

Review of Science and Technology Meetings at Ministerial level

1996-2006

This report summarizes the findings of a review of Science and Technology meetings (Conferences, Round Tables, etc.) at Ministerial level across the world, at regional as well as at global level, during the period 1996-2006. The main aim of the review is to summarize the past and current status of political thinking and commitments on Science and Technology related issues in order to identify new themes and emerging issues to be discussed at the Ministerial Round Table at UNESCO's 34th General Conference (Paris, October 2007)

May 2007

1. INTRODUCTION

Within the framework of the organization of the Ministerial Round Table at the 34th session of UNESCO's General Conference, a review of Science and Technology meetings has been elaborated as a contribution to the identification of the issues to be addressed. This report summarizes the findings of a review of Science and Technology meetings (Conferences, Round Tables, etc.) at Ministerial level across the world, at regional as well as at global level, during the period 1996-2006.

The key objectives of the review were to:

- Collect information relating to Science and Technology meetings at Ministerial level worldwide
- Review main outcomes of the meetings (Declarations, Communiqués, Statements, Plans of Actions)
- Identify themes discussed and issues addressed
- Summarize the current status of political thinking and commitments on Science and Technology related issues

The review is based on an analysis of S&T Ministers' meetings documents: Programmes, List of participants, Reports, Recommendations, and Final Declarations.

The following meetings have been reviewed:

1. *Science, Technology and Innovation for the 21st Century*, Meeting of the OECD Committee for Scientific and Technological Policy (CSTP) at Ministerial Level, Paris, 29-30 January 2004
2. *1st NEPAD Ministerial Conference on Science and Technology*, Johannesburg, South Africa, 6-7 November 2003
3. *2nd African Ministerial Conference on Science and Technology (AMCOST2)*, Dakar, Senegal, 27-30 September 2005
4. *Extraordinary Conference of the African Ministerial Council on Science and Technology (AMCOST)*, Cairo, Egypt, 20-24 November 2006
5. *1st APEC Ministers' Conference on Regional science and technology (S&T)*, Beijing, China, 5 -6 October 1995
6. *2nd APEC Ministers' Conference on Regional Science & Technology Cooperation*, Seoul, Republic of Korea, 13-14 November, 1996
7. *3rd APEC Ministers' Conference on Regional Science and Technology Cooperation*, Mexico City, Mexico, 21-23 October, 1998
8. *4th APEC Science Ministers' Meeting*, Christchurch, New Zealand, 10-12 March 2004

9. *9th Formal ASEAN Ministerial Meeting on Science and Technology (AMMST)*, Bandar Seri Begawan, Brunei Darussalam, 17-18 September 2001
10. *2nd Informal ASEAN Ministerial Meeting on Science and Technology (AMMST)*, Yangon, Myanmar, 17 January 2003
11. *4th Informal ASEAN Ministerial Meeting on Science and Technology (IAMMST)*, Kuantan, Malaysia, 28 August 2006
12. *Ministerial Forum of Science and Technology*, in the framework of the China High-Tech Fair (CHTF) in 2003
13. *Science and Technology Ministers' Roundtable in the context of the 1st Science and Technology in Society Forum (STS forum)*, Japan, 2004
14. *Science and Technology Ministers' Roundtable in the context of 2nd Science and Technology in Society Forum (STS forum)*, Japan, 2005
15. *First Hemispheric Meeting of Ministers and High Authorities of Science and Technology of the Americas on Science and Technology*, Lima, Peru, 11-12 November, 2004
16. *EU – Latin America & Caribbean (ALCUE) Ministerial Conference on Scientific and Technological Cooperation*, Brasilia, Brazil, 21- 22nd March 2002
17. *1st Asia-Europe Science and Technology Ministerial meeting (ASEM 1)* Bangkok, Thailand, 1997
18. *2nd Asia-Europe Science and Technology Ministerial Meeting (ASEM 2)*, London, United Kingdom, 1998
19. *3rd ASEM Science and Technology Ministers' Meeting*, Beijing, China, 14-15 October 1999
20. *Ministers of Science and Technology of the Group 77 and China meeting* on the occasion of the 10th General Conference of the Academy of Sciences for the Developing World, Rio de Janeiro, Brazil 3 September 2006.
21. *Ministers responsible for Science and Technology of BSEC (Organisation of the Black Sea Economic Cooperation) Member States*, Athens, Greece, 28 September 2005
22. *Meeting of Ministers responsible for Research, Science and Technology in the African, Caribbean and Pacific Group of States (ACP Group) meeting*, Cape Town, South Africa, 28 July 2002
23. *Science Ministers' Round Table organized by UNCTAD*, Sao Paulo, Brazil, 14 June 2004.
24. *Round Table of Ministers of Science on Rebuilding Scientific Cooperation in South East Europe*, UNESCO, Paris, France, 24 October 2001
25. *Ministerial Round Table on "The Basic Sciences: The Science Lever for Development"*, held during the 33rd session of UNESCO's General Conference, Paris, France, 13- 14 October 2005
26. *High Level Round Table "Science and Innovation Policy in South Eastern Europe and in Slovenia"* Ljubljana, Slovenia, 29 September 2006

2. THEMES

The review revealed that, while some specific issues have emerged at regional level, the following **common concern or themes** for priority action have been addressed in the various Ministerial meetings:

- Science education, with particular emphasis on the diminishing interest in science and mathematics among youth
- Brain drain
- S&T capacity building
- Building national research capacities, research institutional infrastructure, including - research funding structure,- foreign aid structure, private and governmental, intellectual property right and patent regulation
- Exchange and cooperation in science and technology, cross-border sharing of research capacity and expertise
- North- South, South-South cooperation
- Science for poverty eradication and Africa's needs
- Investments in science, technology and innovation
- Science and society
- Public awareness of S&T activities
- Interaction between policy makers and the public
- The role of government in promoting S&T and innovation and greater participation in world economies, within the context of globalization
- The role of information and communications technology as factors for development
- Effective partnerships with business and industry and the science and technology community

3. REVIEW OF THE MEETINGS

3.1. ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT (OECD)

Science, Technology and Innovation for the 21st Century, Meeting of the OECD Committee for Scientific and Technological Policy (CSTP) at Ministerial Level, Paris, 29-30 January 2004. The meeting was preceded by a High-level Forum on "Key Challenges for Science and Innovation Policy", in which prominent representatives of research institutions and business participated. The Business and Industry Advisory Committee (BIAC) and the Trade Union Advisory Committee (TUAC) to the OECD also held consultations with Ministers.

Ministers devoted much attention to **three key issues** that are high on the science and innovation policy agendas of OECD countries:

1) **promotion of stronger relationships between science and innovation systems**, including the changing role of intellectual property rights in stimulating knowledge creation and diffusion;

2) **ensuring sustained development of human resources in science and technology** with focus on the many challenges (e.g. diminishing interest in science and mathematics among youth and the global competition for talent) that OECD countries face in maintaining an adequate S&T workforce to meet future needs, as well as an exchange of views on policy responses; and

3) **global-scale issues that call for enhanced international cooperation in science and technology** in particular with regards to the access to research data from public funding and international S&T co-operation for sustainable development and high-energy physics and neuroinformatics.

Ministers adopted two Declarations (**Annex I**):

1. **Declaration on Access to Research Data From Public Funding**, entrusting the OECD to work towards commonly agreed Principles and Guidelines on Access to Research Data from Public Funding;
2. **Declaration on International Science and Technology Cooperation for Sustainable Development**, aiming at strengthening international S&T co-operation for sustainable development. They endorsed efforts to establish a framework for a **Global Biological Resource Centre Network** and gave their support to promote scientific co-operation in the fields of **high-energy physics** and **neuroinformatics**

3.2.AFRICA

The First NEPAD Ministerial Conference on Science and Technology took place in Johannesburg, South Africa, from 6-7 November 2003, when ministers adopted the outline of an action plan to promote the development and application of S&T in Africa. The outline contained four sections: an overview of challenges that African countries face in developing and applying S&T; proposed flagship programme areas; the establishment of the African Ministerial Council on Science and Technology (AMCOST), including a governance structure; and funding mechanisms. Ministers agreed this outline would serve as the basis for the formulation of NEPAD's Business Plan on S&T.

This high-level forum for Ministers of Science and Technology of the African Union (AU) seeks to develop policies and priorities on science, technology and innovation (STI) for Africa's development. AMCOST also provides political and policy leadership for the implementation of Africa's Science and Technology Consolidated Plan of Action (CPA).

On the proposed flagship programmes, the ministers outlined 12 areas for the first round of programmes. These include areas critical to addressing problems of poverty and food security, such as: biotechnology; S&T for manufacturing; energy; information and communication technologies; post-harvest technology; and water research. In each of these areas, networks of centres of excellence and

innovation hubs would be created to promote and develop innovations to address the continent's socio-economic challenges, including human capacity development.

Regarding a governance structure, **the key outcome was the establishment of AMCOST** itself, comprising all AU member states

On funding mechanisms, ministers recommended the creation of a NEPAD Science and Technology Fund and asked for a progress report from the NEPAD OST within one year. **Ministers committed to increasing funding for R&D to at least 1% of Gross Domestic Product (GDP) (1% GDP goal)**, and agreed to establish mechanisms to stimulate private sector investment in S&T research and development. Finally, ministers committed to promote the use of national, regional and continental expertise before seeking external expertise. Additionally, ministers requested the NEPAD OST build regional consensus and strategies to address concerns related to new technologies, including biotechnology, and to facilitate Africa's participation in international fora on biotechnology issues. **(Declaration, ANNEX II).**

The **Second African Ministerial Conference on Science and Technology (AMCOST2)**, which took place in Dakar, Senegal, from 27 to 30 September 2005, gave its approval to a broad-ranging five-year "consolidated plan of action" for promoting science and technology across Africa. The meeting was attended by ministerial delegations from more than 30 African countries, as well as representatives of a significant number of Western governments, who have been supporting the plan of action as a framework for providing financial support for individual scientific and technological initiatives. At this meeting, **ministers adopted the CPA** and resolved that the AU should provide the necessary policy and political leadership for achieving the CPA's goals. Ministers also resolved that the AMCOST Steering Committee should monitor and review implementation of CPA programmes and projects. Ministers further agreed that the AU and NEPAD should explore ways to establish a special African financial and technical facility to ensure sustainable funding for STI programmes, including the proposed African Science and Innovation Facility (ASIF). They committed their countries to reviewing their national STI policies and related institutional arrangements and reaffirmed their commitment to promoting the integration of STI considerations into national development plans, Poverty Reduction Strategy Papers and related frameworks for achieving the Millennium Development Goals (MDGs).

Ministers also established an intergovernmental committee to develop and adopt common indicators for surveying and preparing an African STI report. Finally, ministers recommended that the 2007 Summit be dedicated to S&T. **(Resolutions ANNEX III)**

The **Extraordinary Conference of the African Ministerial Council on Science and Technology (AMCOST)**, was held in Cairo, Egypt, from 20-24 November 2006. Organized by the African Union (AU) Commission and hosted by the Government of Egypt, the conference opened with an experts meeting from 20-22 November, followed by a ministerial meeting from 23-24 November. It was attended by representatives from 26 AU member states and agencies, international and continental government and non-governmental organizations (NGOs), and the Diaspora.

Ministers considered a range of proposals and reports on African science and technology matters. These included: a proposal to establish an African Presidents' Committee for Science and Technology; the draft report of the High-level Panel on Modern Biotechnology; the African Strategy on Biosafety; a proposal for the African Strategy for Technology Transfer and Acquisition of Domestic Technological Capabilities; the report of the conferences of the Diaspora and of African NGOs on the popularization of science and technology; a proposal for the formation of the Pan-African Intellectual Property Organization; the report of the first AU Congress of Scientists and Policy Makers; options for the African Science and Innovation Facility; and criteria and guidelines for establishing African networks of centres of excellence in science and technology.

Delegates worked through these agenda items with a view to preparing inputs for the January 2007 AU Summit of Heads of State and Government (2007 Summit), to be held in Addis Ababa, Ethiopia, on the theme "Science, Technology and Research for Africa's Development." At the close of the meeting, ministers had agreed to a meeting report summarizing their discussions on each agenda item, and had adopted **The Cairo Declaration (ANNEX IV)**, containing ministerial commitments on future work in relation to science and technology (S&T) (i.e. improving the design, and developing a legal instrument, for the establishment of the "African Science and Innovation Fund (ASIF)" as an intergovernmental mechanism to mobilize technical and financial resources for the implementation of the CPA; working together to develop a 20-year African Biotechnology Strategy) and recommendations for consideration at the 2007 Summit.

3.3. ASIA-PACIFIC REGION

3.3.1. ASIA –PACIFIC ECONOMIC COOPERATION (APEC)

A number of Ministerial Conferences, gathering Ministers of Science and Technology, have been organized, particularly within the framework of **Asia-Pacific Economic Cooperation (APEC)**, an intergovernmental Forum grouping 21 Member States (Australia; Brunei Darussalam; Canada; Chile; People's Republic of China; Hong Kong; Indonesia; Japan; Republic of Korea; Malaysia; Mexico; New Zealand; Papua New Guinea; Peru; The Republic of the Philippines; The Russian Federation; Singapore; Chinese Taipei; Thailand; United States of America; Viet Nam).

APEC's Ministers responsible for science and technology (S&T) gathered for the ***first time*** in Beijing, China, from 5 to 6 October 1995, to discuss how to advance the process of cooperation in science and technology amongst the member economies. The main theme of the Conference was regional cooperation addressing, in particular, a shared policy outlook for developing policies and approaches to enhance economic and technical cooperation in the area of science and technology; areas for science and technology cooperation, with specific focus on improved flows of information on science and technology; improved researcher exchange and human resources development; facilitation of joint research projects; and an Action Program for Industrial Science and Technology. Ministers endorsed the Draft ***Action Program for Industrial Science and Technology*** which is composed of three sections: **Common Policy Concepts, Joint Activities, and Dialogue on member**

economies' policies/activities. It shows the basic direction of cooperation and specific actions on industrial science and technology. (**Joint Communiqué, ANNEX V**)

The 2nd APEC Ministers' Conference on Regional Science & Technology Cooperation, Seoul, Republic of Korea, form 13-14 November, 1996. Ministers responsible for science and technology from Australia, Brunei Darussalam, Canada, Chile, China, Hong Kong, Indonesia, Japan, Korea, Malaysia, Mexico, New Zealand, Papua New Guinea, the Philippines, Singapore, Chinese Taipei, Thailand, and the United States of America participated in the 2nd APEC Ministers' Conference on Regional Science and Technology Cooperation. The main topic for the Conference was: "**Creativity and Mobility: Researchers Across APEC**". They discussed various ways to enhance mobility and creativity and agreed on the following:

- Establish a database on post-doctoral exchange programs, other exchange and fellowship programs, facilities open to other member economies, and opportunities for joint research collaboration. Ministers noted that this work should build on existing ISTWG (Industrial Science and Technology Working Group) initiatives such as the APEC Science and Technology Network (ASTN) and the APEC S&T Web (AST Web).
- Undertake a survey on barriers to the mobility of S&T personnel in the region. This survey should identify both general barriers, and specific barriers that affect the mobility of S&T personnel.
- Undertake a survey of public awareness programs in member economies. Ministers particularly noted the importance of programs directed at the youth in stimulating an ongoing interest and commitment to a career in S&T.

In the framework of the Conference an "**Open Ideas Forum**" was organized on "Gender and Science and Technology in Knowledge-Based Economies".

Ministers adopted the **Seoul Declaration (ANNEX VI)** which set goals for enhancing researcher mobility and creativity in the APEC region such as promote greater sharing of S&T information, training and research programs, and research facilities; strengthen the exchange of scientific and technical men and women across the region; and attract creative and talented young people to take up careers in science and technology. They also recommended that member economies develop individual plans and work towards achieving these goals **by the year 2010**.

The **3rd APEC Ministers' Conference on Regional Science and Technology Cooperation**, took place in Mexico City, Mexico, from 21-23 October 1998. The main topic of the Conference was "**Partnerships and Networks: Capturing the Benefits of Innovation Across APEC**". Policy dialogues among member economies were recognized as a necessity to facilitate the exchange of information and experiences on the effectiveness of policies towards partnerships and networks. In line with the idea of partnership and network, the establishment of APEC **FORA**, aimed at engaging the private sector and civil society to participate in the policy dialogue, was encouraged. Ministers strongly endorsed the draft "**Agenda for Science and Technology Industry Cooperation for the**

21st Century” for presentation to the APEC Leaders in Kuala Lumpur, Malaysia in November 1998, as a key contribution to the advancement of science and technology cooperation in the region to achieve mutual economic growth and common prosperity. Ministers issued a **Mexico Declaration (ANNEX VII)** identifying partnerships and networks as an important mechanism to sustain discovery and innovation, and to maximize the efficiency of existing investments in S&T across the region. Such arrangements allow participants to link their human, intellectual and infrastructural resources to address regional economic, social, and environmental issues.

An “**Open Exchange of Views on Science, Technology and Society**” took place during a private luncheon. Issues discussed included: (a) the Year 2000 computer problem, and (b) concerns about the ability of societies to take full advantage of the rapid advances in science and technology, with regards in particular to sharing information about technologies that are appropriate to particular local conditions, and the need to ensure participation by all segments of society, including women, under-represented minorities, and individuals with disabilities

The 4th APEC Science Ministers' Meeting was held in Christchurch, New Zealand, from 10-12 March 2004 around the theme “**Enhancing the capacity of science, technology & innovation to deliver sustainable growth across the APEC region**”. Four key policy issues were discussed:

- human capacity building,
- international science and technology (S&T) networks,
- connecting research and innovation,
- strengthening technological cooperation and encouraging best practice in strategic planning.

During the **Ministerial Retreat**, organized in the framework of the meeting and focussed on **Science and Society**, Ministers agreed on a greater and better engagement between the scientific community and society in APEC economies, including the communication of benefits and risks arising from research.

Considering that the activities of governments, researchers, entrepreneurs and investors need to be closely interlinked to ensure each economy gains the maximum benefit from science, technology and innovation, **two associated events**, the *APEC R&D Leaders' Forum* and an *Innovation Showcase* were arranged in conjunction with the Ministerial meeting. at the conclusion of the meeting, Ministers issued a **Joint Communiqué (ANNEX VIII)**.

3.3.2 ASSOCIATION OF SOUTHEAST ASIAN NATIONS (ASEAN)

Since 1980, the Association of Southeast Asian Nations (ASEAN) holds regularly every three years, a formal meeting of Ministers of Science and Technology (with an Informal Meeting in between).

The **9th Formal ASEAN Ministerial Meeting on Science and Technology (AMMST)** was held in Bandar Seri Begawan, Brunei Darussalam, from 17-18 September 2001. The Ministers reaffirmed their resolve to harness science and technology for meeting many challenges that the region faces as it enters the new millennium. They adopted the **Implementation Framework for 2001-2004 of the ASEAN Plan of Action on Science and Technology** as a road map for the development of regional programmes and projects over the medium-term leading to the realization of ASEAN's long-term vision of technological competitiveness. The Action Plan prescribes the strategic thrusts and actions that will foster intensified regional cooperation for science and technology development over the next 20 years. The programmes specified in the Action Plan are characterized by a strong thematic focus, interdisciplinary scope and cross-sectoral reach. The Action Plan also seeks to give impetus to collaboration between the public and private sectors in promoting research and technology development.

The Ministers also addressed the low level of awareness of science and technology in the region and called for intensified efforts to publicise the achievements of science and technology cooperation in the region. Thus the Ministers supported the development of a programme to promote people-to-people contacts among ASEAN scientists and technologists as part of an "ASEAN-know-ASEAN" framework that would parallel its "ASEAN-help-ASEAN" programme. They also **called for an outreach programme to raise the level of S&T awareness of the media, government and business leaders, schools and the general public.**

The **2nd Informal ASEAN Ministerial Meeting on Science and Technology (AMMST)** was held in Yangon, Myanmar, on 17 January 2003. The focus of the Ministers' discussions was "**The role of science and technology in supporting the twin regional goals of integration and competitiveness**". Main topics of the meetings included:

- Long-term vision for ASEAN science and technology cooperation
- S&T activities for ASEAN integration
- Public awareness programme in S&T
- Increasing of the ASEAN Science Fund (1 million US dollars from each Member Country over a period of 10 years), which they launched by way of signing an agreement during the First Informal AMMST in Malaysia in April 2000.

The **4th Informal ASEAN Ministerial Meeting on Science and Technology (IAMMST)** was held in Kuantan, Malaysia, on 28 August 2006. At the Meeting, the Ministers endorsed in principle the new

ASEAN Plan of Action on Science and Technology (APAST) 2007-2011 and supported the following four flagship programmes, each to be led by a country, namely (i) environment and disaster management (Indonesia), (ii) new and renewable energy (Malaysia), (iii) open source software system (Indonesia) and (iv) food safety and security (Thailand). These programmes will be implemented under a cost-sharing arrangement. In addition to the four flagship programmes, the Ministers welcomed the proposals of Thailand on the establishment of a regional centre for the prevention and mitigation of infectious disease and a Network of scientists and researchers through the implementation of the R&D e-forum programme. The Ministers realised that the **involvement of the private sector** would be critical in realising the S&T components of the Vientiane Action Programme (VAP) and the ASEAN Vision 2020. In this regard, the Minister agreed to organise a side event for the ASEAN private sector at their next meeting. The Ministers also tasked the COST (Committee on Science and Technology) to find innovative ways and means to attract the participation of the private sector in its activities.

3.3.3. CHINA

The first session of the “Ministerial Forum of Science and Technology” was held in the context of the China High-Tech Fair (CHTF) in 2003. Ministers of Science and Technology of different countries held in-depth discussions relating to the issue of **Government’s role as an impetus pushing forward the development of high technology and economy**, and jointly made the “Shenzhen Declaration by Ministers of Science and Technology, proposing that ministers of Science and Technology of nations across the world participate in the China Hi-Tech Fair and the “Ministerial Forum of Science and Technology”, to enhance the prospects for fostering mutually beneficial international **exchange and cooperation in science and technology**. They adopted the **Shenzhen Declaration (ANNEX IX)**.

3.3.4. JAPAN

The **Science and Technology Ministers' Roundtable** is held concurrently with the **Science and Technology in Society Forum (STS Forum)**, to exchange opinions and information on various science and technology related issues. The **Science and Technology in Society Forum (STS Forum)**, is a Japanese initiative, organized every year since 2004, aiming to provide a new mechanism for open discussions on an informal basis, and to build a human network that would, in time, resolve the new types of problems stemming from the application of science and technology. In the context of the STS Forum, meeting with Ministers responsible for science and technology have been organized in 2004 and 2005.

STS Forum 2004: A Round Table with Ministers in charge of Science and Technology from 13 countries. The main theme was “**Deepening public understanding of science and technology and fostering participation of the public in the policy-making process**” focusing in particular on the need for interaction between policy-makers and the public, transparency of information related to science and technology policies, as well as research activities and increasing opportunities for the public to participate in S&T policy-making.

On the occasion of the 2nd **STS Forum 2005** a luncheon meeting was hosted by the Japanese Minister of State for Science and Technology Policy, Yasufumi Tanahashi at the Kyoto State Guest House on 12 September. The meeting was attended by the **science and technology ministers** of 16 countries. The ministers present gave their opinions and views on the following topics:

- **Science and Technology policy** (*relationship between science and technology and society, initiate and promote dialogue with the business community and scientists, systematic reforms to link up basic research results with innovation*)
- **Capacity building** (*adequate R&D investment to properly train personnel, creating an environment for young scientists and young researchers*)
- **International cooperation** (*North- South, South-South cooperation, Science for poverty eradication and Africa's needs*)
- **Public support for Science and Technology** (*The management of ethical issues is a vital part of winning public support for science and technology; general public awareness*)

3.4. ORGANIZATION OF AMERICAN STATES

The First Hemispheric Meeting of **Ministers and High Authorities of Science and Technology of the Americas on Science and Technology** within the Framework of Inter-American Council for Integrated Development (CIDI) was held in Lima, Peru, from 11-12 November 2004. It discussed the role of science, technology, engineering, and innovation on economic, social, cultural and scientific development, including its impact on the creation of jobs, poverty eradication and the strengthening of democratic governments, in Member States.

As part of the preparatory process, the first preparatory meeting took place in Washington D.C. from 23-24 June, 2004 to prepare draft proposals for the declaration and plan of action. Twenty-one Member States participated in the meeting. The second preparatory meeting was held from 22-23 September 2004 to discuss the topics to be covered in the Ministerial Agenda including the declaration and plan of action, hemispheric initiatives, young scientists awards and civil society dialogue. In addition, a meeting for dialogue with Economic Ministers and High Authorities of Science and technology was arranged to demonstrate the importance of science, technology, and engineering in the economic and social context for increasing the competitiveness of the productive sector.

Ministers discussed the following Agenda :

- **From Cartagena to Lima: Evolution and Challenges for Americas**
- **National policies in Science and Technology and Innovation for development:**
Guidelines and framework for design, development and implementation
- **Hemispheric cooperation in science, technology, engineering and innovation.**
Recommendations for a collaborative action

- **Hemispheric initiative on science-technology, engineering and innovation: *A Plan of Action*.**

Ministers adopted the ***Declaration of Lima (ANNEX X)*** by which they committed themselves: to promote the sustained growth of investment in science, technology and innovation in their countries; to endeavour that all member states establish effective national policies in S&T and innovation, integrated in social and economic policies by the year 2007; and to support national innovation systems oriented towards public and private productive sector. Other issues: **Harmonization and coordination of science and Technology and Innovation programme, Scientific education (formal and informal), participation of various stakeholders in science policy –making.** Annual meetings to follow up the ***Declaration of Lima*** and its ***Plan of Action*** were recommended.

3.5. **EU- LATIN AMERICA AND CARIBBEAN (ALCUE)**

The **EU – Latin America & Caribbean (ALCUE)** Ministerial Conference on Scientific and Technological Cooperation was held in Brasilia, Brazil, from 21-22 March 2002 in order to strengthen the cooperation between the two regions. Being fully aware that the ongoing bi-regional dialogue is a major contribution for the inclusion of all partners in building a knowledge- based world, they agreed upon a ***Shared Vision (the Brasilia Statement, ANNEX XI)*** on the societal role of Research and Technological Development, which focuses, among other things, upon:

- S&T Cooperation between LA&C and the EU as the expression of political will in the two regions.
- Cooperation between the EU and LA&C directed at bringing the knowledge, learning and innovation systems of the two regions closer together, capitalising on existing relations based on shared cultural and historical foundations and on increasing economic links.
- S&T cooperation, which fosters scientific research, science-industry links and innovation, targeting well-defined thematic priorities of mutual interest, which are directly relevant to society.

The Conference also adopted the following four-purpose approach in order to implement the ***Shared Vision***:

a) To endeavour to create a specific space for ALCUE's S&T Cooperation and to enhance its visibility in the RTD communities of both regions;

b) To establish effective instruments for the coordination of bi-regional S&T cooperation in the following specific domains:

- *Health and quality of Life*
- *Information Society*
- *Competitive Growth in a Global Environment*
- *Sustainable Development*
- *Cultural Heritage*

In order to achieve these goals, the Conference adopted a *Plan of Action* for cooperation between the two region through the mobilization of all necessary and relevant national and regional resources, the active involvement of public and private bilateral and bi-regional channels, and the support of trans-regional networks of centres of excellence involving national scientific, academic and technological institutions, and student and researcher mobility.

ASEM (the ASIA-EUROPE MEETING) is an informal dialogue process initiated in 1996. European Union's Member States and sixteen Asian countries (Brunei, China, Cambodia, Indonesia, Japan, Republic of Korea, Laos, Malaysia, Mongolia, Myanmar, Pakistan, the Philippines, Singapore, Thailand, VietNam) participate in the process.

The inaugural Asia-Europe Meeting (ASEM 1) held in Bangkok recognised the key role of intensified science and technology cross-flows in strengthening economic links between Asia and Europe. Soon after ASEM 1, an Asia-Europe Experts' Meeting on Technological Cooperation took place in Beijing (April 1997) to explore the potential for strengthening S&T cooperation amongst ASEM partners. The outcome of this meeting was a thematically more **focused approach to dialogue and cooperation**, which recognised the links between S&T cooperation, sustainable economic growth and economic cooperation.

At the Second Asia-Europe Meeting (ASEM 2) held in London in 1998, a Ministers' Meeting on S&T cooperation was proposed by China, and this proposal was subsequently supported by the ASEM partners. Two preparatory meetings (Beijing, China, November 1998 and Brussels, Belgium, March 1999) and a series of thematic working papers paved the way for the Ministers' Meeting.

Building upon the wealth of past experience, and in the spirit of the Asia-Europe Cooperation Framework adopted at ASEM 2, the third ASEM Science and Technology Ministers' Meeting was held in Beijing, China, on 14-15 October 1999 around the theme "**ASEM Science and Technology Cooperation in the 21st Century**". Ministers based their discussions on a set of commonly agreed principles, which should characterise and guide S&T cooperation between Asia and Europe, namely:

- a broad concept which includes human and institutional capital, as well as the generation of scientific knowledge;
- an integrated approach, linked with other efforts to strengthen economic links, as well as S&T between Asia and Europe;
- respect for equality in partnerships, mutual benefit and diversity, and
- a long-term perspective, rather than short-term considerations.

In order to ensure effective S&T cooperation, Ministers identified the following goals: (**Ministerial Communiqué, ANNEX XII**):

- To encourage the creation of new S&T networks between the two regions;
- To promote information and communication systems specifically designed to enhance S&T cooperation in target areas;

- To encourage S&T cooperation in the areas identified through the ASEM dialogue and promote wider dissemination of opportunities and results;
- To use their efforts to promote Asia-Europe networks of centres of excellence in key technologies as well as cooperation among university, industry and other public/private entities, including think tank and research groups, particularly through joint research programmes and projects, and the planning and implementation of joint post-graduate programmes and industrial experience;
- To facilitate scientific mobility through reciprocal arrangements, mobility grants, training programmes, etc.;
- To promote trans-boundary links for S&T and knowledge-based businesses (including technology centres) in Asia and Europe;
- To support efforts to increase the public awareness of S&T activities;
- To expand cooperation on technology transfer in Asia and Europe.

3.6. THE GROUP OF 77 + CHINA

The Ministers of Science and Technology of the Group 77 and China met on the occasion of the 10th General Conference of the Academy of Sciences for the Developing World, held in Rio de Janeiro, Brazil, on 3 September 2006. There was a general consensus on the need to increase the allocation of funds for S&T and the necessity to continue to strengthen **South- South cooperation** particularly through the establishment of networks of “centres of excellence “in the South. Among the issues discussed: Lack of adequate human capita including youngsters’ lack of attraction to scientific studies.

3.7. ORGANISATION OF THE BLACK SEA ECONOMIC COOPERATION (BSEC)

The Ministers responsible for Science and Technology of BSEC’s (Organisation of the Black Sea Economic Cooperation) Member States - Albania, Armenia, the Republic of Azerbaijan, Bulgaria, Georgia, Greece, Moldova, Romania, the Russian Federation, Serbia, Montenegro, Turkey, and Ukraine – met in Athens on 28 September 2005 to discuss opportunities for **closer cooperation** in the fields of scientific research and technological development and to formulate an agreed **Action Plan at a regional level**.

Main recommendations and commitments:

- **To strengthen** regional cooperation in the fields of scientific research and technological development;
- **To initiate** agreed policies directed toward better utilisation of the existing human and material resources, research infrastructure and administrative capacities through improved access to knowledge, training activities and research programmes, enhanced cross-border mobility of scientists and regular exchanges of information and publications, bilateral and regional networking, attachments, fellowships and joint scientific events;

- **To promote** a dynamic dialogue among stakeholders in the science and technology community – research organisations, industry, user groups – in order to ensure their cost-effective and result-oriented interaction for the purpose of converting scientific discoveries into innovative, commercially viable products and processes;

Outcomes: ***Declaration and the BSEC Action Plan on Cooperation in Science and Technology (ANNEX XIII)***

3.8. AFRICAN, CARIBBEAN AND PACIFIC GROUP OF STATES (ACP GROUP)

Ministers responsible for Research, Science and Technology in the African, Caribbean and Pacific Group of States (ACP Group) held a meeting in Cape Town, South Africa, on 28 July 2002, at a Forum addressing priority issues of Research for Sustainable Development, including the social, environmental, economic, cultural, and political aspects in ACP states.

By adopting the ***Cape Down Declaration on Research for Sustainable Development (ANNEX XIV)*** they pledged to progressively increase current budgetary allocations and to achieve a **minimum investment of 1 per cent of GDP per annum within a period of 10 years and committed themselves to** create support and strengthen **Centres and Networks of Excellence** and promote the sharing of facilities and expertise among their countries to build training and research capacity.

3.9. UNITED NATIONS CONFERENCE ON TRADE AND DEVELOPMENT (UNCTAD)

“Interactive dialogue on harnessing emerging technologies to meet the Millennium Development Goals” was the theme of the Science Ministers’ Round Table organized by UNCTAD in Sao Paulo, Brazil, on 14 June 2004.

Ministers recommended making science and technology top priorities on their development agenda and considered that it is of critical importance to **institutionalize science advice**, including through the **creation of science advisory bodies** to ensure that governments make decisions based on sound science and that science is used as a tool for development by anticipating and minimizing risks and capitalizing on opportunities.

They also stressed the need for the international community to address the institutional gap between knowledge generating institutions and international policy-making and called for **mechanisms**, such as the **Commission on Science and Technology for Development**, to create networks and linkages to the political agenda and to bring scientific knowledge to inform international decision-making process. Ministers also shared national experiences in mobilizing science and technology for social and economic development. International organizations, such as UNCTAD, were called on to assess the implementation of the recommendations related to science and technology that emerged from the Johannesburg Summit a few years ago.

3.10. UNESCO

In the context of the UNESCO-ICSU World Conference on Science (WCS) (Budapest, Hungary, June/July 1999) process, a number of associated meetings were organized around the world between June 1995 and June 1999. They played a very important role in elaborating proposals and recommendations for participants of the WCS. On the occasion of the World Conference on Science, UNESCO organized a **meeting of Central and Eastern European science ministers and senior experts in science policies**. The participants recognized the importance of regular consultations on science policy-making and stressed the need to bridge the gap between Eastern and Western Europe in research strength and capacity. Four months later, a second meeting was organized in Paris on the occasion of the 30th session of UNESCO's General Conference and within the framework of the follow-up to the World Conference on Science.

1. Ministerial Round Table on Rebuilding Scientific Cooperation in South East Europe, UNESCO, Paris, France, 24 October 2001. The Round Table shared the view that rebuilding scientific cooperation in South-eastern Europe is a key element for consolidating stability in the area. Ministers recognized the need for:

- reducing the brain drain by a general consolidation of national science and technology systems;
- establishing appropriate training fellowships and exchange grants for scientists and professors;
- facilitating networking of research institutes and universities;
- up-grading and strengthening research infrastructures;
- promoting renewed cooperation in social and human sciences;
- launching collaborative projects in some strategic fields

A **Final Communiqué (ANNEX XV)** was adopted.

2. Ministerial Round Table on “The Basic Sciences: The Science Lever for Development”, held during the 33rd session of UNESCO's General Conference, Paris, France, 13-14 October 2005 gathered some 50 ministers responsible for science policy from about 50 countries.

The round table participants reached a consensus on a wide range of conclusions: capacity building, South–South cooperation, investment in science and technology, brain drain, and gender equity. The round table participants called on UNESCO to increase its efforts to promote the basic sciences and science education, to strengthen the UNESCO Chairs and centres of excellence and to support the implementation of science and technical policies in developing countries. **Final Communiqué (ANNEX XVI).**

3. Ministers and representatives responsible for science and for finance from South Eastern European (SEE) countries and Slovenia met in Ljubljana, Slovenia, on 29 September 2006, at the

invitation of UNESCO (Venice Office), for the ***High Level Round Table “Science and Innovation Policy in South Eastern Europe and in Slovenia”***.

In adopting the ***Final Communiqué (ANNEX XVII)*** the participating Ministers and representatives called upon international organisations, in particular **UNESCO** to:

- Support SEE countries in the development and the implementation of quality science, technology and innovation policies;
- Contribute to the training of decision-makers in STI policies, including foresight techniques to set priorities for funding and crafting of policies and to disseminate best practices in STI policy and management;
- Support SEE governments in improving the performance of administrative, legislative and financial infrastructure of STI systems, including the improvement of the access to information technology and networks, and to the pan-European Research Infrastructures.
- Support the exchange of researchers, academics and students, overcoming visa problems, and encouraging mobility schemes between Western Balkan countries and the European Union Member States;
- **Consider the idea of a permanent global Forum of Ministers of, or those responsible for, Science and Technology to be held on a regular basis under the auspices of UNESCO.**

4. CONCLUSIONS

In the past decade, several significant international Science Ministers meetings have taken place at regional and global level. Furthermore, ministerial meetings in addition to the pre-Summit meetings of G8 Foreign Ministers and G7 Finance Ministers or in the margins of other international gatherings have been held. The outcomes of each meeting have helped establish coherence on policy, strategy, planning for the future of science and technology development at global and regional level.

The **central message** emerging from the review is that there is broad strong unanimous consensus worldwide that the transition towards sustainable development is inconceivable without science, engineering and technology.

Other main findings are set out below:

- Governments are increasingly aware of the need to address impending or future “shortages” of scientists
- Capacity building in S&T is given the highest policy priority
- All meetings concluded with the commitment of the S&T Ministers to strengthen national research capacities by encouraging and facilitating careers in science; and to promoting regional integration of S&T policies, to foster centres of excellence, and enhance cross-border sharing of research capacity and expertise.

- In all Conferences reviewed, Ministers agreed that continuing efforts are needed to learn and share good practices in S&T management among countries.
- All Declarations, Communiqués, Statements have:
 - a. Addressed support for developing countries, particularly for Africa, including South – South cooperation
 - b. Emphasised the importance of ensuring the long term sustainability of the research enterprise and the need to involve civil society and business more effectively in S&T
 - c. Reaffirmed that knowledge creation and diffusion are increasingly important drivers of innovation
 - d. Highlighted the importance of science education and public awareness on S&T

In conclusion, it appears from the review that the Ministerial meetings already held have addressed broadly quite a number of the major issues related to the Science Technology. In pursuance of these meetings, the Ministerial Round Table that UNESCO will be convening in 2007 will provide a high-level forum for a much needed, action-oriented reflections on the role of the Organization is to play on the international arena and in the regions in order to effectively harness science and technology for meeting social needs when implementing its Medium-Term Strategy 2008-2013.

This reflection may more particularly focus on two principal considerations. One concerns the key elements that underline national development agendas, call for intergovernmental co-operation, and are prerequisites for capacity building in science and technology, science education and the use of science and technology for solving development problems. The other relates to new forms of science and technology governance that seek to improve the quality of policy and decision-making in science and Technology for development, by addressing the fundamental question how to develop better science and technology policies which will build new bridges among scientists, policy makers and various stakeholders, including the private sector and civil society.

The forthcoming Ministerial Round Table will consist of four sessions, namely:

- I. Science and technology for development: emerging and inherited challenges;
- II. Harnessing international cooperation for innovative policies for science and technology management;
- III. Highlights and guidelines for UNESCO action in science and technology for 2008-2013;
- IV. Conclusion and adoption of the Ministerial Round Table's position on "Harnessing Science and Technology for Sustainable Development through Cross-disciplinary Partnerships within UNESCO Programmes and Discussion on the Way Forward"

These sessions provide a flexible and at the same time goal-oriented framework for deliberations at the meeting. Among the variety of issues that could be examined are, for instance, the following:

- How can S&T policy be better connected to broader economic policy making at the institutional level as well as the operational level?

- How to redefine the role of the public sector in financially supporting scientific monitoring and research in support of public interest, environmental protection and sustainable economic growth? How to foster a pervasive culture of creativity, innovation and entrepreneurship in S&T through creation of an environment that supports science and innovation and inspires interest in S&T careers?
- How to enhance support and active participation of the community in S&T development relevant to their daily lives and in accordance with acceptable norms and ethics?
- How to strengthen institutional framework and management for S&T and monitoring of S&T Policy implementation?
- How to link S&T policies to a wider set of issues such as research institutional infrastructure; research funding structure; investment structure, in the private and government sectors; international research collaboration, both among universities and the private sector?
- How to foster national capacity in science and technology, the sharing of knowledge and transfer of technology on the basis of a region specific approach, and interregional co-operation,
- How to promote science and technology education for a knowledge-based society in different cultural contexts,
- How to promote science and technology knowledge and its use for the management of complex environment systems/phenomena, including water, oceans, the biosphere, climate change and natural disaster,
- What measure are to be taken for the early identification and monitoring of ethical issues emerging from science-based technologies,
- What are the major current national actions and/or principle items of national development agenda in science and technology to which government have committed themselves, which call for intergovernmental cooperation.

Participants in the Round Table are, of course, free to raise other issues that are of major concern in their country and/or that would help to reveal the entire spectrum of matters to be addresses through a common effort of governments in the framework of UNESCO's programme.

Science, Technology and Innovation for the 21st Century.

Meeting of the OECD Committee for Scientific and Technological Policy at Ministerial Level

Paris, France, 29-30 January 2004

FINAL COMMUNIQUÉ

1. The OECD Committee for Scientific and Technological Policy met at Ministerial level on 29-30 January 2004. Mr. Peter McGauran, Minister for Science of Australia, chaired the meeting, with Ms. Claudie Haigneré, Minister for Research and New Technologies of France, and Mr. Jaime Parada Ávila, Director General of the National Commission of Science and Technology (CONACyT) of Mexico, as Vice-Chairs

2. The meeting was preceded by a High-level Forum on "Key Challenges for Science and Innovation Policy", in which prominent representatives of research institutions and business participated. The Business and Industry Advisory Committee (BIAC) and the Trade Union Advisory Committee (TUAC) to the OECD also held consultations with Ministers

3. Ministers highlighted the benefits that society can derive from advances in science and technology. They reaffirmed that knowledge creation and diffusion are increasingly important drivers of innovation, sustainable economic growth and social well-being. They emphasised the importance of ensuring the long term sustainability of the research enterprise and the need to involve civil society and business more effectively in the governance of public research.

4. In their discussions, Ministers devoted much attention to three issues that are high on the science and innovation policy agendas of OECD countries: 1) promotion of stronger relationships between science and innovation systems, including the changing role of intellectual property rights in stimulating knowledge creation and diffusion; 2) ensuring sustained development of human resources in science and technology; and 3) global-scale issues that call for enhanced international co-operation in science and technology

5. Ministers encouraged the OECD to strengthen its work on science, technology and innovation, and underscored its relevance to the broader OECD agenda

Ministers concluded that:

- Changing innovation processes and the evolution of the relative contribution made by the private and public sectors have emphasised the need for strong industry-science linkages. A well-functioning interface between the innovation and science systems is more necessary than ever to reap the economic and social benefits from public and private investments in research, ensure the vitality and quality of the science system, and improve public understanding and acceptance of science and technology and the importance of innovation.
- Patent regimes play an increasingly complex role in encouraging innovation, diffusing scientific and technical knowledge, and enhancing market entry and firm creation. As such, they should be subject to closer scrutiny by science, technology and innovation policy makers.
- Increasing participation and maintaining quality standards in tertiary education in science and technology are imperative to meet growing demand for workers with scientific and

technological knowledge and skills. Complementary efforts are needed to improve mobility and the attractiveness of research careers in the public and private sectors.

Improving the accountability of science and technology policy should usefully be addressed through more systematic evaluation exercises. Additional effort is needed to identify and disseminate good practices in this area

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- Patent regimes play an increasingly complex role in encouraging innovation, diffusing scientific and technical knowledge, and enhancing market entry and firm creation. As such, they should be subject to closer scrutiny by science, technology and innovation policy makers.
- Increasing participation and maintaining quality standards in tertiary education in science and technology are imperative to meet growing demand for workers with scientific and technological knowledge and skills. Complementary efforts are needed to improve mobility and the attractiveness of research careers in the public and private sectors.
- Improving the accountability of science and technology policy should usefully be addressed through more systematic evaluation exercises. Additional effort is needed to identify and disseminate good practices in this area.
- Co-ordinated efforts at national and international levels are needed to broaden access to data from publicly funded research and contribute to the advancement of scientific research and innovation. To this effect, Ministers adopted a Declaration entrusting the OECD to work towards commonly agreed Principles and Guidelines on Access to Research Data from Public Funding
- Greater international co-operation in science and technology is vital to meet a broad range of global challenges related to economic growth, better health, sustainable development, and enhanced safety and security, as well as for implementing large science projects in a growing range of disciplines. In this regard, Ministers adopted a Declaration aiming at strengthening international S&T co-operation for sustainable development. They endorsed efforts to establish a framework for a Global Biological Resource Centre Network and gave their support to promote scientific co-operation in the fields of high-energy physics and neuroinformatics

Connecting science to innovation

6. As distinctions between fundamental and problem-oriented research have blurred, and demands to make public research more responsive to the needs of business and civil society have mounted, there is a greater need for increased and more efficient linkages between science and innovation. Such linkages serve to both facilitate industry's uptake and commercialisation of public-sector research results and to ensure that research performed in the public sector is attuned to social and economic problems. Science-innovation linkages can take many forms, from contract and collaborative research and personnel transfers to technology licences and creation of spin-off firms. In this regard, Ministers welcomed the conclusions of recent OECD reports on *Governance of Public Research, Benchmarking Industry-Science Relationships, and Turning Science into Business*. They stressed the importance of ensuring efficient and transparent mechanisms for steering and funding public research institutions, of increasing use of public-private partnerships to promote science-based innovation, of improving mobility of research personnel, and of creating a business environment in which both established and start-up firms demand new scientific and technological advances.

7. Ministers shared the view that, in funding R&D activities or incentive programmes, fundamental, long-term research should remain a priority. This will help ensure that universities and public laboratories can continue to explore knowledge frontiers on a broad front, remain reliable sources of objective scientific expertise and perform their critical role in training future researchers and skilled workers. Ministers agreed that government incentives for business R&D must evolve to better account for greater outsourcing of R&D among firms, the growing funding opportunities offered by modern financial markets and the role of non-profit organisations in financing research.

8. Ministers recognised the need to improve the quality of research and enhance its economic and social benefits while ensuring a degree of stability and autonomy for public research institutions. They agreed that the balance between competitively awarded project funding and institutional block grants might need to be reconsidered. They also agreed that wide access to knowledge from publicly funded research should be ensured and that ethical guidelines are necessary to prevent or resolve conflicts of interest among researchers involved in collaboration with industry.

9. Growing emphasis on industry-science linkages has resulted in new types of programmes and created new objectives for existing ones. Ways of evaluating the performance of public research organisations and the efficiency of public support to business R&D must therefore be revised. Ministers highlighted the importance of evaluation and noted a need for good practices regarding methodologies and institutional mechanisms for evaluation that reflect changing policy priorities and instruments.

Adapting IPR regimes

10. Patenting has accelerated rapidly in the past decade, with the number of patent applications filed in Europe, Japan and the United States increasing by 40% between 1992 and 2002, from 600 000 to 850 000 per year. The effects of such patenting on incentives to innovate, on the diffusion of scientific and technical knowledge and on competition remain unclear and vary across industry sectors and technological fields. In this regard, Ministers welcomed the OECD report on "Patents and Innovation: Trends and Policy Challenges", and encouraged continuation of OECD work in this area.

11. Although not widespread, cases of restricted access to patented inventions and delays in conducting or publishing research, indicate that governments must remain vigilant in ensuring that patenting does not unnecessarily hinder access to knowledge, reduce incentives to disseminate knowledge, or impede follow-on innovation. Ministers recognised the growing importance of patent licences and other market-based transactions in fostering knowledge diffusion and agreed that policy should encourage their development. Ministers further shared the view that IPR regimes need to protect researchers' access to fundamental inventions, such as through exemptions for research use of patented inventions.

12. The more important patents become to economic growth and performance, the more necessary it will be to ensure the quality of patents awarded while minimising their overall costs to society. Ministers welcomed the steps that a number of countries have already taken in that direction, and agreed that good practices in this area should be emulated. In this context, they encouraged the development of efforts to forge closer co-operation among major patent offices towards a more coherent global patent system.

Building a highly skilled and mobile scientific workforce for the future

13. Against the background of growing demand for human resources in science and technology, Ministers expressed concern that the recent decline in the number of science and engineering graduates could hamper the long-term growth prospects of OECD countries. The challenge of meeting demand for S&T talent is made all the more difficult by waning interest in science among youth, the gender gap among S&T graduates (notably at the doctorate level), the rapid ageing of the workforce in the public research sector, regulatory barriers and market disincentives to research careers, and the globalisation of higher education and research systems.

14. Ministers called for greater efforts to ensure an adequate supply of scientific and technological skills by: strengthening policies to enhance awareness and public understanding of science, especially among youth; improving the quality of scientific teaching and encouraging individual creativity; expanding the participation of women and under-represented groups; and broadening opportunities and support for students to pursue S&T studies. In this respect, Ministers recognised that tertiary education institutions should have the necessary autonomy and incentives to adapt curricula to changing skill demands, including for interdisciplinary knowledge and managerial/entrepreneurial skills, and to develop partnerships with industry to meet these goals.

15. Ministers further emphasised the need to pursue reforms in the human resource management policies of public research organisations to improve their responsiveness to changes in research priorities and funding, to help renew the research workforce, and to encourage mobility between the public and private research sectors. They further stressed the need for removing obstacles on the demand side that limit the contribution of S&T personnel to innovation in industry, in particular in SMEs. Incentives for business R&D in small firms and educational training partnerships are among the measures that can stimulate business demand for S&T graduates and enhance their capacity to innovate, as well as provide young graduates with the right skills to work as researchers in industry.

International co-operation in science and technology

16. Increased international co-operation in science and technology is important for meeting a broad range of global challenges, for benefiting from globalisation and for implementing large-scale research projects. Ministers commended OECD activities in this area and asked the OECD to continue this work. Ministers then examined a number of international S&T issues.

Access to research data

17. Ministers recognised that fostering broader, open access to and wide use of research data will enhance the quality and productivity of science systems worldwide. They therefore adopted a Declaration on Access to Research Data from Public Funding, asking the OECD to take further steps towards proposing Principles and Guidelines on Access to Research Data from Public Funding, taking into account possible restrictions related to security, property rights and privacy.

Sustainable development

18. Beyond the role they recognised for biotechnology in meeting sustainability objectives, Ministers stressed the importance of international co-operation in science and technology to sustainable development, notably by transferring knowledge and technology among member countries and to less-developed ones. They reaffirmed their commitment to achieving the objectives adopted by the World Summit on Sustainable Development, held in Johannesburg on 4 September 2002, and welcomed the conclusions of the 2003 G8 Summit in Evian regarding Science and Technology for Sustainable Development. Ministers endorsed the Declaration on International Science and Technology Co-operation for Sustainable Development.

Biotechnology

19. Ministers agreed that biotechnology is a significant driver of sustainable growth and development and that a solid infrastructure is required to assure such growth. Ministers therefore agreed to endorse efforts to establish a framework for a Global Biological Resource Centre Network (GBRCN) by 2006. They endorsed OECD papers setting out guidance for certification and quality criteria for biological resource centres and for the operation of biological resource centres. Ministers called on the OECD to strengthen its contribution to work on biotechnology, focusing on enabling innovation in health biotechnology and on the contribution that industrial biotechnology can make to a more bio-based economy. In that context, they endorsed the OECD report *Biotechnology for Sustainable Growth and Development* and its conclusions, which Ministers agreed should be brought to the attention of those ministers reviewing the OECD health project in May 2004.

Global Science Forum

20. Ministers welcomed the achievements of the OECD Global Science Forum, whose creation they endorsed at their previous meeting in 1999. The Forum has been a useful venue for consultations among senior science policy officials and programme managers, and a valuable mechanism for bringing together government officials with representatives of scientific communities. Ministers devoted particular attention to two outcomes of the Forum's work, as described below. Noting the positive results of the evaluation exercise that took place at the end of 2003, Ministers supported the renewal of the Global Science Forum's mandate, urging it to explore new opportunities for actions in areas of great scientific and social relevance.

High-energy physics

21. Ministers acknowledged the importance of ensuring access to large-scale research infrastructure and the importance of the long-term vitality of high-energy physics. They noted the worldwide consensus of the scientific community, which has chosen an electron-positron linear collider as the next accelerator-based facility to complement and expand on the discoveries that are likely to emerge from the Large Hadron Collider currently being built at CERN. They agreed that the planning and implementation of such a large, multi-year project should be carried out on a global basis, and should involve consultations among not just scientists, but also representatives of science funding agencies from interested countries. Accordingly, Ministers endorsed the statement prepared by the OECD Global Science Forum Consultative Group on High-Energy Physics.

Neuroinformatics

22. Ministers agreed that the study of the human brain will be one of the most difficult and rewarding scientific challenges of the 21st century. They noted that brain research generates vast quantities of highly diverse data, and that the international scientific community is facing the challenge of managing, analysing and sharing these data in a way that optimises the scientific benefits, avoids duplication of effort, and takes maximum advantage of the ongoing revolution in information and communication technologies. They welcomed the emergence of the new field of neuroinformatics, which has been the subject of an international consultation among scientists and science policy makers under the aegis of the OECD Global Science Forum. They agreed that interested countries should join together to create optimal conditions for the expansion and international co-ordination of this new field, as described in the annexed document (Annex 4).

Enhanced safety and security

23. At their working lunch Ministers discussed how science and technology could contribute to improving safety and security, including areas such as cybersecurity, transport security, environment security, crisis management and infectious disease prevention. Addressing those safety and security issues will require a global approach involving multiple stakeholders. Among the many issues addressed was the role of biometrics in achieving safety and security goals. Implementation of biometrics will require significant research and development. Issues of personal privacy and data protection will also need to be addressed. Ministers agreed that generating new biometrics devices would present significant challenges over the next decade.

Service economy

24. Ministers welcomed the launching of the work on the service economy which had been proposed at the 2003 Council Meeting at Ministerial level (MCM). This study will analyse the role of science, technology and innovation in the service sector for enhancing overall economic performance.

Areas for further OECD work

25. Building on the valuable work of the CSTP and its subsidiary bodies - Working Party on Innovation and Technology Policy, Working Party of National Experts on S&T Indicators, Working Party on Biotechnology, Global Science Forum, ad hoc Group on Steering and Funding of Research Institutions - Ministers invited the OECD to further develop its activities in the following areas, subject to the availability of resources:

Science-innovation interface

- *Strengthening the evaluation of public research organisations, support programmes, and overall science and technology policy:* Identifying and sharing good practice approaches to the development of improved methodologies for the assessment of economic and societal impacts.
- *Furthering the analysis of science systems and industry-science relationships:* Assessing the impact of changing funding mechanisms on the management and performance of research institutions, and the role of public-private partnerships in increasing the effectiveness of science and technology policy.
- *Examining the role of IPR systems in fostering innovation, knowledge diffusion and competition:* Investigating the ability of technology markets to disseminate patented inventions and identifying effective policy measures for promoting them, notably as regards SMEs; Examining national policies regarding exemptions for research use of patented inventions and assessing their effect on the conduct of scientific research; Reviewing the effect of various forms of intellectual property protection for software on access to software-related knowledge and follow-on innovation; Developing good licensing practices for biotechnology patents.
- *Identifying best practices in S&T policies to respond to the challenges and opportunities of increased globalisation.*

Human resources in science and technology

- *Fostering a diverse and mobile workforce for science and technology:* Assessing trends in supply and demand for science and technology graduates, including PhDs, and identifying successful policy measures for increasing participation, in particular of women, in scientific and technological education and careers; Analysing recent changes in the international mobility of students and personnel in science and technology fields, and their implications for policy.
- *Improving data on the development and mobility of human resources in science and technology:* Using existing data sources and developing new statistical approaches, especially on mobility; Collecting and exchanging information on the career paths of holders of doctorates.
- *Reinforcing the capability, including the use of OECD's interdisciplinary strength, to make science and technology more appealing and attractive from the early stages of education.*

Biotechnology

- *Strengthening its contribution to work on biotechnology as a driver for sustainable growth, focusing on establishing a framework for a Global Biological Resource Centre Network, on enabling innovation in health biotechnology and on contributions from industrial biotechnology to a more bio-based economy.*

International co-operation in science and technology

- *Strengthening the role of international collaboration in S&T for sustainable development, growth and prosperity through continued discussion of high-priority science and technology policy issues that require international co-operation.*
- *Following up on the recommendations for future work as indicated in the annexes to this document.*
- *Further analysing the role that S&T can play in the enhancement of safety and security.*

First Nepad Ministerial Conference on Science and Technology

Johannesburg, South Africa,

7 November 2003

DECLARATION

WE, the Ministers responsible for science and technology in African countries, meeting at our inaugural conference in the framework of the New Partnership for Africa's Development (NEPAD) from 6-7 November 2003 in Johannesburg, South Africa;

Motivated by the solemn pledge by our Heads of State and Government in adopting NEPAD as the socio-economic framework for regional integration, eradication of poverty and sustainable development;

Recalling Article 3 of the Constitutive Act of the African Union (AU), which promotes research in all fields, particularly in science and technology to advance the development of the continent;

Taking into account that the realization of the NEPAD goals as well as those of supportive initiatives, such as the Millennium Development Goals and the Plan of Implementation of the World Summit on Sustainable Development is receiving considerable attention of African leaders and Africa's development partners;

Convinced that scientific advances and technological innovations are driving forces for economic growth and sustainable development;

Emphasizing the importance of adopting multidisciplinary approaches, including social sciences or humanities, in research and development;

Acknowledging that the ability of our countries to create, diffuse and utilize scientific and technical knowledge is a major determinant of our capacity to take advantage of international trade and effectively compete in the global economy as well as improve the quality of life of our people;

Realizing that the gap between poor and rich countries in terms of real income is largely accounted for by differences in the acquisition, accumulation and utilization of science and technology;

Determined further to effectively and successfully address the challenges of food security, environmental degradation, diseases, poor communication, poverty eradication and Africa's marginalisation in the global economy;

Guided by the deliberations and outcome of the Regional Workshop on "Developing a shared Platform for Science and Technology" held from 17-19 February 2003 in Johannesburg, South Africa as well as the preparatory meeting of this conference held from 13-15 October 2003 in Nairobi, Kenya;

WE HEREBY COMMIT TO:

1. Acknowledge the need for science and technology to be championed as priority instruments of economic and social development at the highest level of our governments;

2. Emphasize the need for science and technology policies and strategies that lead to sustainable development and the eradication of poverty;

3. Resolve and commit to find ways and means of strengthening, individually and collectively, science, technology and innovation systems of our countries to attain sustainable development and integration into the global economy;

4. Reaffirm our commitment to promote within our countries scientific research and technological innovations and their applications, particularly in the eradication of poverty; seeking solutions to food insecurity, malnutrition, homelessness, unemployment, lack of affordable energy and the fight against disease, especially HIV/AIDS, tuberculosis and malaria.

5. Establish appropriate enabling conditions for scientific and technological advancement of our countries and the continent;

6. Establish a Council of Ministers of Science and Technology as the policymaking and overall governance body for science and technology in the framework of NEPAD

- 7. Proudly acknowledge** the abundance of indigenous knowledge and technologies accumulated over millennia in our continent, and commit to promote, international trade and effectively compete in the global economy as well as improve the quality of life of our people;
- 8. Reaffirm** our commitment to pursue all measures possible to increase public expenditure on research and development to at least 1 per cent of GDP per annum,
- 9. Resolve** to develop the appropriate policy and regulatory environment, including protection of intellectual property, to encourage private sector investment in research and development.
- 10. Establish** networks of centres of excellence in science and technology within the framework of NEPAD;
- 11. Undertake** to improve on bilateral and multilateral cooperation in the development and application of science and technology;
- 12. Develop** and adopt common sets of indicators to benchmark our national and regional systems of innovation
- 13. Resolve** to build regional consensus and strategies to address concerns emerging with advances in new technologies, including biotechnology, nanotechnology, and information and communications technologies;
- 14. Establish** national and regional programmes to promote public understanding of science and technology and their role in development;
- 15. Undertake** to improve the quality of and enrolment in science, technology, mathematics and engineering education;
- 16. Ensure** coordination of science and technology matters between the different sectors of government, and promote dialogue between stakeholders in the science and technology community; and
- 17. Promote** networking of departments of science and technology, and ensure that expertise and experiences in various national institutions is shared across the continent;

RECOMMEND that the NEPAD Heads of State and Government Implementation Committee (HSGIC) consider and submit this Declaration to the Summit of the African Union.

THEREFORE ADOPT the Outline of Plan of Action as the basis for the formulation of NEPAD's Business Plan on Science and Technology to be finalized within twelve months after this Conference.

EXPRESS our profound gratitude to Dr. Ben Ngubane, Minister of Arts, Culture, Science and Technology of the Republic of South Africa for chairing and providing leadership to the conference and kindly request him to convey to H.E. President Mbeki, the Government and People of South Africa our sincere appreciation for the warm hospitality and excellent material and logistical support we received at the conference.

Second African Ministerial Conference on Science and Technology

Dakar, Senegal,

30 September 2005

RESOLUTIONS

WE, the Ministers responsible for science and technology, meeting at the Second African Ministerial Conference on Science and Technology in the framework of the African Union (AU) and the New Partnership for Africa's Development (NEPAD) from 29-30 September 2005 in Dakar, Senegal;

Recalling the commitments and decisions we made at the first African Ministerial Conference on Science and Technology held in Johannesburg, South Africa 6-7 November 2003;

Taking into account the important roles that science, technology and innovation play in achieving Africa's common aspirations articulated in the New Partnership for Africa's Development (NEPAD) and the Constitutive Act of the African Union (AU);

Convinced that science, technology and innovation are critical to the realization of the Millennium Development Goals (MDGs) and the implementation of Chapter 8 of the Plan of Implementation adopted at the World Summit on Sustainable Development (WSSD);

Re-emphasizing the importance of adopting multidisciplinary approaches, including social sciences or humanities, in research and technology development;

Acknowledging that the ability of our countries to create, diffuse and utilize scientific and technical innovations is a major determinant of our capacity to get integrated into the global knowledge economy and trading system;

Taking into account recommendations of the Commission for Africa and the United Nations Millennium Project as well as the increasing international attention to the role of science, technology and innovation in sustainable development;

Recalling our commitment to develop and adopt a comprehensive common action plan for science, technology and innovation;

Guided by the deliberations and recommendations of the Science and Technology Steering Committee, regional workshops, experts' consultations and technical inputs from various multistakeholder groups since our first Conference;

WE HEREBY:

1. **Adopt** Africa's Science and Technology Consolidated Plan of Action.
2. **Resolve** that the African Union (AU) shall provide overall policy and political leadership required to achieve the goals set in the Africa's Science and Technology Consolidated Plan of Action.
3. **Commit** ourselves to strengthen the African Ministerial Council on Science and Technology (AMCOST) as the overall governance body to provide political leadership and make recommendations on policies for the application of science, technology and innovation in Africa's development.
4. **Resolve** that the Steering Committee for Science and Technology shall be responsible for monitoring and reviewing the implementation of programmes and projects.
5. **Resolve** that the AU Commission and the NEPAD Office of Science and Technology shall be responsible for mobilizing financial and technical resources to implement programmes and projects contained in the Africa's Science and Technology Consolidated Plan of Action.
6. **Reaffirm** our countries' commitments to make voluntary and earmarked financial contributions to ensure that the programmes and their projects are effectively and efficiently implemented.
7. **Reaffirm** our countries' commitment to mobilize financial resources and increase expenditure on national Research and Development.
8. **Agree that** ways and means be explored, by AU and NEPAD, of establishing a special continental financial and technical facility to ensure sustainable funding for science, technology and innovation programmes
9. **Decide** that SC shall, in consultation with AU structures and with support of technical expertise, consider and make appropriate recommendations to the Bureau of AMCOST on modalities of establishing and governing the proposed African Science and Innovation Facility.

10. **Commit to establish** a forum for engaging and partnering with the international community, including fostering cooperation with other developing countries to secure the necessary additional financial, technical and informational resources for the implementation of the Africa's Science and Technology Consolidated Plan of Action.
11. **Rededicate** our countries to review and where necessary revise national science, technology and innovation policies and related institutional arrangements;
12. **Reaffirm our commitment** to promote the integration of science, technology and innovation considerations into our national development plans, Poverty Reduction Strategy Papers or related frameworks for achieving the MDGs.
13. **Agree to establish** an inter-governmental committee comprising of relevant national authorities to develop, adopt and use common indicators to survey and prepare an African Science, Technology and Innovation report.
14. **Commit** our countries to strengthen bilateral and multilateral cooperation on science and technology, and develop best practices in this regard.
15. **Take note** of the establishment of the AU-NEPAD High-Level African Biotechnology Panel which is due to report on its work in 2006.
16. **Take note** of ongoing efforts to establish networks of centres of excellence to implement the programmes and projects.
17. **Decide** that the NEPAD Secretariat, in collaboration with the AU Commission and UNESCO, develop the Terms of Reference and establish the AU-NEPAD-UNESCO High-Level Working Group to prepare a comprehensive programme for establishing and funding centres of excellence in accordance with the Commission for Africa recommendations.
18. **Recalling** our decision to establish a network of departments of science and technology, and ensure that expertise and experiences in various national institutions is shared across the continent, we call upon the NEPAD Office of Science and Technology to finalize the development of the African e-library of science and technology policy instruments.
19. **We support** the proposed establishment of the 3rd Component of the International Centre for Genetic Engineering and Biotechnology in Africa.
20. **Agree** to establish an inter-ministerial dialogue with African Minister's Council on Water (AMCOW) and endeavour to establish partnerships with other ministerial councils or bodies
21. **Recommend** that the AU Summit in January 2007 be dedicated to science and technology for the Heads of State and Government..
22. **Resolve** to hold our 3rd conference.....

We EXPRESS our gratitude to Hon. Minister MOSIBUDI MANGENA and his predecessor Dr BALDWIN S NGUBANE of the Republic of South Africa for providing leadership to AMCOST and for chairing it effectively during its first two years.

We **CONGRATULATE** Madam Hon. Minister DIA GASSAMA of the Republic of Senegal for her appointment to the Cabinet and election as the second chairperson of AMCOST.

We **EXPRESS** our sincere appreciation to H.E. PRESIDENT ABDOULAYE WADE, and the Government and People of Senegal for the warm hospitality and excellent organization of this conference.

Extraordinary Conference of the African Ministerial Council on Science and Technology

**Cairo, Egypt,
24 November 2006**

CAIRO DECLARATION

PREAMBLE

WE, the Ministers responsible for science and technology meeting at the extraordinary conference of the African Ministerial Council on Science and Technology (AMCOST) from 23-24 November 2006 in Cairo, the Arab Republic of Egypt;

Guided by the Constitutive Act and vision of the African Union (AU);

Also guided by the vision of the New Partnership for Africa's Development (NEPAD) making science and technology one of its major priorities;

Re-affirming that science and technology is the driving force for socio-economic development, economic competitiveness and the attainment of the Millennium Development Goals (MDGs);

Taking into account Africa's Science and Technology Consolidated Plan of Action (CPA) that was adopted at the second conference of the African Ministerial Council on Science and Technology (AMCOST) in Dakar, Senegal 30th September 2005 and endorsed by AU Summit from 16-21 January 2006;

Recalling the decision of the 8th Ordinary Session of the AU Executive Council in Khartoum, Sudan, January 2006 calling on the AU Commission, the NEPAD Office of Science and Technology and Member States to be responsible for mobilizing financial and technical resources to implement the Africa's Science and Technology Consolidated Plan of Action;

Also taking into account the deliberations and the recommendations of civil society and Diaspora conferences and the first African Union Congress of Scientists and Policy makers held in Alexandria, Egypt from 27 - 30 October 2006;

Applauding the decision of our Heads of State and Government to dedicate the AU Summit in January 2007 to science, technology and innovation for Africa's socio-economic development;

Taking note of the report of the senior officials and experts meeting held from 20-21 November 2006 in Cairo, Egypt

ENDORSEMENT

We hereby endorse the report of the High-Level African Panel on Modern Biotechnology

COMMITMENTS

We hereby commit ourselves to:

1. **Establish** mechanisms to accelerate and monitor the implementation of the Africa's Science and Technology Consolidated Plan of Action;
2. **Work** together to develop a 20 year African Biotechnology Strategy with specific regional technology goals to be implemented through our Regional Economic Communities (RECs) and to develop and harmonize national and regional regulations that promote the application and safe use of modern biotechnology;
3. **Promote** research and development (R&D) and develop innovation strategies for wealth creation and economic development;
4. **Encourage** effective knowledge management and better use of Intellectual Property, transfer of technology as well as South-South, North- South cooperation in science and technology;
5. **Improve** the design and develop a legal instrument for the establishment of the African Science and Innovation Fund (ASIF) as an intergovernmental mechanism to mobilize technical and financial resources for the implementation of the Consolidated Plan of Action;
6. **Maximize** the effective use of locally based scientists, including African academies of science and African scientists in the Diaspora and also facilitate the relocation of science-based Small and Medium Enterprises (SMEs) of the Diaspora for the development of the continent;
7. **Popularize** the importance of science and technology for the development of our countries;
8. **Promote** and facilitate greater participation of women and youth in the advancement of science and technology through networks of women scientists and other capacity building interventions;

9. **Use** common guidelines for identifying and establishing networks of centres of excellence in science and technology;

RECOMMENDATIONS

In light of these commitments, we recommend to the Assembly of Heads of State and Government of the African Union (AU) to:

1. Declare 2007 as the year to launch the building of constituencies and champions for science, technology and innovation in Africa
2. Promote research and development (R&D) and develop innovation strategies for wealth creation and economic development by allocating at least 1% of Gross Domestic Product (GDP) to R&D by 2010 as agreed by Khartoum Decision (EX. CL/Dec.254 (VIII));
3. Approve the establishment of a Pan-African Intellectual Property Organization (PAIPO);
4. Support South-South cooperation in science, technology and innovation and enhance its role in international partnerships

APPRECIATION

We appreciate the decision of the Government of the Republic of Kenya to host the third conference of the African Ministerial Council on Science and Technology (AMCOST) in 2007.

We **EXPRESS** our gratitude to H.E. PRESIDENT HOSNI MUBARAK and the People of the Arab Republic of Egypt for the warm hospitality and excellent organization of this conference.

First APEC Ministers' Conference on Regional Science & Technology

Beijing, China, 5-6 October 1995

JOINT COMMUNIQUÉ

1. For the first time in APEC's history, Ministers responsible for science and technology (S&T) from Australia, Brunei Darussalam, Canada, Chile, People's Republic of China, Hong Kong, Indonesia, Japan, Republic of Korea, Malaysia, Mexico, New Zealand, the Republic of the Philippines, Singapore, Chinese Taipei, Thailand and the United States of America, gathered in Beijing, China, from 5-6 October 1995, to discuss how to advance the process of cooperation in science and technology amongst the member economies.

2. The conference was opened by President Jiang Zemin, People's Republic of China. President Jiang expressed China's warm welcome to the Ministers. He noted the importance of science and technology in furthering the goal of enhanced economic cooperation and meeting challenges confronting the APEC region. He commented that this inaugural S&T Ministers' Conference was a direct response to the initiatives stated in the APEC Leaders' Declaration of Common Resolve, at Bogor, Indonesia, in November 1994. President Jiang Zemin called for efforts in strengthening S&T cooperation under APEC framework and also expressed the commitment of the Chinese Government to contribute to push forward international S&T cooperation for the region's common prosperity.

3. The conference was chaired by Dr. Song Jian, State Councillor and Minister of the State Science and Technology Commission of China. In his opening remarks, Dr. Song briefed the conference on the Chinese experience in science and technology development and requested APEC member economies to adopt farsighted strategies for effective science and technology cooperation.

4. The Ministers' discussion addressed:

- a shared policy outlook for developing policies and approaches to enhance economic and technical cooperation in the area of science and technology;
- themes for science and technology cooperation, with specific focus on:
 - improved flows of information on science and technology;
 - improved researcher exchange and human resources development;
 - improved transparency of regulatory frameworks; and,
 - facilitation of joint research projects;
- an Action Program for Industrial Science and Technology; and,
- a joint communiqué establishing the results of their conference.

SHARED POLICY OUTLOOK

5. In their discussions, Ministers were guided by the 1994 Bogor Declaration of Common Resolve, which pledged to find cooperative solutions to the challenges of rapidly changing regional and global economies. They noted the beneficial impact of trade and investment liberalization and facilitation, and the significant contribution of science and technology cooperation towards sustainable economic growth. Ministers agreed that support for science and technology should advance the goals of: building robust and competitive economies in the region; promoting environmental quality and sustainable use of natural resources; improving the quality of life, human health and development, and knowledge; and fostering improved private/business sector exchanges and interaction in technology cooperation.

6. To assist in reaching these goals, Ministers agreed on the following principles:

- There should be equal opportunities for all parties to join in regional multilateral research collaboration programs;
- Contributions to and benefits from collaboration should be balanced and reflect members' capabilities;
- Collaborative projects should encourage complementary and collaborative public and private sector investments in the development and diffusion of technologies;
- Collaborative activities should ensure, wherever possible, the active participation of Small and Medium-sized Enterprises (SMEs);
- Collaborative activities should be implemented throughout the full innovation cycle from basic research to pre-competitive research and development;
- A consistent and transparent approach should be adopted to standards and standard-setting activities; and,
- Collaborative activities should ensure that any intellectual property rights are protected and that the results and commercial benefits are allocated fairly.

Ministers entrusted the Working Group on Industrial Science and Technology (WGIST) to continue its work on science and technology policy and program discussion and information sharing, acknowledging that this is an essential element of furthering understanding in the region.

THEMES FOR SCIENCE AND TECHNOLOGY COOPERATION

7. Ministers elaborated on the potential role that science, technology, and research could play in advancing economic performance of their economies. The Ministers agreed that four themes should guide their future efforts in this regard. They indicated that they were impressed with the depth and range of specific proposals submitted by individual member economies, and expressed their satisfaction that many of the proposals supported the 1993 Blake Island APEC Leaders Economic Vision Statement which united the commitment of the economies to create a stable, prosperous and sustainable growth future for our people.

THEME I : Improved flows of information, science and technology

Ministers noted that dissemination of information on science and technology is critical for promoting economic growth and technological innovation in their economies. They emphasized that it is particularly important to ensure that technological information and technology flows provide direct and tangible benefits to the private/business sector, including SMEs, which they recognized as significant engines of economic growth. Ministers expressed satisfaction with the coherency of the several project proposals from member economies that suggested concrete ways to: improve research linkages in the region amongst researchers, policy analysts and scientific and technical organizations; establish science and technology data bases, and technology forecasting and review systems, to fuel industrial performance; foster centres of excellence and joint research facilities throughout the region; develop networks that would assist industry in developing technology partnerships by strengthening the infrastructure of information gathering; and, demonstrate applications of information technology that would establish best practices for improved science, technology and research infrastructure linkages in the region. The Ministers entrusted the WGIST to continue its work in bringing to fruition concrete projects and symposiums, to improve the flow of information on science and technology. Ministers welcomed the increased collaboration of the WGIST with the Science and Technology Task Force of the Pacific Economic Cooperation Council.

THEME II : Improved researcher exchange and human resources development

Ministers noted that the progress of science and technology depends on talented science and technology personnel. Researcher exchanges and human resources development activities are essential to enhanced technological and industrial innovation in the Asia-Pacific region. Ministers believe that specific strategies in APEC should focus on education and training needs, and expansion of researcher exchanges, including consideration of improved visa arrangements where needed, complementing the work of the APEC HRD Working Group and the APEC Committee on Trade and Investment. Ministers were pleased that the economies were working towards realizing projects that would increase researcher exchanges, promote public awareness for S&T, and facilitate industrial technology education and research manpower training. Ministers entrusted the WGIST to work with

member economies having specific initiatives designed to encourage human resources development activities of benefit to the Asia-Pacific region.

THEME III : Improved transparency of regulatory frameworks

Ministers remarked that clear and transparent regulatory frameworks of member economies benefit the flows of technology and expertise and are critical to improving sustainable economic growth and technological innovation in the region. Ministers indicated that they appreciated the efforts of the economies to enhance understanding within the Asia-Pacific region of their respective regulatory regimes by exchanging information and views, and compiling reports and analyses. Ministers entrusted the WGIST to continue a focused review on improving the relationships between regulatory regimes and industrial science and technology cooperation within the region, in cooperation with other APEC bodies such as the Standards and Conformance Sub-Committee.

THEME IV: Facilitation of joint research projects

Ministers recognized the importance of undertaking joint research projects among the economies that provides a basis for longer-term benefits for overall regional economic performance. They acknowledged that science and technology research, and technology development, are increasingly complex and costly, and require application of the shared policy outlook and principles stated above. Enhanced cooperation amongst member economies, involving governments, enterprises, institutes and universities, can speed the solution of common problems facing the economies. Ministers welcomed the efforts of individual economies to put forward cooperative research project proposals in areas that had the potential to bring benefits to their populations, as indicated by the list of proposals attached. It was noted that the list especially included proposals on alleviating the impacts of natural disasters, and improving the sustainability of terrestrial, atmospheric and aquatic environments. Ministers agreed that the focus of research projects, proposed by member economies, on disaster prevention and mitigation, and environmental initiatives, was a useful step towards enhancing science and technology research cooperation in the region. Ministers entrusted the WGIST to work with individual member economies in further developing these proposals with a view to achieving solid research results for their future consideration.

8. Draft Action Program for Industrial Science and Technology

Ministers endorsed the Draft Action Program for Industrial Science and Technology, which is to be incorporated into the Osaka Action Agenda. The Action Program is composed of three sections: Common Policy Concepts, Joint Activities, and Dialogue on member economies' policies/activities. It shows the basic direction of cooperation and specific actions on industrial science and technology. The Ministers asked the WGIST to devote further attention to developing achievable project time frames and specific activities. The Ministers urged the WGIST to implement its Action Program in a timely manner and, through their individual member economies, to report back on its progress.

9. Ministers noted the value of achieving significant progress on a few key areas before the next meeting in Seoul. They trusted that early progress would be made in: the development of knowledge networks and flows through all means including electronic linkages and exchanges of scientific and technical personnel in the APEC region; human resource development; and the development of collaborative projects to address, in particular, environmental sustainability and regional natural disaster mitigation. Ministers agreed that proposing economies would take the lead in these areas and report progress to Ministers at their next meeting. These priorities would also be reported to the Leaders' Conference in Osaka in the context of the overall Action Program and Communiqué.

10. In closing the conference, the Chair, Dr Song Jian, noted that Ministers had agreed that, in principle, it would be desirable to have further ministerial conferences and welcomed the offer from Republic of Korea to host the 2nd conference in late 1996.

**Second APEC Ministers' Conference on Regional Science & Technology Cooperation
Seoul, Republic of Korea, 13-14 November 1996**

SEOUL DECLARATION

Ministers adopted the Seoul Declaration, which set the following goals for enhancing researcher mobility and creativity in the APEC region:

- Promote greater sharing of S&T information, training and research programs, and research facilities;
- Strengthen the exchange of scientific and technical men and women across the region through measures that might include:
 - lowering institutional and non-institutional barriers; and
 - developing new and enhanced mechanisms for exchange.
- Attract creative and talented young people to take up careers in science and technology.

Member economies will also develop individual plans and work toward achieving these goals by the year 2010. The Declaration constitutes a significant step toward recognizing and fulfilling the vision of the creation of an Asia-Pacific community through cooperative effort in the domain of S&T

Third APEC Ministers' Conference on Regional Science and Technology Cooperation
Mexico City, Mexico,
21-23 October 1998

MEXICO DECLARATION

We, the Ministers responsible for science and technology from Australia; Brunei Darussalam; Canada; Chile; the People's Republic of China; Hong Kong, China; Indonesia; Japan; the Republic of Korea; Malaysia; Mexico; New Zealand; the Republic of the Philippines; Singapore; Chinese Taipei; Thailand; and the United States of America, meeting in Mexico City, on October 21-23, 1998, for the Third APEC Ministers' Conference on Regional Science and Technology Cooperation;

Being consistent with the Osaka Action Program for Industrial Science and Technology, which included as a priority a ***"strong endorsement for enhancing links between government agencies, the private/business sector (including small and medium sized enterprises) and academic institutions engaged in collaborative industrial S&T research and development"***;

In pursuance of the APEC vision to create a community of Asia-Pacific built on the economic dynamism of the region based on free trade and investment, and active and intensive regional cooperation in science and technology that will be ***"a source of economic dynamism, a vehicle to a prosperous Asia-Pacific and as a means to achieve sustainable and equitable development of the region"*** as declared at the Second APEC Ministers' Conference on Regional Science and Technology Cooperation in Seoul, 1996;

Recognizing the timeliness of strengthened economic and technical cooperation for addressing the challenges of the changing regional and global economies, consistent with the ***"Framework for Strengthening Economic Cooperation Development adopted in Manila, 1996; in order to rapidly and effectively achieve the vision shared by member economies by harnessing technologies for the future, developing human capital and safeguarding the quality of life"*** ; and acknowledging that the Vancouver Declaration of the APEC Leaders recognized that 'connecting' people, resources issues, and science and technology will contribute to accelerate the development of the region, APEC economies have supported the creation of public/private partnerships that stimulate regional dynamism and facilitate science and technology exchanges; and Noting that S&T is increasingly integrated within APEC fora and activities, which is a recognition of the role of S&T in fostering economic growth and social development;

Do hereby declare as follows:

In order to realize the vision of an APEC community thriving on the basis of dynamic industries and sustainable resources, the innovative capability of the region must be maintained and strengthened. Despite the current global economic situation, member economies should sustain and further their support for S&T efforts and build on the progress made.

To sustain discovery and innovation and maximize the efficiency of existing investments in S&T across the region, partnerships and networks have become indispensable. Cooperative public and private partnerships and networks allow participants to link their human, intellectual and infrastructural resources to address regional economic, social, and environmental issues. Such linkages have a positive multiplier effect, spreading the benefits and stimulus of investments and innovation widely across the APEC region.

The proposed APEC Agenda for Science and Technology Industry Cooperation into the 21st Century recognizes that science and technology can contribute to the broad APEC goal of economic and technical cooperation (EcoTech) being pursued through various APEC fora. Effective implementation of that agenda and the outcomes of this Ministerial Conference will require the ISTWG to coordinate

on horizontal issues with other APEC fora. As we enter the new millennium, we thus conclude that the support of partnerships and networks should be a top priority of APEC, and we encourage APEC fora to take the following actions:

- i. identify and share information about best practices for technology diffusion, and develop initiatives to provide APEC-wide linkages between technology networks among member economies;
- ii. foster the formation and strengthening of networks in specific areas of S&T across APEC;
- iii. encourage APEC fora, particularly the ISTWG, to continue to work with, and systematically engage, the private sector to participate in the policy dialogue, in particular as it pertains to the assessment of constraints and opportunities for partnerships and networks among APEC economies;
- iv. conduct further analyses and implement additional actions on human resources issues, including, in particular, facilitation of mobility of personnel, and increasing the public awareness of S&T activities, especially among the young;
- v. encourage the elimination of barriers to the fullest participation in, and contribution to, S&T by all members of society, with special attention to underrepresented segments, such as women and persons with disabilities;
- vi. identify key skills necessary for effective innovation and assess the need for training in member economies;
- vii. promote linkages among universities, public science agencies and industries to enhance the development of technologies and research training capacities;
- viii. promote cleaner production both to preserve the environment and to stimulate economic growth;
- ix. foster the pursuit of new knowledge and the development of technologies for humanistic concerns, such as the better health, well-being and enriched culture of all segments of the population;
- x. disseminate best practices in natural disaster mitigation and emergency preparedness.

4th APEC Science Ministers' Meeting
Christchurch, New Zealand, 10-12 March 2004

COMMUNIQUÉ

Introduction

We, the Science Ministers and other Heads of Delegation of Australia, Brunei Darussalam, Canada, Chile, the Peoples' Republic of China, Hong Kong China, Indonesia, Japan, Korea, Malaysia, Mexico, New Zealand, Papua New Guinea, the Republic of the Philippines, Russia, Singapore, Chinese Taipei, Thailand, the United States, and Viet Nam met from 10-12 March 2004. Representatives from the APEC Secretariat were also present.

We are grateful to the New Zealand Minister for Research, Science & Technology, Hon Pete Hodgson, for his generous hospitality and effective chairing of the meeting. We also commend the organisers of the ministerial meeting and the two associated events for their efficient arrangements, which have ensured a productive and enjoyable event.

We welcomed the participation of Pacific Economic Cooperation Council (PECC) and the European Commission.

Connecting Science, Policy and Business

The activities of governments, researchers, entrepreneurs and investors need to be closely interlinked to ensure each economy gains the maximum benefit from science, technology and innovation.

Therefore, we welcomed New Zealand's initiative in arranging for our meeting to be held in conjunction with the APEC R&D Leaders' Forum and an Innovation Showcase. These associated events have enabled us to benefit from interaction with research leaders, innovative businesses, and investors.

Ministers enjoyed discussing a wide range of issues with leading R&D people from the APEC region. The report of the R&D Leaders' Forum is attached.

We commend the hosts of future meetings of APEC Science Ministers to consider a similar programme of events.

The theme of the ministerial meeting

The theme for our meeting, agreed by the Industrial Science & Technology Working Group (ISTWG) in May 2003, was:

Enhancing the capacity of science, technology & innovation to deliver sustainable growth across the APEC region.

Within that heading are four agreed key policy issues, ie:

- human capacity building,
- international Science and Technology (S&T) networks,
- connecting research and innovation,
- strengthening technological cooperation and encouraging best practice in strategic planning.

We appreciate the role, which Korea, Australia, Canada and Thailand have played in leading the drafting groups on these issues.

Outcomes from this meeting

Recent statements by APEC Leaders and Ministers recognise the importance of promoting S&T cooperation in order to ensure the long-term economic growth of APEC economies, and of supporting global efforts to address significant sustainability issues.

During the Ministerial Retreat, which focussed on science and society, we:

- agreed there needed to be more and better engagement between the scientific community and society in APEC economies, including the communication of benefits and risks arising from research; and
- welcomed the offer by Australia's National Science and Technology Centre, to coordinate the development and implementation of a project to study the impact of science centre programmes and activities, and capture and disseminate best practice.

We want ISTWG to base its future programme of activities on the four key policy issues, coordinating its efforts with other APEC working groups where that would lead to a more effective and cohesive programme of work.

We also welcome the broader perspective, which ISTWG now takes on the policy aspects of S&T and the contribution, which science, technology and innovation make to sustainable growth, arising from work initiated at the Penang Policy Forum in 2001.

At the same time, we note that any consensus about future activities of ISTWG and other APEC working groups must take into account that individual economies are at varying stages of economic and technological development.

We need to look particularly to measures that can be adopted by governments, and areas where collaboration among economies can help address both individual and regional priorities.

Our main directions for ISTWG's future work programme are attached.

Current challenges in the sector

This is the first time that there has been an APEC Science Ministers' meeting since 1998. Since then, developments in science and technology have continued to move at a rapid pace. In seeking to ensure that science and innovation realises its potential, APEC economies face several key challenges, including:

- Globalisation facilitated by the rapid spread and use of information and communication technology gives rise to such issues as (i) how scientists, researchers and policy makers work with each other; and (ii) the availability and use of scientific and technological information, in particular balancing effective protection of intellectual property rights against ensuring the appropriate availability of public good information derived from research and development.
- Increasing complexity, cost and pace of science and innovation, which have spurred international cooperation, particularly in areas of science requiring large scale facilities and/or sharing of large databases and research tasks. This requires economies to ensure their science and innovation systems are open, competitive and attractive.
- The blurring between science and industry; effective interaction between public and private sector researchers requires the appropriate scientific and innovation skills; appropriate patenting, licensing and spin off arrangements to be in place; and for the private sector to play appropriate roles in the science and innovation system.
- Maintaining adequate funding to sustain the economy's science base, so individual economies can play a role in wider science and innovation systems.

- Ensuring an adequate supply of appropriately skilled science and innovation personnel to maintain the basic sciences, work in multidisciplinary teams, and effectively manage science and innovation processes.
- Ensuring that science and innovation optimise their contributions to sustainable growth through the public and private sectors playing appropriate roles.

APEC Ministers responsible for other sectors, such as human resources, small and medium enterprises and energy, should be aware of our decisions and where our respective working groups should coordinate their activities in order to make the most efficient use of APEC resources.

Sustainability

The concept of sustainable growth is very broad, and extends well beyond the responsibilities of science portfolios and of ISTWG. However, we are well aware that science and technology will play a pivotal role in APEC's ability to deliver sustainable growth. Science Ministers requested that ISTWG promote S&T cooperation for sustainable growth.

To ensure sustainability issues are taken into account in a wider context, we attach a number of recommendations to the 16th APEC Ministerial Meeting in November 2004.

Developing a programme of work

Ministers ask ISTWG to base its future work programme on a limited number of principles, which should include critical mass and prioritisation. Policy work differs in character from research projects, on which ISTWG has tended to concentrate in the past. The benefits from policy work depend upon a sufficient number of economies participating. ISTWG needs to ensure that the planned work programme does not exceed available resources.

Human capacity building

For S&T to fulfil its part in delivering sustainable growth to APEC economies, effective human capacity building policies must be developed and implemented, to make sure the right range of skills is in place.

We underscored the need to ensure the workforce within APEC economies is equipped to meet the scientific and technological needs of today and the challenges of the future, and that it draws on the widest pool of talent, now and in the future.

To this end we discussed some specific challenges, including: the importance of facilitating mobility of research skills; identifying future skill sets required for science & technology; obtaining necessary information to guide study and career choices; the public image and perception of science and technology; the strengthening of education in science, mathematics, and engineering for all segments of the population; recruiting and retaining sufficient people with research and scientific skills; facilitating the active participation of women and other under-represented groups in the S&T workforce; encouraging lifelong learning; and the need for researchers to achieve a shared vision with society over the ethical aspects and value of their work.

Ministers appreciated the opportunity to interact with a group of young students and scientists on the factors that encouraged people to study and work in S&T.

We also acknowledge the importance, for democratic governance, of a public that is informed on scientific and technical issues. Ministers endorsed cooperation across the APEC region in scientific and technological research and education.

Ministers agreed that human capacity building is a top priority for economies as they become increasingly reliant on knowledge-based industries, and as more traditional industries become knowledge-intensive. To facilitate consideration of specific initiatives, we ask ISTWG as an initial step to assemble sufficient data to allow a thorough analysis and evaluation of the current situation across the APEC region.

As Science Ministers we are pleased to note that the APEC Education Ministers, meeting in April 2004, will consider issues arising in science and technology education. We commend this

communiqué to them and invite them to inform us of the outcomes of that meeting.

Connecting research and innovation

Economies need to have in place policies which facilitate the efficient operation of national science and innovation systems.

We discussed the role which government policies can play in fostering research and development, the importance of public/private partnerships in managing the convergence of science and innovation, and APEC mechanisms which could help build research-based partnerships that serve the innovation needs of economies.

The blurring of boundaries between basic and applied research, and the importance of efficient interaction between science and industry as a driving factor behind the performance of innovation systems increase the need for interdisciplinary approaches and collaboration among key players.

Ministers reaffirmed the high priority of investment in fundamental research as an engine for technological innovation and economic growth.

International S&T networks

Networking is increasingly important because of the increasing complexity, cost and speed of science and innovation. At the same time, advances in information and communications technology (though not yet available evenly throughout the APEC region) are making effective networking increasingly possible.

The rapidly increasing pace of technological change and the convergence of technologies and disciplines were reflected in our discussions on:

- the most appropriate role for governments in facilitating the establishment and operation of successful international S&T networks;
- factors that are needed to successfully establish and operate international S&T networks;
- ways in which economies can identify areas of science where the maximum mutual benefit would result from the establishment of international S&T networks.

Ministers noted the important role modern communications technologies can play in facilitating more effective international networking in S&T, and in this context affirmed the critical role of the APEC Science and Technology website (ASTWeb), and the need for ISTWG to ensure it operates effectively.

Strengthening Technological Cooperation and Encouraging Best Practice in Strategic Planning

Noting that many of today's major technological challenges create inter-dependence among innovation systems within the APEC region, and the need for clear directions towards delivering sustainable growth, we discussed ways in which policy decisions can best be informed by strategic intelligence and planning. Many of these require a critical mass of expertise, credible foresighting techniques, and access to sophisticated equipment and resources which cross traditional disciplines.

Establishing mechanisms for multilateral cooperation and leveraging the APEC project knowledge base should enable a more effective identification of the opportunities to address high priority S&T issues in the region.

Ministers acknowledged that the APEC Center for Technology Foresight provides a vehicle to assist with progress towards refining and developing strategic intelligence and planning tools.

**Ministerial Forum of Science and Technology
China Hi-Tech Fair
Shenzhen, China, 2003**

DECLARATION

We, Ministers of Science and Technology of different countries, attending the “Ministerial Forum of Science and Technology” of the China Hi-tech Fair 2003 in the new modern city of Shenzhen in China, a country with long and rich history, are committed to promoting mutually beneficial international exchange and cooperation in science and technology on a more extensive basis.

The China Hi-Tech Fair (CHTF) has been held every autumn in Shenzhen since 1999. The CHTF showcases the Chinese hi-tech sector and provides an opportunity for the world to witness the development in high and new technologies in China. This makes it an important venue for science and technology exchanges and for enhancing cooperation in science and technology between different countries in the world.

It is our common belief that the convening of the “Ministerial Forum of Science and Technology” during the CHTF and making it a regular part of the CHTF programme is a positive step towards enhancing the prospects for fostering mutually beneficial international exchange and cooperation in science and technology. We have therefore agreed after discussion to recommend that a “Ministerial Forum of Science and Technology” be held in Shenzhen every year during the CHTF to discuss the international trends of development in science and technology and exchange views on different countries’ policies of science and technology so as to promote cooperation and exchange among countries in this field. We are confident that it will become a valuable forum for governments, business organizations, science and technology circles and non-governmental organizations.

Let us push forward international development in science and technology with innovative thinking. And let us join hands in building an even brighter future for mankind with advanced science and technology.

Mr. Ma Songde, Vice Minister of Ministry of Science and Technology, P.R.China

Prof. Dr. Mofid Shehab, Minister of Higher Education and of State for Scientific Research, Egypt

Lord Sainsbury, Minister for Science and Innovation, U.K.

Mr. Andrey S. Koulagin, Deputy Minister of the Ministry of Industry, Science and Technologies of the Russian Federation

ORGANIZATION OF AMERICAN STATES**First Hemispheric Meeting of Ministers and High Authorities of Science and Technology of the Americas on Science and Technology****Lima, Peru, 11-12 November 2004****DECLARATION OF LIMA**

We, the Ministers and High Authorities of Science and Technology attending the First Meeting of Ministers and High Authorities of Science and Technology Within the Framework of the Inter-American Council for Integral Development (CIDI) of the Organization of American States (OAS), in Lima, Peru, on November 11-12, 2004, for the purpose of giving due importance to the incorporation of science, technology, engineering, innovation and education as major driving forces behind the economic and social development of the countries of the Hemisphere and hearing in mind the cooperation principles set forth in the Charter of the Organization of American States and the actions which to this end were mandated by the Summits of the Americas, including the Summits of Punta del Este in 1967, Miami in 1994, Santiago in 1998, Québec in 2001, and Monterrey in 2004,

CONSIDER:

1. That science, technology, engineering, innovation, and education are fundamental to promote the integral development of the countries of the Americas, which encompass the economic, social, educational, cultural, scientific, and technological fields, as well as job creation to combat poverty, in the framework of protection of the quality of the environment and integration of the gender perspective in policies and to strengthen democracy.
2. That hemispheric cooperation is a fundamental instrument to address the needs of each country for building human and institutional capacity and infra-structure for scientific and technological research.
3. That support for hemispheric initiatives in science, technology, engineering, innovation and education of common interest to the member States promotes solidarity and cooperation between each other and contributes to the exchange of information on successful practices and experiences.
4. That given the wide disparity in science, technology, engineering, innovation and education among the different countries of the Americas, it is critical to support those less developed in these areas, in order to promote their democratic integral development.
5. That the Strategic Plan for Partnership for Development 2002-2005 of CIDI, where scientific capacity building and the exchange of technologies are priority areas of action, identifies that "the struggle against poverty is a common and shared responsibility of the member states, and are essential factors in promoting and consolidating democracy. Furthermore, the need to achieve integral, just and sustainable social and economic development continues to pose a challenge for the Hemisphere."
6. That the Inter-American Science and Technology Program (PRICYT) is a mechanism aimed at facilitating the formulation of development initiatives based on science and technology in the framework of CIDI.
7. That it is of the utmost importance to link these efforts with those of the Summits of the Americas, especially the one that will take place in 2005 in Argentina, which has as its theme the creation of employment to fight poverty and strengthen democratic governance,
8. That it is fundamental to promote the development of science, technology, engineering and innovation in cooperation and partnership with the private sector, particularly through the active use of information and communication technologies, as a means to significantly increase the level of investment in these areas.
9. That the value of the participation and contribution of civil society in the scientific and technological development and in innovation should be recognized.

WE DECLARE THAT WE WILL JOIN EFFORTS TO:

1. Promote the sustained growth of investment in science, technology, engineering, and innovation in our countries, which should be integrated into Our respective economic policies to achieve economic

and social well-being of the nations, including the participation of both the public and private sectors to strengthen the productive sector and basic services to improve the quality of life of our peoples, all within the framework of domestic sustainable development, taking into account the principles of solidarity, shared responsibility and cooperation.

2. Endeavour that all member states establish effective national policies in science, technology, engineering and innovation, which are clearly integrated with economic and social policies, by the year 2007.

3. Work towards the wide acceptance and recognition of the fundamental importance of incorporating science, technology, engineering, and innovation in Our nations as leading elements of their social and economic development strategy; integrate and promote them in national and regional strategic development plans for the fundamental purpose of reducing poverty in the hemisphere.

4. Support the establishment of national innovation systems oriented towards the productive sector, both public and private, to improve their competitiveness through the use of science and technology and of qualified human resources that promote the generation and dissemination of technological innovation, aiming for the integral development of our countries.

5. Foster the expansion of human, institutional capacities and infrastructure to undertake scientific and technological research in a framework of environmental protection, gender equity and equality, and openness to the inter-relation between the public and private sectors.

6. Strive to narrow the gap in scientific, technologic, engineering and innovative capacities among the different countries of the Americas, by supporting those less developed in these areas, through increased cooperation in, inter alia, capacity building, technology transfer, research and education.

7. Promote the harmonization and coordination of science, technology, engineering, and innovation programs implemented by various bilateral and multilateral organizations in order to achieve the best results in applying available resources.

8. Facilitate the greatest interaction possible between scientific and technologies research communities by fostering the establishment and consolidation of advanced research networks and synergy among educational institutions, research centers, the public and private sectors, and civil society.

9. Promote applications of science, technology, engineering, and innovation as a means to increase social inclusion, especially of the most vulnerable groups; reduce poverty; and consolidate democracy in the countries other region.

10. Encourage the social science approach for an understanding and assimilation of scientific and technological development in society, promoting a strong interaction between the natural and social sciences.

11. Support the creation at the OAS of a program of information and services that supports science and technology (science and technology indicator networks, geographic information systems, scientific databases) as a tool to formulate regional and national policies and programs and monitor and insure their social and economic impacts and their permanent dissemination.

12. Enhance science education, both formal and non formal, to encourage the incorporation of the entire population, and especially young people, into science, technology, engineering, and innovation activities aimed at promoting the economic and social development of the Americas, with the ultimate end of promoting scientific vocations and the public understanding of science.

13. Foster integral education, which includes continuing education for the adult population and emphasizes computer literacy, aimed at developing a labour force for the twenty-first century skilled in information and communication technologies.

14. Encourage the participation of all stakeholders in policy decision making on matters of science, technology, engineering, and innovation.

15. Implement the Lima Plan of Action and support the hemispheric initiatives in science, technology, engineering, innovation and education of common interest to the Member States as well as other initiatives conceived in bilateral and multilateral level within the region, with special consideration for those countries where their implementation would have the most impact and contribute to their development

16. Convene annual meetings of science, technology, engineering and innovation commissions to follow up on this Declaration of Lima and its Plan of Action and disseminate their national and hemispheric results and experiences.

**ALCUE Ministerial Conference on Scientific and Technological Cooperation,
Brasilia, Brazil, 21- 22 March 2002**

THE BRASILIA STATEMENT

The ALCUE Ministerial Conference on Scientific and Technological Cooperation, held in Brasilia on the 21st and 22nd March 2002, is a landmark in the long and in depth process of bi-regional dialogue, called for by the Heads of State and Government and the President of the European Commission at the Rio Summit in June 1999. It embodies the spirit of dialogue and partnership under which the two Regions have cooperated in Science and Technology in the past two decades. It also constitutes a firm foundation upon which our two regions will develop together in the knowledge- based society.

The Ministers, Heads of Delegations and the European Commission representatives recognize that as economic globalisation progresses, the importance of human, institutional and knowledge capital assets in promoting sustainable and equitable development becomes increasingly critical.

They are also fully aware that the ongoing bi-regional dialogue is a major contribution for the inclusion of all partners in building a knowledge- based world. In this context, they agree upon a **Shared Vision** on the societal role of Research and Technological Development (RTD), appended to this Statement, which focuses, among other things, upon:

- · S&T Cooperation between LA&C and the EU as the expression of political will in the two regions.
- · A cooperation process driven by key societal objectives supported by a continuing bi-regional dialogue, which is anchored on the *Programme and Political Declaration of the Rio Summit*
- · A cooperation between the EU and LA&C directed at bringing the two regions' knowledge, learning and innovation systems closer together, capitalising on existing relations based on shared cultural and historical foundations and on increasing economic links.
- · S&T cooperation which fosters scientific research, science-industry links and innovation, targeting well-defined thematic priorities of mutual interest which are directly relevant to society.

The Conference also adopted the following four-purpose approach in order to implement the **Shared Vision**

a) To endeavour to create a specific space for ALCUE's S&T Cooperation and to enhance its visibility in the RTD communities of both regions;

b) To establish effective instruments for the coordination of bi-regional S&T Cooperation in the following specific domains:

- *Health and Quality of Life*
- *Information Society*
- *Competitive growth in the Global Environment*
- *Sustainable Development and Urbanization; and*
- *Cultural Heritage*

In addition, certain cross-cutting areas are considered as priority themes for such cooperation, with emphasis on:

- Establishing and strengthening innovation capacities in the abovementioned specific domains; and
- Education and training of human resources, including transnational and intersectoral mobility.

c) To jointly develop a common approach to identify priorities for S&T Cooperation in the medium and long-term and also to identify procedures that ensures mutually beneficial management, financing, monitoring and evaluation of the agreed cooperation activities.

d) To organise a facilitating and coordinating entity to promote synergistic articulation of S&T Cooperation with other bi-regional initiatives. [HYPERLINK](#)

In order to achieve these goals, the Conference adopted a **Plan of Action** also appended to this Statement, with the following elements:

- · ALCUE's S&T Cooperation shall be implemented through the mobilization of all necessary and relevant national and regional resources, through the active involvement of public and private bilateral and bi-regional channels.
 - · Cooperative activities in the priority domains shall be carried out by using effective existing instruments, as well as by developing synergies between them.
 - · New bi-regional mechanisms shall be defined and developed in the near future:
- For cooperation in innovation to provide and to amplify the impact of existing bilateral initiatives. Cooperation on these issues is a privileged area for bi-regional cooperation on account of its linkage with economic cooperation and good governance. All ALCUE partners must consider the possibility of supporting instruments for interfacing producers and users of knowledge with high societal relevance.
 - For the support of trans-regional networks of centres of excellence involving national scientific, academic and technological institutions, all ALCUE partners should emphasise student and researcher mobility, both for research and advanced training.

To strengthen the ALCUE dialogue at policy level, the Conference decided to set up a working group to address key issues identified in the Plan of Action and to propose options for action by the end of 2002.

The participants in the Brasilia Ministerial Conference appreciate the decision taken in the Barcelona European Council to approach 3% of GDP devoted to RTD by the year 2010. They express their hope that a parallel effort be implemented in Latin American and Caribbean countries to give the highest priority to S & T policy and increase significantly the resources devoted to RTD.

Therefore the participants in the Brasilia Ministerial Conference ask the Heads of State and Government gathered at the Madrid Summit to confirm the growing importance of S&T for the promotion of sustainable and equitable development, encompassing social, economic and environmental dimensions, and to give their full support to the intensification of S&T cooperation between the two Regions as described in this Statement.

Brasilia, 22nd March 2002.

3rd ASEM Science and Technology Ministers' Meeting

Beijing, China, 14-15 October 1999

MINISTERIAL COMMUNIQUÉ (As of Oct. 15, 1999)

1. Following the recommendation of the Second Asia-Europe Meeting (ASEM 2) held in London in 1998 to promote greater cooperation between ASEM partners in the field of science and technology, and acting upon a Chinese initiative, Ministers or their representatives responsible for science and technology from the ten Asian and the fifteen European countries of ASEM, namely, Austria, Belgium, Brunei Darussalam, China, Denmark, Finland, France, Germany, Greece, Indonesia, Ireland, Italy, Japan, Korea (Republic of), Luxembourg, Malaysia, the Netherlands, the Philippines, Portugal, Singapore, Spain, Sweden, Thailand, United Kingdom and Viet Nam, with representatives from the European Commission responsible for research, have met in Beijing on 14 and 15 October 1999 for the ASEM Science and Technology Ministers' Meeting on "ASEM Science and Technology cooperation in the 21st Century". The list of heads of delegations is attached at Annex I.
2. In pursuit of the ASEM objective to create a strengthened partnership between Asia and Europe, conducted on the basis of equal partnership, mutual respect, mutual benefit and increased synergies, Ministers emphasise the importance of the science and technology cooperation between the two continents, taking into account the richness of their history and civilisation and the diversity of their cultures and languages.
3. Within the Asia - Europe Cooperation Framework adopted at ASEM 2 in London in 1998, Ministers identify the following principles for ASEM S&T cooperation:
 - Cooperation should be conducted on an equal and voluntary basis, with equal opportunities rendered to all ASEM members to join in regional S&T programmes;
 - Cooperation should aim at common development, with due consideration to different interests of participating countries;
 - Policy dialogue on S&T cooperation should be conducted in a timely manner among S&T policy makers and leading officials in the two continents.
4. The Ministers emphasise that a favourable research and technological environment for equitable and sustainable development and for economic cooperation entails the full participation of the relevant sectors of society of ASEM partners. They recognise that availability of and access to information is a major tool of science and technology cooperation, as well as the need to invest significantly in human, cultural and institutional capital.
5. The Ministers encourage complementary and collaborative public and private business sector investments, especially with small and medium-sized enterprises. They emphasise the importance of providing effective protection of intellectual property rights in line with the relevant international conventions.
6. Ministers encourage initiatives to promote Asia-Europe S&T cooperation, including the transfer of knowledge and technologies targeted at solutions to economic and social problems with clear trans-boundary and inter-regional added value.
7. The Ministers identify a number of areas of potential cooperation development where they have common interests and priorities:
 - Broad issues, including basic science, joint utilization of large-scale scientific facilities, knowledge transfer from research institutions/universities to industry and S&T human resource development;
 - Agricultural S&T issues, including forestry, water management, agro-technology and agro-industry;
 - Environmental protection issues, including sustainable cities, sustainable and clean production technologies, sustainable development of ecosystems and cultural heritage; and
 - Upgrading of technical and research capabilities of enterprises.

8. Furthermore, bearing in mind the need to reinforce and to monitor S&T cooperation between Asia and Europe, and in accordance with the general understanding among ASEM partners that ASEM need not be institutionalized, Ministers welcome efforts by groups of ASEM partners to establish task forces to coordinate individual activities in the thematic priority areas to facilitate discussion among relevant ASEM partners.
9. They also recognize the importance of general coordination and exchange of information being assured by S&T contacts in each partner country, in accordance with the process established in the Asia-Europe Cooperation Framework.
10. Ministers encourage relevant S&T senior officials from ASEM partners, in accordance with the ASEM process:
 - to develop appropriate mechanisms for information and effective collaboration;
 - to monitor and document the progress of ongoing activities;
 - to identify and prepare new ones, if needed; and
 - to strategically assess the opportunities for S&T cooperation and report on the outcome of this ASEM Science and Technology Ministers' Meeting to ASEM 3 to be held in Seoul in 2000, with a report on subsequent cooperation activities to be delivered via the ASEM SOM to ASEM 4 in 2002.

**Meeting of the Ministers Responsible for Science and Technology of BSEC
(Organisation of the Black Sea Economic Cooperation) Member States**

Athens, Greece, 28 September 2005

DECLARATION

We, the Ministers responsible for Science and Technology of the Organisation of the Black Sea Economic Cooperation (BSEC) Member States – the Republic of Albania, the Republic of Armenia, the Republic of Azerbaijan, the Republic of Bulgaria, Georgia, the Hellenic Republic, the Republic of Moldova, Romania, the Russian Federation, Serbia and Montenegro, the Republic of Turkey, and Ukraine – met in Athens on 28 September 2005 to discuss opportunities for closer cooperation in the fields of scientific research and technological development and to formulate an agreed Action Plan at a regional level.

Recognising the importance of cooperative action in a regional framework to respond to the challenges of globalisation, increasing interdependence and the aims of sustainable and equitable development and to enhance the competitive performance of the BSEC Member States and of the region as a whole, consistent with the vision and goals of the BSEC *Economic Agenda for the Future*;

Acknowledging the ability of our countries to create, disseminate and utilise scientific and technical knowledge in order to secure steady economic growth, greater competitive power, larger employment opportunities and improved quality of life in accordance with the principles of sustainable development;

Emphasising the remarkable creative potential that exists in the BSEC Member States for the further advancement of science and technology and *being determined* to leverage that potential through thriving regional cooperation;

Guided by the Millennium Development Goals and taking into consideration the deliberations on that subject as well as the specific agreements and programmes in the field of science and technology developed under the aegis of the EU, UN and OSCE;

declare our commitment:

To strengthen regional cooperation in the fields of scientific research and technological development as a major driving force of dynamic and sustainable economic growth and prosperity for the peoples of the region;

To pursue an inclusive and comprehensive concept of collaboration in all fields of scientific endeavour, from earth, natural and life sciences to social sciences and humanities, while seeking to achieve a proper balance between fundamental, experimental and applied research;

To initiate agreed policies directed toward better utilisation of the existing human and material resources, research infrastructure and administrative capacities through improved access to knowledge, training activities and research programmes, enhanced cross-border mobility of scientists and regular exchanges of information and publications, bilateral and regional networking, attachments, fellowships and joint scientific events;

To develop an appropriate legal and regulatory environment at a national level, including competition rules and protection of intellectual property, in a manner that is likely to ensure mutual compatibility and to promote regional cooperation, while being consistent with accepted international and European standards and procedures;

To seek innovative ways for combining allocated public expenditure on research and development with private investment, including public-private partnerships for funding specific projects involving cross-border or region-wide cooperation and for disseminating relevant information about procedures

for accessing other available financial resources (EU and UN programmes, IFIs, specialised foundations, etc);

To promote a dynamic dialogue among stakeholders in the science and technology community – research organisations, industry, user groups – in order to ensure their cost-effective and result-oriented interaction for the purpose of converting scientific discoveries into innovative, commercially viable products and processes;

To encourage the development of safe and environment-friendly technologies, products and processes, with due regard to economically sustainable use of natural and energy resources;

To foster convergent approaches on ethical questions related to the progress of scientific and technological knowledge;

To facilitate closer cooperation in the fields of science and technology with other partners and international organisations and to encourage co-funding schemes in order to formulate and implement regional research projects and to generate new synergies, in particular with the activities carried out under EU programmes and initiatives;

To consider the elaboration of legally binding documents, at bilateral and multilateral level, stipulating the procedures for the joint activities to be undertaken and the resources required to achieve specific agreed scientific and technological objectives;

and therefore,

Approve the *BSEC Action Plan on Cooperation in Science and Technology* as a means of achieving the goals set forth in this Declaration and as a practical expression of our renewed commitment to regional cooperation in the fields of science and technology;

Agree to convene a mid-term meeting of the Ministers responsible for Science and Technology of the BSEC Member States to review progress in the implementation of the approved Action Plan and to chart the way forward;

Welcome all other initiatives in the sphere of science, technology and innovation that are consistent with the broader BSEC cooperative agenda;

Express our gratitude to the Government of the Hellenic Republic for having taken the initiative for this Meeting and the Moldovan Chairmanship-in-Office, Ukraine as the Country Coordinator of the Working Group on Science and Technology, the BSEC PERMIS, the International Centre for Black Sea Studies and the European Commission for their contribution to the success of this Meeting.

**Meeting of Ministers Responsible for Research, Science and Technology
in the African, Caribbean and Pacific States**

Cape Town, South Africa, 28 July 2002

**CAPE TOWN DECLARATION
ON RESEARCH FOR SUSTAINABLE DEVELOPMENT**

We, Ministers responsible for Research, Science and Technology in the African, Caribbean and Pacific (ACP) Group of States meeting in Cape Town, South Africa on 28 July 2002, at a Forum devoted to address priority issues of Research for sustainable development, including the social, environmental, economic, cultural, and political aspects in ACP states:

A. Recalling the principles of the Georgetown Agreement, the ACP Vision for Sustainable Development, and the Nadi Declaration;

B. Recalling in the context of our unity and solidarity the commitments made, inter alia, in the UN Millennium Declaration, the Rio Declaration on Environment and Development, the Barbados Programme of Action for Small Island Developing States (SIDS), the Brussels Declaration on Least Developed Countries and the Monterrey Consensus;

C. Committing to undertake a critical review and assessment of the situation of sustainable development in ACP states, and to consider new ways and means whereby we, the political leaders in our states, can take the lead in promoting and strengthening appropriate policies and interventions in strategic areas for sustainable development;

D. Recognizing the multitude of economic, social, environmental, cultural and political impediments to sustainable development faced by ACP countries and concerned about the impoverishment that plagues the populations of our states;

E. Noting the vulnerable status of ACP countries in the global economy, and the need for enhanced development arrangements with developed countries to address the weak economic status of ACP states;

F. Acknowledging the essential role of scientific and technological research as a fundamental engine for sustainable development of our countries;

G. Emphasizing the need to intensify our efforts in implementing research activities and dissemination of knowledge, to address impediments to sustainable development, particularly in areas of human resource development, health, HIV/AIDS, environment, water and sanitation, energy and transport, agriculture, culture, globalization, trade and productivity;

H. Believing that ACP states will emerge as strong actors in the global economy when they embrace a unified and co-ordinated approach to development, and that regional integration, and cooperation of policy makers and research institutes and higher education institutions are important in addressing common developmental challenges;

I. Acknowledging the support that our development partners, including the European Union, the United Nations and its Specialised Agencies and Programmes, bilateral agencies, private sector and other organizations, have provided in the generation of knowledge, human and social development, and institutional capacity;

J. Stressing the need to allocate and disburse on a timely basis sufficient funds for research activities and capacities through the use of national and regional resources, and within the context of, inter alia, the 9th EDF and the EU 6th Framework Programme;

K. Reaffirming our commitments in all relevant declarations, resolutions, partnership agreements and arrangements aimed at encouraging research for sustainable development in ACP States, particularly the Coonou Agreement;

L. Conscious of the role of researchers and the State in promoting good governance and socio-political reform leading to sustainable development;

M. Recognizing that researchers require partnerships with non-state actors and the private sector for demand-led research committed to the production of knowledge that can address all aspects of sustainable development;

WE HEREBY DECLARE AS FOLLOWS:

1. **We commit** ourselves to political leadership leading to policies that **place research** at the forefront of development and the effective integration of research into national development plans in order to accelerate the achievement of sustainable development.
2. **We emphasize** the need for Science and Technology (S&T) policies and plans that lead to sustainable development and the reduction of poverty through effective policy dialogue.
3. **We undertake** to pursue all necessary measures to ensure that the needed resources to promote research, development, technology diffusion and innovation are made available. We pledge to progressively increase current budgetary allocations and to achieve a minimum investment of 1 per cent of GDP per annum within a period of 10 years.
4. **We commit** ourselves to the promotion, popularization and utilization of science and technology.
5. **We undertake** to create support and strengthen Centers and Networks of Excellence and promote the sharing of facilities and expertise among our countries to build training and research capacity.
6. **We reaffirm** our commitment to science particularly mathematics and technology education as one of the essential foundations for human and economic development.
7. **We acknowledge** the critical role of technical and vocational training for all the ACP States and commit ourselves to its promotion in the achievement of sustainable development.
8. **We undertake to support research linked to health and nutrition, including bio-medical research.** We also commit ourselves to promote and support research in traditional and alternative medicine.
9. **We commit** ourselves to supporting research efforts that enhance and facilitate the promotion and establishment of sound energy and environmental management policies and practices.
10. **We further** commit ourselves to research that will strengthen and enhance food security for populations in the ACP States.
11. **We acknowledge** the importance of emerging and intermediate technologies including, inter alia, information and communications technologies and biotechnology in creating opportunities to address the burden of poverty.
12. **We undertake** to conceive and support research programmes including industrial research, value addition and support for small and medium enterprises and entrepreneurs to strengthen our States capacity to participate effectively in the global economy while encouraging the protection of our intellectual property rights and indigenous knowledge and the preservation of biodiversity in the ACP States.
13. **We call upon** development partners to complement our national and regional resource mobilization efforts by contributing to the generation and utilization of knowledge required to address the impediments to science and technology as a means to sustainable development.
14. **We further reaffirm** the importance of social research with a view to appreciating all dimensions of social development.
15. **We pledge** to implement and support all programmes promoting gender equality recognizing the importance of programmes to correct historical imbalances and paying particular attention to access to Science and Technology education and careers.
16. **We pledge** to advocate and support at the national, regional and international levels the Cape Town Declaration on Research for Sustainable Development and the Plan of Action.
17. **We ask** the ACP States, ACP General Secretariat, and the joint ACPEU institutions in collaboration with all relevant national, regional and multilateral development partners and finance institutions to support, participate in, and monitor the implementation of the Cape Town Plan of Action.

**Round Table of Ministers of Science on
Rebuilding Scientific Cooperation in South East Europe**

UNESCO, Headquarters, Paris, France, 24 October 2001

FINAL COMMUNIQUÉ

The Ministerial Round Table on Rebuilding Scientific Cooperation in South East Europe agrees that, by its very nature, science transcends political borders and geography, acting as a catalyst for shared intellectual endeavours among national communities. The Round Table believes, however, that the political conditions prevailing on the European continent up to 1989, and the open conflicts which later disrupted the political and social texture of the Balkans have affected scientific exchanges in this region so adversely that a re-launching of scientific cooperation in the area can hardly be expected without special effort. Such effort should encompass all Governments concerned on the basis of a mutually acceptable approach. The Round Table shares the view that rebuilding scientific cooperation in South-eastern Europe is a key element for consolidating stability in the area. In this respect, it is commonly accepted that projects in social sciences and human sciences should also be supported.

The Round Table of Ministers expresses its thanks and appreciation to UNESCO, and its Regional Bureau in Venice (ROSTE) in particular, for taking the initiative of convening this Round Table. They have found very useful the work done by the Venice Conference of Experts (24-27 March 2001) on the "Reconstruction of Scientific Cooperation in South East Europe", and have considered with interest the recommendations made by the *ad hoc* UNESCO-ROSTE/ Academia Europaea/ European Science Foundation Task Force. On that basis they recognize the need for:

- reducing the brain drain by a general consolidation of national science and technology systems;
- establishing appropriate training fellowships and exchange grants of scientists and professors;
- facilitating networking of research institutes and universities;
- up-grading and strengthening research infrastructures;
- promoting renewed cooperation in social and human sciences;
- launching collaborative projects in some strategic fields.

The Round Table of Ministers recognized that, in order to promote scientific cooperation in South East Europe, specific measures should be enacted with a view to:

1. mobilizing resources for equipment and research grants for scientists who have made successful careers abroad and wish to return to their home countries;
2. promoting exchanges of young scientists, visiting professors, research workers, engineers and technicians within the region and between the countries of the region and the rest of Europe;
3. developing electronic networks among research institutes and universities in South-eastern European countries with the appropriate connections to the main scientific and academic institutions in EU and CEE countries;
4. up-grading of the existing National Research and Education Networks (NRENs) in order to make them compatible among them and with the pan-European networks;
5. encouraging and supporting communication services, such as specific computing facilities, digitizing of data and information, and electronic publishing;
6. facilitating the networking of existing research infrastructures and building up new facilities at the interregional level, in particular medium size infrastructures;
7. encouraging research collaborative projects in the life sciences, agriculture, environmental sciences, computer science and information technologies, materials science, civil engineering and sustainable development, as well as in social and human sciences, as means for solving important regional problems, revitalizing regional research capacities and stabilizing human resources.

The participants deem that these measures should be funded on the basis of cost-sharing among the countries directly concerned, as well as with the support of external donors.

The Ministerial Round Table invites UNESCO and its Regional Office for Science for Europe (ROSTE) to continue to promote cooperation in the area along the above-mentioned lines and explore the conditions for a donors' conference.

Ministerial Round Table

The Basic Sciences: The Science Lever for Development

UNESCO, Headquarters, Paris, France, 13 -14 October 2005

COMMUNIQUÉ

Preamble

We, the Ministers with responsibility for science participating or represented at the Round Table on "The Basic Sciences: Science Lever for Development" held on 13 and 14 October 2005 during the 33rd Session of the UNESCO General Conference, arrived at the following common positions:

General context

1. Basic sciences have a primary role in the pursuit of knowledge that leads to the improvement of the human condition, the pursuit of sustainable development and, in general, the advancement of civilization.
2. Addressing major challenges such as poverty, environmental degradation, climate change, existing and newly emerging diseases, natural disasters and energy needs, requires new knowledge provided by the basic sciences.
3. Basic scientific knowledge forms the stable foundation on which all current and future technologies stand. However, the emerging relationship between the basic and applied sciences and technology is complex and non-sequential.
4. Scientific knowledge must be a common heritage of humankind. Science is a vehicle for global cooperation; scientific research is an activity to be shared by all. The basic sciences know no borders, but should respect social and cultural contexts.
5. An ethical dimension to the practice of science is essential.
6. In the governmental decision-making process, scientific information, data and expertise in the area concerned should be duly taken into account.

Education in science

7. Effective pursuit of the basic sciences ultimately depends upon science education that inspires students at all levels – pre-primary, primary, secondary and tertiary – as well as in the informal and non-formal environments.
8. Greater emphasis should be given to science education as an integral part of capacity building, in particular quality assurance, the sharing of human resources (researchers and science educators), and more flexible, broad-based PhD programmes.
9. Innovative means should be developed in order to allow young people to appreciate the value, creativity, challenges and excitement of science, to become positive players, as concerned citizens, in the advancement of human development.
10. Science should be de-mystified and popularised at all levels.
11. There is a symbiotic relationship between scientific research and higher education that should be fostered.
12. Universities and research institutes are the pivotal institutions in securing the development of the basic sciences; they provide main human resources, serve as generators of ideas and concentrate much of the crucial infrastructure.
13. There is a need for well-organized, non-formal education programmes for the popularization of science in the community; the public media and the universities can play an important role.

Capacity building

14. An essential way to achieve the development goals agreed by Member States in the Millennium Declaration is through the effective application of science and technology. The international community should give greater attention to capacity building in basic sciences as the platform for knowledge-based development.
15. ICT capacities should be enhanced as enablers of global inclusion and equality of participation in science and technology; hence ICTs should be used for bridging the digital divide, enabling distance learning, electronic access to scientific textbooks and journals, creating new contents with added value, and providing the means for a quantum leap forward in socio-economic development.
16. Capacity building should be enhanced through the sharing of best practices.
17. International support for capacity building, education, teacher training, research and innovation in the basic sciences should be promoted.
18. Least developed countries, and countries in post-disaster and post-conflict situations, especially those in Africa, should be assisted through flexible mechanisms for S&T development.
19. Investment in research areas of the basic sciences should be driven by national and regional priorities.
20. Promotion of science requires the establishment of incentives, opportunities and the appropriate environment.
21. There is need for the creation of an enabling environment to alleviate brain drain, foster cooperation and the mobility of academic staff, and make better use of diasporic researchers.
22. Gender parity and equal opportunity in the basic sciences should be promoted, including equal participation in science decision-making at all levels, and through the involvement of new capacities and talents.

Cooperation

23. Member States should seek to benefit from regional, interregional (North-South, South-South) and global transdisciplinary cooperation in the basic sciences. The basic sciences themselves would be enriched by such cooperation on global problems and socially relevant issues.
24. Public-private partnerships, and cooperation with civil society, including NGOs, should be promoted and enhanced in support of education, science, innovation and research.
25. A pivotal role should be played by regional centres and networks of excellence in advancing the knowledge, understanding and application of science, within the framework of regional and subregional structures.

Role of UNESCO

26. In the light of the above, we call upon UNESCO to consider the following:
 - (a) to place greater emphasis on promoting the basic sciences and science education with a view to the attainment of a science culture as a precursor of a knowledge-based society worldwide, through various means available at UNESCO, and in particular the recently launched flagship International Basic Sciences Programme (IBSP).
 - (b) to develop and promote a clear programme of action for youth and for gender parity.
 - (c) to emphasize science education as an integral part of capacity-building by developing model curricula in science for secondary and undergraduate teaching suited to the emerging knowledge economy.
 - (d) to strengthen existing UNESCO Chairs and centres of excellence in the basic sciences in both developed and developing countries, to foster networking between them for the benefit of developing countries, and to promote in this context cooperation with regional structures such as NEPAD in Africa.
 - (e) to assist the upgrading of higher education in developing countries through feasibility studies to transform academic institutions/universities into academic/research institutes, and vice versa.
 - (f) to seek stronger synergies between the basic sciences and higher education through intersectoral programmes.
 - (g) to assist in the formulation, implementation and mainstreaming of foresight, prioritization and science and technology policies in developing countries, and the establishment of innovation systems, bearing in mind the importance of S&T policies to facilitate national economic growth and development.
 - (h) to promote the mobility of teachers and researchers in science and technology, in particular from developing countries, and especially those from the diaspora.

- (i) to promote the training of scientists from developing countries to help them to negotiate with donors and other development partners.
- (j) to continue to promote an ethical dimension to the practice of science.
- (k) to play a proactive role in promoting an equitable access to scientific information and literature for scientists and researchers, particularly from developing countries.
- (l) to help to seek and foster partnership and coordination across the UN system, and with other international organizations.

High-Level Round Table Science and Innovation Policy in South Eastern Europe and in Slovenia

Ljubljana, Slovenia, 29 September 2006

FINAL COMMUNIQUÉ

Ministers and representatives responsible for science and for finance from South Eastern European countries and Slovenia met in Ljubljana, Slovenia, on 29 September 2006, at the invitation of UNESCO (Venice Office), the Slovenian Ministry of Higher Education, Science and Technology, and of the Austrian Science and Research Office in Ljubljana.

The High-Level Round Table was preceded by an International Conference 'Why Invest in Science in South Eastern Europe' in which theoretical issues and practical approaches regarding science and innovation management at international, regional and national levels were presented and discussed by distinguished experts, representatives of European and international institutions, as well as the private sector.

The participating Ministers and representatives acknowledged that:

1. Knowledge creation and diffusion are increasingly important for the enhancement of innovation, sustainable economic development, and social well-being; and increased investment in science, research and quality education is essential for achieving the Millennium Development Goals adopted by the UN Millennium Summit in 2000.
2. Based on their well-educated workforce, rich traditions in the promotion of science and technology, South Eastern European (SEE) countries possess the fundamental assets needed for building the process towards knowledge societies and for reaching regional sustainable development by placing science and technology (S&T) at the forefront of national and regional development policies.
3. Countries within the SEE region are at very different stages of development concerning the state of their economy, technology, and research and development (R&D), in particular with a view to reaching EU standards.
4. Although considerable improvement of R&D systems has been made in the last decade by some of the SEE countries, modernisation of science and innovation systems is still needed in others.
5. By its very nature, science transcends political borders and geography, acting as a catalyst for sharing intellectual endeavours among national communities; enhanced regional cooperation (in particular in scientific fields of common interest and the sharing of major research infrastructure) is therefore an important means for the reinforcement of both S&T capacities and cooperation among SEE countries.

The participants recognized that, in order to create sustainable development and social welfare within South Eastern Europe, specific measures are necessary at national level with a view to:

- continuing or initiating overdue development and enhancement of S&T policy and innovation systems by: a) improving the overall status of S&T in governmental policy priorities; b) creating the legislative and institutional framework to foster R&D with a particular emphasis on industrial demand for and business expenditures on R&D; c) fostering the modernization of R&D infrastructure;
- further supporting quality education, in particular higher education, and the development of universities as important nodes of emerging knowledge-based economies;
- continuing to foster research collaboration, scientific cooperation and technology development within and outside the SEE region;
- supporting further development of human resources also by attracting more women and youth and taking appropriate measures to reduce brain drain from science and research;
- raising awareness and public understanding of science;
- making extensive use of existing and new platforms for dialogue among decision-makers and society at large.

The participating Ministers and representatives called upon international organisations, in particular UNESCO and sister Organisations, funding agencies, as well as European institutions to:

6. support SEE countries in the development and the implementation of quality science, technology and innovation policies;

7. contribute to the training of decision-makers in STI policies, including foresight techniques to set priorities for funding and crafting of policies and to disseminate best practices in STI policy and management;
8. support actions to put STI at the top of the national/regional development agenda;
9. support SEE governments in improving the performance of administrative, legislative and financial infrastructure of STI systems, including the improvement of the access to information technology and networks, and to the pan-European Research Infrastructures.
10. support SEE governments in increasing intellectual property assets development and management, technology transfer, public-private partnerships to promote science-based innovation, and in the creation of science/technology parks;
11. create incentive programmes, supportive of fundamental, long-term research to ensure that universities and public laboratories can continue to explore knowledge frontiers on a broader front and remain reliable sources of objective scientific expertise;
12. promote greater regional and international cooperation in S&T as essential means to meet global challenges such as economic growth, social cohesion, improved health, sustainable development, enhanced safety and security, and to promote peace and dialogue in the region;
13. help to strengthen the potential and capabilities for full participation in ERA, FP7, CIP and the other European programmes (e.g. Eureka), seeking in particular increased participation of the business sector, mainly SMEs.
14. support the exchange of researchers, academics and students, overcoming visa problems, and encouraging mobility schemes between Western Balkan countries and the European Union Member States;
15. consider the idea of a permanent global Forum of Ministers of, or those responsible for, Science and Technology to be held on a regular basis under the auspices of UNESCO.