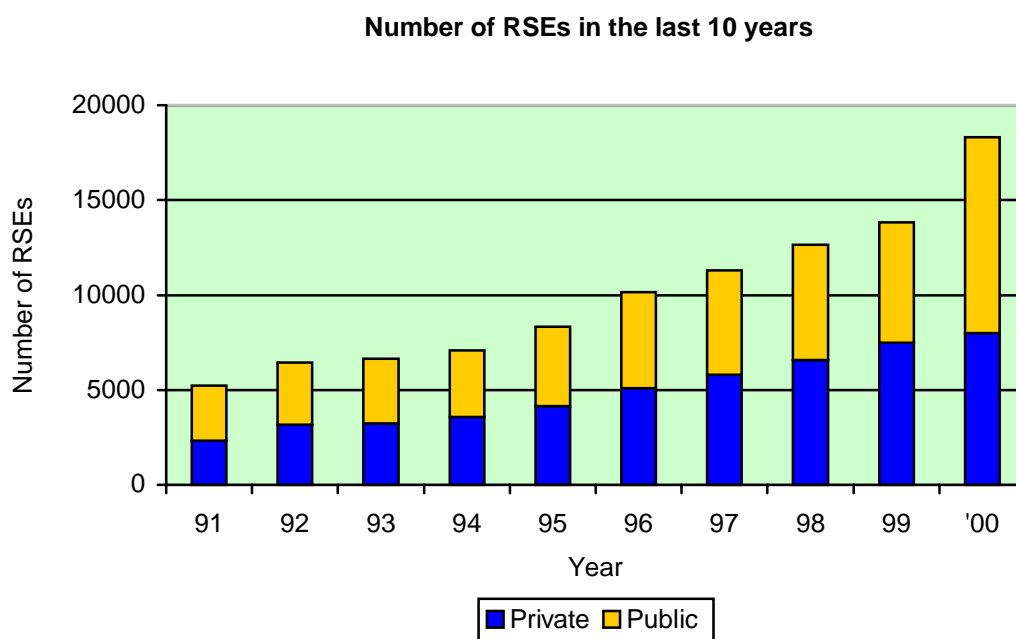


## YEAR 2000 NATIONAL SURVEY OF R&D IN SINGAPORE

The 2000 National Survey of R&D in Singapore was conducted from April to July 2001. A total of 582 organisations reported that they performed R&D<sup>1</sup> in 2000. This included 539 private sector organisations, 6 higher education institutions, 24 government organisations and 13 public research institutes and centres. 316 or 58.6% of the private sector companies were locally owned, while the remaining 223 (41.4%) were wholly foreign or less than 30% locally owned.

### Number of Research Scientists And Engineers

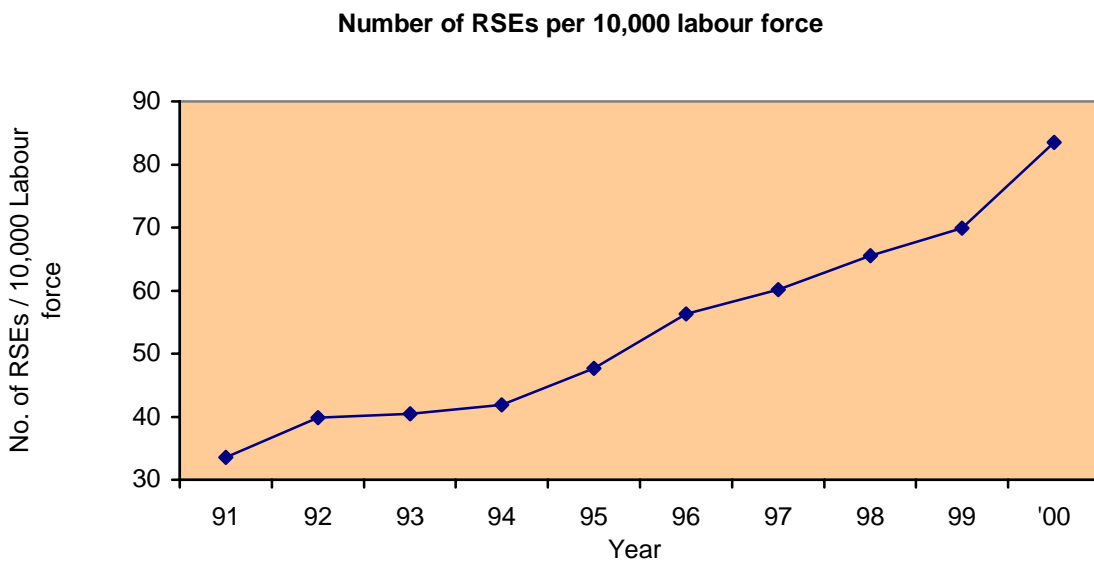
In 2000, 25,220 R&D personnel were engaged in R&D activities, an increase of 22.4% over 1999. Research Scientists and Engineers (RSEs) constituted the largest share (73.0%) of the total number of R&D personnel, at 18,302 persons. The following chart depicts the growth in the number of RSEs over the last 10 years.



<sup>1</sup> The definition of Research and Development (R&D) follows that laid down in the Frascati Manual, OECD, Paris, 1993. The Frascati Manual is a set of guidelines adopted by the OECD for collecting of R&D statistics.

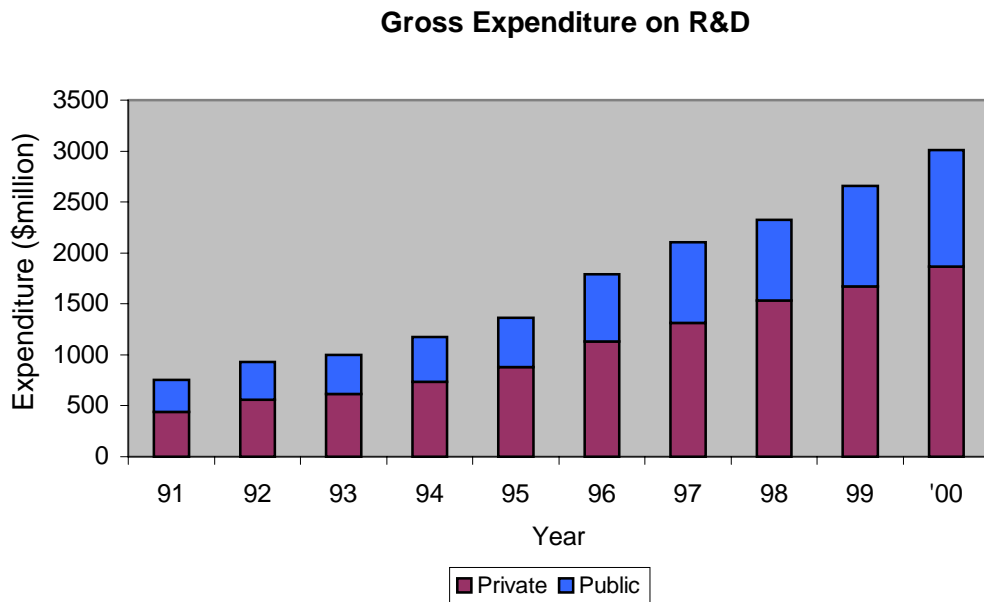
## **Number of Research Scientists And Engineers per 10,000 Workforce**

As a result, the number of RSEs per 10,000 workforce increased from 69.9 in 1999 to 83.5 in 2000. This increase is due largely to the inclusion of research-based postgraduate students as part of the RSE headcount in this year's survey. This is in line with the Frascati Manual's definition of RSEs and allows a common basis for comparison with other OECD member countries.



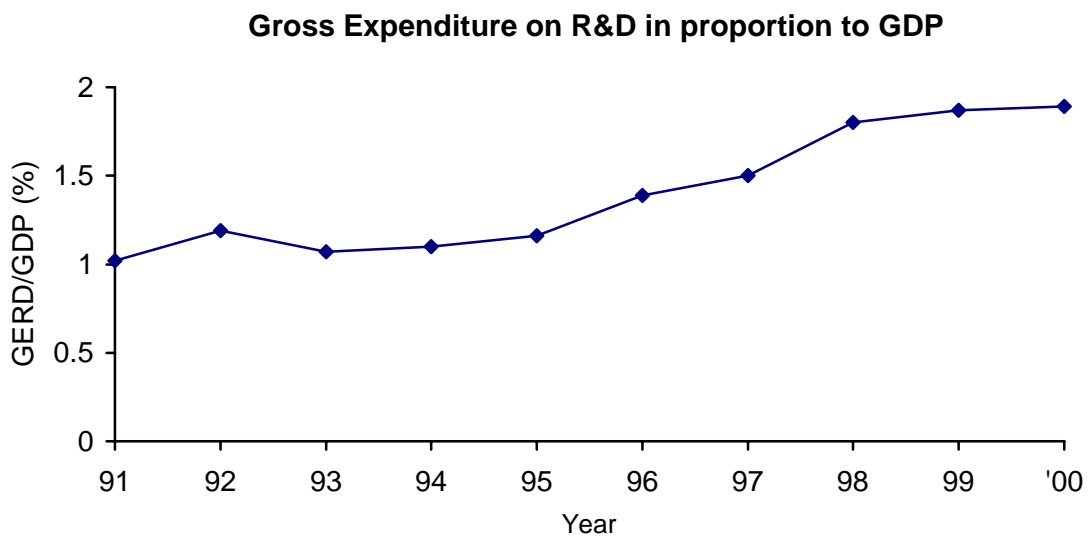
## Gross Expenditure on R&D (GERD)

In 2000, Gross Expenditure on R&D (GERD) grew by 13.3%, from \$2.66 billion to \$3.01 billion. The private sector accounted for 62.0% of the total national GERD.



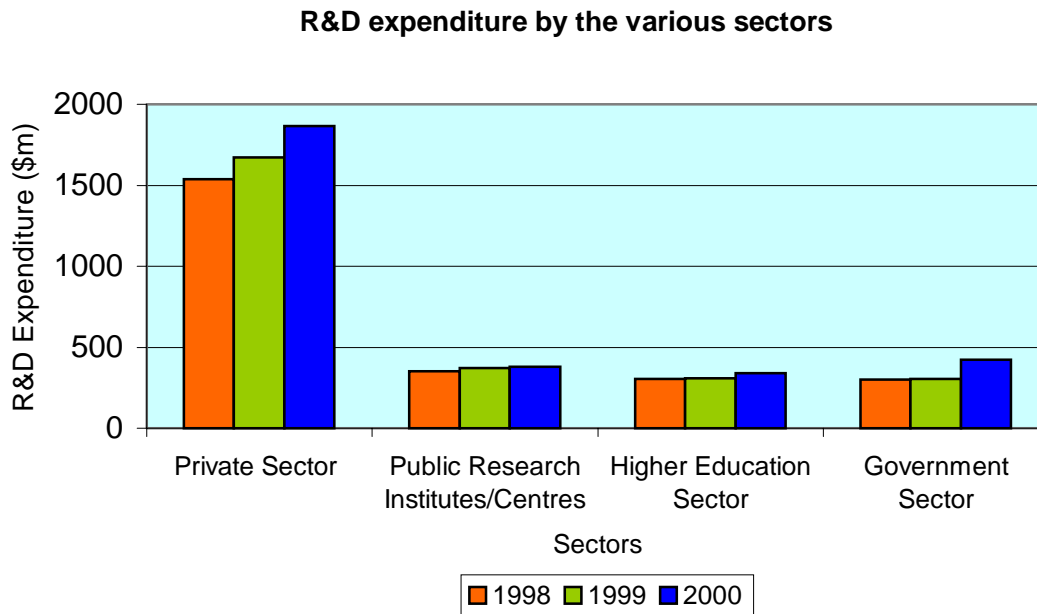
## GERD/GDP Ratio

As a result, GERD/GDP rose from 1.87% in 1999 to 1.89% in 2000.



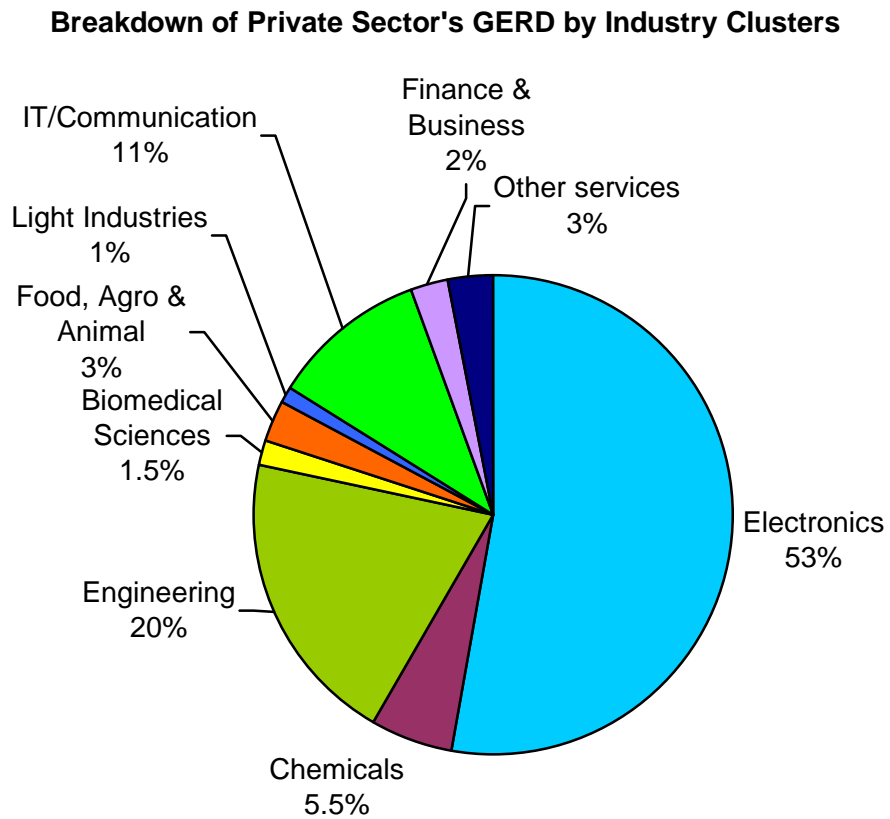
## R&D Expenditure by Various Sectors

R&D expenditure increased across all sectors with the highest increase of 39.0% coming from the government sector to reach \$423.81 million. This is followed by the private sector (12%) and the higher education sector (9%).



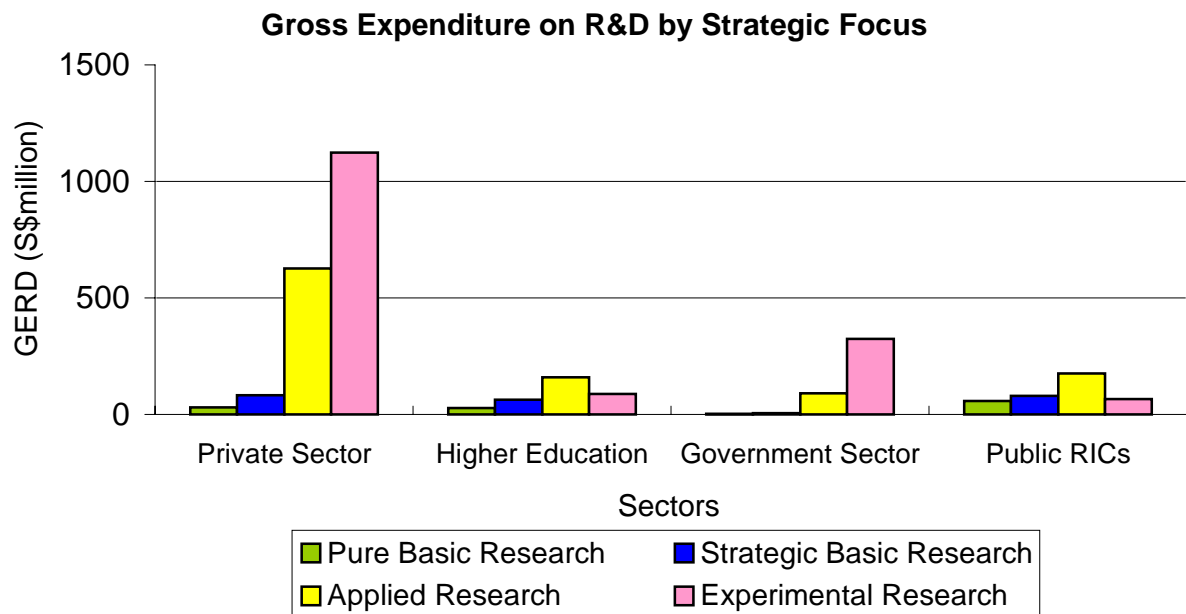
## **Breakdown of Private Sector's GERD by Industry Clusters**

Among private sector companies, the electronics sector accounted for 53% of the GERD, followed by engineering (20%) and IT & Communication (11%).



## GERD by Strategic Focus

The types of research carried out by the various sectors differ as shown in the following chart. While the private and government sectors focused mainly on experimental research, the higher education sector<sup>2</sup> and public Research Institutes and Centres (RICs) focused on applied research.



<sup>2</sup> The higher education sector comprises of 2 universities and 4 polytechnics.

## Level of Patenting Activities

The level of patenting activities continued to climb in 2000, which reflected the increased awareness by both private and public sector on the need to protect their intellectual properties arising from their research activities. The number of patents applied reached 902 in 2000, up 34% from 1999, while the number of patents awarded grew to 285, up 77% from a year ago. For this year's survey, patent information from the Intellectual Property Office of Singapore with regard to patents applied and awarded to Singapore residents in Singapore have been selectively included in the overall patent numbers from the survey to better reflect the level of patenting activities in Singapore.

