**A paradigm shift - Part I**

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When I assumed the portfolio of the Ministry of Science and Technology (MoST) – back in April last year – I quickly realised how crucial this sector was for inclusive economic growth. It plays a vital role in achieving the various goals of our government enshrined in the PTI’s manifesto including, but not limited to, making Pakistan business-friendly, fixing the country’s energy problems, creating jobs and strengthening the labour market, in accordance with the prime minister’s vision of creating a tech-driven economy.

In the field of science and technology, the 21st century calls for dynamic institutions; the enterprising human resource and leadership; legislation that does not lag behind fast-paced technological advancement; and a regulatory framework/regime that does not shackle institutions with the trappings of a world before the fourth Industrial Revolution. These areas have been the thrust of my and my team’s efforts.

The ministry has prepared the National Startup Policy 2021 and is going to submit it to the cabinet soon. At the same time, a draft policy on promotional measures for the establishment of venture capital companies is also under the active consultation of stakeholders. These two policies, when dovetailed, will be implemented through a programme called ‘Tech-Tsunami’.

The target of the first phase of this programme is a thousand startups, and these startups are likely to generate tens of thousands of job opportunities: the aim is to foster a culture of entrepreneurship. The government is also working on the first-ever electronics policy to check the import of electronics products and develop an indigenous electronics industry in Pakistan.

The MoST developed the Pakistan National Quality Policy which aims at promotion of quality culture and enhancement of exports. The policy was approved by the cabinet on August 17, 2021. This policy will lead to the development of a necessary technical regulatory framework in line with Pakistan’s obligations to the World Trade Organisation (WTO) for removing technical barriers to trade (TBT).

The National Industrial Hemp and Medicinal Cannabis Policy 2021 has also been formulated by the MoST in consultation with relevant stakeholders. The enforcement of this policy through parliament will enable Pakistan to secure a market share worth approximately $3 billion in the future. This initiative is likely to create up to 50,000 jobs and boost local industries including medicines, textile, paper, engineering materials, etc.

The Science, Technology and Innovation Policy 2021 has been formulated and submitted to the PM Office. It contains radical and progressive proposals that would serve as a game-changer in revitalising the national innovation system as well as accelerating the country on its journey towards a knowledge-based economy. The crux of the policy is a paradigm shift from the academic impact of research and development to its societal impact to ensure the diffusion of technology in society and the economy.

Unlike the previous policies (1984 and 2012), the current policy follows the core principles of utilising knowledge for job and wealth creation and facilitating product development through technology-based innovation and entrepreneurship, while focusing on emerging technologies and international science diplomacy at the same time.

This is a leap towards creating a knowledge-based economy which is crucial for our survival in the modern world. A policy implementation mechanism has been embedded in the policy to ensure its effective implementation. A plan to acquire, disseminate and develop seven emerging technologies had been developed earlier and will now be implemented after the approval of the PM Office. These technologies include 3D printing, artificial intelligence, smart vehicles and robotics, the Internet of Things (IoT), etc.

To help fix the country’s energy problems, we focused on a supply-side intervention, instead of merely increasing the energy supply. We don’t talk about how efficiently we consume energy. In Pakistan, electric fans consume 50 percent of the total electricity for space cooling as an electric fan consumes approximately 120 watts. The MoST has included electric fans in the mandatory certification scheme of the Pakistan Standards and Quality Control Authority (PSQCA). This will prohibit the manufacturing and sale of electric fans that consume more than 80 watts, saving up to 3000 MW of electricity annually.

Similarly, on my directions, a standard with a star rating for energy-efficient geysers has also been developed by the PSQCA for the conservation of natural gas. This initiative will save 21.5 MMcfd of natural gas. The government is upgrading the testing facilities relating to geysers at the Pakistan Council of Scientific and Industrial Research (PCSIR) and the PSQCA – in Lahore.

The implementation of uniform food standards is a prerequisite for the ease of doing business in this sector. The MoST took the lead in the harmonisation of food standards and the resolution of constitutional and legal ambiguities amongst federal and provincial authorities. The formulation of Pakistan’s standards rests with the PSQCA, whereas the role of enforcement is assigned to the provincial authorities. As a result, all the provinces have adopted the national standards, removing the long prevalent disharmony amongst them.

Relevant standards have also been developed to stop the manufacturing and import of sub-standard optical fibre cables, solar panels and electric motors. Various processes of accreditation have now been made available online to increase accessibility. The global Good Agricultural Practices (GAP) regime has been introduced in the country to promote a culture of adopting ISO standards in the agriculture sector as well.

The Pakistan Halal Authority (PHA) was established in 2016 under the MoST with the mandate to promote trade and commerce in Halal articles and processes. However, PHA activities quickly came to a halt; the institution required the removal of its teething problems and a necessary impetus to function smoothly.

The ministry took care of the issue and developed business rules to run operations of the authority; it also came up with ‘halal certification marks’ regulations to validate the Halal logo and PHA service rules – pending since long – to revitalise its human resource base. If all goes well, the organisation would be self-sustaining within one year. Various MoUs have also been signed with countries such as Saudi Arabia, the UAE, Qatar, Morocco, Turkey and Jordan to remove barriers for enhancing the export of Halal products.

The existing regulations for the PSQCA, PEC, PCSIR, etc are being revamped with the following principles in mind: First, the powers and functions of the boards of organisations have been reconstituted in the wake of new trends and emerging technologies; second, the executive and technical advisory committees of the organisations have been revitalised; and third, the criteria for their budget disbursement, auditing and maintenance of their accounts have been improved.

To be continued

The writer is the federal minister for science and technology.