

EXECUTIVE SUMMARY

The 1998 National Survey of R&D has revealed that despite the economic crisis, R&D expenditures have increased dramatically in all sectors, reaching an estimated RM1, 127 million in 1998. This is more than double the amount registered in 1996. As a result, the GERD/GDP ratio has risen from 0.22% in 1996 to 0.39% in 1998. This 1998 growth is the highest since 1994, and reflects a strong resurgence after a sluggish performance in 1996. A closer look at the data reveals that the sudden upturn in the total GERD was due to big jumps in the operating and capital expenditures. In 1998 the operating cost has increased almost three times the value recorded in 1996, while the capital cost was doubled over that period.

Since 1992, the private sector has provided the largest share of financial support for R&D. The growing interest in R&D, particularly the private sector, is evident from the increasing number of organisations and research personnel carrying out R&D in 1998. The strong commitment of the private sector to R&D has long been characterised by the large proportion of self-funding for R&D. The GRI and IHL sectors also recorded significant growths in their R&D expenditures. Operating cost accounted for most of these public sectors expenditures, while capital cost dominates the total R&D private sector spending.

The survey finds significant differences in research strengths and priorities between sectors. While the private sector's R&D expenditure is exclusively on Applied Sciences and Technology, the GRI spending is dedicated to the Information, Computer and Communication Technologies. The IHL expenditure focuses overwhelmingly on the Chemical Sciences, typically classified under Basic Research that recorded the higher growth compared to Applied Research and Experimental Development. In terms of Socio-Economic Objectives (SEO), both the private sector and IHL place emphasis on 'manufacturing' industry whereas the GRI gives priority to Information, Computer and Communication technologies. The convergence in the SEO towards hi-tech industries as

shown by all the sectors is an encouraging sign that would enhance the nation's capability to compete in the global market.

The level of collaboration between the private sector and the public sector has not changed much. As seen in 1996, such collaboration level remains relatively low with only a small portion being outsourced to universities and local research institutes, while the major share went to overseas companies. While large corporations spent almost 70% of the private sector expenditure on R&D, total spending on R&D by companies in Small-Medium Industries (SMI) have not reached a satisfactory level. In 1998, SMI accounted for only 10.4% of the private sector expenditure on R&D with less than 50% of the companies in this industry group focused on manufacturing industry.

At the regional level, Malaysia fared better than some most of its ASEAN neighbours (e.g., Thailand and Indonesia) except Singapore in R&D performance. However, Malaysia has been lagging behind most of global players. In terms of the GERD/GDP ratio, Malaysia stood at 0.39% (1998) compared to Singapore 1.76% (1998), Taiwan 1.8% (1994), USA 2.52% (1996) and Japan 3.0% (1996). In terms of manpower for R&D, Malaysia has only 7 researchers (with R&D funds) per 10,000 labour force, compared to Singapore 65.5 (1998), USA 76 (1996), and Japan 82 (1995).

The success of R&D in many organisations seems to rely on many factors. Two common major factors that have been perceived to limit R&D activities 'within' the organisations are 'Limited Financial Resources' and 'Lack of Skilled R&D Personnel'. For most companies in the Private sector, they have to deal with 'Inadequate Market Research'. For the GRI and IHL, 'Lack of Emphasis on the Importance of R&D for Long Term Benefit' seems to hinder higher growth of R&D activities in these public sectors. Interestingly, most of the companies in the private sector have taken necessary actions to deal with the 'internal and external' factors.

As for R&D incentives provided by the government, only 33% of the survey respondents in the private sector claimed that they benefited from any of the R&D incentives. On the impact of R&D on organisation's financial performance, only 25% of them were of the opinion that R&D activities improved their financial performance.