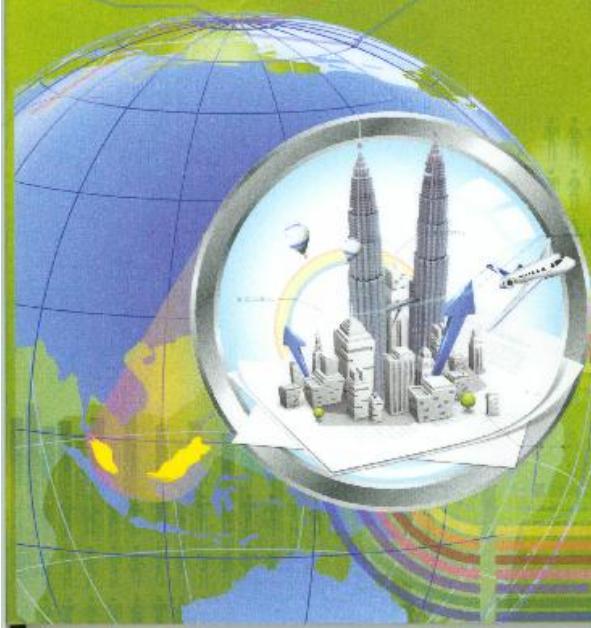




MINISTRY OF SCIENCE, TECHNOLOGY AND INNOVATION
MALAYSIA

NATIONAL SURVEY OF
RESEARCH AND DEVELOPMENT
(R&D) 2012



MINISTRY OF SCIENCE, TECHNOLOGY
AND INNOVATION MALAYSIA

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FOREWORD

The 2012 Report on the National Survey of Research & Development was based on the survey carried out in 2011 and 2012 for the financial years 2008, 2009, 2010 and 2011. The survey was first carried out in 1994 to assess the trends and developments in R&D in Malaysia, specifically in institutions of higher learning, government agencies and research institutes, and the business enterprise. From 1994 to 2008, the survey was conducted every two years. However, since 2008, it has been conducted every year.

The survey received good cooperation from the all sectors involved, and we hope that this cooperation will continue and be even better in future. We certainly will not spare any efforts in enhancing the usefulness of the survey, as it has always been our objective to make it an informative tool for policy makers to develop strategies and directions for R&D in Malaysia and to benchmark our country's performance in R&D with that of other countries.

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EXECUTIVE SUMMARY

► Malaysia's gross expenditure on R&D (GERD) has steadily increased since 2000. A sharp increase in GERD is particularly notable between 2006 and 2009, reaching close to an estimated RM7.2 billion in 2009; an increase of 97.4 percent over that of 2006. In 2011, total R&D spending across all sectors of the economy, public and private, was estimated at RM9.4 billion.

► Malaysia's research intensity (GERD/GDP), which is the percentage of her GDP that is spent on R&D, has also charted a consistent increase since 2004. Indeed, GERD/GDP rose from 0.63% in 2004 to 0.79% in 2008, and further to 1.01% in 2009, meeting the target of 1.0% set in RMKu-10 to be achieved by 2015. Our research intensity continued to improve, and in 2010 and 2011, Malaysia recorded a GERD/GDP of 1.07%.

► From 2002 to 2011, the business sector has been the largest performer of R&D in Malaysia, accounting for over 50% of the GERD since 2000. In 2011, the business enterprise is estimated to have spent RM5.3 billion on R&D activities. Although they remain the largest performer of R&D in the country, the amount reported for 2011 is a decrease from the previous expenditure of RM5.5 billion in 2010.

► Second to the business sector in R&D spending was the higher education sector, consisting of both public and private institutions of higher learning, whose expenditure has increased over the years, recording approximately 29% of the GERD in 2010 and 2011.

► In 2011, the largest percentage (66.4%) of the expenditure went into Applied Research (RM6.3 billion), followed by Basic Research (RM1.6 billion) and Experimental Development (RM1.5 billion). The bulk of the basic research (82.2%) was conducted in the I-Ls.

► The top five fields of research (FOR) in 2011 were:

- o ICT (38.3%);
- o Engineering and Technology (24.2%);
- o Natural Sciences (12.8%);
- o Agricultural and Forestry (7.1%); and
- o Biotechnology (6.8%).

► The top five socio-economic objectives (SEO) for which R&D was carried out in 2011 were:

- o Sustainable Economic Development (41.5%);
- o Advancement of Knowledge (19.5%);
- o Advanced Experimental and Applied Science (16.8%);
- o Society (13.8%); and
- o Environment (6.1%).

Only 2.3% of the R&D projects were carried out for the purpose of defence and security.

► The major sources of funds for R&D in 2011 were business (55.0%), at an estimated RM5.2 billion, followed closely by the federal government (41.4%), at an estimated RM3.9 billion. The government plays a major role in national R&D, providing incentives for R&D in the form of various grants and double tax exemption to the business sector, and research grants, labour cost, and research facilities to IHLs and CRIs; 99.4% and 86.4% of the funding for R&D in the GRIs and the I-Ls respectively come from the government.

► The year 2011 recorded the highest headcount (96,964) for R&D personnel, which includes researchers, technicians, and support staff. The highest number of researchers (73,752) was also recorded in 2011, with an estimated 58.2 researchers out of 10,000 labour force, topping the target set by the Ninth Malaysia Plan (SMP) of 50 researchers per 10,000 labour force by 2010.

► The headcount of researchers with PhDs and masters degrees has increased markedly:

- o 7,002 researchers with PhDs (2006) to 33,272 (2011); and
- o 5,337 researchers with Masters (2006) to 24,691 (2011).

► Female participation in R&D has steadily increased over the years. In 2008, women accounted for 40.9% of Malaysia's R&D workforce, while in 2009, 50.9% of the workforce were women, the highest recorded since 2003, outnumbering their male counterparts by a small margin. The figures then dropped slightly to 48.8% and 48.7% respectively in 2010 and 2011. The proportion of female relative to male researchers is much higher than that of many advanced economies.



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