<http://www.business-standard.com/india/news/smita-purushottam-its-time-fornational-technology-policy/444367/>

**Smita Purushottam: It's time for a National Technology Policy**

**A country that aspires to play the role of a major power must have autonomous technological capabilities of the highest levels**

**Smita Purushottam /  July 31, 2011, 0:14 IST**

A country that aspires to play the role of a major power must have autonomous technological capabilities of the highest levels, but India imports the bulk of its high-tech requirements

India needs a National Technology Policy to create a high-tech industrial infrastructure. A country which aspires to play the role of a major power must have autonomous technological capabilities of the highest levels. Instead, India imports the bulk of its high-tech requirements in the defence equipment, aerospace, electronics, telecommunications, and machine tools sectors. Its technology deficit is reflected in its yawning trade gap, which, projected by the Indian Commerce Ministry at 12-13 per cent by 2014, is clearly unsustainable.

Meanwhile, other countries are taking measures to maintain their technological lead, realising that this is their underlying advantage in the global competition for power. President Obama has repeatedly emphasised the need to retain America’s lead in science and technology. President Medvedev has launched a drive for the technological upgradation of the Russian economy, including on the foreign policy front. China is pursuing a focused policy to catapult the country from being a technology absorber to becoming a technology producer. With Chinese products competing with western products in export markets, including in high-speed railways and telecommunications equipment, the West can no longer hang on to the hope that China will continue to rely on the ‘APE’ model — ‘Assimilate-Produce-Export’ — with technology copied from the West, and lag behind.

Yet, despite having been the target of technology denial regimes, and perennial concerns over the possibility of denial of crucial spare parts in conflict situations, India does not have a National Technology Policy to produce its key requirements domestically.

As a beginning, India could elaborate a Technology Index to gauge where it stands in the international pecking order. The Index could comprise: the percentage of high-tech requirements met indigenously (including percentage of high-tech defence requirements excluding items such as boots and tents); the number of internationally recognised indigenous research institutes devoted to basic and applied research; the number of patents filed by Indian nationals internationally and nationally; the number of international scientific awards to domestic nationals and firms, etc. It could then elaborate a National Technology Policy to address the deficits that would come to light.

Fortunately in the defence sector, the realisation that India must try to produce high-tech defence equipment indigenously has already dawned. India’s defence minister has emphasised that India should develop a self-reliant and diversified defence industrial base. A unique opportunity has recently presented itself following major reforms in defence production and procurement policies, and the announcement on easing of restrictions on high-tech transfers to India by western countries.

Defence reforms call for indigenous manufacture of defence equipment by both the public and private sectors, including small and medium enterprises, establishing synergies between research institutes, the government, academia and the private sector, and strengthening the defence R&D base, including government funding for 80 per cent of R&D costs of indigenously developed products.

These can actually catalyse a defence-led industrialisation wave if properly configured. Thus, defence offsets could be increased to 100 per cent — not uncommon in many countries — with 30 per cent earmarked for defence production. The remainder — 70 per cent — could be invested in high-tech sectors such as aerospace, telecommunications, composites, machine tools and electronics hardware. This would create a dual use manufacturing base which will benefit the defence sector as better quality items become available indigenously, the philosophy behind civil and military integration (CMI). It could also be invested in vocational training, setting up of internationally recognised research institutes and science academies, and in a chain of Universities of Applied Sciences on the German model, yielding massive welfare benefits. Offsets could also be extended to other sectors, with every major purchase attracting offsets.

Foreign direct investment ceilings in the defence manufacturing sector could be increased beyond the current 26 per cent, so that defence manufacturers can bring production lines to India and catalyse the development of ancillary industries meeting international quality standards. At the same time phased indigenisation, including transfer of technology to local joint venture partners, should be made obligatory, as China, leveraging the attractions of its domestic market, has done in the aerospace and other sectors.

Ironically, western announcements pertaining to easing restrictions on transfers of high technologies actually carry the risk of deepening India’s import dependence on high-tech items, unless India simultaneously puts in place capabilities to absorb incoming technologies. India therefore urgently needs a Vision for an Integrated Science & Technology Advancement Strategy (‘VISTAS’) which encompasses both Policy and Implementation.

Today China is far ahead of us — mainly because of well thought out official state guidelines and reforms which emphasise CMI, technology absorption, and re-engineering of government structures into a synergised entity directing technology indigenisation. China’s CMI paradigm has enabled it to invest in upgrading technologies across the supply chain for its high-tech sectors. Moreover, instead of complaining about technology denial regimes, China reportedly simply reverse-engineered (after illegally diverting) five-axis machine tools earmarked for civil aerospace production to its military aircraft assembly lines (Cox Committee Report).

We need to look at other country models and merge the plethora of ministries and departments dealing with science and technology indigenisation into one focused agency which directs the effort on a national basis. Progress should be measured in annual percentage decreases in import dependence in high-tech sectors.

The Institute for Defence Studies and Analyses (IDSA) has held the first meeting of the High-tech Defence Innovation Forum to devote time to these and related issues. This will yield concrete suggestions for VISTAS.

The author is a Senior Fellow at the IDSA. The views expressed here are personal.