58% salaries, 12% staff travel, 9% dissemination activities, 5% director's fund, 16% other.

Composition of contributions to Core budget: 79%: USA, Canada and Brazil (they pay in time). 14%: Mexico, Argentina, Venezuela; (have not paid this fiscal year yet). 7%: other countries

The AFO stated that with the present level of contributions, the IAI barely supports its basic activities.

The following tables show a scenario analysis on the possible cash position of IAI at the end of fiscal year 2005/2006 based on the possible levels of contributions to be received from the member countries during the period 2003/2006.

#### **Ideal Scenario**

	2003/2004	2004/2005	2005/2006
Initial Cash Balance		84,830	166,760
Country Contributions	1,020,000	1,020,000	1,020,000
Bank Interests	4,000	4,000	4,000
Expenses	(939,170)	(942,070)	(944,970)
Surplus/Déficit	84,830	81,930	79,030
Final Cash Balance	84,830	166,760	245,790

This table shows the best of the possible scenarios, assuming that IAI will receive 100% of the contributions. Under this scenario, a positive cash balance is expected at the end of the fiscal year 2005/2006. It has never occurred.

(In all the analyses the initial cash balance as of June 30, 2003 is not included in order to clearly show the impact on the cumulative cash balances of overdue payments.)

#### **Historical Scenario**

	2003/2004	2004/2005	2005/2006
Initial Cash Balance		(119,170)	(241,240)
Country Contributions	816,000	816,000	816,000
Bank Interests	4,000	4,000	4,000
Expenses	(939,170)	(942,070)	(944,970)
Surplus/Deficit	(119,170)	(122,070)	(124,970)
Final Cash Balance	(119,170)	(241,240)	(366,210)

This table assumes that the level of contributions to be received during the period will be 80% of the committed contributions. Under this scenario negative cash balances are expected at the end of each fiscal year and a cumulative negative balance at the end of the period close to \$360,000.

Savings from previous fiscal years will have to be used to compensate the contributions not received. Assuming an initial cash balance as of July 1<sup>st</sup> 2003 in the amount of \$500,000, this would imply that 72% of the reserves would be consumed in order to compensate the amounts not paid by the member countries.

In order to preserve the reserves as of July 1<sup>st</sup>, 2003 another possibility could be to compensate the deficit reducing expenses (up to US\$ 148.000). In this case, the categories affected would be the following:

- Salaries and benefits (no salary adjustments);
- travel (23 % reduction); dissemination (no support to EC chair and EC/SAC visits, 40 % reduction in brochures, 20 % reduction in newsletter);
- Others (50 % reduction in equipment renewal, no support to EC/CoP meetings, 50 % reduction in training costs, 20 % reduction in support to SAC meetings).

The last possibility to preserve reserves would be to ask for anticipated contributions.

The AFO also showed the worst scenario assuming that the level of contributions from MC would be 70 % of committed funds. Under this scenario, the savings as of June 30<sup>th</sup>, 2003 (\$500,000) will not be enough to compensate the forecasted deficit as of the end of the fiscal year 2005/2006. A similar reduction in the expenses as in the previous scenario would only help to reach to a final cash deficit that can be managed with an important reduction in the reserves.

The cash flow analysis showed that an 8 % increase in the total amount of the contributions would be needed to handle a manageable cash deficit at the end of 2005/2006 if total contributions from member countries were not received. However, the EC 17 (Boulder, June 2003) proposed to postpone the adoption of the 8 % increase in the level of contributions (Action 9, Day 2, EC XVII).

He finally remarked that the operational budget of IAI is calculated based on that the member countries will make their contributions in due course. Delays in sending the contributions to the core budget reduce IAI's possibilities to support its day-to-day operations, jeopardizing the possibility to carry out its activities.

The CoP approved the level of Country Contributions for fiscal year 2003/2004 as recommended by EC-XVII. *Action 3 – Day 2* 

- Canada (B. Angle) noted that it was a very negative picture but the problem of arrears and "virtual budgets" was common in every international organization. He said that he did not agree with the alternative of disinvesting in staff or reducing activities and stated all Parties were also responsible for this problem and had to assist the IAI Directorate in this task. Finally, he mentioned some possible approaches to cope with outstanding contributions:
  - use diplomatic channels to urge countries to pay their contributions ("political embarrassment" to debtor countries);
  - site visits, interviews with high decision levels:
  - make contributions mandatory.
- USA (M. Leinen) agreed with Canada and suggested that the CoP develop a mechanism to assist the
  Directorate in identifying a strategy for each of the countries that have been not able to meet their
  obligations. Since this task would mean an extra cost for the Institute, the USA offered to provide
  funds (apart from their regular contribution) for this purpose.
- Argentina (C. Ereño) suggested the implementation of a "diplomatic pressure" (for example, if the IAI
  Director is to visit the Secretary of Science in Argentina, some days prior to his arrival, the Secretary
  of Science in Brazil can phone him and tell him of the importance of the visit, the activities of the
  Institute, etc.)
- Chile (R. Quiñones) seconded the proposal of the USA and proposed the creation of a Committee to assist the IAI Director in developing a strategy to re-engage Member Countries.

The CoP established an "Ad Hoc Committee on Relations with Member States" to work with and assist the Director to:

- identify appropriate contacts at all levels, including the policy level, in Member States for IAI interactions with Member States on financial and participation issues;
- advise the Director as to the most effective ways to approach Member States on these issues; and

Approved

provide direct support for and participate with the Director in these interactions, when appropriate. The CoP requested the EC Bureau to select this Committee, in consultation with the IAI Director, with the understanding that the Committee will include one member each from the CoP, the EC, the SAC, and scientific participants in IAI programs. (Action 7- Day 2)

#### 10. Report of the IAI External Review Committee

The Chair of the IAI External Review Committee (ERC), Gladstone Taylor, reported on the work of the group so far. He said that it was a draft report because they had had some problems in gathering the necessary information. He mentioned the following items:

#### Membership

- 6 members of high international visibility and credibility
- half of membership to be without direct involvement with IAI

#### Work to be done by:

- Corresponding and e-mail
- Travel for information gathering
- Conduct interviews with governments and scientific community
- Provision of secretarial and 2 experts

Focus of Review: Institutional and Programmatic development

Evaluation Reference point: Article II of the IAI Agreement

#### IAI's major objectives

#### General:

- Scientific Excellence
- International Cooperation
- Information Exchange

#### Specific:

- Promote regional research cooperation
- Conduct/sponsor scientific programs/projects
- Identify/promote data management development
- Provide scientific /technical training
- Pursue research which is beyond state/institutional capability
- Foster standardization, collection, analysis and data exchange
- Improve public S&T awareness
- Provide Scientific information to governments for public policy
- Promote intra-regional institutional cooperation
- Promote extra regional cooperation

#### IAI expected results

- improved understanding of the impacts of environmental changes on natural and social processes;
- facilitation of dynamic exchanges between researchers, policy makers and end-users
- be a vital information source of environmental data.

Dr. Taylor introduced another member of the ERC, Ing. Federico García Brum, who presented some indicators of IAI performance. He began by thanking the IAI Directorate for the prompt response to his requirements and stating that he was very happy to cooperate with IAI again. He presented several tables showing the participation of IAI member in the different IAI scientific activities, the total number of institutions and scientists in the IAI network, sources and utilizations of funds, member country contributions to the core budget and benefits obtained from the IAI. These are some of the main conclusions of the exhaustive analysis of the tables:

- In all IAI projects, except for the ISP II, almost all IAI member countries participated.
- The objective of fostering the submission of multi-national, multi-disciplinary proposals has been achieved
- However, the IAI has only funded 116 proposals from a total of 628 submitted to different IAI calls due to the lack of funds
- 53 % of the funded proposals came from only 4 countries while 25 % for the funded proposals came from 11 countries (the eleven countries showed no interest? Or they cannot compete with more developed countries because they have less resources?)
- 60 % of the total number of investigators came from only 4 countries and 25 % came from 11 countries.
- 84 % of the funds came from the USA and particularly from NSF. This implies a very high dependence from only one country/institution.
- 4 countries used the 56 % of total distributed funds
- 4 countries have never paid their contribution
- IAI has kept working thanks to a good administration and a reduction in its activities. This is not sustainable in the long term.
- All countries benefited from IAI funds for research and capacity building, even those that never contributed to the Institute.

The ERC concluded that the problem of lack of funds and unpaid contributions might be due to lack of interest and commitment from several countries. The Committee presented the following observations or guidelines to work with:

- The vision of IAI is unclear in many countries. So are IAI's goals and activities
- No contributions have been received from "other" sources other than member countries.
- Representatives at EC/CoP are mostly not in a position to influence commitment of their governments
- Many countries are unaware of the benefits received from participation of their scientists in research programs
- Training provided by the IAI supported activities are not widely known by governments or the competent authorities.
- Most countries are in arrears, Some have never paid
- National organizations that receive funding from governments, in turn, fund mostly national programs.
   Almost no funds flow from these institutions for collaborative research with other countries.
- Participation of member countries in meetings of IAI is poor. Countries often cite lack of funds i.e. their governments do not provide the funds for their participation.
- Information flow on IAI activities does not reach the relevant institutions.
- There are insufficient resources to support many of the good projects proposals received.
- There are frequent changes in the national organizations or authorities that are the contact points for IAI in the various countries.
- IAI representatives in each country are diverse.
- Several countries have exhibited a level of disinterest with IAI in the last several years.
- The number of participating countries in the region has remained relatively static.
- In most countries, the majority of public and private sector entities have very little, if any, information on IAI.
- In many cases, information on IAI meetings and activities does not flow efficiently among institutions in countries.
- Scientific research in global change is not established or supported at the highest level, i.e. the government levels from which voluntary contributions normally come.
- In some countries, the relevant authorities namely, the Ministries of Foreign Affairs or Research Councils are both ignorant of, and lack interest in, the activities of the scientific communities and by extension in IAI's activities.
- Many countries are unaware of the scientific output of their scientists who receive research funding through the IAI system.

The Chair of the ERC then presented the following table showing the achievement of IAI's major targets:

Specific targets	Good	Fair	Poor
Promote regional research cooperation	✓		
Conduct/sponsor scientific programs/projects	✓		
Identify/promote data management development			✓
Provide scientific/technical training	✓		
Pursue otherwise unsupported research			✓
Foster standardization, collection, analysis and data			✓
exchange			
Improve public S&T awareness			✓
Provide scientific information to governments for public			✓
policy information			
Promote intra-regional institutional cooperation		<b>√</b>	
Promote extra-regional institutional cooperation			✓

#### **General Achievement**

	Good	Fair	Poor
Scientific excellence	✓		
International cooperation		✓	
Information exchange/flow			<b>√</b>

#### Main Recommendation:

Immediate focus on wooing governments of the region

Some possible initiatives:

- A. Communicate to government and private sector agencies information on IAI's
  - Vision
  - Mandate
  - Goals
  - Organizational structure and operation
  - Future/planned research activities/projects

#### B. IAI Benefits:

- Training of scientists
- Scientific outputs of national projects
- Participation of national scientists in regional/international research programs
- Availability of global change research data
- Institutional synergy
- More efficient use of scarce resources:
  - Manpower
  - Finances
- Payback ratio on country contribution
- C. Publish IAI's achievements, e.g.
  - Number of scientists trained
  - Number of successful research projects
  - · Number of databases, etc.
- D. Increase/improve information flow channels
- E. Lobby for higher level of country representation i.e. people who are in decision-making categories
- F. Increase efforts to secure project funds from other sources

Regarding the *Scientific Agenda*, the ERC suggested make it more relevant to:

- · National priorities,
- Regional/ local needs
- R&D Requirements/Weaknesses of Countries

The priority areas for research and development are:

- Agriculture (food, cattle)
- Water

- Energy
- Health

#### Next ERC activities:

- Visits to countries of the region
- · Redistribution of Questionnaire
- · Evaluation of the Scientific Agenda
- · Visit to IAI Directorate

The parties thanked and congratulated the Committee for the presentation and made the following comments:

- Brazil (L. Bevilacqua) suggested using relative indexes as well as absolute indexes (e.g. N° of involved researchers vs. N° of country potential). He also said he was surprised by the results presented about cooperation among scientists because he thought it had been a major IAI achievement and recommended revisit this issue in future interviews with CRN and governments.
- Canada (B. Angle) noted that the indicator on payback ratio for the countries was not adequate because most of country contributions goes to support the Secretariat and not to the Science Program. He suggested that a better indicator of scientific success would be the number of paper cited (e.g. in the IPCC reports). He mentioned that for example in Canada, the global change issues are dealt through other global institutions as WCRP or IPCC and that was an obstacle for allocating resources in IAI. He said that IPCC was a big competitor; in many countries when someone thinks of global change, he thinks of IPCC. That might be the reason why in several countries IAI is not taken into account at the time of making contributions. He supported the idea of having performance indicators for the IAI, e.g. how many papers are cited, how many research notes have been used as tools for decision makers.
- Argentina (C. Ereño) recommended to include in the ERC report a better picture of item "f)" from Article ii of the IAI Agreement regarding providing governments with scientific information for the elaboration of global change policies. He considered the IAI was not fulfilling this objective.
- The members of the ERC thanked the Parties for their comments and encouraged them to contact them for suggestions.
- USA (M. Leinen) expressed that the information presented by the committee regarding short comes in reaching governments was very useful. She noted that the IAI Science Agenda was very comprehensive to scientists, but it could be improved to make it understandable to policy-makers. She said that the CoP has to work on that issue. She suggested meeting with the SAC to try to understand how to make the translation of good science into concepts that are relevant and understandable to our countries and encouraged the Parties to be proactive in bringing the issues that are important to our countries.
- Mexico (A. Fernández) noted that the IAI has been successful in the scientific arena but had many problems in the diplomatic one. He recommended searching mechanisms to re-engage countries that are not participating in the IAI and mentioned the importance of representatives in this role. IAI seems to be disconnected from the decision-making levels in many countries. He said there were enough diagnostics and now it was time of being pragmatic and solve the problems.

The CoP noted with appreciation the suggestions and evaluations presented by the IAI External Review Committee and thanked the Committee Chair for the excellent work done. It also encouraged this Committee to continue its work, aiming at presenting a final picture at the next CoP (Action 13 – Day 2)

The CoP suggested that the SAC and EC consider a meeting jointly at the next EC to discuss the Scientific Agenda and Member Country priorities. (Action 8 – Day 2)

#### 11. The IAI Science Agenda

Walter Fernández, Chairman of the IAI SAC, presented the new IAI Science Agenda (Addendum Document 7). He stated that the agreement establishing the IAI stated that the Science Agenda should be dynamic and should evolve to permanently incorporate new scientific priorities and to address changes in the needs of the region's countries. Therefore, the SAC members reformulated the IAI Science Agenda and most of the work was done by e-mail until consensus was reached.

He explained that during the EC XVII meeting, a sessional group was formed to discuss with the SAC Chair and the SO some items of theme 4 of the Agenda. The New Science Agenda with the revised theme 4 had been approved by the EC.

The CoP approved the Scientific Agenda as modified by EC-XVII (Addendum - Document 7). (Action 6 - day 2)

The approved New IAI Science Agenda is included in Annex.

 Mexico (A. Fernández) congratulated the SAC for their work since the new agenda is more complete and includes many important global change issues.

#### 12. Donor's Session

Argentina (C. Ereño) announced that the Secretary of Science and Technology had transferred US\$ 5000 to the IAI for scientific activities as a signal of the continuous interest of Argentina in the IAI.

*Brasil (L. Bevilacqua)* said he would present a proposal to the Brazilian Spatial Agency so that CBERS satellite images be available for IAI scientists. This might be approved the following week.

Canada (B. Angle) committed to try to leverage funds from his Agency, his Ministry and several Canadian funding councils especially for the line of health and the environment, particularly on air quality.

USA (M. Leinen) announced that in addition to their annual support to the Science Program, the USA would commit another US\$ 300 K for Summer Institutes. She also said that NSF and NCAR would work together to develop some specific proposals for funds for collaboration (travel opportunities, training, fellowships, etc.). They would present them to the SAC for its evaluation and NSF commits to fund those activities. She also reminded that the USA would give additional support to provide assistance to the IAI Directorate in engaging country participation in the IAI:

The Vice-Chairman thanked the Parties for their kind offers.

#### 13. Report of the Committee to select final candidates for the election of the SAC member

Argentina (C. Ereño) proposed to postpone the election of the SAC member until the next CoP because the composition of the SAC was somewhat unbalanced, (with an overrepresentation from the atmospheric sciences) and ask the SAC to make an analysis of the needed disciplines to cover the Science Agenda. Brazil seconded the proposal.

Chile (R. Quiñones): said he understood the proposal but recommended to make this kind of analysis prior and not after the call. He urged the SAC to make a prompt and deep analysis of its composition and asked for a call as soon as possible.

Mexico (A. Fernández): suggested to complete the process and elect the SAC member since the Committee had analyzed the CVs of two excellent scientists. He said that the balance could be considered in occasion of the next CoP when two positions would be open.

The proposal of Argentina was approved with 6 votes.

The CoP agreed to postpone the election of a SAC member until the next Conference. (Action 1 – Day 2)

The report of the Committee was not presented.

It was reminded that at the next CoP, 3 SAC members would have to be elected.

#### 14. Approval of other items forwarded from the 16<sup>th</sup> and the 17<sup>th</sup> EC Meetings

The CoP approved the IAI Financial Statements and Auditor's Report for the Fiscal Year 2001-2002 (document: 10\_ECXVII/CoPX/DID/Eng/April 2003). (Action 4 – Day 2)

The CoP approved the definition of "basic support" to refer to funds for activities, other than salaries and associated benefits, that constitute the day-to-day operations of the IAI. Such funds presently include:

- personnel (staff salaries and associated benefits);
- staff travel;
- other costs (including support for EC working groups, capital equipment, budget, and support to participants in scientific meetings (non-IAI staff); and
- Director's Special Fund. (Action 9 Day 2)

The CoP recognized that the travel expenses of country representatives to meetings of EC and CoP continue to be responsibility of Country Members. (Action 10 – Day 2)

The CoP approved the open membership of the Standing Committee on Rules, with members serving in their individual capacities. (Action 11 – Day 2)

The CoP had a lively discussion on the issue of changing the frequency of EC/CoP meetings. Chile (R. Quiñones) expressed his concern about extending the frequency of CoP meetings to 2 years because it could result in less participation from countries that are not members of the EC. He suggested not deciding on that issue for the moment. Other countries explained that it was not necessary to conclude at the moment, but it would be very helpful to study the different implications of such a change. Argentina (Ereño) reminded that this issue had been discussed at the ad hoc Working Group on Country Commitment and the EC had approved its recommendations.

The CoP agreed to consider the issue of changing the frequency of meetings at its next meeting and requested the Ad Hoc Committee on Relations with Member States, with the assistance of the Rules Committee, to provide an analysis of the consequences of any change, reporting progress to the next EC meeting. (Action 12 – Day 2)

#### 15. Approval of the Action List of day 1

The CoP approved the Action List of June 3rd. with no modification. (Action 14 – Day 2)

#### 16. Future meetings and sites

There were no proposals for the next CoP meeting. The IAI Director informed that if no proposals were received in the near term, he would send a circular to all parties asking them of the possibility to host the next CoP.

#### 17. Adjournment

The First Vice Chair, Oscar Brum from Uruguay, thanked all the delegates for their presence and their effort, especially during the tiresome second day of the meeting.

The Second Vice Chair, Adrián Fernández from Mexico, thanked the host country for the organization of the meeting. He also thanked the interpreters, the secretariat the first Vice-Chairman for having conducted the meeting and for his support to the group.

The IAI Director, Gustavo Necco, thanked all the delegates for their interest in the Institute and for their hard work during the meeting. He also thanked the host country for the facilities and the interpreters for their collaboration.

The meeting was adjourned.

#### Tenth Meeting of the IAI Conference of the Parties (CoP) June 3-5, 2003 - Boulder, USA

#### **Action List**

#### Day 1: June 03

- 1. The CoP elected the following members as the Bureau for its Tenth Meeting: Warren Washington from the USA as Chair, Oscar Brum from Uruguay as First Vice Chair, and Adrián Fernández from Mexico as Second Vice Chair.
- 2. The CoP elected the following parties to integrate the Credentials Committee: Argentina, Canada and Costa Rica, who shall serve for a period of two years.
- 3. The CoP approved the agenda of its Tenth Meeting with one modification in the morning session of the second day:
  - The report of the IAI external Review Committee will be heard after the reports of the EC Chair and the IAI Directorate.
- 4. The CoP approved the report of its Ninth Meeting with no modification.
- 5. The Credentials Committee informed the CoP that 10 delegations had submitted the official credentials to participate in the meeting: Argentina, Brazil, Canada, Chile, Colombia, Costa Rica, Jamaica, Mexico, Uruguay and the USA.

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#### Tenth Meeting of the IAI Conference of the Parties (CoP) June 3-5, 2003 - Boulder, USA

#### **Action List**

#### **Day 2: June 05**

- 1. The CoP agreed to postpone the election of a SAC member until the next Conference.
- 2. The CoP approved the Core Budget Request for Fiscal Year 2003/2004 as modified by EC- XVII (document: 9\_ECXVII/CoPX/DWD/Eng/April 2003)
- 3. The CoP approved the level of Country Contributions for Fiscal Year 2003/2004 as recommended by EC-XVII.
- 4. The CoP approved the IAI Financial Statements and Auditor's Report for the Fiscal Year 2001-2002 (document: 10\_ECXVII/CoPX/DID/Eng/April 2003).
- 5. The CoP approved the modified Annual Program for the year 2003/2004 presented by the IAI Director (document: 11\_/CoPX/DWD/Eng/April 30, 2003).
- 6. The CoP approved the Scientific Agenda as modified by EC-XVII (Addendum Document 7).
- 7. The CoP established an "Ad Hoc Committee on Relations with Member States" to work with and assist the Director to:
  - identify appropriate contacts at all levels, including the policy level, in Member States for IAI interactions with Member States on financial and participation issues;
  - advise the Director as to the most effective ways to approach Member States on these issues; and

- provide direct support for and participate with the Director in these interactions, when appropriate.

The CoP requests the EC Bureau to select this Committee, in consultation with the IAI Director, with the understanding that the Committee will include one member each from the CoP, the EC, the SAC, and scientific participants in IAI programs.

- 8. The CoP suggested that the SAC and EC consider a meeting jointly at the next EC to discuss the Scientific Agenda and Member Country priorities.
- 9. The CoP approved the definition of "basic support" to refer to funds for activities, other than salaries and associated benefits, that constitute the day-to-day operations of the IAI. Such funds presently include:
  - personnel (staff salaries and associated benefits);
  - staff travel:
  - other costs (including support for EC working groups, capital equipment, budget, and support to participants in scientific meetings (non-IAI staff); and
  - Director's Special Fund.
- 10. The CoP recognized that the travel expenses of country representatives to meetings of EC and CoP continue to be responsibility of Country Members.
- 11. The CoP approved the open membership of the Standing Committee on Rules, with members serving in their individual capacities.
- 12. The CoP agreed to consider the issue of changing the frequency of meetings at its next meeting and requested the Ad Hoc Committee on Relations with Member States, with the assistance of the Rules Committee, to provide an analysis of the consequences of any change, reporting progress to the next EC meeting.
- 13. The CoP noted with appreciation the suggestions and evaluations presented by the IAI External Review Committee and thanked the Committee Chair for the excellent work done. It also encouraged this Committee to continue its work, aiming at presenting a final picture at the next CoP.
- 14. The CoP approved the Action List of June 3rd. with no modification.

## INTER-AMERICAN INSTITUTE FOR GLOBAL CHANGE RESEARCH (IAI) TENTH MEETING OF THE IAI CONFERENCE OF THE PARTIES (COP) June 3-5, 2003, Boulder, USA

The CoP adopted at its 10<sup>th</sup> meeting, held from June 3-5, 2003 in Boulder CO, the following resolutions:

#### **RESOLUTION 1**

The CoP agreed to postpone the election of a SAC member until the next Conference.

#### **RESOLUTION 2**

The CoP approved the Core Budget Request for Fiscal Year 2003/2004 as modified by EC- XVII (document: 9 ECXVII/CoPX/DWD/Eng/April 2003).

#### **RESOLUTION 3**

The CoP approved the level of Country Contributions for Fiscal Year 2003/2004 as recommended by ECXVII.

#### **RESOLUTION 4**

The CoP approved the IAI Financial Statements and Auditor's Report for the Fiscal Year 2001-2002 (document: 10\_ECXVII/CoPX/DID/Eng/April 2003).

#### **RESOLUTION 5**

The CoP approved the modified Annual Program for the year 2003/2004 presented by the IAI Director (document: 11\_/CoPX/DWD/Eng/April 30, 2003).

#### **RESOLUTION 6**

The CoP approved the Scientific Agenda as modified by EC-XVII (Addendum - Document 7).

#### **RESOLUTION 7**

The CoP established an "Ad Hoc Committee on Relations with Member States" to work with and assist the Director to:

- identify appropriate contacts at all levels, including the policy level, in Member States for IAI interactions with Member States on financial and participation issues;
- advise the Director as to the most effective ways to approach Member States on these issues: and
- provide direct support for and participate with the Director in these interactions, when appropriate.

The CoP requested the EC Bureau to select this Committee, in consultation with the IAI Director, with the understanding that the Committee will include one member each from the CoP, the EC, the SAC, and scientific participants in IAI programs.

#### **RESOLUTION 8**

The CoP suggested that the SAC and EC consider a meeting jointly at the next EC to discuss the Scientific Agenda and Member Country priorities.

#### **RESOLUTION 9**

The CoP approved the definition of "basic support" to refer to funds for activities, other than salaries and associated benefits, that constitute the day-to-day operations of the IAI. Such funds presently include:

- personnel (staff salaries and associated benefits);
- staff travel;
- other costs (including support for EC working groups, capital equipment, budget, and support to participants in scientific meetings (non-IAI staff); and
- Director's Special Fund.

#### **RESOLUTION 10**

The CoP approved the open membership of the Standing Committee on Rules, with members serving in their individual capacities.

#### **RESOLUTION 11**

The CoP agreed to consider the issue of changing the frequency of meetings at its next meeting and requested the Ad Hoc Committee on Relations with Member States, with the assistance of the Rules Committee, to provide an analysis of the consequences of any change, reporting progress to the next EC meeting.

#### THE IAI SCIENCE AGENDA

The IAI's primary objective is to promote scientific research on issues important to the Americas as a whole, by initiating and supporting programs beyond the scope of national efforts. Our stated mission is to develop the capacity to understand the integrated impact of past, present, and future global change on regional and continental environments in the Americas and to promote collaborative research and informed action at all levels. The IAI's approach is to pursue the principles of scientific excellence, international cooperation and the full and open exchange of scientific information relevant to global environmental change. The term global environmental change refers to the interactions of biological, chemical, and physical processes that regulate changes in the functioning of the Earth system, including the particular ways in which these changes are influenced by human activities.

The agreement establishing the IAI stated that the Science Agenda should be dynamic and should evolve to permanently incorporate new scientific priorities and to address changes in the needs of the region's countries. At present, four broadly defined research themes have been identified by the IAI.

#### I - Understanding Climate Change and Variability in the Americas

The focus of this theme is to observe, document, and predict climate change and variability in the Americas, their links to changes in natural systems, and their societal impacts. The goals are to understand the role of ocean–land–atmosphere interactions in climate; to determine the key processes that cause climatic variability, from seasonal to decadal time scales; and to apply the insights gained by these findings to improve weather and climate predictions.

Topics suggested under this theme:

- Tropical Atlantic Variability (TAV), El Niño-Southern Oscillation (ENSO), and other forms of low-frequency climate variability.
- Ocean variability, including sudden climate change, and its influence on the climate and weather of the surrounding continents.
- Variability of the American monsoon systems.
- Ocean–land–atmosphere interactions and hydrology, including atmospheric mesoscale processes.
- Global and regional changes in the water cycle.
- Aerosol impact on climate change and variability.
- Climate change at regional scales: scenarios, impacts, vulnerability, and adaptation.
- Climate changes in the past.
- Development of the Americas component of a Global Observing System for climate.

### II - Comparative Studies of Ecosystems, Biodiversity, Land Use and Cover, and Water Resources in the Americas

The IAI encourages comparative and integrated analyses of the effects of global environmental change on natural and anthropogenic systems and processes within tropical, temperate, and cold-latitude environments. Sponsored work should increase our knowledge of the drivers and dynamics of variability and the impacts of such variability on food security, biodiversity, and the provision of ecological goods and services. Research is expected to include work in terrestrial, coastal, and oceanic environments; and work that integrates across the land—sea interface will be encouraged.

Topics suggested under this theme:

- Impacts of global change on biodiversity, including species and genetic biodiversity—of natural systems as well as of agricultural systems and cultivars.

- Comparative studies of resilience of ecosystems, key species, and important agricultural cultivars in the face of global change. Comparative studies of changes in land use and/or in use of coastal, marine, and freshwater resources.
- Prediction and documentation of estuarine changes due to changes in freshwater inflows as well as changes in watershed land use and cover.
- Climate and habitat change impacts on wide-ranging species across the Americas.

### III - Understanding Global Change Modulations of the Composition of the Atmosphere, Oceans and Fresh Waters

The focus of this theme is to observe, document, and understand processes that modify the chemical composition of the atmosphere, inland waters, and oceans in a manner that affects productivity and human welfare. A multidisciplinary approach to this research area is expected.

#### Topics suggested under this theme:

- Effects of air pollution and rainwater quality on ecosystems.
- Impact of mega-cities on regional climate.
- Regional and global air pollution: Transport and impacts.
- High-latitude processes and ozone depletion.
- Comparative studies of regional air and water pollution.
- Biogeochemical processes and ecosystem hydrology.
- Greenhouse gases and their impact on climate change.
- Coastal processes and water pollution.

## IV - Understanding the Human Dimensions and Policy Implications of Global Change, Climate Variability and Land Use

The focus of this theme is to research the dynamic interactions between global change (climate variability, land use, etc.) and human beings, whose health, welfare, and activities depend on the productivity, diversity, and functioning of ecosystems. The emphasis of the research is on projects that address the complex interactions between natural and socio-economic systems through interdisciplinary approaches. The objective is to promote public policies that increase sustainability of natural systems and human welfare.

#### Topics suggested under this theme:

- Health and environmental issues with emphasis on vector-borne diseases.
- Increased vulnerability of human settlements due to global changes, such as climate variability and changes in land use.
- Rapid urbanization and its effects on the sustainability of natural and human systems.
- Changes in food production patterns; potential actions for increasing food security.
- Effects of global environmental and economic change on biodiversity; implications for conservation strategies.
- Effects of global environmental changes, such as climate variability and land-use changes, on natural disaster occurrences; implications for mitigation strategies and policies that limit loss of life and property.
- Impact of global environmental change, such as climate variability on fisheries and fishermen; strategies for limiting socio-economic impacts.
- Identification of factors that contribute to resilience of natural ecosystems; conservation strategies to promote resilience.
- Effects of global environmental change, such as climate variability and land use on water supply, freshwater flows, and security of water for human uses.
- Participatory environmental decision-making.