

## Human Resources for a Knowledge Economy: Placing Sri Lanka among Global Benchmarks

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### Introduction

The demand for and the supply of highly skilled science and technology (S&T) personnel, although often studied separately, is essentially one concept that indicates a country's readiness to adopt technologies and later, to innovate.

Global examples show that focusing on S&T education and the development of S&T industries bring great economic benefits to a country. As an example, in China, R&D facilities geared towards creating an indigenous defense technology opened up avenues for low end innovations to take place. These innovative processors were prompted by spillover defense technologies, and by now have dominated the low cost imitator market of mobile phones and automobiles (Cheung, 2011). Further, India progressively came up in the development ladder with rapid improvements in its Information and Communication Technology (ICT) sector. Consequently, by the year 2000, the Indian software sector was an 8.75 billion dollar industry, with its major markets outside its borders being the US and Canada. Brazil too, is reaping the benefits of its continued commitment to S&T and is increasingly being chosen as an investment destination for multinational companies to set up their research and development facilities (National Research Council of the National Academies, 2010).

As a neighbor to the two emerging economic powers in the world – China and India, Sri Lanka is likely to have many opportunities to grow by being an investment destination for these economies. In this light, the most gainful way-forward for Sri Lanka is via investment in S&T. Investing in S&T means investing in S&T education and research and development (R&D) activities which is essentially investment in human resources in S&T.

Human resources dedicated to S&T are also called highly skilled workers and ideally have the ability to absorb current technical knowledge in the existing production

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process, while creating new and improved methods for the future. Highly skilled workers, S&T workers, or human resource for science and technology (HRST) have been a worldwide focus for a long time, but, was only formally introduced as a development concept in 1995 by the Organisation for Economic Co-operation and Development (OECD) through the Canberra Manual.

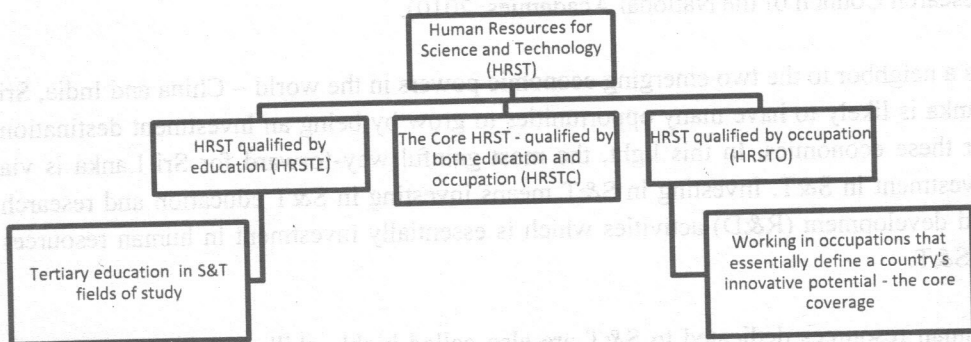
### Objectives of the Study

With the changes taking place in the world economy it is essential that the stock of highly skilled persons, as well as prospective addition to such human resources in the labour force are measured, so that the realities of achieving already set growth objectives can be understood.

In this light, the objective of this study is to define and understand the highly skilled human resource in Sri Lanka, and its implications for the island’s development. For this purpose the current research will identify possible definitions of HRST and sources of data available for descriptive analysis. Finally, an appraisal of Sri Lanka’s HRST achievements compared to BRICS (Brazil, Russia, India, China and Singapore) the European Union (EU) and the OECD countries will serve the purpose of understanding the policy implications of HRST to the local economy.

### Methodology

Figure 1: Defining Human Resources for Science and Technology



Source: Figure presented by the author based on the Canberra Manual, 1995

The recommended definition of the Canberra Manual 1995 was adopted to understand the concept of HRST in Sri Lanka in this study. The manual described HRST as people who are qualified in tertiary education and employed in S&T occupations that demand higher levels of skills. This broader definition was left open for modification so that individual development priorities could be reflected in the HRST workforce.

The importance of HRST as a concept lies in its subcategories. These sub-categories of HRST are recorded in the Figure 1 above.

### **Data sources**

Labour force surveys (LFS) are the only forms of consistent data sources available to carry out specialized analysis such as HRST. However, the nature of the data available is such that important sub-classifications that have great policy relevance cannot be interpreted due to inadequate representation in the sample. To avoid such statistical inaccuracies, two LFSs for two different years (2009 and 2010) were attached to ensure that the calculations are statistically accurate. University Grants Commission (UGC) data on graduate enrolment and output were also used to obtain finer details into HRST qualified by education.

A sub-section of this research assesses Sri Lanka's achievements against other countries. This will be partly done via the Eurostat database and OECD Data, where HRST counts of each country are readily available; while a considerable part of this comparative assessment will also be done using a report published by the Levin Institute on HRST in BRICS countries

### **Results**

On average in the period 2009/2010 Sri Lanka counted 1.6 million persons qualified to be HRST. 219,000 of the HRST count were both educationally and occupationally qualified (HRSTC). 129,000 of the remaining HRST personnel were only educationally qualified (HRSTE) and 1,219,000 were qualified by occupation (HRSTO).

Ideally, a major part of the HRST count should consist of those who are both educationally and occupationally qualified to be in S&T work, where the demand for highly skilled persons are met with adequately qualified supply. Yet, in the case of Sri Lanka, the majority of the HRST pool was only qualified by occupation. In addition, a closer look at those HRST personnel qualified by education (HRSTE) alone, indicate that only 63% of this sub category was employed in S&T occupations. Of the remaining

HRSTE, 84,000 were not employed at all, and the rest were employed in jobs for which they are overqualified.

Although, next to the BRICS and the EU, HRST headcount in Sri Lanka is comparable, comprehensive examination into each of the HRST categories made it clear that Sri Lanka has scope for improvement. For example, compared to India's 65% in 2004 (Levin Institute, 2009) and the EU's 30% in 2008 (Meri, 2008) of HRSTO working with less than tertiary credentials, Sri Lanka's 78% in 2009/2010, indicates the necessity of investing more in S&T education.

Sri Lanka has much to do to achieve its already set growth objectives. As the number of S&T workers and S&T investment define Sri Lanka's innovative potential, it remains a growth imperative to ensure that more people are attaining tertiary education in S&T fields of study, and that educationally qualified persons are employed in suitable S&T occupations.

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