

## EDITORIAL

### Investing in research

In Sri Lanka research in all disciplines of Science and Technology (S & T) has been severely under-funded during the last few years. The percentage of GDP invested in S & T in Sri Lanka has stagnated at 0.13% for a major part the last decade. This is in stark contrast to the corresponding figures of 0.63%, 0.62% and 5% for Asia, developing and developed countries respectively. In Agriculture which is identified as a cornerstone in the National Development Policy Statement, 'Mahinda Chintanaya', the investment in research and development has decreased from 0.66% of the Agricultural GDP in 1980 to 0.32% in 2008. The fact that the investment in S & T as a percentage of GDP in Sri Lanka is among the lowest in the world, especially in the middle-income countries, is well-known during the last few years to all stakeholders responsible for investing in research. However, with the exception of a few ventures such as the Sri Lanka Institute of Nanotechnology and the Institute of Biochemistry, Molecular Biology and Biotechnology, which was largely funded by the Swedish International Development Agency, too little has materialized in terms of increasing investment in research.

The consequences of this are alarming and are already visible if one cares to take a closer look at many of the public-sector S & T institutions and universities where severe restrictions in capital investment have resulted in degraded infrastructure for meaningful research. As a result, in almost all disciplines of scientific research, the local scientists have not been able to keep pace with their counterparts in other parts of the world and operate at the cutting edge of science. In recent years, there has been a mini-reversal of the brain drain with a sizeable fraction of the young Sri Lankan scientists opting to come back home, partly because of the global economic meltdown that hit the job markets in the developed world. However, very few research grants are being made available from government funding agencies for this highly-motivated group of scientists, many of whom fresh from their PhDs or post-doctoral research wishing to engage in research. The National Science Foundation, the premier organization for funding scientific research in Sri Lanka, the National Research Council and the Sri Lanka Council

for Agricultural Research Policy, two other government bodies through which public funds have been invested in research, have not called for research proposals during the last two years.

Many of the international donors are extremely reluctant to fund research leading to meaningful advancement in science within Sri Lanka. The group of international donors such as SIDA and CIDA, who fund local research, has shrunk because of the new status of Sri Lanka as a 'middle-income country'. However, even from these international donors, funding is available only to a few well-established scientists, who have links with institutions and scientists of the donor countries, which is, often, a requirement to apply for international donor funding for research. In this current scenario, Sri Lanka is a near desert with regard to research funding for scientists, especially for young scientists. This situation has been going on for the best part of the last decade and has caused widespread frustration and demoralization among the community of research scientists, in both universities and research institutes.

Many reasons have been put forward by the policy makers for not investing enough in research. A major reason often mentioned is that the scientists have failed to demonstrate how the expected outputs of their research would contribute to national development. It is true that every research project does not meet the criterion of contributing to national development. However, what is demoralizing is that funding has not been made available even for the research proposals which are rigorously screened by the respective grant-awarding bodies for their scientific merit and contribution to national development. If the policy makers would open their eyes and minds, there is overwhelming scientific evidence on the enormous benefits of investing in research. A comprehensive study on the return on investment (ROI) in rice research in Sri Lanka during the period from 1959 to 1999 showed that a 1% increase in investment had increased the national rice production by 0.37%. The simulated Net Return Benefit was remarkable, being Rs. 61,189 million at a total cost of

Rs. 18 million, with a Benefit Cost Ratio (BCR) of 2,311 and an Internal Rate of Return (IRR) of 174% per year. These compare extremely favourably with corresponding global averages of a BCR of 72.4 (mean of 1683 observations from 1953 to 1997) for investment in agricultural research and an IRR of 75% per year (mean of 81 obs.) for investment in rice research. The fact that investment in research pays rich dividends has been shown in published studies all over the world. A comprehensive meta-analysis by the International Food Policy Research Institute in 2000 showed that the mean IRR to investment in agricultural research in the developed (990 obs.), developing (683 obs.) and Asia & Pacific (222 obs.) countries were 98.2%, 60.1% and 78.1% per year respectively. Importantly, these studies have not found any evidence to support the view that ROI in agricultural research have declined over time. If the ROI in research on Agriculture, which largely

involves primary technology and is highly vulnerable to the vagaries of climate and market forces, are so evident, it is highly likely that returns to investment in research in some of the other sciences are at least on par or even greater. For example, it was estimated in 1995 that the US had saved 68.2 billion US \$ per year in health costs through investment in medical research. The increases in life expectancy in the US from 1970 to 1990 was worth 2.8 trillion US \$ per year, representing a rate of return of more than 100 to 1 on investment in medical research.

Therefore, if Sri Lanka is serious about national development, the need of the hour is for all stakeholders responsible for allocating public funds to research to review and re-orient their policies of recent times to increase the country's investment in research in a way which would provide opportunities to all willing scientists to make their contribution to national development.

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