ASEAN's Science & Technology Programmes, Priorities and Plans: A brief overview

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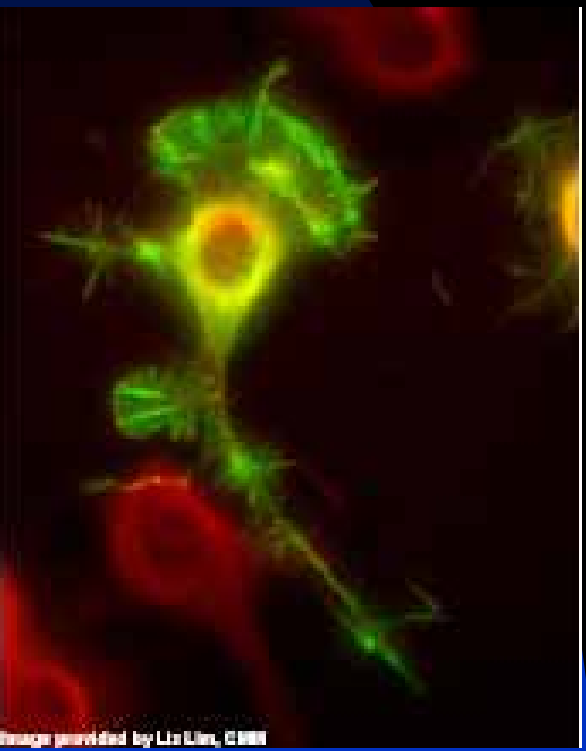
Diversity of ASEAN

- 10 Nations in South-East Asia
- Biotechnology development ranging from rudimentary to the nearly the most advanced
- Thousands of Universities and Institutes ranging from basic to advanced research of the world's top 20.

ASEAN Unity amidst Diversity

- The ASEAN process
- Establishing cordial relationships – organisational and personal
- Consensus building
- Community spirit
- A united vision based on a common destiny
  - A technologically competitive ASEAN,
  - Competent in strategic and enabling technologies,
  - Adequate pool of technologically qualified and trained manpower, and
  - Strong networks of scientific and technological institutions and centers of excellence.

ASEAN Vision 2020 – S&T



"… a technologically competitive ASEAN, competent in strategic and enabling technologies, with an adequate pool of technologically qualified and trained manpower, and strong networks of scientific and technological institutions and centers of excellence"

Major Directives for S&T Cooperation in ASEAN

- Vientiane Action Programme (VAP)
- ASEAN Plan of Action on S&T (APAST)
- Decisions of ASEAN S&T Ministers and ASEAN Committee on S&T (COST)

Vientiane Action Programme (VAP)

- **Second in a series of plans of action building up to the realisation of the goals of ASEAN Vision 2020**
- **Endorsed by ASEAN Leaders in November 2004 to succeed the Hanoi Plan of Action (HPA)**
- **Six-year time frame (2004-2010)**
- **Organised under the three pillars of ASEAN Community:**
  - **ASEAN Security Community**
  - **ASEAN Economic Community**
  - **ASEAN Socio-Cultural Community**

VAP programme areas in S&T

i) A core set of **ASEAN S&T indicators** that can serve as input in the development of human resources strategies by economic and industry planners.

ii) An operational **ASEAN S&T Network (ASTNET)** as a hub of S&T information exchange and technology transaction.

iii) **ASEAN-help-ASEAN programme** focusing on resource mobilisation and capacity building.

iv) Completion of the current augmentation plan of the **ASEAN Science Fund** (2008).

- Database and directories of R&D, projects, programs, experts
- S&T indicators ASTMIS
- Tech offer and requests

ASEAN Science Fund

- US $3-5M endowment fund
- Contribution by 10 ASEAN nations
- Insufficient for all program areas
- Projected aim of raising USD $100M floated at COST49
- Need to find funding partners in private industry and public sectors and NGOs

VAP programme areas (contd)

v) A **policy framework** for strategic partnership in research and technology development between public and private sector

vi) An established ASEAN network of **technology foresight practitioners** and completed technology foresight exercises

vii) Regional training courses to develop technical skills needed through **ASEAN Virtual Institute of Science and Technology (AVIST)** and other appropriate means

viii) Greater **awareness** of S&T projects and accomplishments

AVIST

ASEAN Virtual Institute of Science and Technology

"ASEAN-initiative on e-learning for a competitive ASEAN"

http://www.avist.org

AVIST (ASEAN VIRTUAL INSTITUTE OF SCIENCE AND TECHNOLOGY) IS A VIRTUAL LEARNING NETWORK FOR CONTINUING PROFESSIONAL DEVELOPMENT AND ADVANCED STUDIES IN SCIENCE AND TECHNOLOGY WITH OPPORTUNITIES FOR REAL PRACTICAL EXPERIENCE AT PARTICIPATING UNIVERSITIES.

VAP programe areas (contd)

ix) **programmes to enhance S&T culture in the society** through participation of related and interested elements in the community, such as private sectors.

x) Implement **applied S&T in relevant sectors** for social and economic benefit.

xi) Develop **ASEAN human resources** in applied research concentrating on micro-electronic, new materials, biotechnology, telecommunication and other high value-added industries that enhance ASEAN's global competitiveness.

xii) Develop **joint certification and accreditation of science and technology** in the region.

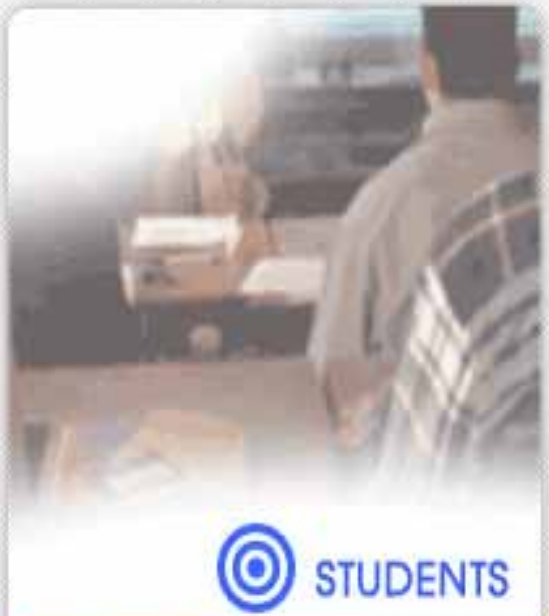
AVIST

Asian Virtual Institute of Science and Technology

STAFF

Manuals:

- Instructor Manual
- Administrator Manual
- Authoring Tool Manual



STUDENTS

Manuals:

- Student Manual
- Registry Manual

AVIST E-Learning Platform.

AVIST courses are developed using VClass platform. Vclass is an open source e-learning platform developed by the Distributed Education Center at the Asian Institute of Technology. It is specifically designed for delivering online course by two different methods – through "virtual classroom learning" or "virtual class on demand".

GUEST

ASEAN PLAN OF ACTION ON SCIENCE AND TECHNOLOGY (APAST):

2001-2004 extended up to 2006

Objectives of the Plan of Action on Science and Technology:

(i) an intensified cooperation on science and technology development and R&D between the public and private sector, that has a strong thematic focus, and is interdisciplinary and cross-sectoral;

(ii) an expanded scope of regional programmes leveraging on national experiences and resources and ASEAN-help-ASEAN initiatives that will enable the newer ASEAN members to move up the learning curve and become economically competitive;

(iii) a highly mobile and intelligent S&T community that thrives on knowledge creation and application, and is creative;

(iv) a system of rewards and incentives to encourage innovation and technology commercialisation and attract talent to a life-long career in science and technology;

(v) a means of seeding and sustaining science and technology programmes through innovative ways of investing in S&T endeavours and generating revenue; and

(vi) an enhanced system of management of the future S&T enterprise that is innovative, bold and entrepreneurial.

THRUSTS AND STRATEGIES OF THE ASEAN PLAN OF ACTION ON SCIENCE AND TECHNOLOGY

(8 thrusts and 40 actions)





THRUST 1.

- **Networking of S&T Centres of Excellence and programmes so as to optimise resources and achieve maximum results**

- ***Action 1:*** ***Hasten the development of the ASEAN S&T Information Network (ASTNET) and create a hub of activities to promote and sustain it.***

- ***Action 2:*** ***Identify centres of excellence on S&T and develop a resource database and network in priority areas such as bioinformatics, drug development and nanotechnology so as to facilitate information sharing, human resource development and technical cooperation between the public and private sector in advanced technology.***

- ***Action 3:*** ***Develop a network of national and regional projects and databases to support integration and achieve optimisation for regional implementation taking into account the diverse economies, stage of development, and readiness of member countries.***

- ***Action 4:*** ***Promote a modern and competitive small and medium enterprise (SME) sector in ASEAN by leveraging on ASTNET and the related S&T networks and resources.***

THRUST 2.

- **Developing policy for programme selection, design, and management in a new S&T enterprise, taking into consideration sectoral needs and the needs of newer member countries**

Action 5: ***Develop policy to guide programme selection, funding, execution and management based on a clear understanding of S&T policy and constraints across ASEAN countries.***

Action 6: ***Develop policy and a framework for collaboration with the private sector on R&D and technology venture development.***

Action 7: ***Develop policy and mechanisms for cost and benefit sharing and equity participation in S&T spin-off companies.***

Action 8: ***Develop a framework for intra-ASEAN intellectual property protection and technology transfer.***

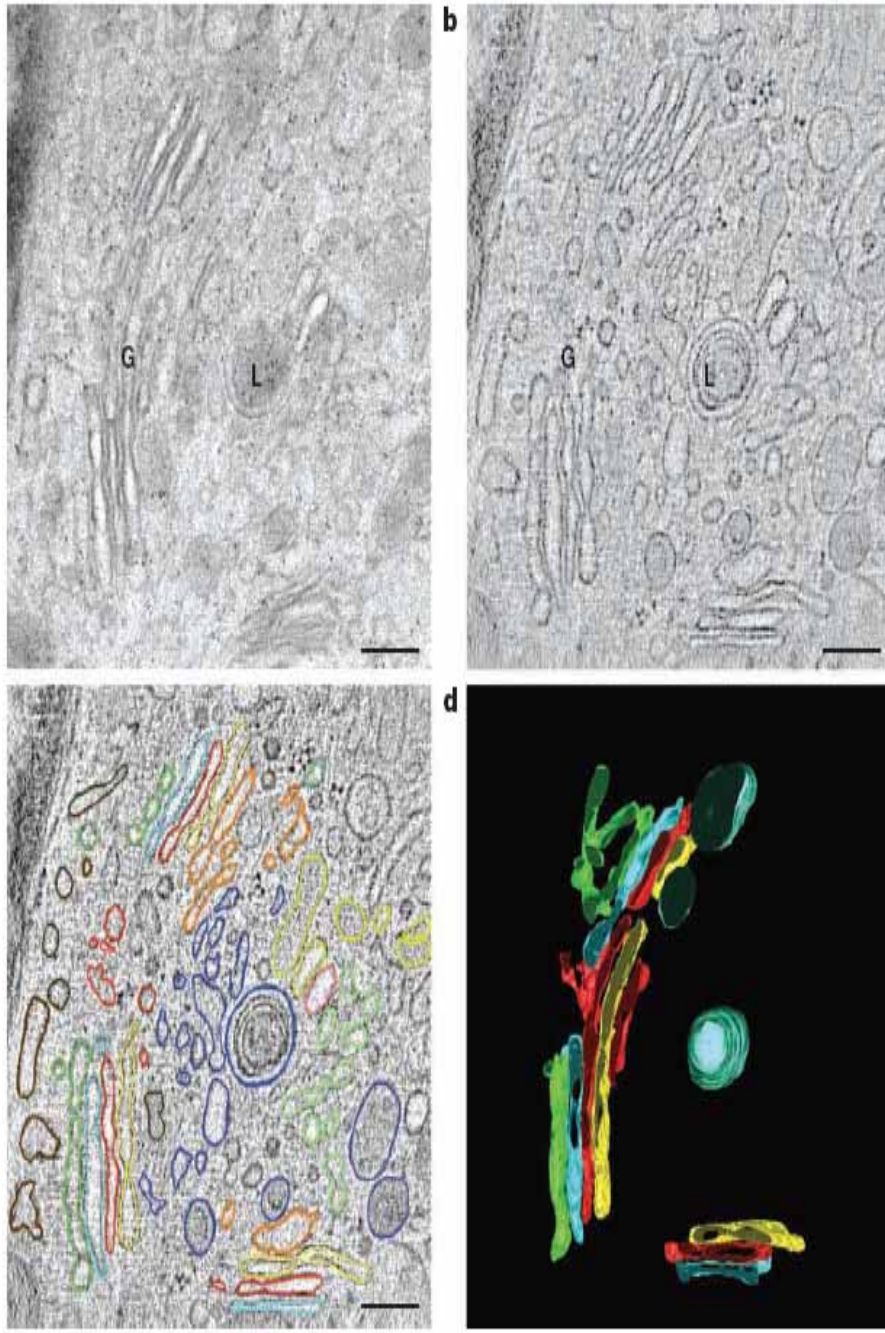
Action 9: ***Develop a mechanism for identification, design and execution of ASEAN help ASEAN projects.***

Action 10: ***Establish an ASEAN-know-ASEAN platform to promote close interactions among S&T professionals and policy and decision makers in the public and private sectors.***

Action 11: ***Establish a mechanism to promote public awareness on the achievements of ASEAN science and technology cooperation.***

THRUST 3.

- **Intensifying R&D collaboration in strategic and enabling technologies and promoting the commercialisation of R&D**



igure 1 | The electron-tomography process on a 250-nm thick section of a high-pressure frozen,

Action 12: ***Employ a project steering group (PSG) for each programme area to engage dialogue partners and the private sector for discussion on collaboration and funding.***

Action 13: ***Adopt a sectoral and thematic approach to defining priority areas for research collaboration through a process of technology scanning and foresighting.***

Action 14: ***Intensify intra-ASEAN research collaboration to develop core competency and enabling technology and hasten the implementation of e-ASEAN S&T programmes leveraging on resource sharing.***

Action 15: ***Identify and seek appropriate commercial spin-offs through partnership with the private sector.***

Action 16: ***Contribute to the e-ASEAN infrastructure and projects by being an active end-user and content developer leveraging on resources of COST's subsidiary groups and networks.***

THRUST 4.

- **DEVELOPING HUMAN RESOURCES TO MEET THE NEEDS OF e-ASEAN, NEWER MEMBERS AND THE KNOWLEDGE ECONOMY**

Action 17: Mobilise S&T resources and networks to create an environment for life-long learning and innovation and to support the training of young entrepreneurs.

Action 18: Design HR development programmes to meet sectoral needs and the needs of newer ASEAN members, especially the training of trainers and updating of professionals.

Action 19: Establish an ASEAN Scholarship and Fellowship programme to support e-ASEAN and the implementation of the ASEAN Information Infrastructure.

Action 20: Establish an intra ASEAN exchange programme for talented ASEAN decision makers to be attached to key resource centres and government agencies or take part in an executive fellowship programme focusing on S&T policy and management.

THRUST 5.

- **DEVELOPING S&T INFRASTRUCTURE AND CONTENT FOR E-ENABLING RESEARCH, HUMAN RESOURCE DEVELOPMENT, TECHNOLOGY FORESIGHTING AND INTELLIGENCE GATHERING, TECHNOLOGY COMMERCIALISATION, AND VENTURE DEVELOPMENT.**

Action 21: ***Establish an S&T research and education network alliance (ASTRENA) taking advantage of the current and future multi-lateral and bi-lateral new generation internet links.***

Action 22: ***Further develop ASTMIS databases for easy data management, updating and search, and develop new indicators to measure technology content in products and services and impact on the national and regional economy.***

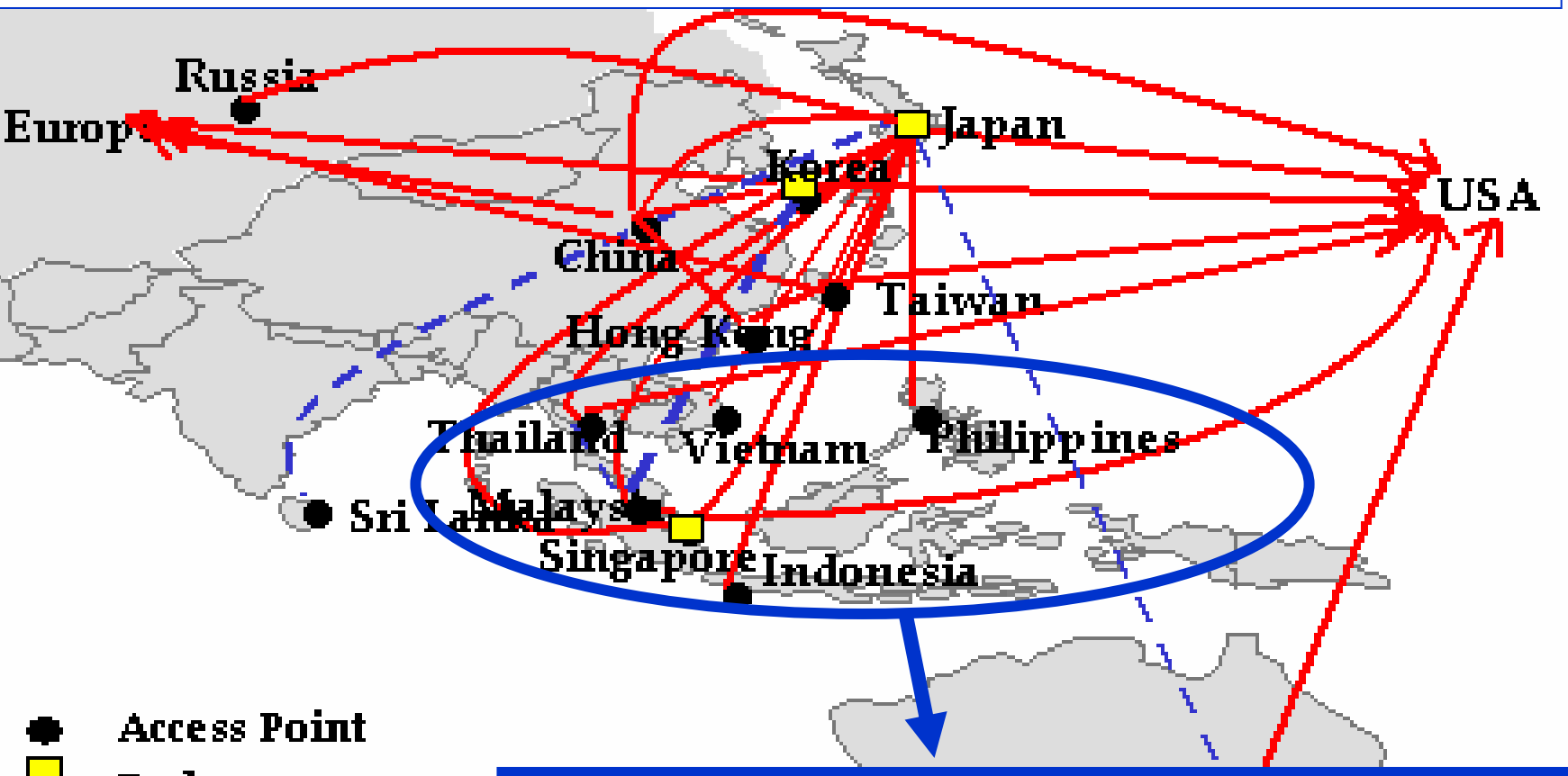
Action 23: ***Create content for the ASEAN Information Infrastructure leveraging on ASTNET, ASTMIS and the networks of COST Subcommittees.***

Action 24: ***Develop an e-learning network for continuing education and professional updating courses.***

Action 25: ***Develop e-links between COST and schools and the business community.***

Action 26: ***Undertake ASEAN-help-ASEAN e-conversion projects in newer ASEAN members focusing first on the S&T and education sector.***

Advanced Internet2 Infrastructure in the Region

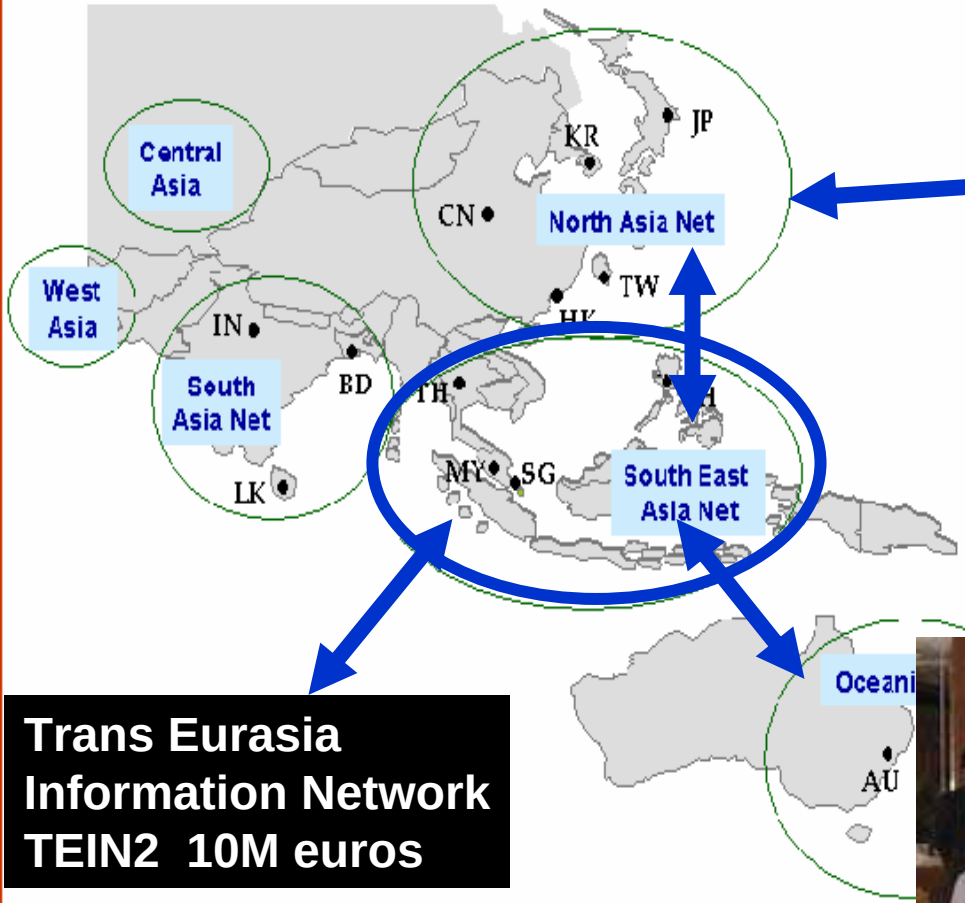


- Access Point
- Exchange Point
- Current Status
- 2003-2004 (plan)

Building the ASEAN Science and Technology Research and Education Network Alliance (ASTRENA)

Malaysia - MYREN
Philippines - PREGINET
Singapore - SINGAREN
Thailand - THAISARN
Viet Nam - VIETNAM R&E Network

ASTRENA:
ASEAN Science and Technology Research and Education Network Alliance



Asia-USA Transpac II Project

Trans Eurasia Information Network TEIN2 10M euros

For more information: http://www.apan.net/documents/linkinfo.xls

THRUST 6.

- **GENERATING REVENUE THROUGH INNOVATIVE MANAGEMENT SYSTEMS AND ENTERPRISE FORMATION**

Action 27: Spin off the commercial portion of ASTNET and develop it into an income generating enterprise and test bed for future projects.

Action 28: Develop business plans to spin-off COST projects having the potential to become viable commercial ventures.

Action 29: Create a system of governance of COST spin-off enterprises.

Action 30: Develop a system for revenue sharing among researchers, institutions and ASEAN COST.

Action 31: Augment the ASEAN Science Fund from revenue obtained from fees and royalties, equity holdings in COST enterprises.

ASEAN-Australia
ASEAN-China
ASEAN-India
ASEAN-Japan
ASEAN-ROK
ASEAN-NZ
ASEAN Plus Three
ASEAN-Russia
ASEAN-USA
…

THRUST 7.

- **ENGAGE DIALOGUE PARTNERS IN A FOCUSED MANNER IN MAJOR PROGRAMME AREAS AND FLAGSHIP PROJECTS**

Action 32: Seek appropriate representation in discussions with dialogue partners on S&T cooperation.

Action 33: Develop strategies for engagement of dialogue partners beyond project design and monitoring taking into consideration differentiated approaches based on mutually beneficial common interests.

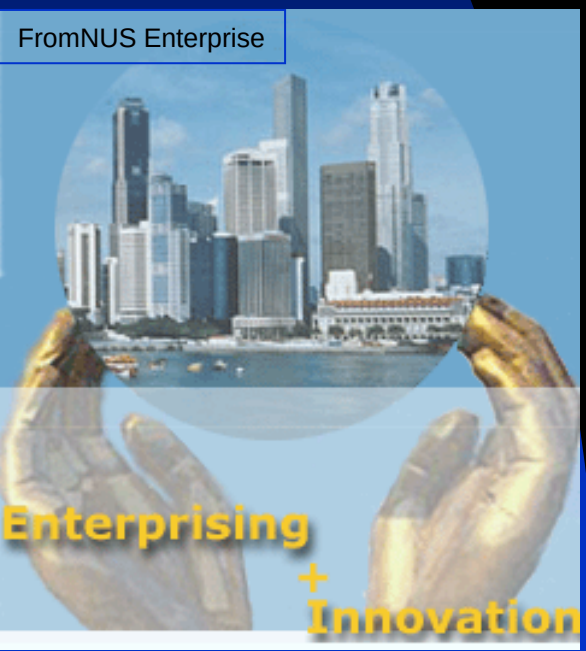
Action 34: Invite dialogue counterparts and private sector for joint venture development.

Action 35: Facilitate access to dialogue partners' resources for implementation of regional projects with a focus towards the newer members.

Action 36: Manage COST+3 relations with the view to forging closer partnership for mutually beneficial development in EAST ASIA.

THRUST 8.

- **MANAGING THE S&T ENTERPRISE IN THE NEW MILLENNIUM**



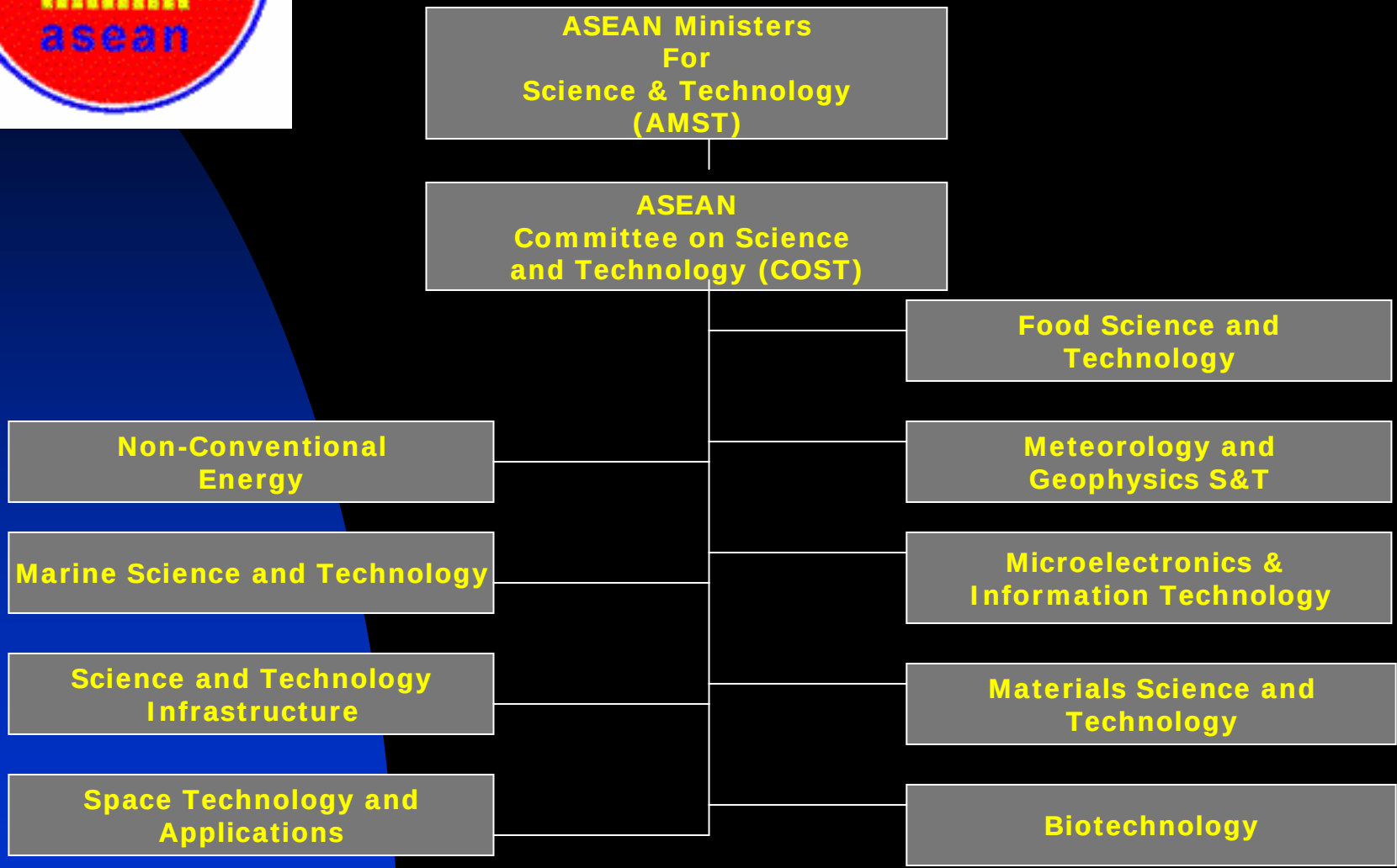
Action 37: Develop innovative systems to manage a regional S&T technology enterprise having diverse interests in R&D, spin-offs, and venture development.

Action 38: Develop innovative mechanisms for COST to hold equity in its spin-offs and joint ventures.

Action 39: Strengthen the administrative support to COST.

Action 40: Establish an ASEAN Science and Technology Enterprise for Research, Innovation, Service and Knowledge (ASTERISK) as a twin body of COST to create a fast-moving, adaptive and forward-looking S&T enterprise.

ASEAN S&T Organisational Structure



Meetings

- ASEAN Ministers of S&T: Every 1 ½ years (alternate formal and informal). 11th Meeting: August 2005, Jakarta
- COST and Sub-Committees: Twice a year.
  COST-49: 20-21 April 2005, Vientiane;
  COST-50: August 2005, Jakarta
- Sub-Committees:
  Back-to-back with COST Meetings

SCB

Priority areas: biotechnology

- Food and horticultural crops
- Improvement of livestock production
- Bioremediation
- Bioprospecting
- Value addition to natural products
- Bioinformatics and Computational Biology
- Emerging Infectious Diseases
- RNA interference (RNAi)
- GMO Guidelines

SCFST

Priority areas: food science and technology

- Food biotechnology
- Cleaner production
- Food safety and quality
- Value-added products from under-utilised resources
- Functional food, natural flavours and other additives
- Food processing
- Issues on Genetically modified foods (GMF)

SCIRD

Priority areas: infrastructure and resources development

- S&T policy studies, especially S&T foresight studies
- S&T management and information dissemination
- ASEAN S&T Information Network (ASTNET)
- ASEAN Virtual Institute of Science and Technology (AVIST)
- ASEAN Science and Technology Research Education Network Alliance (ASTRENA)

Priority areas: materials science and technology

- Materials for high technology applications
- Biodegradable and recyclable materials

SCMST

Priority areas: marine science and technology

- Integrated coastal management
- Marine resources conservation and management
- Transboundary marine pollution
- Marine hazards mitigation
- Marine technology (industrial uses of marine resources)
- Marine databases and networking

SCMG

Priority areas: meteorology and geophysics

- Climate , climate change and climate variability
- Meteorological and geophysical issues
- Regional meteorological related environmental issues
- Capacity building on national and meteorological services

SCNCER

Priority areas: non-conventional energy research

- Biomass/biogas technology
- Clean coal technology
- Solar wind/micro-hydro energy technology
- Energy efficiency
- Utilisation of natural gas

SCMSAT

Priority areas: space technology and applications

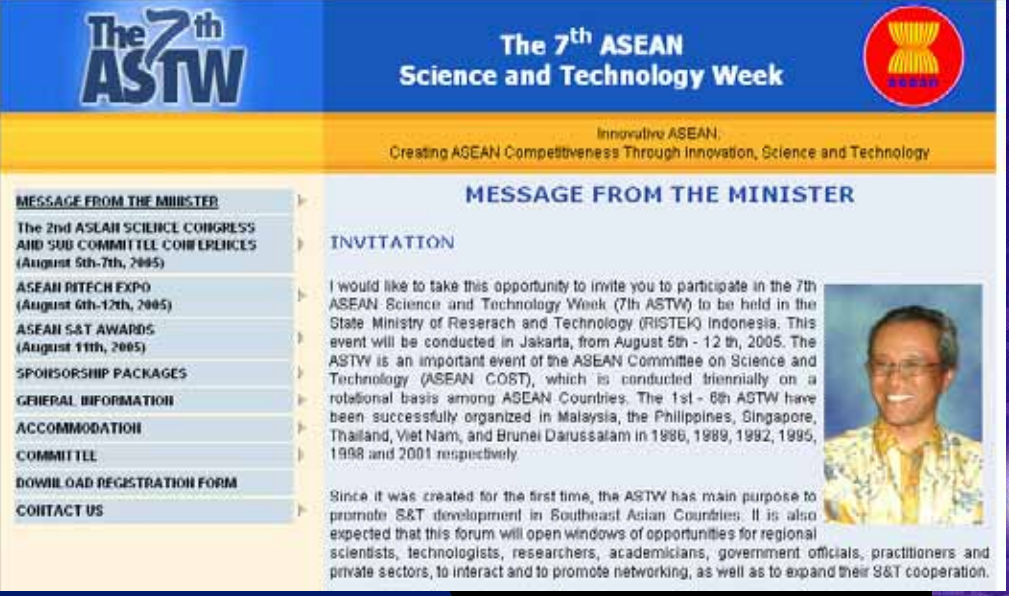
- Remote sensing
- Satellite technology applications for environment and natural resource management and development planning

Priority areas: microelectronics and information technology

- Instrumentation/sensors
- Microelectronics design and processing technology
- Software and multimedia

COST Flagship Projects

- ASEAN Science and Technology Information Network (ASTNET)-Website; ***http://www.astnet.org***
- ASEAN S&T Fellowship/Human Resource Development (HRD) Programme: ASEAN Institute of Science and Technology (AVIST) ***http://www.avist.org/***
- ASEAN Science and Technology Week (ASTW): 7th ASTW, Jakarta, 5-12th August 2005 ***http://www.7astw.org/***
- ASEAN Food Conference (ASF): 8th AFC, Jakarta, August 2005
- Technology Scan



Invitation to Scientists and Technologists in institutions within ASEAN
And Dialogue Partner countries:
Japan, Korea, PRChina, Russia USA, Australia, New Zealand, India etc.
to participate
http://www.7astw.org/
Jakarta, from August 5th - 12 th, 2005

GA Special Session: S
The 5th Science Cour

Thank you SCA!