Institute for Policy Reforms

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Science and Technology is critical for the country's future

"Sustained growth of Pakistan economy is possible only with export of higher value-added goods", says a policy brief issued today by the Institute for Policy Reforms. To achieve this, Pakistan must increase its focus on science and technology. IPR's Brief written by the renowned Dr. Atta ur Rahman former federal minister and Chairman HEC, recommends that the country must commit in earnest to a Science and Technology strategy. This is critical for the country's future or else "Pakistan risks being left behind permanently".

Pakistan's main export product is textiles. While textile constitutes 60% of Pakistan's exports, it has a mere 6% share in world exports. Overall, manufactured goods are 67% of world trade. Resultantly, Pakistan's role in world trade is limited because it does not have the value-added products to participate in bulk of the world market. That is the main reason that its exports do not increase.

Also, no economy grows on a long-term basis without a dynamic and continually modernizing manufacturing sector. The share of manufacturing in Pakistan's GDP is under 14%, whereas it ranges between 37% to 43% of GDP in middle income East Asian economies. India and Bangladesh have a share of 30 and 28% of GDP respectively.

To boost manufacturing and economic growth, the S&T strategy must integrate into all aspects of the economy: industry, agriculture, SDGs as well as government.

For effective implementation, it must be led at the highest government level, by the Prime Minister. Support through S&T is the only way for the private sector to productively use the external and internal knowledge needed to manufacture and export value added goods.

IPR's S&T strategy has several components. It focuses on education, technical training, R&D, setting up of specialized technology institutions, and effective enforcement of standards and testing.

As its starting point, the Brief refers to the weak state of education in Pakistan and emphasizes need for immediate declaration of a National Education Emergency. War footing focus on education is necessary for improving quality of managerial and line level workforce.

Another key component of the strategy is setting up of specialized training and research institutions. The Brief recommends such institutions in a wide range of specialties to build industrial and agricultural competitiveness.

As a third component, the strategy advocates incentives for development of knowledge industry. Proposed incentives include public sector R & D support, tax incentives, risk sharing for new industries, Funds for venture capital and for innovation, and creating knowledge hubs by linking industrial clusters.

To ensure consistent quality of goods produced in the country, the strategy also recommends establishment of standards and testing institutions.

Knowledge transfer from overseas is also a key instrument to upgrade industry. The strategy, consequently, recommends making all FDI approvals contingent on transfer of knowledge. Training and R&D facilities must be a part of investment proposals. These will enhance the country's absorptive capacity for use of technology in production.

Underpinning the strategy is earmarking sufficient public funds for its implementation. IPR recommends allocation of 3% of GDP for the purpose. Adequate funding is necessary though not enough to ensure successful implementation of the S&T strategy. Effective institutions are necessary. This needs political will. That is why direct engagement of the Prime Minister is crucial.

IPR cautions that the world is now into the fourth-generation industrial revolution. Pakistan must prepare for this new era as many manufacturing sectors evolve and take new shapes. Driverless cars will populate roads and robots are staffing factory floors. So, for Pakistan the challenge is not merely to catch up in manufacturing, but to be ready for an evolving manufacturing sector based on AI and robotics. For this, Pakistan must radically and immediately upgrade its engineering capabilities.

Successful implementation of the S&T strategy will bring a boon to industry and agriculture. "Rapidly emerging branches of agricultural engineering offer Pakistan enormous opportunities for increasing output and yield". Pakistan's severe energy deficit requires that it also diversifies into renewable energy and development of energy storage systems. Based on these capabilities, Pakistan can later move to advanced areas such as nanotechnology, biotech and genomics, and robotics and AI. Reliance on Science and Technology is critical for the country's future because the sector is progressing so fast that a country may be left behind forever, if nothing is done to improve the situation.