Chapter 2

Funding of projects under the Applied Research Fund

Audit conducted a review to examine the provision of funding support to applied research and development (R&D) projects under the Applied Research Fund (ARF), and to ascertain whether there were areas for improvement.

2. At the public hearing, **Hon John TSANG Chun-wah, Secretary for Commerce, Industry and Technology**, made an opening statement. In short, he said that:

- as noted in the Audit Report, there were non-financial objectives of the ARF. The ARF was a fund financed by the public. Reaping returns was important, but it was not the most important objective of the ARF. The achievements of the ARF should not be judged solely on the basis of financial returns. The ARF had to carry out its important public mission and fulfill the non-financial objectives;

- the main objective of the ARF was to encourage technology ventures and R&D activities that had the potential to yield commercially exploitable results in Hong Kong, by providing government funding as a catalyst. The longer-term aim of the ARF as a policy tool was to increase the technological capability and hence the competitiveness of local industries, thereby promoting high value added economic development in Hong Kong, not a tool to reap short-term financial returns;

- the investments of the ARF, which was a venture capital fund, were risky in nature. This was an inherent element of the ARF. The Audit Report stated that the ARF investments overall suffered a capital loss which represented 54% of the sum invested. The Report also pointed out that such capital loss included realised and unrealised losses. Unrealised loss, which referred to the difference between the original investment value and the latest valuation of projects, was a matter of valuation. A valuation which was below the original investment value was not equivalent to an investment loss. The valuation, which was done in accordance with the established practice of the venture capital industry, might go up or down as per the economy situation worldwide, the degree of technology development and the business prospects of the investee companies;

- the performance of the ARF was closely related to the global economy and the technology investment environment. Following the burst of the dot-com bubble in early 2000, the overall investment environment worldwide for technology business had been very difficult. The ARF investment projects were also affected. The valuation of the ARF investments was generally comparable to that of other venture capital funds. For instance, notwithstanding the very mature market in the United States of America (US) which had developed venture capital funds for over 30 years, the three-year result of the US venture capital funds, which were formed in 1999, showed a capital loss of about 38%. From September 2001 to June 2002, venture investment companies in Australia and New Zealand withdrew capital funds from 82 investee companies, of which 46% suffered losses. The index of the National Association of Securities Dealers Automated Quotations system (NASDAQ), which mainly consisted of technology-related stocks, had declined from its all-time high of over 5,000 points in the year 2000 to about 2,000 points at present, representing a decrease of about 60%. In Hong Kong, the Growth Enterprise Market index had declined to a very large extent from its all-time high of about 1020 points in March 2000 to its all-time low of about 105 points in October 2002. All these examples showed that the financial performance of the ARF was not out of line with other venture capital markets;

- the Administration reported to the Legislative Council (LegCo) Panel on Commerce and Industry twice this year that the Commerce, Industry and Technology Bureau (CITB) had conducted a review on the overall strategy of and direction on innovation and technology development, and hoped to adopt a demand-led, market-driven approach in concentrating resources to develop areas in which Hong Kong had competitive advantages, and leverage on the advantages of the Pearl River Delta region and its substantial market and demands, in order to promote the long-term development of Hong Kong's innovation and technology; and

- the Administration would strive to coordinate various policy tools, including the ARF, to produce the greatest synergy. He would lead the Steering Committee on Innovation and Technology which comprised members from relevant government departments, academia, industry and technology support institutes. The Steering Committee had held its first meeting. It would coordinate the formulation and implementation of innovation and technology policy, and ensure greater synergy among Hong Kong's technology programmes which had advantages and development potential. This also responded to Audit's view in paragraph 2.23 of the Audit Report that the CITB needed to take the lead in the ongoing review of the ARF and ensure that the review had a comprehensive coverage in the context of the Government's overall strategy for innovation and technology development.

Funding of projects under the Applied Research Fund

Costs and achievements of the Applied Research Fund

3. According to paragraph 2.6 of the Audit Report, the former Industry Department's review in 1998 of the Applied Research and Development Scheme and the Cooperative Applied Research and Development Scheme, which were the predecessors of the ARF, found that it was difficult to come to any definitive conclusion on whether the schemes had met their objectives, and that there were difficulties in obtaining from the investee companies commercially sensitive information such as sales revenue and profits tax. As a result, the review could not reliably assess the commercial viability of the new technology venture. The Committee asked whether the access to commercially sensitive information of the investee companies was still a problem.

4. **Mr Francis HO**, **Permanent Secretary for Commerce, Industry and Technology (Communications and Technology (C&T))**, replied that before and at the time of the review in 1998, as civil servants who managed the schemes did not have the expertise in investments, funding support for investment projects was in the form of loan. Commercially sensitive information of the companies which borrowed was not released to the lender. As a result of the review, the form of funding support had been changed to investment by professional fund managers, which became members of the boards of directors of the investee companies concerned. As such, they could have access to the commercially sensitive information of these companies.

5. Noting that paragraphs 2.7(a) to (e) of the Audit Report contained statistics on the performance of the ARF as at 31 December 2002 since the engagement of fund managers, the Committee asked about the updated position.

6. In his letter of 19 May 2004, in ***Appendix 15***, **Mr Anthony WONG Sik-kei, Commissioner for Innovation and Technology** provided the updated statistics as at 31 December 2003, as follows:

- the valuation of the 23 investments managed by fund managers was $157.6 million, representing 44% of the investment at cost. Six of these investee companies had been liquidated or sold at nominal value;

- among the remaining 17 active investments, one was listed on the Growth Enterprise Market in May 2002. Another was acquired in February 2000 by a company listed on the Hong Kong Stock Exchange and four had won prestigious technology awards either locally or overseas. One other company was acquired in April 2004 by a company listed on NASDAQ;

- as at 31 December 2002, the then 16 active investee companies attracted investments amounting to $870 million, other than those from the ARF. As at end March 2004, the ARF further attracted $7.5 million co-investments. Together with the $870 million reported, the existing total amount of co-investments was about $877.5 million, which was 1% higher than $870 million as at end December 2002. This represented a multiplier factor of 2.9 against the corresponding ARF's investment;

- 14 investee companies were small-and-medium-sized enterprises with less than 50 employees at the time of ARF's initial investment. As at end December 2003, three were beyond this employment level; and

- after the engagement of fund managers, the Applied Research Council (ARC) approved investments into 23 cases with approved funding of $378 million. This approved amount was about 3.9 times of the $97 million funding approved for the 27 cases managed by the former Industry Department. More importantly, the institutional arrangements of engaging fund managers since November 1998 had much improved the then limitations in managing the funding scheme by the former Industry Department staffed by civil servants: more proactive ability to identify projects; better commercial sense and expertise in assessment; predominance of funding through equity participation instead of straight loans, more active project management and participation; more adequate expertise in arranging investment exit. Furthermore, the professional fund managers had enabled the ARC to better support the investee companies in that they could provide better networking advantages, as well as technical, management and marketing expertise, thereby enhancing the technical and commercial viability of the approved projects. These contributions were essential and had an impact, albeit difficult to quantify.

7. According to paragraph 2.8 of the Audit Report, in January 2003, one month before reporting to the LegCo Panel on Commerce and Industry, the ARC discussed the role and future of the ARF, and considered that the ARF would unlikely bring about local technology development opportunities with visibility or impact. It risked losing its purpose as a public policy tool to spearhead technology development. The Committee considered that such pessimistic view appeared to be different from the Administration's current view that the ARF should continue to operate. The Committee asked why there was such a difference.

Funding of projects under the Applied Research Fund

8. The **Permanent Secretary for Commerce, Industry and Technology (C&T)** responded that the ARF's view in 2003 was made having regard to the substantial drop in the number and amount of investments in 2001 and 2002 vis-à-vis those in 1999 and 2000, but not the achievements of the investments. The ARC was concerned that the drop might decrease the momentum of investment. To deal with such decrease, the ARC considered the options mentioned in paragraph 2.8 of the Audit Report, which sought to speed up and increase investments, such as making investments in the Mainland or overseas, matching ARF investments in external technology companies on the condition that they should set up R&D or technology-related business operations in Hong Kong and establishing a fund, with matching contributions from a consortium of industrialists and/or financiers, for investment in technology ventures.

9. The Committee wondered whether making investments in the Mainland or overseas would be even more risky.

10. The **Secretary for Commerce, Industry and Technology** responded that extending the ARF's ambit to the Mainland or overseas might incur higher risk. It might, however, not be so in view of the increase in the number and areas of investments. Nevertheless, the Administration's current position on the matter was to continue the ARF in the present modus operandi.

11. According to paragraph 2.13 of the Audit Report, fund managers had been engaged since November 1998 to improve the performance of the ARF. However, in terms of capital loss, the performance of investments made after the engagement of fund managers had not improved. Moreover, such engagement had its disadvantage because, unlike civil servants who had worked as part-time fund managers for the ARF before, management fees had to be paid to these full-time fund managers. The Committee asked whether it would be more appropriate for the Innovation and Technology Commission itself to manage the ARF investments.

12. The **Secretary for Commerce, Industry and Technology** responded that:

- the Administration still considered that professional fund managers were better than civil servants in the management of the ARF because the fund managers were more professional. Civil servants were less competent in terms of experience and expertise in technology-related investments. The competence of fund managers in managing the ARF investments could not be assessed solely on quantitative criteria. They were perhaps unfortunate in that they were engaged when there was a drastic change in the global economy. The percentages of capital loss of the ARF investments before and after the engagement of fund managers were comparable; and

- in addition, these fund managers had contributed a lot to the investee companies. Apart from making suggestions, they also assisted the companies in attracting investments from the private sector. In certain specific cases, the companies concerned even achieved unprecedented results, such as successful public listing or acquisition by publicly listed companies. The indirect benefits to industries accrued from the ARF investments by fund managers were more than those by civil servants.

13. The Committee wondered whether the Administration had knowledge or experience in the selection of competent fund managers. Moreover, while civil servants were replaced by professional fund managers in the management of the ARF, the Secretary for Commerce, Industry and Technology, being a public officer and the head of the CITB, was appointed to chair the Steering Committee on Innovation and Technology. The Committee queried whether this was a reversion to the old mode of management by civil servants.

14. The **Secretary for Commerce, Industry and Technology** and the **Permanent Secretary for Commerce, Industry and Technology (C&T)** responded that:

- before 1998, when civil servants were used as fund managers, the mechanism for vetting investment proposals was primitive and decisions on investment proposals were made by external assessors from the local academic community and civil servants. Investment was made in the form of loans to the investee companies;

- the selection of fund managers from 1998 onwards was through a tendering procedure. In the selection exercises in 1998 and 1999, the responses to the call for tender were overwhelming. Both local companies and overseas companies, such as those from Silicon Valley, responded to the call. The tender was vetted by the ARC, which comprised civil servants and reputable persons from various industries. Objective vetting criteria were adopted, which included the merits of the tender proposals, investment strategies and the track record of the fund managers' performance. Unfortunately, the investment environment in 1998 to 2000 was not normal and there was a drastic change from extreme optimism to extreme pessimism. The general market conditions were very unfavourable. As such, the performance of the ARF investments was adversely affected; and

- the Steering Committee decided the policy direction to cater for the innovation and technology needs in Hong Kong. In alignment with this policy direction, the ARC, not the Steering Committee, selected the companies for making investment. For instance, if the Steering Committee decided that the optics industry should be the focus and priority industry, the ARC would decide on the specific areas of the optics industry in which it should invest.

15. According to paragraph 2.17 of the Audit Report, the ARC informed Audit that the structure of the management fees paid to fund managers had been revised from lump-sum fixed fees to performance-based fees. The effect was that the fees paid to fund managers had gradually decreased from $44 million in the first two years to $39 million in the last three years. It was estimated that the total management fees would further decrease to about $18 million in the coming four years if investments stayed at the current level. The Committee asked:

- about the reasons for introducing the performance-based fee charging scheme; and

- why the cut in fees had not taken place earlier.

16. The **Secretary for Commerce, Industry and Technology**, the **Permanent Secretary for Commerce, Industry and Technology (C&T)**, and the **Assistant Commissioner for Innovation and Technology (Infrastructure)** explained that:

- in engaging the fund managers for the first time in 1998, the Administration had negotiated with them the level of management fees. In the negotiations, the Administration hoped to lower the fees as much as possible. However, a fee level at 2.5% of the amount of fund entrusted to the fund managers concerned was the market norm, and was non-negotiable at that time before the burst of the dot-com bubble. It was also comparable to that of venture capital in other jurisdictions. As such, the Administration adopted the rate and hoped that the financial return of the investments could cover the management fees; and

- as the performance of the ARF investments was not satisfactory in 2002 and 2003, the Administration had, in accordance with commercial principles, conducted a new round of negotiations with the funds managers concerned, with a view to substantially reducing the management fees by, for instance, setting the fee level at 2.5% of the amount of investment rather than the amount entrusted to the funds managers. As the rate of management fees was prescribed in the management agreements, negotiations had to be conducted with the fund managers and could not be completed within a short time. In the end, the performance-based fee charging scheme was introduced in 2002 and the management fees was substantially reduced.

17. According to paragraph 2.18 of the Audit Report, at a meeting with the ARC in December 2001, a fund manager indicated that there was difficulty in identifying quality prospective investee companies in Hong Kong, the venture capital industry was well developed in Hong Kong and there were abundant sources of venture capital. The Committee asked about the Administration's comments on these views. It also asked whether the difficulty in identifying quality prospective investee companies in Hong Kong should better be addressed by providing innovative technology projects that met the venture capital companies' criteria for investments, rather than by the ARC's providing more venture funding.

18. In response, the **Secretary for Commerce, Industry and Technology** and the **Commissioner for Innovation and Technology** said that:

- it was true that the venture capital industry was well developed in Hong Kong. However, Hong Kong's venture capital was based in Hong Kong and made investments worldwide. Industry statistics had shown that only about 10% of the venture capital was disbursed to local companies, which might be a result of the technology-related companies' not being well developed in Hong Kong. This explained why there was difficulty in identifying quality prospective investee companies locally; and

- following the burst of the dot-com bubble, fund managers became very conservative and there had been very few ARF investments since last year. The Administration required that the ARF investment projects should be financed by funds from both the ARF and the private sector. There were two stages of investments, i.e. the pre-venture capital stage and the venture capital stage. The ARF investments were mainly made at the pre-venture capital stage where the products of the companies concerned were being developed. After completion of product development at that stage, fund managers of other venture capital might be interested in making investments at the venture capital stage.

Funding of projects under the Applied Research Fund

19. To facilitate a comparison of investments by venture capital with those by the ARF, the Committee asked about the amount of funds available from venture capital and, among which, the amount that had been invested in venture companies; as well as the percentage of the ARF investments in the overall investment in venture companies.

20. In his letter of 19 May 2004, the **Commissioner for Innovation and Technology** replied that:

- while some market statistics were available (e.g. the size of Hong Kong's venture capital investment portfolio; Hong Kong's disbursements by financing stage; disbursements to Hong Kong's companies, etc.), they needed to be treated with caution in that the degree of precision of these figures was very much affected by the lack of precision on what constituted "Hong Kong's venture capital" or "Hong Kong companies";

- unlike the ARF which might only be invested in technology venture / R&D projects that had commercial potentials and that must have substantial connections to Hong Kong, Hong Kong's venture capital might invest in "Hong Kong companies" outside Hong Kong;

- taking the above into account, the Administration considered that the figures needed to be interpreted with due care. As far as the Administration was aware, industry statistics had shown that the venture capital investment portfolio in Hong Kong was US$10,817 million as at the end of 2002. However, industry sources had also shown that only about 11% was disbursed to "Hong Kong companies" and about 46% was disbursed to industries more closely related to technology, such as computer-related industries, electronics, information technology, medical/ biotechnology and telecommunications industries. On this basis, the investment portfolio into "Hong Kong companies" in technology-related industries was about US$547 million as at the end of 2002. That of the ARF was about US$29.6 million. The percentage of the ARF investments relative to the overall total was thus about 5.4%; and

- while the figure of 5.4% might seem to imply that the ARF investments occupied only a limited share of the venture capital invested in technology-related companies, according to industry statistics, only about 23% of the venture capital disbursements of Hong Kong was for companies at seed-stage or start-up stage in which ARF investments mostly focussed on and during which venture capital support by public sector fund like the ARF would be most critical and useful to augment any funding support from other sources. It therefore followed that if the above figures were further qualified by the relevant stage of financing in which ARF investments mostly focussed on, the investment portfolio into Hong Kong companies in technology-related industries in seed-stage or start-up stage might be about US$126 million as at end 2002. This translated into ARF investments being about 23% of the relevant venture capital investment portfolio in technology-related industries in Hong Kong companies at the seed or start-up stage.

21. According to paragraphs 2.18 and 2.19 of the Audit Report, as at November 2003, the ARF had a large cash balance of $434 million available for new investments. However, no new investment had been approved since May 2003. As it was difficult to identify new investee companies for investments, the Committee asked whether the surplus funds would be returned to the Government.

22. The **Secretary for Commerce, Industry and Technology** and the **Commissioner for Innovation and Technology** responded that:

- there was no plan to return the surplus funds to the Government because there was a need for technological development. The ARC would continue to search for worthwhile projects for investments to provide funding support for industries to conduct R&D activities. In fact, the fund managers had been searching for investment projects for the past few months and were deliberating the feasibility of a number of them; and

- as a result of the review of the operation of the ARF, there would be technology focus areas to align with the Government's overall strategy in innovation and technology investments. The fund managers would be asked to make more investments in these focus areas, which were relatively large in scope. These areas would be the major industries in Hong Kong for which the ARF would provide funding support for the conduct of more R&D activities. Apart from the ARF, the Innovation and Technology Fund (ITF) also provided funding for such purpose. Funding support from the two Funds should, in theory, bring in more new investment projects in the area of innovation and technology in future.

Funding of projects under the Applied Research Fund

23. According to paragraph 2.21 of the Audit Report, the main objective of the ARF was to encourage technology ventures and R&D activities that had the potential to yield commercially exploitable results in Hong Kong. However, Audit's findings indicated that many of the projects receiving ARF funds were commercially unsuccessful, and some had suffered heavy capital losses. The Committee asked:

- whether the Administration agreed that the ARF investments were commercially unsuccessful; and

- how the Administration could ensure that the future ARF investments could achieve the main objective.

24. The **Secretary for Commerce, Industry and Technology** and the **Commissioner for Innovation and Technology** responded that:

- the ARF investments were commercially unsuccessful because they had suffered heavy capital losses. The losses were incurred because the investment projects, which were related to the dot-com business, had suffered from the burst of the dot-com bubble; and

- it was unlikely that every investment using venture capital was successful. The venture capital portfolio included a basket of investment projects, some of which were successful and some not. The overall results of investments using venture capital would be regarded as successful if, among five or six investments made, one or two were successful and made an overall profit. The duration of such investments should be long term rather than short term. Moreover, being risky in nature, these projects were not commercially worthwhile for investment. As such, the ARF had to provide the funding support for such projects in the pre-venture capital stage so that they could attract private-sector investment which could benefit the development of industries.

25. Although the Secretary for Commerce, Industry and Technology and the Commissioner for Innovation and Technology had emphasised the long-term nature and overall success of the ARF investments, Audit's findings of the performance of the investments, which were made in a period of over 10 years, indicated that the overall investment results were unsuccessful. The Committee noted that the Government had revised the target rate of investment return from "at least 5% per annum of the sum advanced" to "the best return rate achievable" because of the need for flexibility. There was, however, no benchmark for assessing whether the revised target rate had been achieved. It asked:

- about the normal duration of investment in venture companies by fund managers in the venture capital industry before they could reap investment returns; and

- when the overall investment results could be achieved and whether "the best return rate achievable" was still the target return rate.

26. The **Secretary for Commerce, Industry and Technology** stated at the hearing and the **Commissioner for Innovation and Technology** stated in his letter of 19 May 2004 that:

- venture capital had been developed in the US for more than three decades and the US was a very well-developed market. If the US was used as a benchmark and in accordance with studies of US venture capital market, it showed that "... nearly half of all venture capital-backed companies don't fulfill their potential, and nearly one-third go out of business". According to the information of the National Venture Capital Association of the US, an early stage investment might take "seven to ten years to mature" while later stage investment may take "a few years". It had also pointed out that, generally, venture funds had a life span, on average, of "10 to 12 years";

- academics of the US had also pointed out that the median age of technology-based companies making use of initial public offering as a means for divestment and recouping return had recently been gradually increased from being about four years in 1999-2000 (during which many were just 18 months) to some nine years in 2001-02. This had reflected that the investment return duration of venture capital had been significantly lengthened in recent years;

- the ARF investments were indeed commercially unsuccessful. The Administration, however, had other non-financial objectives to achieve. The achievement of the three non-financial objectives of the ITF could serve as an example. The first objective, i.e. training more R&D manpower through investments in technology-related projects, was achieved as shown by a substantial increase of R&D manpower from about 10,000 in 1999 when the ITF was established to 13,000 in 2002. As a result of the ITF investments, an additional manpower of 1,000 was increased in these few years;

- regarding the second objective, i.e. generation of private-sector R&D investments, there was a substantial increase of the amount of private-sector investments from about $4.8 million before the establishment of the ITF to $160 million in 2002. The corresponding percentage of R&D expenses to these investments rose substantially from 24% to 33% which, however, was on the low side when compared to the corresponding percentages for Finland and Japan, which were 71% and 69% respectively. As such, Hong Kong had to make more efforts in this respect; and

- regarding the third objective, i.e. increasing advanced technology and value-added production activities, there was no uniform benchmark for measuring the amount of advanced technology activities. Some statistics on the amount of such activities were as follows: universities in the US made about 13,000 inventions and carried out 23,000 technology transfers in 2001. In Hong Kong, there were 535 new technology items and products as well as 62 registered patents. Comparing the statistics of these two places, Hong Kong appeared to lag far behind the US. However, if the amount of funding support was also taken into account, the US invested a total of US$20 billion in 2001 while the total amount of the ITF investments in four years was about US$200 million, representing about 1% of the total investments by the US in 2001. In the US, about 65 items of patents were produced and 115 items of technology transfers made for every US$100 million spent, whereas the corresponding numbers of patents and technology transfers for Hong Kong were 31 and 267 respectively. The comparison indicated that the performance of Hong Kong was not very bad. Nevertheless, the Administration would make more efforts in this respect.

27. The Committee was concerned that no benchmarks had been established for measuring the fulfilment of the ARF's non-financial objectives. The Committee asked whether the Administration would do so.

28. The **Secretary for Commerce, Industry and Technology** responded that the Administration would put forward benchmarks for measuring the fulfilment of the ARF's non-financial objectives or a basket of benchmarks to facilitate Audit's review of the performance of the ARF investments.

Funding of projects under the Applied Research Fund

29. According to paragraph 2.25 of the Audit Report, the ARF, in certain specific cases, had been able to achieve important milestones like successful public listing or acquisition by publicly listed companies which had not been achieved before. The Committee asked about the statistics in this regard. On the other hand, the Committee noted that Audit had reported six cases of unsuccessful investments managed by the fund managers (Table 5 in paragraph 3.2 of the Audit Report). To understand the performance of the fund managers, the Committee asked the Innovation and Technology Commission to provide details of the six most successful ARF investments managed by the fund managers, and the expected times of return.

30. The **Commissioner for Innovation and Technology** responded at the hearing and in his letter of 19 May 2004 that:

- as described in paragraph 2.7(b) of the Audit Report, one investee company had been listed on the Growth Enterprise Market in May 2002, and another had been acquired in February 2000 by a company listed in the Hong Kong Stock Exchange. They were among the 16 investee companies which were relatively young and required more time for development with the aim of being listed on the Growth Enterprise Market. The timing of listing depended on the mode of operation of individual companies and the preference of the shareholders;

- regarding the six most successful investment projects managed by the fund managers (details of which were given in his letter), it was difficult to project when ARF investments might be exited or whether such investments might bring return to the ARF. Many factors would affect the timing and outcome of exit from these investments, such as business cycle, financial market situation, performance of the technology market and the global economic trend; and

- the median age of technology-based companies matured for initial public offering, which was an important way for exiting venture capital investments, had recently been lengthened to some nine years. The ARC had, however, already stipulated in its relevant management agreements that the fund managers must use their reasonable endeavours to ensure that all of their investments were realised not later than the date of expiration of the management agreements, which would stay in force until 2007-08.

Disposal of completed investments by the fund managers

31. According to paragraph 3.1 of the Audit Report, under the management agreements with fund managers, the fund managers might in their absolute discretion realise or sell any of the investments of the ARF at such times and prices and in such manner as they might decide. The Committee asked:

- whether advice from the Department of Justice had been sought in drafting the management agreements with the fund managers; and

- whether the management agreements allowed fund managers to receive commission from the buyers for their sale of investee companies' shares.

32. In his letter of 7 May 2004, in ***Appendix 16***, the **Commissioner for Innovation and Technology** said that:

- the ARC engaged private-sector legal firms to provide legal services for it. It had sought advice from them when drafting the management agreements; and

- the management agreements did not contain provisions allowing fund managers to receive commission for their sale of investee companies' shares.

33. In the light of the fund managers' disposal of completed investments, particularly Case A in the Audit Report in which the investments were sold at a nominal value, the Committee asked about the rationale for giving the fund managers absolute discretion.

34. The **Permanent Secretary for Commerce, Industry and Technology (C&T)** replied that it was a conscious and collective decision of the ARC to give absolute discretion to the fund managers. Such power was provided for in the management agreements.

35. According to paragraphs 3.3(k) and (l) of the Audit Report, in a meeting of the ARC held on 15 September 2000, the Directors of the ARC raised questions about the failure of Company A and how Fund Manager A had come to the conclusion that the ARC should sell its shares at US$1. In an ARC emergency meeting held on 30 October 2000, Fund Manager A reported the details of the events leading to the sale of the ARC's shares in Company A. The Chairman of the ARC said that it was unsatisfactory that the ARC had not been informed in a timely manner. The Committee enquired:

- about the grounds for the ARC Chairman making the above remarks, having regard to the fact that the management agreement had provided for the fund manager's absolute discretion in the disposal of investments;

- for Case A, whether the Administration had diligently discharged its duty to closely monitor the use of public funds, taking into account the level of risk of the investments; and

- whether the LegCo had been informed of the matter.

36. In his letter of 19 May 2004, the **Permanent Secretary for Commerce, Industry and Technology (C&T)** said that:

- although the management agreement did not require the relevant fund manager to seek the ARC's prior approval before selling the ARC's shares, the Chairman's remarks very much represented the sentiment of the ARC Board on the sale;

- in the past few years, the ARC had continuously sought ways to improve the achievement of the ARF. To this end, persons responsible for management of the ARF had been changed from civil servants to professional fund managers. It was hoped that, through these fund managers, the identification and vetting of investment projects could be carried out more effectively and in a professional manner. The fund managers might also be able to support the investee companies for technology and business development, provide the necessary networks and coaching. The engagement of fund managers was a very reasonable way to manage the ARF investments; and

- there was no procedural requirement for the ARC to inform the LegCo of the management of the ARF. However, since 2001, the ARC had reported to the LegCo on the overall performance of the ARF investments, but not on individual investments.

37. The Committee considered that the Administration should study how the ARC could tighten up the control over the disposal of the ARF investments so that the public money could be safeguarded. It asked whether the Administration would request the fund managers to put forward ways to avoid disposal of ARF investments by the fund managers without informing the ARC beforehand. The effectiveness of their suggestions could be taken into account in deciding whether to engage the relevant fund managers or renew the management agreements with them.

38. The **Secretary for Commerce, Industry and Technology** responded that the Administration would take action to strengthen control over the disposal of ARF investments by requiring more frequent progress reporting by fund managers. It would also seek suitable changes to the existing management agreements.

39. The Committee noted that there was a co-investment provision in Clause 7.1(c) of the ARC's management agreement with Fund Manager A, which provided that the fund manager might "co-invest in any of the investments whether on its own account or on account of its other clients provided that such co-investment shall be made upon commercial terms which are comparable to those applicable to the Investments." It appeared to the Committee that the provision only set out the co-investment principle but was silent on implementation, as it did not require the initial and follow-on investments as well as divestments of the ARF to be followed on the same terms by the fund managers as co-investors. The Committee asked how the ARC ensured the fund managers' compliance with the co-investment provision in the management agreements.

40. In his letter of 19 May 2004, the **Commissioner for Innovation and Technology** informed the Committee of the system to deal with co-investment proposal and conflict of interest, as follows:

- in terms of system and process, the management agreements provided that the fund managers might co-invest in any of the investments on their own account or on account of their other clients, provided that such co-investment must be made upon commercial terms which were comparable to those applicable to the investments;

- the management agreements also required that the fund managers must not, among other things, invest the ARF in any investments already invested by any other funds managed by the fund managers concerned without the prior written consent and approval of the ARC which must not be unreasonably withheld;

- as regards making co-investment as a requirement, the three earlier management agreements concluded in November 1998 did not require co-investment as such. However, in the case of the fourth fund manager engaged by the ARC in March 2000, the relevant management agreement made co-investment as a requirement. There was no co-investment requirement in the management agreement for Fund Manager A;

- through the management agreement, the ARC appointed the fund manager and the fund manager agreed to act as manager of the ARF in accordance with the terms of the management agreement. Under the relevant management agreement, the fund manager must use its reasonable endeavours to act in the best interests of the ARC in relation to the ARF and/or the investments. The fund manager was granted the authority, power and right on behalf of, for the account of and in the name of the ARC to, among other things, purchase or otherwise acquire or sell, dispose of, exchange, vary or invest in the investments; and

- the ARC-fund manager relationship was thus based on mutual good faith. The role of the ARC was to maintain a supervisory role and oversee the performance of the fund managers. The ARC vested trust in its fund manager and did not micro-manage the details of fund management.

41. The Committee further asked about the details of the follow-up actions that had been and would be taken by the ARC against the fund managers in Cases A and B (i.e. Fund Managers A and B). It also asked for the record of any follow-up actions that had been taken and the timetable for any future follow-up actions.

42. In his letter of 19 May 2004, the **Commissioner for Innovation and Technology** advised that:

<u>Case A</u>

- the ARC had convened Board meetings to discuss the matter. Following a series of discussion with Fund Manager A, the ARC decided that the ARC Secretariat should issue a letter to the fund manager expressing the ARC's concerns. The ARC Board also agreed to test the water on possible disengagement of Fund Manager A while sending it another letter expressing grave concern on its performance;

- the ARC Board did not discern any criminal or fraudulent act but was concerned about the effectiveness of the fund manager. Action had been taken to terminate the management agreement and the fund manager ceased to manage the ARF on behalf of ARC with effect from 3 May 2002;

Case B

- the ARC considered that Fund Manager B had acted on the basis of its professional judgment of the market situation. The fund manager had reported to the ARC Board the disposal on 30 April 2003. The ARC Board did not discern any criminal or fraudulent act arising from Case B;

- the ARC Secretariat had also sought clarification from Fund Manager B about Company B reportedly attracted US$16 million from the US. Fund Manager B explained to the ARC Secretariat on 29 October 2003 the situation and met the Secretariat on 17 November 2003. The main explanation was that the US$16 million investment reported in a press article was not new fund injection into Company B. Rather, the fund was prepared for the perceived loss-making operation for the next 24 to 36 months of a new company, staffed by the founders of Company B, to work on new technologies that would pursue a totally different product and business strategy, targeting cable operators in the US as customers. In short, the US$16 million investment should not be interpreted as the valuation of Company B;

- the ARC had taken action in the past two years to vary the terms of the management agreement to provide better protection for the ARC to the effect, among other things, that the management fee was reduced; the ARC might withdraw all undrawn/uncommitted funds with prior notice; and the ARC might object to any proposed investment in its absolute discretion;

Other follow-up actions

- the ARC had initiated discussion with existing fund managers to examine how control over the disposal of ARF investments by fund managers might be improved. The ARC would take into account market practice in this regard as necessary and appropriate; and

- one of the fund managers had agreed in principle that controls on disposal of ARF investments might be strengthened. The necessary legal document was being drafted. The ARC would aim at concluding this issue with the fund managers as soon as practicable.

Funding of projects under the Applied Research Fund

Interest earned on surplus funds

43. According to paragraph 4.6 of the Audit Report, for funds which exceeded the necessary liquidity level, the Commissioner for Innovation and Technology was willing to consider Audit's recommendation on implementing measures to improve the rate of return for the ARF surplus funds. The Committee asked about the options of measures being considered and when a decision would be made in this regard.

44. In his letter of 19 May 2004, the **Commissioner for Innovation and Technology** informed the Committee that:

- the ARC was considering the possibility of hiring professional investment firms to manage the surplus funds for ARC. However, the ARC was concerned that this might not only incur costs for the engagement of such firms but might at the same time incur risks to the ARF. The ARC had to analyse this option carefully before deciding if it should be pursued; and

- in considering what might be done to improve the rate of return for ARF surplus funds, the ARC would consider factors such as expected return, the risk tolerance level, the associated costs and the necessary liquidity. It would need to strike the best balance that might best fit the operations, nature and objective of the ARF. The ARC might consider diversifying the placing of its surplus funds in forms other than bank deposits such as bonds, certificate of deposits or Exchange Fund papers. This would require further analysis and consultation with the ARC. The ARC hoped to be able to come to a decision as soon as practicable.

45. The Committee further asked whether there were guidelines on the earning of income (e.g. interest) from surplus funds of government funds, such as the Quality Education Fund.

46. In his letter of 17 May 2004, in ***Appendix 17***, the **Secretary for Financial Services and the Treasury** responded that the Treasury had issued an investment guide in March 1999 and updated it in January 2004. The purpose of the guide was to provide a handy reference for government departments which were required to set up and manage funds. This guide outlined the key steps in investment planning and the necessary controls for investment dealing activities in departments, including the investment of surplus funds.

Funding of projects under the Applied Research Fund

47. **Conclusions and recommendations** The Committee:

Costs and achievements of the Applied Research Fund

- expresses serious concern that:

  (a) the money of the Applied Research Fund (ARF) has not been safeguarded and the ARF investments have not been subject to close monitoring commensurate with the risky nature of the investments;

  (b) many of the projects receiving funds from the ARF were commercially unsuccessful, and some had suffered heavy capital losses;

  (c) apart from the capital losses of $247 million in investments, operating costs of $127 million were incurred over the years against a total investment of $461 million; and

  (d) there has been difficulty in identifying worthwhile projects for ARF investments and that as at November 2003, the ARF had a large cash balance of $434 million;

- notes that:

  (a) the Secretary for Commerce, Industry and Technology has set up a Steering Committee on Innovation and Technology under his chairmanship to ensure alignment of the ARF with the overall strategy and programme in innovation and technology;

  (b) the Government is formulating a new strategic framework for further innovation and technology development; and

  (c) there is no shortage of private-sector venture capital in the area of innovation and technology;

- urges the Secretary for Commerce, Industry and Technology to expedite his review on the future positioning of the ARF, paying particular attention to the following:

  (a) the expertise of the Innovation and Technology Commission in investments in high-risk venture companies, and the need to ensure the prudent use of money of the public-funded ARF and to closely monitor the ARF investments;

(b) the availability of venture capital from the private sector;

(c) the need to establish benchmarks for measuring the fulfilment of the ARF's non-financial objectives and for assessing ARF's financial performance vis-à-vis that of private-sector venture capital in the same area, in order to facilitate assessment of whether the ARF investments achieve value for money;

(d) the lack of worthwhile and commercially viable projects that meet the public mission test for ARF support; and

(e) the heavy capital losses and the significant operating costs of the ARF;

Disposal of completed investments by the fund managers

- expresses dismay that:

  (a) the existing management agreements give the fund managers absolute discretion on matters concerning the disposal of ARF investments, and that the Applied Research Council (ARC) could lose control of the disposal of the investments; and

  (b) the three management agreements concluded in November 1998 did not make co-investment as a requirement. The absence of such a requirement renders the agreements open to abuse by fund managers;

- notes that the Commissioner for Innovation and Technology, on behalf of the ARC, has agreed to strengthen control over the disposal of ARF investments and consider requiring more frequent progress reporting by fund managers;

- recommends that the Commissioner for Innovation and Technology should:

  (a) review provisions of the management agreements to plug any loopholes, particularly the provision concerning the fund managers' absolute discretion on matters concerning the disposal of ARF investments;

  (b) in case of ARF's co-investments with the fund managers in the same investee companies, ensure that the initial and follow-on investments as well as divestments of the ARF are followed on the same terms by the fund managers as co-investors; and

(c) ensure that proper declarations of interest are made by fund managers and that there are procedures to review the investments made by the fund managers concerned;

- notes that :

(a) for Case A, action had been taken to terminate the management agreement and the fund manager ceased to manage the ARF on behalf of ARC with effect from 3 May 2002;

(b) for Case B, action had been taken in the past two years to vary the terms of the management agreement to provide better protection for the ARC with the effect, among other things, that the management fee is reduced; the ARC may withdraw all undrawn/uncommitted funds with prior notice; and the ARC may object to any proposed investment in its absolute discretion;

(c) the ARC Board did not discern any criminal or fraudulent act arising from Case A and Case B; and

(d) the ARC has initiated discussion with the existing fund managers to examine how control over the disposal of ARF investments by the fund managers may be improved;

- urges the Administration to consider whether Case A and Case B should be referred to any law enforcement agencies for further investigation;

Interest earned on surplus funds

- expresses dismay that the ARF has a large balance of surplus funds earning a relatively low rate of return;

- considers that the ARF surplus funds, being public funds and having been left idle for a significantly long time, should earn a rate of return which should at least be comparable to that earned by the Government on the fiscal reserves placed with the Exchange Fund;

- urges the Commissioner for Innovation and Technology to consider measures, in consultation with the Director of Accounting Services, to improve the rate of return for the surplus funds; and

Funding of projects under the Applied Research Fund

Follow-up actions

- wishes to be kept informed of:

    (a) the progress of the formulation and implementation of a new strategic framework for further innovation and technology development;

    (b) the results of the review on the future positioning of the ARF;

    (c) the progress made in strengthening the control over the disposal of the ARF investments;

    (d) the Administration's decision regarding whether Case A and Case B should be referred to any law enforcement agencies for further investigation; and

    (e) the progress made in improving the rate of return for the surplus funds of the ARF.