Organisation of Islamic Conference (OIC)
Conference on Science and Technology

VISION 1441

KUALA LUMPUR DECLARATION ON SCIENCE AND TECHNOLOGY FOR SOCIO-ECONOMIC WELL-BEING OF THE UMMAH

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Akademi Sains Malaysia
(Academy of Sciences of Malaysia)
902-4, Jalan Tun Ismail
50480 Kuala Lumpur
Malaysia

Tel: 603-2694 9898
Fax: 603-2694 5858
E-mail: samsudin@akademisains.gov.my

PREAMBLE

Only those of His servants with knowledge have fear of God. God is Almighty, Ever-Forgiving
(Chapter 35: Al-Fatir, verse 28);

Read in the name of your Lord, Who created: created man from a clot of congealed blood. Read: and your Lord is most Generous, Who taught knowledge by the pen: taught man what he did not know.
(Chapter 96: Al-'Alaq, verses 1-5)

Knowledge acquisition is emphasised in the teachings of Islam. This quest for knowledge has assumed increasing importance in today's knowledge-intensive economy. Success in the new economy will go to firms and countries that are proficient in the acquisition, generation, distribution and exploitation of knowledge. The Muslim world is facing a knowledge gap because of its deficiency in science, technology and innovation (S&T). For example:

- OIC countries' expenditure on R&D as a proportion of GDP – about one tenth that expended by most developed nations;
- Number of researchers, scientists and engineers in the OIC engaged in R&D is one tenth that found in the developed world;
- The number of patents filed by OIC nationals in 1997 accounted for only 0.3% of the world average;
- Scientific publications in international journals by scientists and engineers from member countries accounted for only about 3% of the world's total.

This deficiency in Muslim S&T is particularly intriguing given that Muslims were once world leaders in S&T a millennium ago. Arresting this decline in S&T will not be easy. The Muslim world has no other alternative than to invest heavily in human resource development and S&T infrastructure. Despite considerable progress in advancing human development and reducing poverty over the past two decades much still remains to be done. A new vision grounded on a commitment for S&T is necessary in order to ensure that the Islamic world reclaims its past supremacy in S&T.

We the delegates of the Organization of Islamic Conference (OIC) Conference on Science and Technology: Science and Technology for Industrial Development in Islamic Countries: Facing the Challenges of Globalisation, assembled in Kuala Lumpur from 7th – 10th October, 2003 hereby declare the following:

VISION 1441

The Muslim world needs a vision to rededicate ourselves to mastering S&T to ensure that we can face the challenges of the new global economy with confidence. Our vision would be:

"OIC member states are committed to become a community that values knowledge and is competent in utilising and advancing S&T to enhance the socio-economic well-being of the Ummah."

KEY STRATEGIC THRUSTS IN ACHIEVING VISION 1441

We identify 7 key strategic thrusts that are central towards the realization of our vision as follows:

Commitment

Ensure that there is commitment at the highest political level to S&T that translates into solid and sustained investments in S&T including human resource development and infrastructure by both government and industry;

Capabilities and Capacity

Improve our ability to acquire and transform S&T knowledge and skills for a strong competitive advantage. Human resource is our ultimate resource. Industries need to be strengthened to ensure the vitality of our industrial base. Also, our S&T institutional framework also needs to be revamped to enable it to provide the necessary leadership in driving the agenda for change. A modern knowledge infrastructure is essential to enable us to undertake productive research;

Collaboration

Promote smart partnerships and synergy among our research institutions, universities and industries to enhance the effectiveness of our S&T efforts;

Concentration

We cannot go it alone in S&T development. Our resources – manpower and financial – are limited. We need to be selective in ensuring that resources are devoted in areas that will yield maximum benefits;

Culture

Developing a society that is appreciative and supportive of S&T. We need to create an environment which encourages and rewards ideas, supports science and innovation, promotes entrepreneurship and inspires interest in S&T careers.

Community

Improving the quality of life of the society by making S&T relevant to their daily lives in terms of technologies which enhances efficiency and convenience. We need to develop the innovation capacity of the community empowering them to use S&T to meet local needs.

Compassion

The pursuit of our S&T vision does not diminish our concerns in assisting our disadvantaged members.

REALIZING OUR VISION: ACTION PLANS

COMMITMENT: OIC TO CHAMPION THE CAUSE OF S&T

Proficiency in S&T does not happen by chance. It must be made to happen. Making it happen demands the commitment at the highest levels in government, industry and S&T education institutions. We seek the support of the Heads of State/Government to champion the cause of S&T.

RECOMMENDATIONS

1. OIC Summit to adopt **Vision 1441** and its objectives as the guiding principle in steering our S&T development for the next two decades. The **key objectives** of Vision 1441 are:
   - to achieve at least **14 percent** of the world's scientific output by the year 1441 H through increased investments in S&T including R&D;
   - to achieve competent workforce of at least **1441** RSEs (researchers, scientists and engineers) per million by year 1441H; and
   - to achieve investments in R&D of at least **1.4 percent** of GDP
2. To conduct an annual OIC conference on S&T parallel to the ICFM annual meeting;
3. Establish a seed fund totalling 500 million USD to support, amongst others;
   - establishment of a Pan-Islamic R&D Fund to promote R&D investments among member countries;
   - establishment of a Muslim World Technology Investment Fund such as venture capital, for the acquisition of technologies and growth of new technology-based companies;

4. Support greater industry participation and investments in R&D/technology development activities through provision of attractive fiscal and financial incentives as well as other support measures;

5. Increase budget for education and training in order to expand and enhance educational opportunities at all levels including technical and vocational education as well as adult and continuing education;

6. Establish strong and dedicated institutional framework for Science, Technology and Innovation incorporating scientific management and advisory system with active participation from all sectors including industry to underscore importance as well as to provide committed leadership and policy direction in the promotion and development of S&T through national plan of action/national S&T policy;

7. Establish and strengthen national academies of sciences in OIC countries to act as independent advisory bodies to the respective governments;

REALIZING OUR VISION: ACTION PLANS

STRENGTHENING S&T CAPABILITIES AND CAPACITIES

Skilled people are at the centre of the new economy. They are the building blocks of our efforts to transform our economies. The availability of skilled people especially in S&T among member countries is extremely low- in most cases the figure is less than 10 researchers, scientists and engineers per 10,000 labour force. Member countries need to urgently address this deficiency by instituting various human resource development programmes in science, technology and engineering including expanding opportunities for greater women participation in these disciplines. Such efforts will take time to yield results. In the meantime, member countries that are well endowed with educational facilities can encourage admission of more students from OIC member countries. Such a move will not only contribute towards developing the human capital of member countries, but will go a long way towards building greater people to people understanding among the Ummah.

Despite the low numbers in S&T manpower, there exists, among member countries, expertise in specific scientific and technological disciplines. We can harness this pool of expertise to address many of our development problems such as desertification and cheap and clean drinking water. These experts may include many of our expatriate nationals who may still be very concerned with the development of their country of origin as well as the Ummah because of cultural, family or other ties. The objective, then, is to create the links through which they could effectively and productively be connected to the development of the Muslim world.

REALIZING OUR VISION: ACTION PLANS

FOSTERING COLLABORATION IN S&T

Closer understanding among member countries is essential towards the development of long lasting partnerships. Such understanding is often the product of deliberate and conscious efforts over a period of time. This intimate relationship is poorly developed and has not taken a firm root among member countries.

Given limited resources, both financial and manpower, amongst member countries it becomes crucial that collaboration lies at the heart of our S&T efforts. Pockets of excellence exist among member countries in specific technologies for example, petroleum engineering; micro-chip design; highway construction; and water desalination. Such expertise could be shared and enhanced through joint projects among interested parties. These collaborations could also focus on the new and emerging technologies particularly in specific applications that build on the comparative advantages of member countries. Research partnerships in the basic sciences particularly in the emerging technologies are vital towards enhancing our mastery of these technologies. Malaysia is planning to establish a number of institutions on fundamental sciences under the stewardship of the Academy of Sciences Malaysia and invites researchers from member countries to participate in its programmes. An ongoing forum to forge alliances among research organisations and firms of member countries, modelled along the lines of smart partnerships spearheaded by Malaysian Industry-Government Group for High Technology (MIGHT) in other fora, would serve as a useful platform to chart new approaches.

RECOMMENDATIONS

8. Enhance and expand opportunities and participation of women in the mainstream of development in particular areas relating to S&T;
9. Increase seats for OIC nationals for undergraduate and post-graduate education in institutions of higher learning in member countries;
10. Launch science and technology management training courses for senior personnel of S&T institutions as well as those from industry among member countries;
11. Expanding capabilities towards new and emerging technologies such as nanotechnology and photonics;
12. COMSTECH and IDB to harmonise the development of a comprehensive information portal/database on S&T and industry of member countries and to help disseminate the guidelines for a National IT Strategy prepared by IDB for the maximum benefit of member countries;
13. To take advantage of existing centres of excellence in Muslim countries for training of Muslim scientists;

RECOMMENDATIONS

14. To foster collaborations with international bodies such as UNESCO, UNU, etc. as well as regional bodies involving OIC member countries to develop S&T on a global basis;
15. Malaysia in collaboration with COMSTECH and IDB to initiate smart partnerships to harness scientific and technical strengths of existing and proposed centres of excellence among member countries;
16. To promote and expand existing academia-industry linkage programmes across OIC countries including programmes to enhance commercialisation of R&D;
17. Establish OIC Business Angel* Networks;

*An *Angel Investor* is one who advances capital for the purpose of development of technological products, based not purely on market considerations but more on personal trust.

REALIZING OUR VISION: ACTION PLANS

CONCENTRATING OUR S&T EFFORTS

Given limited resources, both financial and man power, among member countries, it becomes crucial that selectivity lies at the heart of our S&T efforts. Many member countries are not conversant with new methodologies in prioritising S&T projects. We cannot afford to dilute our limited resources across a broad front. We must be strategic in approach and support develoments in those areas that promise highest socio-economic pay-offs.

RECOMMENDATIONS

18. Malaysia, COMSTECH and IDB to conduct technology assessment through technology foresight and / or technology mapping or other similar methodologies to enhance competencies in prioritisation of S&T projects.

REALIZING OUR VISION: ACTION PLANS

FOSTERING A CULTURE OF SCIENCE, INNOVATION AND ENTREPRENEURSHIP

S&T will flourish in an environment that is receptive to their developments. Accordingly, developing a supportive attitude in society for change through increasing S&T awareness and appreciation programmes is crucial towards engendering a climate for invention, innovation and entrepreneurship. Such appreciation has yet to take firm root in almost all member countries. The rich Islamic heritage in science, technology, medicine, astronomy, medicine, mathematics and philosophy must be capitalized as a source of motivation for excellence in S&T. Scholarship in the history and philosophy of Islamic sciences, and its relevance to the contemporary Islamic world must be cultivated so that we do not lose touch with our Islamic cultural base. Such scholarly understanding will provide firm cultural foundations for the Muslim Ummah and avoid problems of cultural alienation in the quest for modernity through S&T.

RECOMMENDATIONS

19. Initiate collaborative programmes among grass-root communities, civil societies and NGOs, industries and academies in member countries to promote greater science awareness among citizens;
20. For Malaysia, COMSTECH and IDB to establish a virtual network of expatriate Muslim scientists, technologists and business leaders, and to promote a regular interaction between them and Muslim scientists residing within OIC member countries;

REALIZING OUR VISION: ACTION PLANS

APPLYING S&T FOR COMMUNITY GOALS

Developments in S&T need to be sensitive to the concerns of the masses such as provision of reliable electricity, water and telecommunication supply. Additionally, applications of S&T can have enormous impacts on agricultural productivity besides addressing problems such as desertification. Innovative applications in several community development projects in Malaysia have demonstrated the potentials of harnessing Information and Communication technologies (ICTs) in transforming several traditional sectors. Additionally, the widespread diffusion of ICTs offers a major opportunity to member countries to bring science closer to the lives of citizens in their countries.

Rapid advances in the new technologies especially in the fields of genetics are raising serious moral and ethical concerns. We need to address these concerns and ensure that our S&T and industrial development processes take into cognizance of preventive approaches and are consistent with acceptable societal norms and ethics.

Present regulations governing intellectual property rights (IPRs) as contained in TRIPs Agreement appear to be heavily weighed against the developing world. Member countries need to adopt common positions to prevent the establishment of new forms of knowledge monopolies and ensure the protection of our traditional knowledge.

RECOMMENDATIONS

21. COMSTECH in collaboration with IDB and other international and national organisations to initiate pilot projects harnessing applications of technology for the benefit of society in particular the underprivileged;
22. Member countries to initiate development of pilot ICT-community projects in their respective countries with possible reference to the guidelines from the National IT Strategy developed by IDB;
23. Adoption of common position on intellectual property rights issues;

REALIZING OUR VISION: ACTION PLANS

EXPRESSING COMPASSION: ADDRESSING THE SPECIAL NEEDS OF THE OIC-LDCs

22 member-states of the OIC are categorised as Least Developed Countries. Their problems require special and urgent attention. Flows of international financial assistance have declined in recent years. Accordingly, Member countries can pool their resources and expertise in lending assistance to their less fortunate Muslim brethren.

RECOMMENDATIONS

24. Initiate special emergency programme to provide funding and other development assistance to address the pressing problems of the 22 LDCs, taking into consideration that S&T as a sector must be given high priority at the same time;

REALIZING OUR VISION: ACTION PLANS

MAKING IT HAPPEN

RECOMMENDATIONS

25. Entrust COMSTECH with financial support of IDB and the cooperation of member countries to perationalise this Vision.
26. Establish an effective monitoring and evaluation mechanism to track the implementation and progress of the Vision and its programmes.