

***Innovation, Sustainability and Development: A New Manifesto***  
**Discussion Paper – National Science and Technology Policy, Sri Lanka**

**Background**

The status of innovation in Sri Lanka at the moment is generally considered weak even by the standards of a developing country. As a country that has inherited an advanced status of innovation in the pre-colonial civilisations and also as a country that has established a sophisticated research and development infrastructure during the last century, it is important to examine the reasons for the deterioration of this innovative culture and structures.

Sri Lanka, an island located on a main shipping route and next door to the great Indian civilisation, was always open to share knowledge, cultures and philosophies with other nations. This contributed immensely to the advances made in the ancient Sri Lankan civilisations. However, this very fact of openness to the outside world was a disadvantage. Regular invasions by Indians and Europeans resulted in the collapse of evolving civilisations affecting the smooth flow of knowledge from generation to generation. The most significant of these was the period of colonisation by the Portuguese, Dutch and English from 1500 – 1948. The plantation economy that was established during the colonial times dramatically changed the entire social, economic and political landscape of the country. The colonial era can be considered to have continued even after independence in 1948 because the transition of power from the British to an elite group of Sri Lankans did not result in a breakaway from the colonial mindset. The advanced status of irrigation, agriculture, construction, architecture and town planning the country witnessed during pre-colonial times, as a result, has ended up as mere memories of the island nation.

Sri Lanka from the 1960s to the mid-2000s in the post-colonial period was guided mainly by 2 political and economic projects. From the 1960s to 1977 the development of Sri Lanka was based on a socialist model. From 1977 to the mid 2000s the country followed the liberal economic model. During the period of the 1960s to 1977 the focus, more or less, was to develop the country by achieving self-sufficiency in agriculture, by strengthening local agriculture and by developing and strengthening the Sri Lankan industrial sector through technology transfer. During the period that followed from 1977 onwards, identifying and strengthening sectors in which Sri Lanka could gain a comparative advantage within a globalised economy was the guideline of economic and political decision making. Instead of overall development of the country, attention was paid to certain sectors that could perform well compared to others. Overall development, it was assumed, could be achieved by strengthening those sectors. The availability of cheap labour, mostly of women, saw governments focusing more on the garment industry and availability of jobs in the Middle East for domestic labour. The availability of natural resources such as the forests, beaches and wildlife led to the development of the tourism sector. Export oriented agriculture was introduced among a significantly large community of farmers.

**National Science and Technology (S&T) Policy of Sri Lanka**

As described above the state of national innovation in the country at the moment is weak. The poor state of innovation, and hence R&D, is also reflected by the very fact that it took sixty years since independence in

1948 for a national policy on science and technology to be adopted finally in May 2009. The history of attempting to design and adopt a national S&T policy dates back to the 1960s.

National S&T Policy of Sri Lanka can be seen as a comprehensive document outlining the overall policy framework for sector wise Research and Development (R&D). It almost conforms with the framework for S&T proposed by the *Mahinda Chinthana* 10-year development plan designed during the first term of the Mahinda Rajapakse Government.

**The 10 objectives of the National S&T Policy are given below.**

1. Foster a science, technology and innovation culture that effectively reaches all citizens of the country;
2. Enhance science and technology capability for national development, make use of science and technology expertise in the national planning process, and strengthen governance and policy implementation mechanisms;
3. Build up, and progressively expand and improve the resource base of scientists and technologists necessary to respond to the developmental needs of the country;
4. Promote basic, applied and developmental research, particularly in areas of national importance and priority;
5. Develop, or acquire and adapt, scientific knowledge and technologies for transfer, to achieve progressive modernization of all sectors and to enhance the country's competitiveness in the world economy;
6. Ensure sustainable use of natural resources for development, while protecting the environment;
7. Document, research into the scientific basis of, and promote indigenous knowledge based technologies;
8. Develop a culture of innovation and IP, and ensure the protection of IPRs;
9. Ensure quality standards of S&T institutions, products and services to achieve national and international recognition; and
10. Promote the application of S&T for human welfare, disaster management, adaptation to climate change, law enforcement and defence, to ensure human and national security.

It is interesting to analyse the National S&T Policy along with draft proposals that were introduced during the past 60 years. Popularizing science and ensuring opportunities for all to science education is an important policy guideline appeared in all policy documents. Science, however, was viewed in a popular sense with a comprehensive focus on natural sciences and technology. Irrespective of the broader definition of science introduced in the preamble of the National S&T Policy to refer to all the sciences (e.g. natural and social, pure and applied, including engineering, medicine, agriculture and related areas) the important section on "Policy Objectives and Strategies" does not reflect this enlightened view on science. The provision of incentives to avoid the brain drain and attracting scientists and technologists of high calibre is a common guideline highlighted throughout the 60 year long policy dialogue. This mainly refers to improving the living and working conditions of researchers, higher pay and recognition of R&D for professional development. Commitments to increase the investment in S&T sector is also a policy guideline that can be seen common to all the policy documents. The National S&T Policy, 2009 declares ambitious targets to increase investment for S&T up to 1.5% of the GDP by 2016. This value is just 0.17% in 2006 and the highest allocation in post independence history of 0.4% can be seen in 1975. The target is ambitious even when it is compared with the globally recommended value of 1% for a developing country. Technology transfer is another policy

guideline that has appeared in all policy documents. The way of technology transfer, however, is identified differently in different policy documents depending on the political-economic context of the time.

A comparison of the National S&T Policy, 2009 with the recommendations of the report of a Presidential Task Force (PTF) on S&T Development published in 1991 highlights the change of approach of Sri Lankan Governments over the past 18 years towards S&T and what it identified as priorities of the country.

- Improvement of quality of life and poverty alleviation that was one of the prominent policy guidelines in the PFT Report in 1991 is missing in the National S&T Policy, 2009 with no reference to poverty alleviation under “Policy Objectives and Strategies”. Instead of using poverty alleviation as a policy guideline and directing science and technology innovation to alleviate poverty the National S&T Policy, 2009 expects (unguided) innovation to solve the issue of poverty. As it is declared in the preamble of the National S&T Policy innovations are expected improve competitiveness and productivity and alleviation of poverty is argued to be a by-product of that.
- Equal and adequate access to science education for all is a common policy/strategy in both policy documents. Disseminating the benefits of science and technology activity, however, is as important as ensuring access to science education. PTF Report, 1991 identifies “disseminating the benefits of science and technology activity as widely as possible with the country to all sections of the people” as a separate policy guideline while the National S&T Policy, 2009 does not make any reference to it.
- Being in line with the dream of the previous regime that was in power from 1977 to 1994 to achieve the status of a Newly Industrialised Country the PTF Report, 1991 identified as a policy guideline a rigorous drive towards developing self reliance in science and technology capability. However, by the time the National S&T Policy is formulated in 2009 the need for self reliance is seen replaced by strong linkages with global S&T initiatives.
- It is interesting to note the prominent place occupied by the Intellectual Property Rights (IPR) as a separate policy guideline in the National S&T Policy. While the previous policy documents including the PTF Report, 1991 do not refer to IPR at all, The National S&T Policy seems to highlight the need for the development of a culture of IPR and ensuring the protection of IRP for two reasons; firstly as an incentive for innovation and secondly as a part of S&T ethics and good practice. The policy objective on IPR implies that the authors of the National S&T Policy and the participants “in the extensive consultative process” that led to the policy did not seem to be aware of the wide ranging implications of IPRs for R&D. They seemed particularly uninformed about the developing-country perspective on the global IPR debate and the important dimensions of “access to knowledge” and “access to technology”. This lack of awareness has created a situation where the policy objective on IPRs is in conflict with several other policy objectives of the same National S&T. In particular, the policy objectives to provide access and opportunities for all citizens in science education, to promote technology transfer (formal as well as informal modes of technology transfer) and strengthening human resource base in S&T, are under threat.

- “Identifying priority areas of science and technology likely to be of benefit to Sri Lanka and to promote research and development in such areas” was a separate guideline in the PTF Report, 1991. The National S&T Policy, 2009 in fact has gone further by naming areas that should receive priority; water, food, energy, environment. It also identifies nanotechnology, biotechnology, ICT, electronics, advanced materials and mechatronics as new fields that needs priority attention. It is, however, not clear on which basis the priority fields were identified and whether the identification was done by taking the development and other social needs of the country into consideration. The National S&T Policy talks about the “development needs of the country” without identifying them. If the list of national issues identified in the preamble (e.g. improving health and living standards, alleviation of poverty, enhancing public safety and security, preserving the environment, and managing natural resources) is taken as the list of development needs of the country, the identification of nanotechnology, biotechnology, ICT, electronics and mechatronics as priority fields are questionable.

### **Poverty Focus**

As discussed above the National S&T Policy has not got a poverty focus as such. There is just a hope that the vibrant innovation culture that will be created will address many national and global issues that includes the alleviation of poverty. The alleviation of poverty that appeared as a distinct policy guideline in previous policy documents is seen to be dropped in the National S&T Policy, 2009. Another serious omission is the guideline to ensure the dissemination of the benefits of S&T among all Sri Lankans which also appeared in previous draft policies. Not only that the National S&T Policy has lost the poverty focus when compared to previous draft policies, some of the newly introduced guidelines challenges whatever space left to address poverty as a serious development issue of the country. Strict implementation of Intellectual Property Rights, one of the important policy guidelines of the National S&T Policy, in fact challenges some of the few pro-poor policy guidelines left in the National S&T Policy, namely to ensure access to science education for all and to promote technology transfer that in effect would increase more opportunities for the poor for livelihood.

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