CHAPTER 6: SOME ADDITIONAL ISSUES

6.1 During the course of the inquiry some additional matters were raised which, while not new, continue to be highly significant for the future of R&D in Australia. These include:

- the need for Australian managers and financiers to gain a greater familiarity with science and technology;
- the need for greater stability in government policy towards R&D; and
- more coherence and streamlining in the implementation of that policy.

6.2 These matters are expanded upon in this chapter.

Qualifications of Australian managers and financiers

6.3 As was noted by this Committee's predecessor in its 1995 report on innovation:

> *The importance of management to the innovation culture results from the impact managers have on all aspects of enterprise activity. Enterprises are essentially the product of their managers. Managers are the 'shapers' or 'drivers' of enterprise change.*[386]
>
> *A significant deficiency in Australian management is the level of understanding of technology and its importance to enterprise improvement and innovation…*
>
> *In order for Australia to become a more innovative society scientists and engineers need a better understanding of business skills and those in enterprise management need a better understanding of science and technology.*[387]

6.4 Scientists and engineers have been increasingly exposed to business realities during the decade under review. Many engineering and research degrees now include substantial management training, while initiatives such as the CRC program have given researchers direct involvement with business.[388]

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386 House of Representatives Standing Committee on Industry, Science and Technology, p. 117.

387 ibid, pp. 50-51.

388 Sir Gustav Nossal, Australian Academy of Science, transcript of evidence, pp. 45-46; Professor Brian Anderson, Australian Academy of Science, transcript of evidence, p. 204; and Professor Ron Johnston, ASTEC, transcript of evidence, pp. 212-213.

The government's Innovation Ready and Investment Ready programs also support firms "…in building the management teams necessary to effectively manage and commercialise research".[389]

6.5 Such developments should eventually generate a better mix of skills at the management level, as more people with science and engineering backgrounds are appointed to senior positions in private enterprise (rectifying what the President of the Australian Academy of Science, Professor Brian Anderson, referred to as "an overweighting of law and accounting and so on").[390]

6.6 Welcome as this is, much needs to be done to improve awareness of R&D and innovation amongst Australian management generally. The Academy of Science drew to the Committee's attention a recent global survey on innovation by the Arthur D Little consulting group:

> *Overall, with a number of notable exceptions, the Australian executives surveyed are operating in a "comfort zone" relative to innovation. We detected very little sense of urgency or passion around the need to improve the ongoing, sustainable ability to innovate. Most respondents feel that their companies operate on par with, or better than, competitors around the world relative to innovation…*
>
> *Our experience – and most other experts on the topic agree – is that this perceived "parity performance level" on the part of Australian companies is just not the case … Australian executives may have lulled themselves into a false sense of security while competitors around the world are able to accelerate performance and further distance themselves from the average performance of Australian companies. This should be seen as a real threat and concern for Australian businesses.*[391]

6.7 Similar comments have been made about managers in the finance sector. Further to the observations at pages 105 and 106 about the availability of venture capital, Professor Anderson noted that:

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389 DISR, submission no. 48.2, p. 10. See also Senator the Hon Nick Minchin, *Science and Technology Budget Statement 1999-2000*, p. 1.12 & p. 2.6.

390 Professor Brian Anderson, Australian Academy of Science, transcript of evidence, p. 204. An overseas initiative of interest in this context is New Zealand's Future Directors' Award. Six places on the New Zealand Institute of Directors *Company Directors' Course* are allotted to scientists, technologists, or engineers "…who have both the capacity and interest in putting science and technology in the board room through directorship responsibilities" (information provided by Mr Graham Hill, Clerk of the New Zealand Parliament's Education and Science Committee).

391 *Arthur D Little Global Survey on Innovation: The Global Perspective*, Arthur D Little International Inc, 1998, p. 3 (exhibit no. 17). See also IR&D Board, *Scoreboard 9*8, pp. 34-58.

> *… many of the potential suppliers of finance in this country have little experience in assessing the risk content of a commercial activity that is highly R&D dependent. It is outside their … experience so they intuitively ascribe a higher level of risk to it than would be ascribed by someone who was used to assessing commercial propositions that were based on R&D, the sort of people you get in Silicon Valley.*
>
> *So the costs of money to underpin R&D development with a commercial objective will probably be great or simply will not be available because the conditions in terms of securities, collateral and so on will just be overwhelmingly hard for the person seeking the money to meet. I think we probably have banks which are very skilled at assessing real estate developments and the like but they are simply not skilled in this other area…*
>
> *I think if there were scientifically qualified people with R&D experience playing a significant role in financing decisions being made by banks and the like, that would lead to a more accurate assigning of finance because of a more accurate assessment of the risks.*[392]

6.8 Throughout the inquiry the Committee examined the merits of integrating science into management training, as has been advocated by FASTS and others:

> *There is a pressing need for a high level of scientific and technological literacy in the boardrooms and senior management of the private and public sectors in Australia…*
>
> *A 1996 report commissioned by [the National Board of Employment, Education and Training], "Science and Technology Issues in Management Education", recommended that a "long-term aim should be for science and technology issues to permeate much of the general management curriculum as part of the infusion of a more innovative ethos" and "to encourage the development and offering of MBA electives which focus on science and technology issues".*[393]

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392 Professor Brian Anderson, Australian Academy of Science, transcript of evidence, p. 205. See also The Institution of Engineers, Australia, submission no. 31, p. 3; Mr Michael Rice, submission no. 50, p. 5; Mr Peter Laver, Academy of Technological Sciences and Engineering, transcript of evidence, pp. 20-21; House of Representatives Standing Committee on Industry, Science and Technology, p. 6; and "How Australia Can Build High Technology Companies: An Interview With Roger Allen", *ASX Perspective*, p. 57.

393 FASTS, *A Science Policy for Australia in the 21st Century*, p. 16.

6.9 While such training can play only a small role in developing a broader culture of scientific literacy,[394] there would still be merit in innovation being included as a stream within management degrees and diplomas.

Recommendation 20:

6.10 The Committee recommends that the Commonwealth Minister for Education, in co-operation with tertiary institutions, science and technology organisations and bodies such as the Australian Institute of Management, develop innovation courses for use in management training.

6.11 Such courses might not improve overall management skills for some time, as Australia's proportion of tertiary-educated managers is "outstandingly low".[395] Measures to overcome this could include inducements to current managers to enter (or re-enter) tertiary training, or more customised courses for companies. This, in turn, will depend on companies recognising the value of such courses. The Australasian Institute of Mining and Metallurgy (AusIMM) and the University of Western Sydney both advised that since the removal of the guaranteed training levy, the amount of money Australian companies devote to training has been falling.[396]

6.12 The Committee notes that a National Innovation Summit working group will examine "the human dimension", including leadership, management and how to foster innovative and learning-based organisations.[397]

Streamlined programs and advisory structures

6.13 The former Chief Scientist, Professor John Stocker, noted in his June 1997 report *Priority Matters* that industry submissions to his inquiry:

> *… pointed to the need for greater coherence among publicly funded science and technology programs, including investment policies and programs; technology transfer arrangements; market support activities; and enterprise development and competitiveness initiatives. Submissions have called for rationalisation and greater transparency of the multiple sources of innovation*

394 Dr Ken Baldwin, FASTS, transcript of evidence, p. 76 and Professor Ron Johnston, ASTEC, transcript of evidence, pp. 212-213.

395 Professor Jane Marceau, UWS, transcript of evidence, p. 122. See also Professor Jane Marceau et al, *The High Road or the Low Road?*, Summary Report, p. 15 and Professor Jane Marceau, "Industry Policy and the Nation State", *Evatt Papers*, p. 83.

396 AusIMM, submission no. 20, p. 3 and Professor Jane Marceau, UWS, transcript of evidence, p. 122 and "Industry Policy and the Nation State", *Evatt Papers*, p. 83.

397 DISR, submission no. 48.2, p. 10.

> *programs, sometimes in the context of establishing an overarching industry policy, which would provide more logic to the suite of programs. Confusion in industry is caused by the number of assistance programs and agencies delivering them, the lack of a coherent framework, the lack of clarity about the role of each program, and the lack of focus of programs and deliverers.*[398]

6.14 Similar comments were made in the Mortimer report.[399] In evidence to this Committee's inquiry, the RMIT expressed concern at "…the fragmentation of government programs and advisory structures",[400] while AusIMM stated that:

> *There is a major gap relating to the lack of a strong, cohesive linkage between the traditional resource-based areas of government administration (eg DPIE) and those agencies which drive industry policy (eg DIST). Accordingly, there appears to be limited opportunity, from a policy development perspective, to develop strategies which would facilitate the development of R&D directed at generating activity in the secondary industry sector.*[401]

6.15 DPIE responded that interdepartmental linkages are being developed through mechanisms of the type referred to in Chapter 1, such as the Prime Minister's Science, Engineering and Innovation Council (PMSEIC) and the Co-ordination Committee on Science and Technology (CCST).[402] Also, since AusIMM's evidence was taken responsibility for minerals resources has been moved to the former DIST (now DISR).

6.16 These matters have been canvassed in other reports. The Committee has taken insufficient evidence to add further comment, but expects that issues of the type raised by RMIT and AusIMM will be debated at the National Innovation Summit.

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398 Professor John Stocker, p. 43.

399 Mortimer Review of Business Programs, p. 101.

400 RMIT, submission no. 24, p. 3.

401 AusIMM, submission no. 20, p. 2.

402 Dr Simon Hearn, DPIE, 1 June 1998 private briefing transcript, pp. 7-8 (transcript authorised for publication 2 July 1998). See also Senator the Hon Nick Minchin, *Science and Technology Budget Statement 1999-2000*, p. 5.39.

Long-term policy stability

6.17 Many participants in the inquiry emphasised the need for long-term stability in R&D policy.[403] FASTS has noted that other countries:

> *… have developed clear objectives to build specific areas of business expertise in long-term planning. In the European Union, groups of countries have agreed on priorities that characterise Government and business objectives well into the 21st century.*
>
> *Australian Federal Government incentive schemes in support of private sector R&D have not in general been implemented within any long-term strategic plan for building Australia's competitive strengths. They have been subject to change, sometimes without clear reasoning for such change, and have not recognised the necessary long-term commitment of most R&D ventures.*[404]

6.18 According to Mr Bruce Williams, director of Park Bench Technology (and a former DIST officer):

> *The changes, and that is the term to use rather than reform, have approached R&D as an item to be reset to zero every few years with an election. This is due to the political nature of industry policy, that it is nice to have one but nobody really cares if it works. Other countries have both major parties agree to the way forward in order to protect such an important issue.*[405]

6.19 Mr Keith Orchison of the ESAA similarly stated that:

> *… during the last 20 years in this country, we keep going off in new directions in research support. There is a concern amongst all who are stakeholders in it about the consistency of policy. The second [point] is that rather too often we are dealing with fairly complex bureaucratic processes and there is a disinclination amongst business to become involved in it.*

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403 See Cochlear Ltd, submission no. 1, p. 2; Mr Bruce Williams, submission no. 3; MTIA, submission no. 7, pp. 1-2 & pp. 7-8; Australian Academy of Science, submission no. 10; AMIRA, submission no. 21, p. 4 & attachment p. i & p. 4; Royal Australian Chemical Institute, submission no. 34, p. 4; ESAA, submission no. 40, p. 4; Mr Dick Davies, AMIRA, transcript of evidence, p. 29; Sir Gustav Nossal, Australian Academy of Science, transcript of evidence, p. 40; Mr Frank Forster, transcript of evidence, p. 85; Mr Peter Cook, UNSW, transcript of evidence, p. 126 & p. 133; and Mr Keith Orchison, ESAA, transcript of evidence, p. 161, p. 163 & p. 169.

404 FASTS, *A Science Policy for Australia in the 21st Century*, p. 16.

405 Mr Bruce Williams, submission no. 3.

> *… We cannot afford to be chopping and changing; every time there is a new government there is a new direction in this. That is not the way business can work. It is inappropriate for the kind of community we have got to be in the new decade. Our belief is that the starting point [for the energy sector] is to have a sustainable energy policy that we can sign up to, government can sign up to, hopefully that oppositions will, in the broad, and then to start building policy from that.*[406]

6.20 A bipartisan national vision for R&D, with a supporting suite of programs capable of outlasting Australia's short electoral cycle, could be the greatest benefit to emerge from the National Innovation Summit. The Committee urges all parties to work towards that goal.

The Hon Geoff Prosser MP
Chairman

August 1999

406 Mr Keith Orchison, ESAA, transcript of evidence, p. 169.