

Time for 'enlightened moderation'

A call for Islamic nations to renew and reaffirm their commitment to science.

Atta-ur-Rahman and Anwar Nasim

The time has come for a renaissance in the Muslim world, for a new strategy of 'enlightened moderation'. In the wake of 11 September 2001, Islamic countries face myriad challenges and the gap of misunderstanding between the West and the Islamic world is widening. The way forward for Muslim countries is, in their own interest, to focus on internal reforms and socio-economic modernization, to shun extremism and to promote moderation.

The global security situation has given Islam a false image, that of a religion of intolerance, activism and terrorism. Islam is unfairly linked with fundamentalism, fundamentalism with extremism, and extremism with terrorism.

Muslims can argue all they like that this loose thinking is unfounded, but we are having little impact in today's battle of ideas. It doesn't help that some Muslim nations are probably among the poorest, the least educated and the least powerful on the planet. We must get out of this rut if we do not want to be marginalized and to condemn future generations.

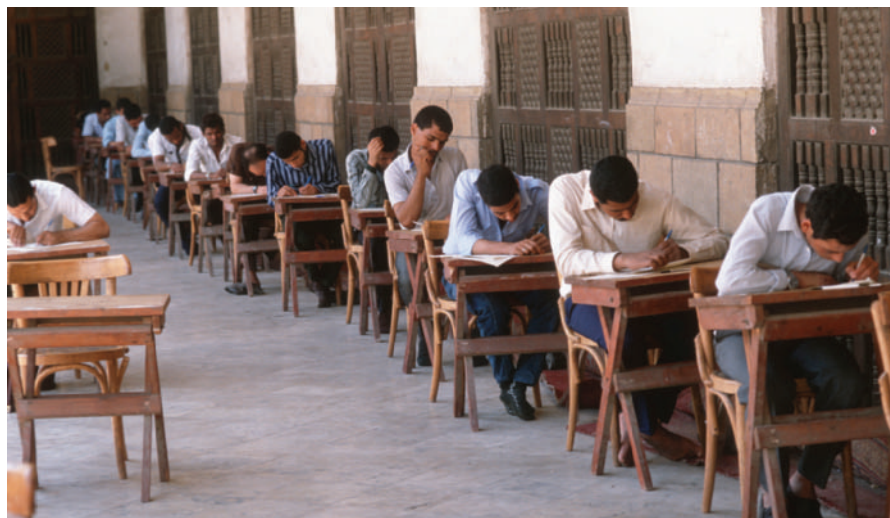
The Organization of the Islamic Conference (OIC) is a group of 57 geographically scattered countries with predominantly Muslim populations. Stretching from Indonesia to Morocco and from Uganda to Kazakhstan, they are home to 1.3 billion people, but their economies are generally among the world's poorest, and illiteracy levels are among the highest. Six of the eight poorest countries on the planet are OIC members.

This is a time for critical thinking and soul-searching among Muslims — in particular for leaders of Islamic nations, who can play a key role in bringing about "enlightened moderation", as envisioned by Pakistan's president, Pervez Musharraf. We in Pakistan believe that science and technology are crucial to a knowledge-based renaissance.

There is no shortage of ideas and proposals. History will not forgive those who are at the helm of affairs today, but who fail to respond with enlightened policies and actions to shape the destiny of over a billion people. Bold initiatives in science must form part of any response, and the deep resurgence of science in Pakistan over the past five years, as described below, shows what can be achieved.

An exemplary society

Science and Islam share a glorious past. In its heyday, Islam was the standard bearer of a society of law and order, justice, tolerance



Science in higher-level education in many Islamic countries is underfunded, leading to a lack of research.



Al Azhar University in Cairo is the oldest in the world. It covers both science and religious studies.

and exemplary values. The Koran encourages the pursuit of science, and the Islamic world was a cradle of science from the eighth to the fifteenth centuries.

The Muslim world of today has strayed far from those values. We have fallen behind in socio-economic development and in the generation of ideas. During our decline, we have shut ourselves off and refused to absorb knowledge from others. And our spending on science is dire. We can regret this deplorable situation, but we also need to face up to it.

The West can help to usher in an era of enlightened moderation by contributing to the planning and funding of centres of excellence in the Islamic world, where mutual understanding and tolerance could flourish. But in this article we will focus on what the Muslim world needs to do. We need to ask ourselves some tough questions: as Muslims, what are our ideas? Where are we going?

Will confrontation and political activism bring us back to our glorious past? No. We

must take an enlightened path dedicated to developing our human resources, and tackling the problems of poverty, education, health and social justice. We must abandon confrontation in favour of moderation, conciliation and individual freedom. It is time for renaissance of the Ummah (the global Muslim community). This is how we will eliminate the perception of Islam in conflict with modernity and democracy.

Science in Islamic states

One might argue that science is universal, and that it is impossible to speak separately of science in Islamic states, such as Pakistan, or Asian science. But by any comparison of international science indicators, Muslim states emerge as a well-defined cluster with many common characteristics and needs.

Political leaders in many Islamic nations largely fail to appreciate the importance of scientific research to their countries' development. Public spending is often skewed towards the military, educational standards are low and public interest in science is undeveloped.

For many Muslim countries, all the socio-economic warning lights are flashing, be it in terms of literacy, poverty, or the quantity and quality of scientific workforces and their output. The situation, to put it bluntly, is dismal.

The Islamic world's average science spending is at an order of magnitude below global averages¹. In contrast, spending on defence averages from 4% to 7% of the GNP. In many countries, the population of scientists is meagre and legal frameworks for innovation are largely non-existent. Only two scientists from Islamic states have won Nobel Prizes, Abdus Salam, a Pakistani

(Physics, 1979) and Ahmed Zewail, an Egyptian (Chemistry, 1999). Both carried out their research outside Islamic countries. Today's Muslim societies have generated few scientists of international repute.

Take science education. Many of the Arab OIC member countries, including Malaysia, have fairly good undergraduate education systems, but are weak at the postgraduate level. Of the world's top 500 universities, only two are in OIC member states (both in Turkey). The OIC's 1.3 billion inhabitants are served by less than 600 universities, most of low standard.

Making way

But progress is being made. Turkey, for example, ranked 46th in the world in terms of output of scientific papers seven years ago; it jumped to 22nd place in 2002, according to Philadelphia-based science information specialist, Thomson ISI. The international isolation of Iran over the past two decades has generated a strong sense of self-reliance and autonomy from the West — and a resulting increase in investment in science and technology.

Since 1999, Pakistan has increased science spending 60-fold, and funding of higher education 12-fold. Funds have been released for 1,500 PhD students to be trained annually at home, and a further 300 abroad. As a result, the annual PhD output should increase from about 200 this year to 1,200–1,500 by 2009.

A nationwide digital library of 20,000 journals has been launched, providing free access for all educational and research institutions. There is also a new scheme to attract 1,500 top researchers back from overseas to work in Pakistan during the next five years. In addition, the cabinet has launched plans to reinforce research and make science a priority of long-term policy at cabinet level.

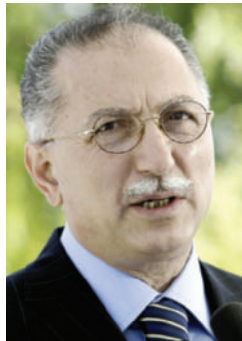
Turkey leads OIC states in terms of annual output of research papers with 6,393 in 2001, then Egypt at 2,498, followed by Iran² — which has tripled its output from 501 in 1996 to 1,830 in 2002. During the period 2001 to 2003, the sharpest increase has come from Pakistan, with a 40% increase from 636 to 890. This is a result of a system introduced in 2002 that provides researchers with an opportunity to more than quadruple their earnings if they increase the numbers of their papers published in peer-reviewed journals.

Global effort needed

These pockets of improvement are encouraging. But the fact remains that OIC countries are home to three-quarters of the world's fuel reserves and a quarter of its other natural resources. How do we reconcile this richness in resources with our lack of socio-economic development? Our backwardness in science and technology and higher education is part of the answer.



Standing up for science: Abdus Salam (above, left) and Ahmed Zewail (above), are the only Nobel laureates to come from Islamic countries. Ekmeleddin Ihsanoglu (left) has vowed to improve relations in international research. Pakistani president, Pervez Musharraf has revitalized spending on science.



So, apart from initiatives by individual countries, what can be done by Islamic nations as a group to improve the situation? Two bodies exist to promote science in Islamic states: the Islamic Educational, Scientific and Cultural Organization (ISESCO), and the OIC Standing Committee on Scientific and Technological Cooperation (COMSTECH).

At the COMSTECH general assembly in February 2002, Atta-ur-Rahman proposed the creation of a multi-billion dollar Pan-Islamic Fund for the development of science and technology in OIC states. The decision was referred to the Islamic Summit Conference for authorization, who, in Kuala Lumpur in 2003, deferred their decision for further deliberations and consultations. The proposal is now expected to go before a subcommittee before its resubmission to the next Summit meeting, to be held in Senegal, 2006.

In May 2002, COMSTECH proposed that the Islamic Development Bank come forward with at least US\$1 million annually to upgrade some selected research institutes in the OIC member states to international standards of excellence. The proposal envisaged enabling bright young scientists from OIC regions to train in key areas, such as biotechnology, material sciences, pharmaceuticals

and bioinformatics. Due to the paucity of funds, the bank has agreed to earmark only US\$450,000 at present.

How can the West help to strengthen science in Islamic countries? The Inter-Academy Panel on International Issues — an alliance of 90 scientific academies — organized a workshop in 2003 in Trieste, Italy. This brought together research ministers and heads of scientific societies to promote the creation of more independent scientific academies in Muslim countries, with the goal of boosting both research and independent scientific advice available to governments³.

A follow-up meeting in Islamabad in March this year resulted in the creation of the Network of Academies of Science in countries of the OIC.

To the future

Science is a truly global activity, and although the OIC and COMSTECH have their role to play, encouraging bilateral and international cooperation is the key to progressing towards enlightened moderation in the Islamic world.

This is just a beginning in the task of redressing centuries of neglect by our political leaders. For the policy-makers, the writing is on the wall — there is a need to develop a knowledge economy, face the challenges of the new world order and spend at least 1% of GNP on strengthening science and technology. The OIC member states must respond to all these challenges.

Encouragingly, Ekmeleddin Ihsanoglu — appointed last June to head the OIC for four years — has pledged to improve cooperation between researchers from Muslim countries and others worldwide. Ihsanoglu is also president of the International Union for the History and Philosophy of Science. He needs to muster the necessary political and financial support to revitalize science and technology for socio-economic development in OIC member countries.

As we continue to dream, struggle and search for a happier and more prosperous future, we share this new awareness among Islamic states with the global scientific community. We urgently seek your much-needed cooperation and interaction. In the place of the clash of civilizations, our collective wisdom and efforts can help heal wounds and guarantee a safer and better world for those who will follow us. ■

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1. *Human Development Report* (UN Development Programme, New York, 2004); <http://hdr.undp.org/reports/global/2004>.
2. *Science Watch* 14, (2003); www.sciencewatch.com/nov-dec2003/sw_nov-dec2003_page1.htm.
3. Butler, D. *Nature* 422, 101–102 (2003).