

APEC AGENDA FOR SCIENCE AND TECHNOLOGY INDUSTRY COOPERATION INTO THE 21ST CENTURY

I. INTRODUCTION

One of APEC's specific objectives is to enhance cooperation and thereby reduce the disparities among member economies and enhance the positive gains within the region and the world economy that result from economic interdependence by encouraging the flow of goods, services, capital and technology. APEC's ability to harness technologies for the future and develop the human resources needed for innovation will support sustainable economic growth and complement efforts to facilitate increased investment and trade in the region.

Recognising the growing role of science, engineering and technology in promoting economic growth and their close linkages to trade and investment, the APEC Agenda for Science and Technology Industry Cooperation into the 21st Century will facilitate and further strengthen the economic and technological cooperation needed to achieve the APEC Vision.

II. VISION

APEC's vision for the 21st Century is of a dynamic and prosperous Asia-Pacific region built on the development and application of industrial science and technology which supports economic growth and improves quality of life while safeguarding the environment and the natural resources necessary for economic sustainability.

The successful development, application and commercialisation of industrial science and technology will depend upon the ability of APEC economies to create strong open innovation systems and to work cooperatively to catalyze the development of strong sustainable regional Science and Technology (S&T) networks and partnership.

III. PRINCIPLES

Collaboration and joint research activities should be undertaken in accordance with the following principles:

1. Open Access

- All economies should have the opportunity to participate and contribute to regional multilateral S&T collaborative activities, including R&D programmes, on an equal and voluntary basis in accordance with their respective capacities.
- Collaborative activities should be encouraged throughout the full innovation and application cycle from basic research to pre-competitive industrial R&D, and should seek to enhance technology adoption, adaptation and commercialisation.
- Effective collaboration should be based on smart partnerships and mutual benefit, and be built on respect, trust, transparency and fairness.

- Technology exchange and industrial development on the one hand and trade and investment liberalisation on the other, should be mutually supportive.

2. Balanced Benefits

- Joint activities and dialogue should support APEC's goals of common prosperity and narrowing the gap in stages of development and support the vision laid out in section II.
- Contributions to and benefits from collaboration should be equitable, balanced and in accordance with each partner's level of contribution with appropriate consideration given to the needs of developing member economies.
- Collaborative projects should have industrial relevance and contribute to sustainable economic growth that would benefit all APEC's people, including women and youth.
- Initiatives should include an appropriate balance between the development of new and high-tech industries and the application of appropriate technology to traditional enterprises and between long-term goals and pragmatic needs.

3. Private Sector/Business Participation

- Projects should encourage complementary and collaborative public and private/business sector investments in the development and the diffusion of technologies and related knowledge to industry that will provide the basis for economic growth, accelerate beneficial change, and build international partnerships and networks.
- Collaborative activities should ensure, whenever possible, the active participation of private-sector companies, especially SMEs, and other institutions as partners in order to ensure the activities reflect technology trends and business needs.
- Economies should seek to create a favorable and conducive business environment for international private-sector technology cooperation and international technology-based joint ventures, and accelerate appropriate technology exchange that fosters economic cooperation and industrial development.
- Enterprises should take the lead role whenever possible, in cooperation with universities, non-governmental organisations and public research institutions, in establishing goals, planning and structuring collaborative projects in science and technology.
- Projects should promote efficient, cross-sectoral and flexible cooperation among industrial enterprises, academia and public sector organisations.

4. Supportive Regulatory Framework

- Consistent and transparent approaches should be adopted to standards and standard setting activities, in order to facilitate technological exchange and flows.
- Economies and their standards organisations should, whenever possible, apply international standards to facilitate compatibility and market openness while not restraining innovation.
- Partners in collaborative activities should come to an understanding on the protection of intellectual property rights, as well as fair and equitable contributions to and commercial benefits from projects, dissemination of information and access to and the use of the results of collaboration.

IV. MECHANISMS

Information flow, human resources development and an appropriate business climate are key to building regional innovative capacity and harnessing the technologies of the future. Environmentally and economically sustainable practices, enhancement of the human capital that integrates women and youth, also are essential if we are to maintain long-term economic growth and extend the benefits of higher living standards and better health to all within the region.

The facilitation of networks and partnerships is the principal vehicle through which the Asia-Pacific region can successfully find and implement solutions based on S&T cooperation to the challenges posed by our rapidly changing economies. APEC organisations should initiate industrial science and technology activities that build on these mechanisms to facilitate the creation of networks and partnerships and should seek to avoid duplication and complement existing activities wherever possible.

1. Improved Availability and Access to Information

The availability and access to information is critical for creating sustainable regional S&T networks and partnerships and facilitating technology flows and cooperation. It is particularly important for APEC to work to ensure that scientific and technological information provides direct and tangible benefits to all sectors, especially SMEs. Systems to support effective networks and partnerships will facilitate information access and communication among APEC fora and all sectors of APEC member economies, including SMEs and relevant business and non-governmental organisations. Existing collaborative activities such as the ASTWeb provide a good foundation to continue to build such systems.

In order to enhance easy access to technological information, it is essential APEC member economies maintain a constant exchange of views and analysis on S&T policies and practices. It is also important that APEC member economies collaborate and commit to collecting, standardising and openly disseminating the statistics and information necessary for policy makers and the private sector to support dialogue and make informed decisions. Collaboration is essential to ensure the interoperability of information exchanged through networks. The continued development of research and factual data needed to create S&T databases and information on technology management practices is important to stimulate technology commercialisation and economic growth.

2. Improved Human Resource Development

In the knowledge-based economy, human resources are the key element of growth. Creative scientific and technical men and women are indispensable not only to fuel innovation but to underpin sustainable industrial productivity and to improve the quality of life. Technological and industrial innovation will not occur at the regional, member economy or firm level if the full human capacity of the workforce, management, engineering and research sectors is not geared to the needs of a changing industrial and economic context. In conjunction with human resource development, it is important to maintain and improve the capabilities of such organisations as public research institutions, private R&D organisations, and technology training institutes for SMEs.

The Human Resource Development Working Group in coordination and consultation with other relevant APEC fora should continue to optimise the use of existing APEC activities such as the APEC Vocational Training Programme and APEC Regional Education Hubs. It is also critical to develop the full spectrum of human resources relevant to industrial science, engineering and technology including management, research and development, and users. APEC should facilitate the regular exchange of scientists, engineers and technologists among APEC economies, including

strengthening efforts on the mutual recognition of professional qualifications. It also recognises the central role private companies play in developing and implementing activities that enhance the human resources of small and medium-sized enterprises, and the importance of long-term industry-wide and multi-firm innovation linkages.

3. Improved Business Climate

Member economies should work to ensure an open business climate, a consistent, transparent and timely legal framework, affecting flows of technology and expertise. Improvements in this area are critical to building innovative capacity in the region, enhancing technology cooperation, accelerating technology commercialisation and developing regional S&T networks and partnerships. Areas important to an improved business climate include, but are not limited to: intellectual property rights; standards and metrology; safety assurance; investment and financing including development of venture capital markets; joint venture operations; environmental protection; and researcher mobility.

APEC recognises the importance of providing effective intellectual property rights protection as a means of encouraging confidence and facilitating the exchange of information. Member economies should encourage dialogues on the development of intellectual property protection regimes that promote and support the development, diffusion and application of industrial science and technology.

All APEC fora, including the Sub-Committee on Standards and Conformance and the Intellectual Property Experts Group have an important contribution in enhancing the business climate for science and technology industry cooperation.

4. Enhanced Policy Dialogue and Review

There are major benefits to be gained by sharing information on the efficiency and effectiveness of alternative policy and programme approaches. Member economies are encouraged to develop policies by sharing knowledge and experience in these areas, possibly through the use of foresight methodologies and other techniques. Regular policy dialogues among Ministers and among APEC officials and private sector entities concerned with strengthening science and technology industry cooperation, including ABAC and the scientific community, is an important source of guidance to APEC fora in carrying out its work programme.

Regular policy dialogues and reviews among all levels of officials concerned with industrial science and technology provide an opportunity to discuss common concerns, and possible benefits from standardising or rationalising regulations related to the flow of technology. These policy dialogues are also useful for individual member economies as they consider appropriate industrial science and technology policies and activities to enhance their economic growth and will help foster public understanding and acceptance of science, engineering and technology.

5. Facilitation of Networks and Partnership

The accelerated pace of change and increased costs and complexity of science and technology require new approaches in the region to joint research and development, and to other types of collaborative activities which underlie the innovation process. The Industrial Science and Technology Working Group and other appropriate APEC fora should review existing initiatives and processes and establish new ones as needed to catalyze the creation of regional S&T networks and partnerships and to encourage cooperative R&D projects.

By creating a supportive environment for joint R&D activities based on the principles set out in section III, APEC can encourage synergistic and complementary flows of technology among partnerships and networks of private companies, non-governmental entities and the public sector. A

number of existing activities such as the APEC Network of S&T Industrial Parks and the APEC R&D Leaders Network provide potential models. APEC member economies, in conjunction with the business sector should continue to develop new initiatives including common use of large-scale facilities.

V. TECHNOLOGY AREAS

While each APEC economy has its own particular interests and priorities, APEC initiatives should focus on areas of widespread interest and mutual benefit. Areas for joint activities could include but are not limited to:

- Biotechnology
- Environmental and Cleaner Production Technologies
- Communication
- Information Technologies/Electronics
- Advanced Materials
- Mechatronics
- Transportation
- Resource Management Technology
- Energy
- Sustainable Agriculture
- Emergency Preparedness and Climate Prediction
- Exploitation of natural resources

VI. IMPLEMENTATION

All APEC fora, particularly the Industrial Science and Technology Working Group, should develop and take responsibility for designing and implementing within a reasonable timeframe specific initiatives and activities that support the vision and principles under this Agenda.

APEC member economies are encouraged to announce and implement, on a voluntary basis and in accordance with their capacity, initiatives to strengthen industrial science and technology cooperation. APEC member economies may submit specific proposals that support implementation of this Agenda.

The SOM Sub-Committee on Economic and Technical Cooperation will oversee the implementation and follow-up work on this Agenda. Annual progress in the implementation of the Agenda shall be reported to Ministers with the initial report to be presented at the 11th Ministerial Meeting in 1999.