FINANCIAL Review Thursday 11th October, 2012

The Narrow Human Resource Base in Science and Technology Could Constrain Sri Lanka's Knowledge Economy Ambitions

By Harshanee Jayasekera (Project Intern) and Dr. Nisha Arunatilake (Research Fellow)

Around the world, knowledge and innovation have become the drivers of global competitiveness. Countries are competing with each other to invest more on Research and Development (R&D) to help create more novel technologies to gain comparative advantages in knowledge. Workers in Science and Technology (S&T) are a key element of this. Towards understanding Sri Lanka's development prospects from a human resource perspective, this article hopes to define and quantify the S&T human resources in the country and assess the quality of the S&T workers for their innovative potential.

Measuring Human Resources for Science and Technology

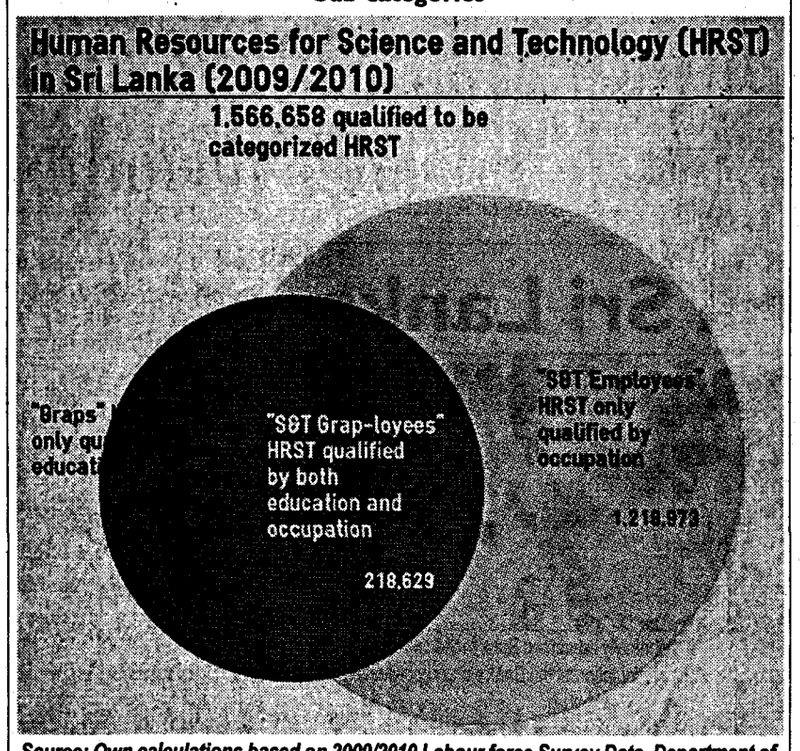
Measuring the stock and flows of S&T human resources would give a clear picture about the innovative potential of an economy. This calls for a common and accepted measurement to both define this S&T workforce and to compare it across countries. One of the commonly accepted measurements is the Human Resources for Science and Technology (HRST), introduced by the Canberra Manual in 1995.

HRST is a broad definition encompassing those who are educationally qualified with tertiary education, those people working in S&T jobs, and those who are both educationally and occupationally qualified. For easy and memorable reference throughout this article, let each of these groups be referred to as "Graps" (in reference to them being graduates), "S&T employees", and "S&T Grap-loyees", respectively.

According to author's calculations using available data, the count of HRST in Sri Lanka on average for the years 2009/2010 was 1.6 million people. Out of this, 218,629 were "S&T Grap-loyees," while the number of "Graps" and "S&T employees" were 129,057 and 1,218,973 respectively (see Figure 1).

Ideally, the larger HRST category in a country should be "S&T Grap-loyees" because it reflects the demand for S&T occupations filled in by persons with suitable skills. But, in Sri Lanka the HRST workforce is dominated by persons only qualified by occupation, i.e., "S&T employees" (see Figure 2). The dominance of "S&T employees" indicates that either it is relatively easy for people with less-than-ideal qualifications to be employed in S&T occupations, or that better matching is necessary between education and occupational demands.

Figure 1: Sri Lanka's S&T Human Resource Base and its Sub-categories



Source: Own calculations based on 2009/2010 Labour force Survey Data, Department of Census and Statics.

Benchmarking Sri Lanka

Compared to other countries, only a small percentage of "Graps" in Sri Lanka remained unemployed or employed in jobs for which they are overqualified. It is likely that these "graps" are queuing for government employment. However, given that most of the graduate output from state universities is in the fields of Arts and Humanities (nearly 60% in 2010 - see note i), the possibility of these "graps" actively contributing towards an innovative economy is, arguably, low.

For the most part, "S&T grap-loyees" are the drivers of innovation. A detailed look at the "S&T grap-loyees" in Sri Lanka shows that close to half of them are teaching professionals. The likelihood of these workers innovating is small (except, possibly, university academics).

Higher skilled workers are more likely to be able conduct research and development to create new technologies and to profit from existing know-how. The level of skills that often lead to innovation comes largely from higher education. Therefore it is important that more young people pursue degree qualifications in S&T fields of study.

In Sri Lanka, S&T undergraduate enrolment on average between 2008 and 2009 were 2 students per thousand population. Comparatively, in India, it was 3 students per thousand population (2003), and in China it was 7 students per thousand population (2006) - see note ii. Compared to these dynamic emerging knowledge economies, Sri Lanka's performance lags significantly behind.

Constrainining the Knowledge Economy

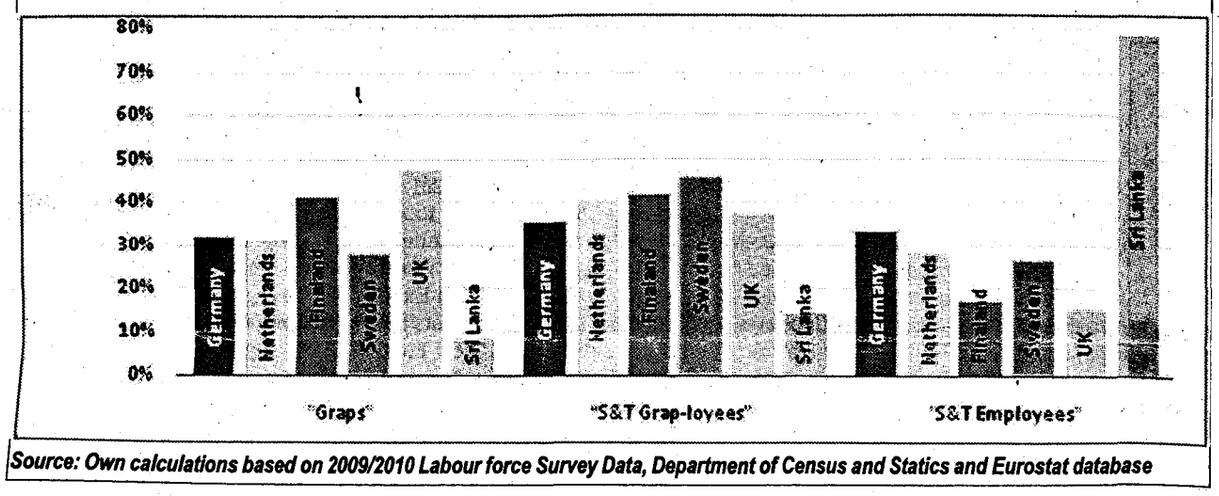
Capacity and resource constraints only allow a thin slice of the students graduating from general education to enter into state universities. Therefore, the growing demand for "S&T employees" capable of performing in occupations that demand higher levels of skills, will have to be sourced from people who have less than university level education.

Even of the few that enter university, many study Arts which is not the kind of education suited towards building a strong S&T workforce which can engage in high end technological and knowledge creation activities. This is not ideal at all, especially for a country aiming to grow as a knowledge-based economy.

With the ever-growing human resource demand for S&T occupations, it is essential that more school leavers pursue university education.

However, in enabling this, the almost entirely state-funded tertiary education system faces two main challenges - (1) increasing access to tertiary education, especially in S&T subjects, and (2) improving its quality. With more than half of youth between the ages of 20 - 24 not enrolled in any form of education, the former calls for more resources to sustain this inevitable growth of skilled labour demand, while the latter calls for a paradigm shift from Arts and Humanities to science education.

Figure2: HRST Count in Sri Lanka vs. Selected European countries (as a percentage of total HRST count)



Source: Own calculations based on 2009/2010 Labour force Survey Data, Department of Census and Statics and Eurostat database

Notes...

i Based on data obtained by the University Grant Commission, Sri Lanka (2010)

ii Levin Institute (2009);"The evolving global talent pool: lessons from the BRICS countries"

(This article is open for discussion at http://www.ips.lk/talkingeconomics)

FROM PAGE 1

Policy...

In fact, inefficient government bureaucracy is listed as one of the top five most problematic factors (Figure 1) for doing business in Sri Lanka (Global Competitiveness Report 2012-13).

"Sri Lanka has made considerable efforts to attract FDI through trade liberalisation, an emphasis on private-sector development, liberalisation of its investment regime through streamlining of the state-run Board of Investment (BOI), and the opening up of both domestic and foreign infrastructure and services to the private sector. Regulatory efficiency has been enhanced through the establishment of a streamlined business formation process, statutory tariff rates have been reduced and import surcharges have been eliminated, but more needs to be done.

"The visible shift towards investment-friendly policies and the acceleration of the liberalisation process are encouraging; however, political risk factors continue to weigh on investor sentiment. Sri Lanka must follow through with reforms to reduce bureaucratic red tape and increase transparency, particularly in government procurement, and increase the predictability of government policies.

"Sri Lankas large cabinet still poses challenges to policy-making. The 2010 budget cabinet reshuffle helped to reduce the number of ministerial positions from 51 to 37, but the number of deputy ministers remains high at 39. The average size of the government (share of expenditure as % of GDP) was 21.4% in 2011, according to central bank statistics," the report said.

"To inspire confidence, the government needs to transmit clearer signals about the roles of the public and private sectors. The heavy state presence in the economy driven by populist policies continues to hamper private-sector development and is an ongoing concern for investors. The SOE sector accounts for a significant share of the economy and has crowded out the private sector, thus constraining growth. There are currently 81 SOEs, including banks, utilities and airlines, accounting for 17.2% of GDP, with the turnover of the largest five SOEs exceeding the turnover of all 245 companies listed in the Colombo Stock Exchange. SOEs in Sri Lanka have been underperforming due to non-cost-reflective pricing policies often aimed at achieving social objectives. The Department of Public Enterprises Performance Report (2010) cited lack of good governance, low employee productivity, weak financial management and lack of internal controls, and structural deficiencies as the key contributing factors to the large losses incurred by SOEs.

"The sheer size of the SOE sector makes it a crucial determinant of the overall productivity of the economy. Hence, the reform process should focus on strengthening efforts to improve the performance of SOEs. The need to address the poor governance and operational inefficiencies of SOEs has become significant, as failure to do so will have negative repercussions for growth. The recent adjustment of key administered prices to make them more cost-reflective is a good start. A number of reforms measures aimed at making SOEs more commercially efficient with less reliance on government assistance have been introduced, but progress has been slow. The Ministry of State Resources and Enterprise Development has been recently tasked with restructuring 23 SOEs; the boards of strategic SOEs have had private-sector managers appointed; and regulatory functions have been built up through institutions such as the Public Utilities Commission. However, challenges remain."

Turnover...

Brokers said that sentiment was poor and turnover volumes had eased with retail participation seen in NDB and LOLC which lost Rs.1.10 to close at Rs.54.20 on nearly 0.2 million shares traded between Rs.54 and Rs.55.70.

Among the other most traded counters were Royal Ceramics down Rs.1.40 to close at Rs.103 on 79,122 shares, Dialog down 10 cents to close at Rs.8.70 on over 0.7 million shares, People's Merchant Bank up 20 cents to close at Rs.16.40 on nearly 0.2 million shares and E-Channelling down 20 cents to close at Rs.6.20 on nearly 0.9 million shares.