Science and Technology in the United Nations

An Account

A contribution to the commemoration of the 60th anniversary of the United Nations

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1. Introduction

The charter of the United Nations went into force on 24 October 1945 when 51 signatories had deposited their ratifications.

The charter itself made no specific reference to Science and Technology. It states in Article 1 that one of the UN purposes is *"to achieve international co-operation in solving international problems of an economic, social, cultural, or humanitarian character..."* Furthermore, in the attainment of these common ends the UN is meant to be *"a centre for harmonizing the actions of nations."*

To this effect, the UN General Assembly (Article 13) as well as the Economic and Social Council (ECOSOC) (Article 62) is *"initiating studies and makes recommendations for the purpose of...promoting international co-operation in the economic, social, cultural, educational, and health fields..."*. Science and Technology is seen as an integral part of these rather broad fields.

The history of the interaction between the United Nations and UNESCO on the field of Science and Technology is at the same time the history of the broader issue of multilateral efforts to introduce Science and Technology on the global agenda. It reflects also the numerous systematic efforts of the world's scientific community to have an impact on the priority setting of programmes in the intergovernmental system which are ultimately determined by representatives of governments, i.e. by officials from ministries in member states and by diplomats accredited to the headquarters of international agencies.

On the intergovernmental level, the creation of the League of Nations (SDN) in 1919 created a permanent platform for governments *inter alia* for the discussion of common problems in the field of science. In 1922 the Intellectual Co-operation Organisation, to a certain extent the predecessor of UNESCO, was created.

As already mentioned, the terms "Science" and "Technology" are not explicitly used in the Charter of the United Nations. Article 13 of the Charter refers only to 'international cooperation in the *economic, social, cultural, educational, and health fields'*. Article 57 referring to the relationship between the UN and the specialised agencies, adds to this listing of subjects the term *"related fields"* under which "Science and Technology" may find its place. Each of the Specialised Agencies of the United Nations system is dealing in one way or another with specific questions related to Science and Technology. However, with the exception of the United Nations Educational, <u>Scientific</u> and Cultural Organisation (UNESCO) none of the other Specialised Agencies refer in their names specifically to "Science" or to "Technology".

'The acronym UNESCO narrowly missed not having the "S" for science, because when plans were being laid for foundation of the organization …education was the main theme. The "S" was added only in November 1945 by the preparatory commission that met in London to create UNESCO. The change was made in response to pressure from scientist's groups, particularly in the United Kingdom'.[1] When presenting UNESCO's budget-programme for 1948 the Director-General, *Julian Huxley,* had this to say: *"Ce n'est ni une université mondiale, ni un centre mondial de recherche, ni une agence mondiale d'assistance. C'est une*

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[1] UNESCO: Why the "S"?, Paris 1985, p.5

organisation intergouvernementale dont l'objet est de contribuer à la paix et à la sécurité parmi les nations au moyen de l'éducation, de la science et de la culture. »[2]

These interpretations of the mandates of the UN and of UNESCO on the field of science and technology reveal quite some extent misunderstandings and may explain some of the tensions which have occurred from time to time between Paris and the other headquarters of agencies of the UN system on one side and between the UN headquarter in New York on the other side..

By and large, UN and UNESCO, both being intergovernmental organisations, have the same membership. And yet, the United Nations, if only by the composition of the Permanent Missions accredited to the UN, is much more 'politically' oriented, even the nationality of higher officials and their belonging to a given group of countries has a higher impact on their professional credibility than in the more technically oriented specialised agencies such as UNESCO.

UNESCO, on the other side, is proud to be the 'Intellectual Organisation' of the UN system, and to be 'the conscience' of the UN system. " *'UNESCO's general mission…is to promote the development of scientific knowledge, because it has an intrinsic value'…. 'UNESCO is,* in fact, the only *organisation in the UN system whose mandate includes* basic science.*'* "[3]

This singular role gives indeed UNESCO an important mandate which is not contested by any other agency. In the case of technology things are different. There is a strong field of agencies, such as ILO, UNIDO, UNCTAD, UNCTC as well as the World Bank and the Regional Development Banks, which have technology issues and technology policy as part of their work programmes. Unlike the time when the UN and most of the specialised agencies, including UNESCO, were created, 'Science' – though still has a value of its own – seems to have been gradually replaced by 'Technology' as a political factor in the North-South relations: "….*technology is a primary source of national power and diplomatic influence.*"[4] [5]

'Science', however, is increasingly regarded as a 'Global Good', and is seen as part of the common heritage of mankind.[6] UNESCO/ICSU at the World Science Conference in Budapest: "*Countries that have the necessary expertise should promote the sharing and transfer of knowledge*"[7]

As will be described below in more detail, the interaction between the UN and UNESCO was very close and went smoothly during the entire period during which UN-ACAST, the UN Advisory Committee on Science and Technology for Development, was the sole advisor on issues of Science and Technology to ECOSOC. At that time the role and competence of the specialised agencies on their field of competence was undisputed.

The years following the first UN World Conference on Science and Technology, a joint UN-system exercise, held in Geneva in 1963 (see chapter 3.3), have led, on request of ECOSOC to ACAST, to the preparations of an UN-system-wide comprehensive 'Master Plan', i.e. a

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[2] de Lacharrière, Guy, U.N.E.S.C.O., in: L'Huillier, Fernand, Les Institutions Internationales et Transnationales, Presses Universitaires de France, Paris 1961, p.159

[3] UNESCO, Why the "S"?, op.cit. p.7

[4] U.S. House of Representatives, Subcommittee on International Security and Scientific Affairs, Science, Technology, and Diplomacy in the Age of Interdependence, U.S. Government Printing Office, Washington D.C. 1976, p.94

[5] "…Without establishing a dichotomy between science and technology, it is evident that technology policy rather than science policy commands the attention of planners, policy formulaters, budget officers and decision makers in the great majority of countries…". UNESCO, Advisory Panel on Science, Technology and Society, "Science, Technology and Society: Interactions" (Working Document), 19-22 May 1981, p.37

[6] Stiglitz, Joseph, "Knowledge As a Global Public Good", 1999, in: Kaul, Inge et al. (editors), Global Public Goods – International Cooperation in the 21st Century, New York-Oxford 1979, p.312
  Science: Public Good or commercial commodity? in: UNESCO COURIER, No. 5/1999

[7] UNESCO/ICSU, World Science Conference, Science Agenda – Framework for Action, Budapest 1999

"programme of international co-operation in science and technology in which the developed and developing countries could join in a drive on problems of importance for the developing countries" (GA resolutions 1944 (XVIII) and 2318 (XXII) and ECOSOC resolutions 1083 (XXXIX) and 1155 (XLI).

In responding to this request, ACAST has presented in 1971 its "World Plan of Action for the Application of Science and Technology to Development"[8] The Plan had been prepared with the assistance of many organizations of the United Nations system, in particular with support from UNESCO (see chapter 3.2 below). But since the request was made to ACAST to prepare such a World Plan and its presentation in 1971 to ECOSOC, with the increasing bargaining power of the 'Group of 77', which traces its roots way back to the first session of UNCTAD in 1964, the political climate at the UN has fundamentally changed.[9]

It was felt by the majority of UN member states, i.e. by the 'Group of 77', that the issue of Science and Technology should not be left anymore to the initiative of a rather independent expert body, such as ACAST, which had the prerogative of reporting directly to ECOSOC to provide policy advice and to make recommendations. Therefore, in the same year, i.e.1971, an intergovernmental Committee, the "Committee for Science and Technology on Development (CSTD)", a sub-Committee of ECOSOC, was created. ACAST places originally great hopes in the establishment of CSTD. Previously the Council had found some difficulty in dealing with questions relating to Science and Technology. It was hoped, though in vain, that the CSTD would include more delegates qualified to form a judgement on these questions and, that being composed of government representatives, it would be able to assist the Council to reach, more readily, decisions on ACAST's proposals for action.

CSTD has decided not to follow suit to the proposed 'World Plan'. The World Plan of Action, carefully prepared during almost five years by UN-ACAST in close cooperation with the specialised agencies, was shelved.[10]

Instead, with special reference to the "Declaration and the Programme of Action on the Establishment of a New International Economic Order" (GA resolutions 3201 and 3202 of 1st May 1974), it was decided that a special intergovernmental conference should be convened, allowing all member states, in particular the developing countries, to elaborate on the main objectives of the North-South cooperation on Science and Technology for Development.(ECOSOC resolution 2028 (LXI). ACAST – in cooperation with the specialised agencies - has prepared a considered statement of its views on the nature, purpose and organisation of the conference (E/C.8/WG.1/4). ACAST supported strongly the need to involve governments, the specialised agencies and representatives of the scientific community in the preparations for this conference.

When, in January 1977, the Secretary-General for the UN Conference on Science and Technology for Development (UNCSTD), was appointed, he made it clear from the outset that a new spirit – away from expert advice and from agency expertise – would govern the UNCSTD preparations:

"We must avoid bypassing Governments "from above" ("great international technological decisions", "extra-national organizations", unappealable judgements of wise men or magicians, international bureaucracies). "[11] Hidden in this - for a high UN official – rather unusual language was his personal conviction that the impact of ACAST and the scientific community at large ('*wise men and magicians*') as well as the role of the specialised agencies

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[8] World Plan of Action for the Application of Science and Technology to Development", New York 1971

[9] Sauvant, Karl, The Group of 77 – Evolution, Structure, Organization, Oceana Publications, New York 1981

[10] Although ECOSOC did not formally adopt ACAST's proposals for the implementation of the World Plan, some specialised agencies, for example WHO, UNESCO, UNEP and others have initiated actions in line with the World Plan.

[11] United Nations, ECOSOC, Committee on Science and Technology, 1st special session, 75th meeting, Press Release, Committee opens first session of preparations for Science Conference, TEC/303, 31. January 1977, Summary of the Statement made by Mr. Joao da Costa

(*'international bureaucracies'*) would henceforth differ from any of the other UN conference preparations.

The Conference Secretary-General has deviced instead the so-called "Ascending Process" for UNCSTD, a sort of worldwide referendum, in which each member state would define its own STD priorities. "Governments and Governments alone" should thus influence the UNCSTD preparations. The Conference Secretary-General, a career diplomat from Brezil, was fully aware of the risks which he took when steering his proclaimed course into action. He admitted privately, that if the case UNCSTD would become a failure, "*for the next 25 years it would be impossible for anyone to re-introduce again the issue of Science and Technology on the UN agenda*". In a retrospective in 2005, it is obvious, this vision has proved to be correct: Since this statement made on 31 January 1977 at the first PrepCom session of UNCSTD, the various components of the UN system on science and technology were never seen again on a joint major mission under leadership of the UN.

2. The organisational structures on Science and Technology in the UN

During the first two decades after the United Nations were brought into existence, there were no formalised structures at the UN secretariat in charge of issues concerning Science and Technology. They were dealt with by the UN Department for Economic and Social Affairs which acted among other functions as Secretariat of ECOSOC. As a result of the first UN Conference on Science and Technology (Geneva 1963) institutional arrangements for the coordination of the activities of the United Nations system in Science and Technology were created which were valid until 1993:

- An inter-agency coordinating machinery
- An advisory body and
- A Secretariat

to which, eight years later, in 1971,

- an intergovernmental organ was added.

However, it must be stressed from the outset of this historical overview that, for a number of reasons as from the mid-90s of the last century, all these bodies which had a direct impact on science and technology issues the UN system as a whole, became *de facto* defunct. (see Chapter 2.3)

Science and Technology has evidently not anymore the same degree of priority it used to have for the United Nations during its first 50 years.

But let us go back to the origins:

2.1 The period between UNCSAT and UNCSTD

The United Nations Office for Science and Technology (OST) was created in 1964. It was the permanent Secretariat of all UN committees dealing with science and technology issues and provided a focal point for continuing secretariat support of the organization's role in this area:

- **the Scientific Advisory Committee (SAC) of the Secretary-General**
  This Committee was created by the General Assembly (GA resolution 8103 (IX) of 1954 and 1344 (XIII) of 1958 to advise and assist the Secretary-General at his request on all matters relating to the peaceful uses of atomic energy with which the United Nations might be concerned. Subsequently the scope of the SAC broadened to include other aspects of science.

The seven members of the Committee – all nuclear physicists – were appointed by the General Assembly. SAC members were from the following countries: Brazil, Canada, France, India, USSR, United Kingdom and United States.

The Committee has met when convened by the Secretary-General.

It was at the recommendation of SAC that the first "United Nations Conference on the Application of Science and Technology for the Less Developed Areas" was convened (Geneva 1963).

- **the United Nations Advisory Committee on the Application of Science and Technology to Development (ACAST)**

  The Advisory Committee was established by ECOSOC resolution 980 A (XXXVI) of August 1, 1963 following the United Nations Conference on the Application of Science and Technology for the Less Developed Areas (UNCSAT)" held in Geneva, February 1963. The Council had decided that ACAST should consist of 18 members (later 24), to be appointed on the nomination of the Secretary-General, after consultation with governments. During the sixteen years of its existence 71 individuals (men only, not a single woman), including Presidents of Academies of Sciences, Nobel Prize Winners, Cabinet Ministers, have served at the Advisory Committee.

  The Advisory Committee had a formidable mandate:

  (1) it was to keep under review progress in the application of science and technology and propose to ECOSOC measures for such application for the benefit of developing countries

  (2) it was to review the scientific and technological programmes and activities of the United Nations and its specialised agencies, and propose to the Council measures for their improvement, including the establishment of priorities and the elimination of duplication.

  (3) It was to consider specific questions referred to it by the Council, or by the Secretary-General or by the Executive heads of the specialised agencies. The working relations between ACAST and the specialised agencies were cordial and so close that, UNESCO, for example had refrained from setting-up its own Advisory Committee[12] until ACAST in its original form ceased to exist in 1980 as a result of a number of far-reaching institutional changes after the second UN World Conference (UNCSTD) held in August 1979 in Vienna.

  (4) To these terms of reference must be added any other tasks assigned to the Advisory Committee by the General Assembly.[13]

ACAST has, in addition to its plenary sessions, operated in regional groups and in this capacity has closely co-operated with the Regional Economic Commissions of the UN. The regional ACAST groups have furthermore been instrumental for the intellectual preparations of the series of Regional Science Conferences of UNESCO (CAST's).

- **The Administrative Sub-Committee on Coordination (ACC) Subcommittee on Science and Technology**

  The ACC Sub-Committee was established in 1963, following the Geneva Conference to ensure 'positive interagency co-operation in the field of science and technology'.

  The Sub-Committee's purpose, was basically, to provide a forum for continuing inter-agency consultation and to act as a source of advice to the ACC on matters related to

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[12] The first meeting of the newly-established Advisory Panel to UNESCO on' Science, Technology and Society', which included some of the former ACAST members, took place in Paris on 19-21. May 1981.
The UNESCO-Director Fédérico Mayor has set up an International Scientific Advisory Board (ISAB), chaired by the ICSU President Werner Arber. ISAB has held its first session in Paris on 20-21 January 1997
[13] United Nations Office for Science and Technology, Standke, Klaus-Heinrich (Editor), Science and Technology and Global Problems : The United Nations Advisory Committee on the Application of Science and Technology for Development, Pergamon Press, New York-Oxford 1979, p.2

science and technology, particularly in relation to development, which involve the secretariats of the organizations of the United Nations system.(cf. document COORDINATION/R.1014, para.56) The Sub-Committee reported through the Preparatory Committee to the ACC, composed by the Executive Heads of the specialised agencies and chaired by the Secretary-General. The membership of the Sub-Committee was open to all interested agencies. The Director of the OST acted ex-officio as Chairman.

- **the United Nations Committee on Science and Technology for Development (CSTD)**
  The Committee was created by ECOSOC resolution 1621 (LI) of 30 July 1971 as an intergovernmental committee to provide policy guidance and make recommendations to ECOSOC on matters relating to the application of science and technology to development. This body was composed of 54 member-states, elected by the Council in accordance with the geographical distribution of seats in the Council itself. In 1977 CSTD met as a preparatory committee for the 2nd UN Conference on Science and Technology for Development (E/C.8/L.57)

In addition to its secretariat functions serving the four above-mentioned committees, the OST had the following functions:

a.) to collect, maintain up to date and disseminate information on the activities of the various components of the United Nation system in the field of science and technology; identify gaps and duplications in these activities; delineate the grounds for a co-operation between the specialised agencies or other organs within the system, and help bring them together on common tasks.

b.) to ensure substantive co-ordination of multisectoral or inter-agency studies, through the mechanism of the ACC Sub-Committee for Science and Technology.

c.) to follow the activities of the United Nations system in the field of science and technology with a view to their harmonization and their possible integration within a United Nations general policy for science and technology.

d.) to examine and emphasize, where appropriate, the relationship between activities of the United Nations system in science and technology, and activities carried out by the system in other fields.

e.) to keep abreast of the developments, trends and progress in science and technology and their applications to development; in this framework, suggest, initiate, or when appropriate undertake special studies of an exploratory nature, in consultation with the relevant substantive divisions or agencies, and present adequate recommendations concerning their follow-up within the system.

f.) to review, appraise and support the implementation of the World and Regional Plans of Action for the Application of Science and Technology to Development, and assist the regional commissions in this regard.

g.) to play an advisory role within the United Nations Secretariat, on all matters relating to science and technology; to maintain permanent links with the scientific and technological community, and with the various governmental and non-governmental institutions dealing with science and technology.[14]

During the preparatory period of UNCSTD (1977-1979) the CSTD – open to all member states - has served as preparatory committee of the conference. The ACC Sub-Committee for Science and Technology has served as Interagency Task Force for the coordination of inputs of the specialised agencies for UNCSTD. The conference secretariat consisted of staff

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[14] Source : Job Description of the Director of the UN Office for Science and Technology (OST) and Terms of Reference of the OST, Interoffice Memorandum by Gabriel van Laethem, Under-Secretary for Economic and Social Affairs, New York, 6.1.1976

members recruited for the occasion – in addition to OST staff and staff members seconded from the specialised agencies (UNESCO: C. Nones Sucre).

2.2 The period after UNCSTD (1980-1992)

As a consequence of the new institutional arrangements for the science and technology 'machinery' within the UN system, the infrastructure created after UNCSAT, outlined in Chapter 2.1,   was abolished in accordance with recommendations made at UNCSTD (GA resolution 34/218 of 19.12.1979):

They were replaced – with a modified new terms of references - by:
− The UN Intergovernmental Committee on Science and Technology for Development (IGCSTD), a committee 'open to all member states' reporting _through_ ECOSOC to the General Assembly
− The UN Advisory Committee on Science and Technology for Development (ACSTD)
− The Interagency Task Force on Science and Technology
− The UN Centre for Science and Technology for Development (UNCSTD) to be headed by a high-official (ASG) from a developing country, reporting not anymore to the USG-DIESA but directly to the Director-General for Development and International Economic Co-operation
− In addition, a special secretariat unit was created within UNDP for the administration of the Interim Fund on Science and Technology for Development.

The new organisational machinery, was almost exclusively geared towards the implementation of the 'Vienna Programme of Action'[15] in which the specialised agencies had only a marginal role to play. From the outset, Member states, in particular those from the developed countries, were critical on the usefulness of the new secretariat arrangements.
At that time, the political interest on the VPA appeared to be on the priority setting for the utilisation and distribution of the new funds which were expected as the major outcome of the Vienna conference: An 'Interim Fund' for the years 1980-1981, which should mobilise at least 250 mill.US-$, followed by a long-term "Financing System' in the order of magnitude of annually 1 or even 2 billion US-$.

2.3 The period since 1993 and the present institutional situation

During the post-UNCSTD decade it became gradually evident that the "Vienna Programme of Action", in particular as far as the Financing System was concerned, would not materialise.
The expected new funds did finally not mobilise more than some 25-30 Mill.$.[16]

As a consequence, the UN has practically abolished its entire machinery on science and technology built-up at headquarters in New York[17] which has served the UN system for some

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[15] United Nations, The Vienna Programme of Action on Science and Technology for Development, New York 1979
[16] FAO in a letter to the UN on 16.2.1979 had assumed half a year before UNCSTD: "It seems doubtful whether the Conference will lead to any significant increase at all in resources available to the system for substantive activities in which science and technology are important components…".
[17] In the early nineties, the Economic Commission for Europe of the United Nations (ECE) abolished its Committee for Senior Advisors on Science and Technology Policy Issues, which was the only Committee during the 'Cold War' in which the industrialised countries from East and West met to discuss SC&T issues of common concern.

40 years. Although judging from the formal UN structure, one might get the impression that with some modifications the basic structure on Science and Technology has not been harmed, in reality the visibility which science and technology enjoyed at the UN in New York since UNSAT in 1963 has disappeared. The delegation of the complex issues of Science and Technology to UNCTAD in Geneva, at a time in which for example the European Commission and the OECD are giving even higher priority to such issues, is difficult to explain.

The UN Fund for Science and Technology has already much earlier ceased to exist as a special entity within UNDP.

Officially this bold decision was a consequence of the GA resolution 46/235 of 13 April 1992 on 'restructuring and revitalization of the United Nations in the economic, social and related fields'. The ACC Sub-Committee for Science and Technology (respectively the Interagency-Task Force created for that purpose) in charge of inter-agency coordination was abolished as part of the transformation of the former ACC into the CEB (Chief Executive Board for Coordination).

In its decision 1992/218 of 30 April 1992, ECOSOC established the 'Commission on Science and Technology for Development' as successor to the Intergovernmental Committee on Science and Technology for Development' and its subsidiary body, the Advisory Committee on Science and Technology for Development (ACSTD, formerly ACAST). The terms of reference from 1992 continue to refer to the VPA of 1979.

It is an organisational innovation that an Intergovernmental Committee, as the new Commission on Science and Technology for Development, acts simultaneously as its own Advisory Committee.

The Commission was established "*to provide the General Assembly and ECOSOC with high-level expert advice on relevant issues through analysis and appropriate policy recommendations or options in order to enable those organs to guide the future work of the United Nations, develop common policies and agree on appropriate action*".

Whereas at UNCSTD, it was seen as one of the great achievements of the conference that the newly established Intergovernmental Committee (IGCSTD) was not confined to the membership of 54 of ECOSOC, but open to all member states, the new Commission, which reports to ECOSOC (and not anymore through the Council directly to the GA, is much smaller in size: It has only 33 members, i.e. 22 less than ECOSOC itself.

Functionally, the Commission is not attached anymore to the UN in New York, but instead to UNCTAD in Geneva. Since July 1993 it meets in Geneva and is being serviced by UNCTAD's Investment, Enterprise Development and Technology Division (earlier: Division for Science and Technology). The Commission meets annually for a period of one week (ECOSOC resolution 2002/37 reaffirmed in ECOSOC resolution 2003/31 of 4. 6. 2003)

The Commission has a similar far reaching mandate as the earlier CSTD (1971-1979):
It is seen by ECOSOC "as a '*global forum*'
- for the examination of science and technology questions and their implications for development,
- the advancement of understanding on science and technology policy issues, particularly in respect of developing countries
- for the formulation of recommendations and guidelines on science and technology matters within the United Nations system,
all in relation to development" (ECOSOC Res.1995/4).

Taking into account the staff situation and in view of the modest budget resources available, it will be difficult for the Commission to live up to the expectations which its ambitious mandate suggests.

As in earlier years in the context of the International Development Decades and the International Development Strategy, the General Assembly of the UN has proclaimed that science and technology are critical elements in meeting the development goals contained in the United Nations Millenium Declaration of 2000. The Seventh Session of the ECOSOC Commission on Science and Technology for Development (Geneva, 24-28.4.2004) has recommended international and national policies that should be pursued to ensure that science and technology contribute effectively to achieving the Millenium Development Goals (MDG's). The Commission identified specific measures and actions needed to integrate science and technology in national development strategies.[18]

At this session, furthermore, participants reaffirmed the unique role and mandate of the Commission "*as the only high-level United Nations entity established to provide high-quality advice to ECOSOC and the GA on science and technology for development. The primary role of the Commission remains that of a "think-tank", which studies the role of science and technology for development...*".[19]

Among the specialised agencies, UNESCO was not represented at the meeting of the Commission..

The apparent lack of involvement of UNESCO on the work of the Commission can also be noticed from the absence of UNESCO's name of the official United Nations Website list of "UN system partnerships on science and technology in UN Programmes" which is giving a summary account of UNCTAD, FAO, UNIDO, IAEA, UNEP, OHCHR and WIPO, but without any reference to the activities of the Science Sector of UNESCO.

3 Involvement of UNESCO in UN activities on Science and Technology (1945-2005)

During the first years after the inception of the United Nations, UNESCO, as the other specialised agencies, has contributed to the work of the GA and of ECOSOC in the field of Science and Technology on an <u>ad hoc</u> basis. (see para 3.3). When in 1964 UN-ACAST was created to deal on behalf of ECOSOC with all issues regarding science and technology, UNESCO's contributions to the UN were channelled through ACAST.

3.1 Contribution of UNESCO to the UN-ACAST activities[20]

- 1968: ACAST requested UNESCO to undertake a closer evaluation on **"The problem of emigration of scientists and technologists**". (Document UNESCO/NS/ROU/158 or UNESCO/SC.WS.57
  Since that time UNESCO has continued to study this question under its regular programme, and as a result, an international recommendation on the status of scientific researchers was adopted by the General Conference at its eighteenth session in 1974.
- ACAST stated that UNESCO, in particular, has a vital role to play in assisting in the development of institutions for the formulation of **science policy** for the conduct of research at national level. (Second Report to ECOSOC, E/4026, para 156.)

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[18] United Nations, ECOSOC, Commission on Science and Technology for Development, Promoting the application of science and technology to meet the Development Goals contained in the Millenium Declaration, E/CN.16/2004/2, 7 April 2004
[19] United Nations, ECOSOC, Commission on Science and Technology for Development, Report of the Seventh session, E/CN.16/2004/4, Geneva, 24-28 May 2004, p. v
[20] Source: United Nations, Office for Science and Technology, Standke, Klaus-Heinrich (Editor), Science, Technology and Global Problems: The United Nations Advisory Committee on the Application of Science and Technology for Development, Pergamon Press, New York-Oxford 1079

- ACAST stated in the Third Report to ECOSOC the need to establish in the regions 'institutes or other establishments for the following activities: tropical medicine and public health; scientific information and documentation; training scientific administrators.
  UNESCO has taken action by establishing a strong "study and observation fellowship programme" in the field of **training scientific administrators**, and by launching a feasibility study on the establishment of an **international institute for the planning of scientific and technological development.**

- Whilst preparing for the 'World Plan of Action for the Application of Science and Technology to Development'[21], ACAST also began more actively to collaborate with UNESCO which had requested it to act as <u>its</u> advisory committee. In its plenary session in 1972, the Advisory Committee suggested that a review should be undertaken of the work programme of UNESCO in the area of **science policy**. It was pointed out that UNESCO's work had considerable significance for most of the matters with which the Advisory Committee was dealing, and it was agreed that the Director-General of UNESCO should be asked if he would be agreeable to the establishment of a small ACAST working group to study the programmes being undertaken by UNESCO. The Director-General welcomed this offer, and the working group was held at UNESCO Headquarters, 11-14 December 1972. In its conclusions, presented to the Advisory Committee, the working group stressed the large measure of common concern and motivation between members of the Advisory Committee and the science policy programme of UNESCO. It suggested that its visit to UNESCO might be regarded as the beginning of a dialogue which could be developed into a regular biennial visit. The Working Group was also pleased to note the progress being made by UNESCO in conducting a survey of institutional needs in science and technology that had been originally suggested by ACAST.
  ACAST requested UNESCO to undertake a detailed, country-by-country survey of institutional needs in science and technology. UNESCO gradually elaborated, over a period of years through a series of field experiments in developing countries, a method for priority determination in science and technology. The methodology was published as No. 40 in the UNESCO series "Science Policy Studies and Documents", under the title "**Method for priority determination in science and technology**".

- UNESCO has responded to ACAST's concern on integrated information for policy makers, managers and development workers in the field of science and technology application by developing a pilot programme known under the acronym "SPINES": an **international information exchange system for the application of science and technology to development.**

- The ACAST Working Group on **"Harmonizing Science and Technology Policy in the United Nations System"** held its third session at UNESCO headquarters in Paris in May 1978 and proposed several possible institutional alternatives for harmonising science and technology policy of the various agencies. In view of possible far-reaching consequences for the institutional balance within the various elements in the UN system the earlier notion of a "unified science and technology policy" was abandoned in favour of the more neutral term "harmonized system-wide policy". In any event, even this concept was too ambitious. Even more than 25 years later, there is no such a policy involving all actors within the UN system dealing with science and technology.

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[21] United Nations, World Plan of Action for the Application of Science and Technology for Development, UN Sales No. E.71.II.A.18, New York 1971

- On the issue of **Science Education** ACAST and UNESCO have worked closely together. In its first report on science education, which was submitted to ECOSOC in 1968, ACAST included four specific recommendations:

  (a) that means should be found by UNESCO to augment the staff and facilities of its Division of Science Teaching so that the new techniques and materials in its pilot projects for teachers training could be continuously developed and applied on an extensive scale n a number of different regions;

  (b) that in order to obtain an early reappraisal and representative views on the forward planning of science-teaching activities, an interchange of ideas and experience should be arranged… by means of a working party organized under the joint auspices of the United Nations and UNESCO.

  (c) that, as one means of strengthening the development and diffusion of innovations in science teaching <u>via</u> national science-teaching centres, there should be created an international centre for science-teaching development and demonstration, either with UNESCO or closely affiliated with it.

  That, to overcome the lack of awareness on the part of many teachers, scientists, administrators and others of the great advances already made in pre-university science education, steps should be taken to ensure the wider production and circulation of certain publications by UNESCO.

  The working party recommended under (b) was convened in 1969 under the joint sponsorship of the United Nations and UNESCO. The results were published in a book for a wider audience than reached by the report.[22]

  Also, as a result of the UN/UNESCO working party, ACAST decided to prepare its own second report on Science Education, which was submitted to ECOSOC in 1970. This report reviewed the progress that had been made regarding implementation of recommendations in its first report on the subject, and it continued with a number of additional recommendations.

- As part of ACAST efforts to insert the concept of **Science and Technology Policy** into the Second Development Strategy of the United Nations and into the comprehensive 'World Plan of Action for the Application of Science and Technology to Development", at the request of ACAST, UNESCO has undertaken a worldwide survey and analytical study of bilateral institutional links between scientific institutions in developed countries and similar institutions in developing countries. The study was subsequently published as No. 13 in the UNESCO series "Science policy studies and documents and – as a result – the Governing Council of UNDP has accepted to assisted in the establishment of inter-institutional links in science and technology.

3.2 Involvement of UNESCO in the preparations of the UN-ACAST 'World Plan of Action for the Application of Science and Technology to Development'[23]

ECOSOC after having reviewed the results of the Geneva conference, decided that it needed further advice on the issues dealt with in Geneva on a quasi permanent basis. Therefore, in 1964 it set up an independent Advisory Committee for the Application of Science and Technology to Development (ACAST). One of ACASTS's main achievements has been to establish a fairly clear philosophy or strategy for the role of science and technology in the development process in order to give the application of science and technology a new and

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[22] Baez, Albert V., Innovation in Science Education – World Wide, UNESCO, Paris 1976
[23] United Nations, World Plan of Action for the Application of Science and Technology for Development, op.cit.

greater impetus in the programs and activities of all appropriate UN bodies, and to promote the effective combination of their efforts in this field.

At one time, there was hope that ECOSOC itself would initiate, on the basis of initiatives of ACAST, the launching of an immediate *'world-wide attack'* on a limited number of especially important problems of research and application. The Advisory Committee suggested that a short list of problems might be drawn to meet the following criteria:

a.) *a solution would offer unusually great benefits by application in developing countries; and*
b.) *the state of science and technology is such that a breakthrough may be realised if a massive world-wide attack on the problem is made.*

It was not before 1969 that ECOSOC formally requested that the various United Nations organisations prepare, within the ensuing 18 months, *'detailed statements indicating the extent to which their current or planned activities were designed to intensify or accelerate the accomplishment of the proposed plan.'* After receiving and studying these statements, ACAST should *'define and elaborate in greater detail the content'* of the proposed World Plan of Action. The report of the World Plan of Action was issued at the beginning of 1971, i.e. exactly eight years after UNCSAT and eight years before UNCSTD.
The World Plan consisted of two parts:

Part One was prepared by the Advisory Committee itself. It listed priority areas selected as being particularly important and in which science and technology could make an resounding impact. It also outlined ACAST's proposals for the implementation and financing of the plan:
Target I: Developing countries increase their outlays on RTD to 1% of their GDP by the end of the decade. (The target of 1% was reaffirmed in the Millenium Developments Goals of the Un in 2000).
Target II: that developed countries should increase their science and technology aid to developing countries to the extent of 0,05% of their GDP, this equalled appr. 1,250 Bill.US-$.
Target III: that developed countries should devote 5% of their non-military research and development outlays to the science and technology needs of the developing nations.
In addition, it was proposed that UNDP would earmark substantial amounts from its expected budget increase during the 70s for the purposes of science and technology and education.[24]

Part Two was compiled by the Office for Science and Technology. It consisted in essence of material prepared by the specialised agencies and by some experts. It was reviewed by the ACC Subcommittee on Science and Technology of the ACC in which all organizations concerned of the UN system are represented. No other UN agency has made more substantive contributions toards the World Plan than UNESCO:

- UNESCO has elaborated one of the cornerstones of the World Plan of Action, i.e. the conceptual basis for 'desirable targets and foreseeable enrolment rates of R%D scientists '. The World Directory of National Science Policy Bodies, prepared by UNESCO, has given a clear picture of the situation.(p.33)
- In the chapter "The need for a strong indigenous scientific base", UNESCO has supplied the argumentation for the ideal mix of fundamental and applied research. (p.53)[25]

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[24] United Nations, World Plan of Action for the Application of Science and Technology to Development, New York 1971, p.1971, p. 39/40
[25] UNESCO, National aspects of fundamental research in Europe, Working Document of Minespol, Paris 1970

- In the chapter "Links with world science and technology", UNESCO has supplied the argumentation for closer links to this effect.[26] (p. 54)
- In the chapter "Quantified targets for the Second UN Development Decade", UNESCO has supplied the definition and the methodology.[27] (pp.55 and 60)
- In the chapter "Educational requirements for science and technology", UNESCO has made available the experience of its intergovernmental conferences for education. (p.61)
- In the same chapter reference was made to the 'evaluation of the Director-General of the results of the First Development Decade in UNESCO's fields of competence and draft programme of the Organization for the Second decade'[28] (p.63)
- In the chapter "National institutions for science and technology" the results of the institutional surveys conducted by UNESCO of the period of the First Development Decade were highlighted. (p. 65)
- In the chapter "Need for institutions at the various functional levels", the results of the study of needs for governmental science-policy making bodies conducted by UNESCO between 1965 and 1970 on a country-by-country basis were incorporated.[29] (p.67)
- In the same Chapter, ACAST acknowledged specifically the 'vital role' of UNESCO in assisting the institutions for the formulation of science policies for the conduct of research at the national level. (p.68)
- In the same Chapter reference was made to UNESCO's survey of the situation in developing countries regarding the existence of national policy-making bodies in science and technology (p.69)
- In the chapter "Institutions concerned with education, research, public services and extension work the list prepared by UNESCO, identifying 400 such institutions worldwide, was mentioned.[30] (p. 69)
- In the same Chapter, ACAST recapitulated its request to UNESCO to proceed with a detailed survey of institutional needs in the field of science and technology on a country-by-country basis. The survey would be undertaken by UNESCO in close cooperation with the UN regional economic commissions, but all other UN agencies were encouraged to speed up programmes on their field of competence of institutional build-up for science and technology in developing countries.(pp. 71/72)
- In the Chapter "The need for appropriate technology" ACAST recommended strengthening of the current research and operational activities of the UN agencies, Examples would be, inter alia, UNESCO's orientation towards the promotion of indigenous science and technology within developing countries (p. 75)
- In the chapter "The scientific community", reference was made to ACAST's earlier request to UNESCO to prepare a study on "the problem of emigration of scientists and

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[26] UNESCO, Bilateral institutional links in science and technology, UNESCO series Science Policy Studies and Documents, Nr.13, Paris 1969
[27] UNESCO, Provisional guide to the collection of science statistics, UNESCO/COM/MD/3, Paris 1968
[28] UNESCO, evaluation of the Director-General of the results of the First Development Decade in UNESCO's fields of competence and draft programme of the Organization for the Second decade', UNESCO 16/13 evaluation of the Director-General of the results of the First Development Decade in UNESCO's fields of competence and draft programme of the Organization for the Second decade'
[29] UNESCO, World Directory of National Science Policy-Making Bodies, Vol.I: Europe and North America, UNESCO, Paris 1966; Vol.II: Asia and Oceania, UNESCO, Paris 1968; Vol. III: Latin America, Paris 1968; Vol.IV: Africa and Arab States
[30] UNESCO, Bilateral institutional links in science and technology, Science Policy Studies and Documents, Nr.13, UNESCO, Paris 1969

technologists"[31]. Furthermore, mention was made of a UNESCO study on the build-up of scientific communities in developing countries.[32] (p. 85)

- In the Chapter "Mobilization of the World Scientific Community" annotated summaries prepared by UNESCO were reproduced which covered both the creation of new institutions and/or strengthening of existing ones. (pp. 89-94)
- In the Chapter "International and regional co-operation" reference was made to the establishment of UNESCO-OAU-sponsored network of centres of excellence in Africa [33](p.110)

In practically all other Chapters of the World Plan, in one or another form, reference was made to UNESCO's expertise: Natural Resources (p.138), Agricultural Research (p.163), Industrial Research (pp. 168, 177), Telecommunications (pp.199, 200, 202), Health (p.259), Peaceful Nuclear Energy (pp. 272, 274), Computer Technology (p.285).

As already mentioned in the introductory Chapter, when the World Plan was presented to ECOSOC in 1971, it was decided not to endorse the actions proposed by ACAST and the UN agencies, but rather let a conference 'open to all member states' decide on which priorities they would like to see for the intended worldwide new initiative on Science and Technology for Development.

The World Plan of Action has been 'translated' from the global level into Regional Plans and has been used, *inter alia* as conceptual background document for the organisation of the series of Regional Science Conferences of UNESCO ('CAST's), for example: African Regional Plan for the Application of Science and Technology for Development.[34]

3.3 Involvement of UNESCO in UN World Conferences on Science and Technology[35]

The UN took the initiative in launching the first UN World Conference with a considerable scientific content as early as 1948, already three years after its creation: The UN Conference on the Conservation and Utilisation of Resources. Other scientific conferences -initiated by the UN Scientific Advisory Committee (SAC) under the United Nations auspices followed: In 1955 and 1958 to discuss the Peaceful Uses of Atomic Energy, in 1961 on New Sources of Energy.

Other UN World Science and Technology Conferences (or worldwide Initiatives, such as the 'World Plan of Action') with the involvement of all specialised agencies dealing with science and technology issues, in particular UNESCO, followed:

The UN and UNESCO have organised so far three world conferences dealing with science and technology, but each with a different conceptual approach. Two of them have been organised by the United Nations.

- The first, was mainly prepared as a collective effort by the UN itself, by the specialised agencies and by the scientific community,
- the second was mainly prepared as a governmental effort to which the Specialised Agencies of the UN system submitted only Background

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[31] UNESCO document SC/WS/57 of 28 February 1968

[32] UNESCO document UNESCO/NS/ROU/210 of 15 January 1971

[33] UNESCO-OAU conference on Education and Scientific Technical Training in Relation to Development in Africa, 16-17. July 1968, Res.11 (IX)

[34] United Nations, ECOSOC, African Regional Plan, E/CN.14/L. 407, New York, 28 June 1972

[35] see also Standke, Klaus-Heinrich, Overview of past multilateral Conferences on Science and Technology, Report prepared for the Third Meeting of the Steering Committee of the International Scientific Advisory Board of UNESCO, Paris, 17 March 1997

Documents and the scientific community submitted their collective thinking by way of Background Report prepared for the occasion,
- one of them has been organised by UNESCO together with ICSU, but without a conceptual involvement of the UN system.

In hindsight it can be said, that all three Conferences have are milestones in the complicated process to introduce science and technology notions into the political arena. Thus, all three have their merits, but none of them are regarded by their critics without hesitation as 'success stories':

- The United Nations Conference on the Application of Science and Technology for the Benefit of the Less Developed Areas (UNCSAT), Geneva, 4. -20. February 1963

- The United Nations Conference on Science and Technology for Development (UNCSTD), Vienna, 20.-31. August 1979, preceded by the UN-ACAST Colloquium on Science and Technology and Society: Needs, Challenges and Limitations, Vienna, 13-17. August 1979

- The UNESCO/ICSU World Conference on Science "Science for the Twenty-first Century – A new commitment", Budapest, 26. June – 1 July 1999.

	UNCSAT 4-20.2.1963	ACAST Colloquium in Conjunction with UNCSTD 13.-17. 8.1979	UNCSTD 20-31.8.1979	UNESCO/ICSU WSC 26.6.-1.7.1999
Countries	96 *)	87	142	155
Participants	1.665	383	1.856/1.271 **)	1.800
UN System	108 participants	102 participants		28 IGO's
NGO's	90		366	60

(* out of 110 UN member states in 1963   (** participants from NGO's

All three Conferences have dealt by and large with the same topics, but they have had distinct different features:

3.31 The United Nations Conference on the Application of Science and Technology for the Benefit of the Less Developed Areas (UNCSAT), Geneva (1963) [36]

Although the decision of who was authorised to attend the Geneva conference, was left entirely to the participating governments, and yet, the conference was organised similar to a scientific congress. Governments, international organisations and others were invited to submit papers. UNCSAT was attended by 1.665 participants and 96 governments were represented. 1.839 papers were distributed for discussion at the Conference. Provision was also made for the projection of 250 documentary films and for an exhibition of 6.000 books and periodicals on science and technology .
UNCSAT had a major flaw: Only about 16 % of the scientists attending the conference were from developing countries.
UNCSAT was not empowered by ECOSOC) to make recommendations to Governments or to take decisions regarding policy. It was expected instead that the records of the proceedings

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[36] United Nations, Report of the United Nations Conference on the Application of Science and Technology for The Benefit of the Less Developed Areas, Vol. I.- VIII, New York 1963

at the Conference should 'reflect any significant weight of opinion expressed in the discussions as summarised by the rapporteurs of the given proceedings'. It was the responsibility of ECOSOC to decide what action should be taken within the United Nations to provide a practical follow-up.

UNCSAT has paved the way for the acceptance of *science and technology policy* as part of the overall policies of developing countries: *"Since Science and Technology are essential tools for accelerating development, they have become the subject of political decisions and to that extent fall within normal government responsibility."*[37] Even the OECD, the platform of the Western industrialised countries, has organised only one year after UNCSAT assembled in Geneva, its first Ministerial Meeting on Science in 1964 in Paris.

The preparations for UNCSAT have been a joint enterprise of the UN, ILO, FAO, UNESCO, WHO, ITU, WMO and the IAEA. Each of the agencies had prepared the agenda items within their field of responsibility.

UNESCO's involvement was manifold: The intellectual foundation of UNCSAT was laid by the report of UNESCO's former Director of the Department of Natural Sciences (1948-1959), *Pierre V. Auger "Current Trends in Scientific Research»* undertaken under the auspices of ECOSOC in the years 1958-1960. His successor at UNESCO, *V. Kovda*, was a member of the Editorial Advisory Committee of UNCSAT to which three agency representatives belonged (UN, FAO and UNESCO).

The UNESCO Director-General, *René Maheu*, was together with the UN Secretary-General, the UNCSAT President and Secretary-General, and the Heads of the other mentioned agencies on the platform and addressed the opening session of UNCSAT (in contrast to UNCSTD, where only the UN Secretary General and senior Conference staff were at the platform of the opening session in Vienna).

In the 8-volume conference report, numerous references were made on the UNESCO activities on various fields (e.g. Science and Technology Policy, Mass Media in Developing Countries, UNESCO's Literacy Plan, UNESCO Latin America Centres on Mathematics and on Physics, UNESCO multination Indian Ocean Project, Science Teaching Programmes, Hydrological Decade, Migrants Integration).

3.32 The United Nations Conference on Science and Technology for Development (UNCSTD), Vienna, (1979)[38] [39]

The *United Nations Conference on Science and Technology for Development* (UNCSTD) took place in Vienna from 20.-31. August 1979. It was preceded by an International Colloquium on '*Science, Technology and Society - Needs, Challenges and Limitations'* organised under the auspices of ACAST in Vienna from 13.-17. August 1979[40]

The substantive ground work of UNCSTD was prepared by ACAST, by a consultants report[41], by an ad-hoc panel of Experts appointed by the Secretary-General (Geneva 23-

[37] United Nations, Report of the United Nations Conference on the Application of Science and Technology for The Benefit of the Less Developed Areas, op.cit., Vol. I. World of Opportunity, p.185

[38] United Nations, Report of the United Nations Conference on Science and Technology for Development, A/CONF.81/16, New York 1979

[39] Standke, Klaus-Heinrich, The Prospects and Retrospects of the United Nations Conference on Science and Technology for Development, in: Technology and Society, Vol.1, pp.353-386, Pergamon Press Ltd (1980)

[40] Standke, Klaus-Heinrich and Anandakrishnan, M. (Editors), Science, Technology and Society: Needs, Challenges and Limitations, Proceedings of the International Colloquium, Vienna, Austria, Pergamon Press, New York-Oxford on behalf of the United Nations, New York 1980

[41] King, Alexander, The proposed United Nations Conference on Science and Technology, ESA/S&T/AC.4/2, 30. September 1974

28.10.1974), an by an intergovernmental Working Group (New York 21.4.-2.5.1975). Representatives of the specialised agencies, including UNESCO, have participated on the various stages of these preparations.

UNCSTD was conceived as "to be entirely different from the 1963 Conference and other conferences on science and technology and development in that it would attempt to examine the role of science and technology not as isolated instruments of action in the development process but as components of the overall system. In particular it would examine why the expectations of the benefits that science and technology might have conferred on development in the past have not been realized."[42]

UNCSTD was thus meant from the outset to be "an integral part of the efforts for the establishment of the NIEO through the adoption of decision and the provisions of concrete and action-oriented recommendations aimed at the use of science and technology for the development of all countries, and particularly of the developing countries".[43]

„UNCSTD was really not on science and technology at all, nor on how specific technologies could be selected out of the world pool of science and technology for use by the developing countries, nor on which technologies need to be developed for the use of LDC's. Rather, the conference was oriented to the system within which science and technology are generated and implemented - namely the politics of both developed and developing countries towards R & D institutions and technology transfers, as well as the institutional structure and role of the United Nations and transnational corporations.
Consequently, many delegates who were oriented towards specific science and technology applications to developments problems were somewhat frustrated."[44]

In line with the famous *'ascending process'* of UNCSTD all participating states were asked to prepare 'National Papers', subsequently two rounds of Regional meetings took place in addition to the 5 sessions of the Preparatory Committee of the Conference. All-in-all delegates preparing UNCSTD have spent 80 session days in regional meetings, 69 days in sessions of the Preparatory committee and 12 days at the Vienna Conference itself.

UNESCO has attended all preparatory sessions and regional meetings of various kinds. At UNCSTD itself, UNESCO has had the largest delegation from all specialised agencies, led by the Director-General. Furthermore, UNESCO has given financial support to a number of individual experts attached to national delegations from developing countries.

UNCSTD turned out to be more controversial than other of the UN World Conferences:
- *Politically*: UNCSTD, as a milestone on the road to create a NIEO has to a large extent focussed on institutional changes within the UN system and less – if at all – on the substance of science and technology for development.[45]

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[42] Report of the 'Ad-hoc Panel of experts to the Secretary-General on the proposed United Nations Conference on Science and Technology,', Geneva, 28.10.1974, p.6
[43] Preamble to the "Vienna Programme of Action on Science and Technology for Development", United Nations, New York 1979, p.1
[44] Behrman, Jack, University of North Carolina
[45] After having listened to the presentation by the UNCSTD Secretary-General of the conference concept at an ACAST meeting in Geneva, in which concrete subject areas were only meant for "illustrative purposes" and would have no standing on their own at UNCSTD, H.B.G. Casimir, a member of the Advisory Committee, President of the Royal Dutch Academy of Sciences and for many years Member of the Board of Management in charge of Research and Development of Philips, Eindhoven, responded sarcastically: "If this concept becomes reality, than the United Nations Conference on Science and Technology for Development, will be known in history as a Conference without Science, without Technology, without Development: Let us called it simply "the Conference".

- *Substantively:* UNCSTD deliberately left out those constituents which ultimately would have to carry out to a large extent the implementation of the Vienna Programme of Action, i.e. the specialised agencies and the scientific community.[46] [47]
- *Organisationally*: UNCSTD was characterized by two special features, i.e. the idea of the "Ascending process" and the idea of the running of the Conference essentially by an independent 'ad hoc secretariat without any ties to the past and thus unable to capitalize on the experience gained by the UN in being in close contact with the UN system and the NGO's throughout the world on the field out science and technology.[48]

For UNESCO the strong bias of UNCSTD on institutional arrangements had possibly serious consequences. The UNESCO Director-General *Amadou Mahtar M'Bow*, who had personally sensed in Vienna the mood of the Conference, was with good reason deeply disturbed about the real danger that proposals made by some members of the Group of 77 would become political reality, i.e. to transfer the scientific elements of UNESCO to New York. [49] [50] The idea was to concentrate at one location most of the available expertise in the UN system on science and technology. An UNESCO without an "S" was obviously for the Director-General out of any question.

When replying to observations by members of the Executive Board, concerning the outcome of UNCSTD, the Director-General stated that "*the Conference as you know, adopted a programme of action, the Vienna Programme which, as many members of the Executive Board pointed out, only reproduced in other terms – and if I may add a personal reflection, less clearly and less systematically – the main lines of emphasis defined in the resolutions of the General Conference of UNESCO, in the medium-term plan ... and the programmes and budgets adopted by the General Conference...*".[51]

The tense atmosphere after the Vienna Conference between the UN Secretary-General *Kurt Waldheim* and the Director-General for Development and International Economic Co-

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[46] Newsletter of the Pugwash Conferences on Science and World Affairs, Vol. 17, No.3, 1980, p.65: "…In fact, no action targets on international, regional and national scale were agreed upon in Vienna; no concrete commitments were made either by the developed or developing countries; preparation of an operational plan for carrying out the Program was left for the future, and the same was decided in respect to science and technology activities within the United Nations system. Thus, while technically the UNCSTD cannot be described as a failure, its contribution to the international mobilization of science and technology for development is close to nil. This judgement may sound harsh, but it reflects much better the reality than the painfully negotiated final agreement known as the Vienna Program."

[47] Even two years after UNCSTD the specialised agencies, such as UNESCO, felt to be left out from the conference follow-up process: "*...On constate avec regret que l'attitude très réservée du groupe des 77 continue a être très génante. Prèsque tous les projets de resolutions présentés par le groupe des 77 ne portaient aucune ou seulement faibles références aux contributions que l'on entend de l'ensemble des organisations du système des Nations Unies... ».* Rapport de la Troisième session du Comité intergouvernmental…, New York 26.5.-5.6.1981, Memo SC/UCE/3774, 9.6.1981

[48] The Canadian Delegate to the Fifth Committee of the GA on 18.12.1979 suggested ironically at the session voting on the budget for the new enlarged secretariat structure, in his opinion UNCSTD should be more appropriately called: United Nations Conference on Science and Technology for Staff Development.". The US delegate was so upset about the breach of the 'carefully negotiated agreements' on the staff arrangements that he regarded this outcome as an 'ominous omen' for the position of the US towards the expected funding mechanism.

[49] Five years prior to UNCSTD ECOSOC had already expressed political interest in the establishment of a "United Nations science and technology programme" (ECOSOC resolution 1905 (LVII), Institutional arrangements for science and technology) and has requested that to this effect a feasibility study would be undertaken

[50] Cf. Rittberger, Volker, Options for an institutional follow-up to UNCSTD, UNITAR, February 1979
ILO in a letter to the UN dated 15.2.1979 expressed serious concern that the impression was given to create after UNCSTD another specialised agency for science and technology

[51] UNESCO, Executive Board, 108th session, 108 EX/INF.5, 1. October 1979, p. i

operation *Ken Dadzie*, who was commissioned to oversee the implementation of the Vienna Programme of Action, on one side, and the Director-General of UNESCO, on the other side, can be exemplified by the following incident: The UNESCO Director-General felt that the UN Director-General was fostering unduly a UN-New York centred formula concerning the institutional arrangements decided at the Vienna Conference on the field of Science and Technology in the UN system. He had openly complained about that to the UN Secretary-General. According to Mr. Dadzie the contrary was true. He was accused by the 'Group of 77' of 'slavishly following an ACC decision which could not be supported by the developing countries.'[52] This unusual 'heads-on-collision' between the two highest ranking officials from Africa in the UN system was widely noticed as an example to what extent the Vienna Conference results have upset the delicate balance between the UN und its specialised agencies.

It is known, that the UNESCO's Director-General M'Bow has managed to keep the situation – which even after 25 years is still being remembered by UNESCO staff members as 'traumatic' - under control. Nobody at that time could expect that things went into a completely different direction. The UN in New York was not strengthened through UNCSTD as it was intended, but to the contrary has lost almost all visibility on issues concerning science and technology and is relying to a large extent on the expertise of consultants.

The most visible result of UNCSTD was the agreement that a new *financing system for science and technology for development* should be established by the General Assembly of the United Nations. The 'Group of 77' expressed the hope at UNCSTD that 2 billion dollars could be raised by 1985 and 4 billion by 1990., i.e. at least two to four times the amount of the annual budget of UNDP.
At UNCSTD the donor countries agreed, however, only to the establishment of an Interim Fund for the years 1980-1981 to be sustained by voluntary contributions for which the Conference agreed that 'the target' should be no less than $250 million. UNCSTD thus reiterated in Vienna the estimation made by ACAST eight years earlier, when suggesting that as tentative targets, the World Plan of Action fund, or account, $125 million p.a. should be allotted for initiating or accelerating the programmes outlined by the Advisory Committee.
Although the Interim Fund was finally called 'operational' by the Administrator of UNDP, a series of pledging conferences mobilised only funds in the order of magnitude of altogether $50 million. That is to say that the UNCSTD preparations and later the costs to administer the Fund exceeded by far the financial contributions mobilised through the UNCSTD exercise.
The Financing System for Science and Technology created by UNCSTD was formally terminated in 1986.

To commemorate the tenth anniversary of UNCSTD and as a contribution to the end-of-decade review of the VPA the Director-General of UNESCO *Féderico Mayor* has convened on 14-16 June 1989 in Paris a High-level Colloquium *"Science and Technology for the Future: A Fresh Look at International Co-operation"*[53] The meeting was attended by 85 participants, including the UN Director-General for Development and International Economic Affairs, the Assistant Secretary-General of UNCSTD, the Director of the UN Fund for Science and Technology, senior representatives from UNIDO, UNEP, the World Bank, the OECD, the European Union, the French Minister of Research and Technology, the ICSU President, numerous Presidents of Academies of Sciences, including the NAS, the Soviet Academy, the Indian Academy, the French Academy and the CNRS, the Nobel Committee,

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[52] Note on Discussions with Mr. K. Dadzie, New York 12 September 1979
[53] Standke, Klaus-Heinrich (Editor), Science and Technology for the Future: A Fresh Look at International Co-operation, Second Edition, UNESCO, Paris 1990

the Federation of German Scientists, the World Academy, the Third World Academy, the European Academy, the African Academy, the Club of Rome and the Chairmen of UNESCO's various Intergovernmental Scientific Programmes. Furthermore, there have been R&D Directors from private industrial companies and the Secretary-General from EIRMA.

The UNESCO Colloquium called for a new interaction in the 1990's on the field of science and technology between multilateral und bilateral relations in which the regional intergovernmental organisations would, in addition to the worldwide operating specialised agencies of the UN system, emerge as important new actors. The Colloquium furthermore predicted that in international co-operation the role of scientific non-governmental organisations, as well as that of the private sector, will – on a world scale – rapidly increase.

3.33 ACAST Colloquium on the Application of Science and Technology to Development

One of the most major contributions which ACAST has made to the UNCSTD preparations was to serve as a liaison between the United Nations system and the international, non-.governmental scientific and technological communities. The Advisory Committee has repeatedly stressed that „...*in the context of the Conference the instruments of action are science and technology and it is therefore equally essential to ensure that the scientific community of all the countries taking part is intimately and actively involved in all phases of the preparations and in the Conference itself. Such a close association between governmental decision makers and scientists is in any event a* <u>*sine qua non*</u> *at the national level for the successful application of science and technology to development*[54].
Consequently, ACAST has attempted to integrate the inputs from the international scientific and technological communities as well as from the UN system through a special forum prior to the Conference. The Colloquium provided thus an opportunity to scientists, technologists, social and economic planners to consider the role of science and technology in relationship to the issues to be discussed by the Governments at UNCSTD.

In addition, ACAST decided that instead of organising the Colloquium as a self-generating event, it would take advantage of and draw upon a series of symposia which were being sponsored by other organisations as their contributions to the non-governmental scientific and technological aspects of the Vienna Conference: *Global Problems* (Tallin), *Issues of Development: Towards a new role for science and technology* (Singapore), *Views from the developing world (*Kuala Lumpur), *science and technology in development planning* (Mexico).

It is worth mentioning that the ACAST Colloquium has not only received strong professional support from all concerned UN agencies (e.g. through commissioned position papers), it was also one of the rare UN-system-wide manifestations in which more than 100 senior staff members from 23 different organisations have actively participated as experts in all deliberations and working groups. UNESCO was represented by its ADG for Science, Abdul-Razzak Kaddoura as well as by several other staff members from the Science Sector.

3.4. The involvement of UNESCO in the UN Millenium Project 2005

Thirty years after the presentation of ACAST's "*World Plan of Action for the Application of Science and Technology to Development*" to ECOSOC and twenty years after the adoption of

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[54] Twelfth Report of ACAST to ECOSOC, E/C.8/30

the *"Vienna Programme of Action for the Application of Science and Technology to Development"* by the General Assembly, the United Nations have developed a similar comprehensive global plan for science and technology for development: As part of the Millenium Initiative of the UN[55] a special Task Force has prepared a report *"Millenium Project 'Science, Technology and Innovation 2005"*.[56] The 'Millenium Project' is an independent advisory body commissioned by the UN Secretary-General to propose the best strategies for meeting the Millenium Development Goals (MDGs). By the year 2015, all 191 UN member states have pledged to meet these goals.[57]

In the exhaustive list of references concerning material used in the preparation of the UN Global Plan, a number of agencies are being specifically mentioned (UN, UNCTAD, UNDP, UN-ECE, UN-ESCWA, UN-ESCAP, FAO, IADB, UNIDO, ITU. OECD), but no reference to any UNESCO input has been made.

In the list of references used as background material for the Millenium Project published in 2005, among some 300 references the only UNESCO report mentioned is five years old: "UNESCO Dakar Framework for Action 2000".[58]

In the Commissions report on how to meet the MDG's the only reference to UNESCO is a Toolkit on Gender Indicators in Engineering, Science and Technology by the UNESCO/GAB (Gender Advisory Board).

3.5 Priority setting on the Agendas of UN and UNESCO related Worldwide Initiatives on Science and Technology

Priorities on the Agendas of UN and UNESCO related Worldwide Initiatives (1963-2005)

	UNCSAT Geneva 1963	ACAST World Plan Of Action 1971	ACAST Colloquium Vienna 1979	UNCSTD Vienna Programme of Action 1979	UNESCO Colloquium 10 years after UNCSTD 1989	UNESCO/ ICSU WSC 1999	UN Millenium Project Sc-T and Innovation 2005
Natural resources Energy Water, Sanitation	✓	✓	✓		✓		✓
Human resources	✓		✓	✓	✓		
Food and Agriculture	✓	✓	✓				✓
Industrial development	✓	✓	✓			✓	✓
Transport	✓	✓	✓				
Health	✓	✓	✓				✓
Urbanisation Human Settlements	✓	✓	✓				
Economic Development	✓		✓		✓		✓
Organisation and planning of scientific and	✓	✓	✓	✓	✓	✓	✓

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[55] United Nations, UN Millenium Project 2005 Global Plan: Achieving the Millenium Development Goals, New York 2005

[56] UN Millenium Project, Task Force on Science, Technology and Innovation, Spreading the benefits of technology and innovation, New York 2005

[57] UN Millenium Project, Investing in Development – A Practical Plan to Achieve the Millenium Development Goals, A Report to the UN Secretary-General, New York 2005 (with a special chapter on "Science, Technology and Innovation: Building national capacities)

[58] UN Millenium Project, Investing in Development, op.cit. p.320

technological policies							
Technology acquisition transfer and adaptation	✓	✓	✓	✓			✓
Training of scientific and technical personnel	✓						
Communication, Information Systems	✓	✓	✓	✓	✓	✓	
Science and technology education		✓				✓	✓
Population			✓				
Environment and sustainable Development		✓	✓		✓	✓	
Restructuring of international Sc&T relations				✓			
Strengthening the role and funding of the UN system in Sc&T				✓	✓		
Basic Sciences					✓	✓	
Biotechnology					✓		
Peace, Ethics, Human Dignity, Basic Human Needs						✓	✓
Widening participation in Sc						✓	
Innovation and Business activities							✓
Governance of Global Technology							✓
Advisory role to governments							✓

As this matrix - covering within a time-span of four decades seven UN system-wide Conferences and Global Initiatives on Science and Technology - reveals, most of the issues dealt with, cover, not surpringly, more or less identical problem areas. There are, however, differences in the emphasis given to the various clusters. There is a clear tendency from 'Science' to 'Science and Technology for Development' and more recently, as at the European Union and at the OECD, but also in UN agencies, to 'Science and Technology and Innovation'. The Millenium Report, unheard of during the heated debates around UNCSTD, speaks even of "Promoting business activities in science, technology and innovation'.
 Against this development, UNESCO apparently continues, in line with its original mandate, to concentrate on the notion of "Science" and "Science Policy".

4. The UN-UNESCO relations on Science and Technology - Three distinct phases

When reviewing the history of the interaction between the United Nations and UNESCO on the field of Science and Technology, three distinct phases of varying intensity can be identified:
1. the period from 1945 until 1977: "Balanced partnership and mutual trust"
2. the period from 1977 until the early 90s: "Tensions and rivalries"
3. the period from the early-90s until the present time: "Mounting indifference"

The three periods, in hindsight, also reflect almost completely different approaches how to insert the relatively abstract notion of "Science and Technology" on the world agenda.

4.1 the period from 1945 until 1977

The time span covering the first twenty post-war years   can be described as a period of euphoria for science in the developed countries, of an almost uncritical belief in the might of '*homo faber*': The assumption was, that since science can provide a decisive dynamic element to solve the problems of contemporary society and to yield economic development, more scientific research would necessarily yield more economic growth. Member States would thus require a rapid, balanced and sustained growth in the strength and quality of their scientific activity. The mystique of the 'black box' science and technology seems to be today unwithered.[59]
 The notion of 'Science Policy' was coined as a concept to convert the promise of science and technology into a reality within the a country's general plan of development.

UNESCO's interaction with the UN, i.e. more specifically with the UN-ACAST and with the its permanent secretariat, the UN Office for Science and Technology was in comparison with other specialised agencies very close. This can be shown by the intensive UNESCO's involvement during the five-year preparation of the World Plan of Action for the Application of Science and Technology for Development.
This exposure given to UNESCO's expertise was politically of great importance, since UNESCO was able to use for many years the ECOSOC and GA platforms of the United Nations in New York for the presentation of its competence. This mechanism has allowed UNESCO in addition to its genuine own network of Paris-based national delegations, of the UNESCO National Commissions and of its many close links with the scientific community, such as ICSU and others, to add a scientific-professional dimension to the politically-dominated deliberations in the UN forums.

4.2 the period from 1977 until the early 90s

This period has seen a increasingly political approach of the North-South dialogue on all issues concerning development. Science and Technology was one important feature in these often emotional negotiations. This process has led to the almost exclusion of scientific and technological expertise provided by independent experts and also to a certain extent to the exclusion of the technical expertise provided by the specialised agencies. The UNCSTD formula of the "ascending process" ('*governments and governments only*') was symptomatic for this approach.
The specialised agencies expressed concern that not only might their contribution to UNCSTD be reduced to a minimal extent, the institutional arrangements as a consequence of the Conference could result in a lasting reduction of their roles within the UN system on the field of science and technology. UNESCO in particular was upset: There was the possible threat of losing an important part of its mandate, and furthermore, there was the danger that the expertise of the scientific community would be marginalised: The UNESCO Director-General: "…*The negotiating groups (*at UNCSTD) *were composed of politicians and diplomats, and scientists were on the whole left out. The fact that a large number of eminent scientists whose work has been instrumental in ensuring that the progress of science and*

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[59] European Communities, Facing the Challenge – The Lisbon strategy for growth and employment, Report from the High Level Group chaired by Wim Kok, Luxembourg, November 2004

technology should have been relegated to the fringes of debates on issues which they know better than anybody else is perhaps one of the most striking aspects of the conference.[60]

4.3 the period from the early-90s until the present time

a.) Developments on the field of scientific and technological advice to UN and to UNESCO

For some 35 years the UN used to have an Advisory Committee (1964-1980 ACAST, since 1980 ACSTD) which served the UN/ECOSOC and simultaneously was used as Advisory Committee to specialised agencies, such as UNESCO. The Committee was abolished and the newly created UN Commission for Science and Technology, a functional Commission of ECOSOC, was charged to serve also as Advisory Committee on issues of Science and Technology to the Council.

In 1997 UNESCO has created in 1997 its own advisory mechanism, i.e. the International Scientific Advisory Board (ISAB), chaired by the ICSU President. In a later phase, ISAB served simultaneously as Scientific Advisory Committee to the UNESCO/ICSU World Science Conference (WSC).

b.) The UNESCO/ICSU World Science Conference

In sharp contrast to UNCSTD, the WSC was the first global Conference jointly organised by an intergovernmental organisation, UNESCO, and an independent scientific non-governmental organisation, ICSU.
The WSC has attempted to define a strategy that would ensure that science responds better to society's needs and aspirations.[61]
The UN – and the other specialised agencies of the UN system - had no special role to play at the WSC.

c.) Developments on the field of national Science and Technology Policy advice

In 1991 the series of Science Policy Studies, undertaken since 1965 by UNESCO, were phased out. Earlier, the series of Regional Science and Technology Policy Conferences (CAST's and MINESPOL) was discontinued.

In 1995 the UN Commission on Science and Technology for Development has started a series of national country reviews on "Science, Technology and Innovation Policy", an activity which for 35 years was not undertaken by the UN, but used to be a domain of UNESCO.

One of the institutional results for UNESCO was the re-establishment of a division on "Science Analysis and Policies (SC/AP)" within the sector for natural sciences. The division sees as its mandate *"to develop and provide decision-making tools, methodologies and norms for science policy-making..."*.
In not having used again the name "Science and Technology Policy Division (STP)", which has brought for decades international recognition to UNESCO, a decision was taken perhaps to highlight UNESCO's special experience in the field of natural sciences. Whatever the reasons might have been: This approach, however, may lead to a conceptual misunderstanding: Already as a result of the discussion on science and economic growth at

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[60] UNESCO's Director-General A.-M. M'Bow, UNESCO Executive Board, 108th session, op.cit., p.3
[61] UNESCO/ICSU, World Conference on Science, Science Agenda-Framework for Action, Budapest 1.July 1999

the first Ministerial Meeting on Science of the OECD in 1964, the Ministers specifically asked the OECD to reinforce its work on the contribution of science to the economy. Nowadays not only the industrialised countries are devoting their Sc&T policy efforts predominantly to concerns of innovation and to methods aiming to maintain high employment and to assure or the international competitiveness of countries or of a given region. These issues are, however, of equal, if not even greater importance, to developing countries.

d.) Developments on Global Reports dealing with Science and Technology Issues

The comprehensive World Science Reports of UNESCO, published three times (1993, 1996 and 1998) which restored a certain intellectual leadership for UNESCO in drawing a comprehensive stock-taking analysis on Sc&T policy issues and which have given a high visibility to the Organisation have ceased to be published.

The United Nations, as part of its attempts, to commit the decision makers of the world to attain the Millenium Development Goals has set up, as part of the UN Millenium Project, a special "Task Force on Science, Technology and Innovation" which has just published a comprehensive report, '*Spreading the benefits of technology and innovation*' in which's title the name 'Science' does not appear anymore.[62]
In contrast to this, in the "Science Agenda – Framework for Action" of the UNESCO/ICSU Budapest Conference, the terms "Technology" and "Innovation" are hardly used. [63]

5. Conclusions

Whereas UNESCO is leaning increasingly towards science and its applications, the UN – as most of the other specialised agencies on their fields of competence and as other intergovernmental organisations such as OECD, EU, the World Bank – are following more and more the chain "Science, Technology, Innovation, Industry".
A choice had to be made by UNESCO about its future orientation and this choice has been made.

It is obvious from a screening of publications, internal reports and working methods of the UN Commission on Science and Technology for Development that the main inputs are not coming anymore, as in earlier years, from UNESCO, but from a large pool of experts and consultants. The Millenium Report, at present the main framework for the UN activities – which can be compared to the "Development Decades" in the 60s and 70s of the 20th Century – is being prepared "by more than 250 of the world's leading practitioners" and not anymore as in the past, by a close interaction between the United Nations, the specialised agencies and Standing Advisory Committees such as UN-ACAST.
The InterAcademy Council seems to be the preferred linkage between the UN and the World Scientific Community. In the 213 pages Task Force Report on Science, Technology, and Innovation 2005 of the UN Millenium Project, no single reference has been made to ICSU.

 The Commission sees "its primary role as a "think tank", which studies the role of science and technology for development..."[64] In earlier decades, it was UNESCO which considered

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[62] UN Millenium Task Force on Science, Technology and Innovation, Spreading the benefits of technology and innovation, Preface, op.cit
[63] UNESCO/ICSU, World Science Conference, Science for Knowledge; Knowledge for Progress, op.cit. para 1 (6)

itself as the "intellectual organisation of the UN system" and thus as a sort of "institutionalised think tank" of the UN system.

It is perhaps no exaggeration to believe that the changes which occurred at the United Nations on the field of inter-agency cooperation in science and technology issues during the last twenty-five years have had for UNESCO a more lasting negative impact than for any of the other specialised Technical Agencies. The interest of the world community seems to be increasingly on the interrelationship among the political, scientific and technological components of socio-economic development. To this challenge, the "S" in UNESCO in the 60th year of its existence may have to find the proper response.

The paths of the UN and of UNESCO on the field of science and technology have seemingly never been further apart than at present. It can only be hoped that the UN system will sooner or later realise that it can only survive if it indeed acts again as a 'system'.

About the author

Beginning with his PhD thesis at the Technical University Berlin on *"Industrial R&D and international Competitiveness"* **Klaus-Heinrich Standke** has spent 40 years of his professional life on various aspects of International Co-operation and on issues of Science and Technology Policy.

From 1966-1974 he was a staff member (Counsellor) in the Directorate of Scientific Affairs of the OECD, in the years 1969-1974 he was seconded as Secretary-General of the OECD-sponsored European Industrial Research Management Association (EIRMA), to which some 150 of the leading European research-intensive companies belong.

In 1974 he was appointed Director of the United Nations Office for Science and Technology (OST), New York. In this capacity he was Secretary of the United Nations Advisory Committee on the Application of Science and Technology to Development (ACAST) and Chairman of the Interagency Committee on Science and Technology of the ACC. His functions included the responsibility for the substantive inputs into the United Nations Conference on Science and Technology for Development (UNCSTD), held in Vienna in 1979.

After the Vienna Conference he served since 1980 for almost twenty years in various functions affiliated with UNESCO (Special Representative of the Director-General to UNDP and Coordinator of the Interagency Task Force for operational activities, Deputy Assistant Director-General (DADG/OPS) at CPX, Principal Director at the Science Sector, Special Advisor to the Director-General with the rank of Assistant Director-General, Member of the International Scientific Advisory Board of UNESCO and *ex-officio* member of the Preparatory Committee of the World Science Conference "Science for the twenty-first Century: A new Commitment", Budapest 1999).

The Director-General had entrusted him with the organisation of two High-level UNESCO Colloquia: "Science and Technology for the Future: A Fresh Look at

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[64] United Nations, ECOSOC, Commission on Science and Technology for Development, Report of the Seventh Session, Geneva, 24-28 May 2004, p.V

International Co-operation", Paris 14-16.June 1989 and "Science and Technology for the Future of Europe: New Forms of Co-operation between East and West", Berlin, 25-29. September 1990.

Klaus-H. Standke has acted as EU Senior Advisor on Science and Technology Policy to the Polish Government. On behalf of the Council of Europe he has organised the "International Conference on Scientific Policy in the Service of a Greater Europe", Potsdam, 28-29. January 1993.   Standke is Special Advisor for Eastern Europe to the Prince of Wales Business Leaders Forum (PWBLF), London. He is a member of the President's Council of the New York Academy of Sciences and an elected member of the European Academy of Sciences and Arts. Since May 2005 he is member of the Board of Directors of the German-French Association for Science and Technology (Paris/Bonn). He is furthermore President of the Association to promote the French-German-Polish Cooperation ('Weimar Triangle').