

Exploring the unknown rea

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The world today stands divided along the line of developed and "underdeveloped" countries. The scientific and technological development that the West boasts of today, stands on the foundations of progress made, initially, by the colonial powers in exploiting raw materials and human resources in their colonies.

The process of decolonisation, catalysed by the second world war, reshaped the very nature of the world. The number of states multiplied and the erstwhile dominated natives became "independent". Most of the Muslim countries, as they exist now, emerged on the globe as sovereign political entities during that period.

Muslim countries in particular had to bear the brunt of the unequal, asymmetrical relations among nations, specially between the USA and the now defunct Soviet Union. Not only have they been at the receiving end of numerous political, cultural and military assaults of the West and its accomplices, they have also suffered from the developed world's discriminatory policies in every sphere of life. They are being denied access to the scientific and technological developments which are the hallmark of the modern age to enter the next century as developed and progressive nations.

The expression "restricted technologies" exposes the prejudicial approach of the West which, in the post-cold-war world, has quite unjustifiably developed the fear of Muslims as a potential threat to its monopoly.

The most conspicuous among these so-called restricted technologies are the ones related to computer technology, software development, aerospace, electronics, chemical and biochemical technologies and defence production — especially those which can be directly or indirectly used in nuclear and missile programmes.

There are only two formal multilateral agreements among the developed countries which put them under an obligation not to transfer certain "restricted" technologies to the less developed or developing countries. One was agreed upon by the London Group of Suppliers (The London Club) and the other is the Missile Technology Control Regime (MTCR).

Besides the major industrialised powers like the USA, Great Britain, France, Italy, Belgium, the Netherlands, Germany and Canada, the London agreement of April 16, 1987, also includes Japan. This Group prohibits the transfer of nuclear technology and any related material to non-nuclear weapon states.

(But is it logical to let a few have this advanced technology, which can decide the fate of all humanity, and call themselves members of the Nuclear Club, while others live in fear under their hegemony?) One of the major arguments propounded by these states in support of this nuclear "apartheid" is the supposedly "irresponsible" behaviour expected from the less developed, fragile and relatively small states in case they obtained nuclear weapons. If history is anything to go by, then the only irresponsible, downright inhuman instance of the abuse of nuclear technology has been perpetrated by no other country than the leader of the non-proliferation drive itself — the USA. Besides, this rationale is humiliating and insulting to the majority of mankind living outside the West.

Another restricted area of technology pertains to missiles. The Missile Technology Control Regime (MTCR)

works along the same lines. Though the threshold of MTCR safeguards for missiles is 300 km with a payload of 500 kg, yet transactions well below this are obstructed by the Western countries. The recent M-11 issue involving Pakistan and China is an example in point.

In addition to the ballistic missile technology, the MTCR tends to put restrictions on technologies and materials which can, directly or indirectly, be used in missile production. These restrictions obviously not only leave countries like ours defenceless, but also have other grave implications, such as putting restrictions on technologies used for socio-economic development.

While diplomacy in international politics is supposed to be conducted in black and white, there is lot of gray in the West's attitude, especially towards Muslim countries. In areas of science and technology where no legal or statutory grounds are available for enforcing embargoes, the West, and the USA in particular, has resorted to the use of covert manipulations in a number of cases involving transfer of advanced technologies through bilateral agreements. Unfortunately, the Muslim countries have been the main victims of such restrictive policies.

The denial of access to modern technologies by the West thwarts the process of overall socio-economic development as well. Nuclear energy, for example, is urgently needed where conventional sources of power-generation are either limited, or fail to reach the required level of supply.

Similarly, computer technology has become a must for advancement in all areas of human progress. Computers are now household gadgets but a well of misplaced apprehensions on the part of the West prevents an equitable and smooth flow of new computing techniques to the developing countries.

Pakistan has been constantly pressurised by the West to forego its defence concerns vis-à-vis a historically hostile and expansionist India, and to unilaterally sign the NPT. This would have grave implications for the very survival of the country. On the other hand, it is interesting to note that the same countries have been overtly and covertly helping India to develop its nuclear and missile capabilities by providing material, equipment and technology.

Iran's nuclear programme is also a target for a vicious campaign unleashed by the West despite the fact that it is a signatory to the NPT and, as a top official of the IAEA recently confirmed, no violation of the treaty has ever been reported. A top US official was quoted in the papers to have justified the pressure applied on Iran on the basis of "apprehensions that Iran might opt for using its programme to develop nuclear weapons". The Muslim countries are thus being punished for supposed intentions.

The response of the Muslim world to the growing need for development in these areas of science and technology has so far been rather pathetic, as has been the case with other S&T disciplines. The overall science and technology scenario in the Muslim world is not very heartening. While 92 per cent of the S&T manpower of the world is working in the industrialised countries, the share of the Muslim countries is negligible. The Muslim countries have less than 100 research scientists and engineers per million as compared to the advanced countries figure of 3,000.

The share of Muslim countries' contribution to the world's overall scientific and technical activity is also minimal. They invest less than one per cent of the total investment made in the S&T areas all over the world, while 97 per cent of the finances are invested by the industrialised countries. Scientific journals, periodicals and other publications — which are considered valid in-

dicators of the quantity and quality of the activity, publish more than 2,000,000 research papers every year in the developed countries. The community, spread over 52 nation-states, co-ordinates about 2,000 publications a year — nearly 1 per cent coming from the semi-developed 18 Muslim countries and only a few of them pertaining to the aforementioned so-called restricted areas of science and technology.

The average literacy rate among the Muslim world is estimated to be a meagre 37 per cent, an embarrassingly low figure if compared with other developing nations of the third world. The statistics of scientific and technological education for the Muslim countries are even more pathetic. Merely 35 per cent of the students study science at the secondary level, which drops down to 25 per cent at the higher secondary college level. Only about 20 per cent of university students are enrolled in scientific disciplines. Unless the sector of socio-economic development is focused on the development of science and technology in the Muslim world would only remain a dream.

Research and development activities are of great importance for scientific progress. The total R&D expenditure of the Muslim countries amounts to about 0.5 per cent to 1 per cent of their GNPs which is only a fraction as compared to the developed countries' R&D expenditure. The latter spend 10-32 per cent of their GNP on promoting research and development. Moreover, defence research and development (DR&D) consumes about 50 per cent of the amounts earmarked for R&D in the West. Among the Muslim countries, only Pakistan, Egypt, Indonesia and Turkey have been relatively keen to pursue defence related R&D activities and shown great potential for defence production.

It is time that we divert our resources and invest more in S&T projects and in the training of manpower. Estimates made by IESCO put the required minimum number of competent scientists and technologists needed by the Muslim world at 1.4 million and we fall short of this figure by at least 500,000. The major reason for this shortfall is, of course, the absence of financial incentives for the students going for S&T research and education. If we are to have any chance of competing with the developed world, our priorities have to be sorted out and the Muslim world needs to spend a higher proportion of its GNP in these areas.

There are at least a dozen organisations in the Muslim states which could be utilised as an effective and solid base to venture into the restricted areas of S&T. Most, however, have largely been inactive or suffer from lack of funds and attention. Moreover, the prescribed limitations of their functions and self-imposed restrictions prevent them from playing a positive role in enhancing the level of the Muslim ummah's capabilities in these strategically crucial areas of science and technology.

There have, however, been some indigenous ventures undertaken by Pakistan, Malaysia, Indonesia and Turkey, which have gone a long way in breaking the myth of Western monopoly over scientific and technological progress. But the process of scientific evolution is a cumulative process where progress cannot be made in isolation. There have to be networks for regular and efficiently managed exchange of information and expertise. That, unfortunately, is badly lacking as far as these particular areas of science are concerned.

Some academicians have aired the proposition of establishing an Islamic Atomic Energy Commission. For the time being, only Pakistan has an operational nuclear power plant. Pakistan hardly meets 0.2 per cent of its energy requirements from the nuclear energy produced