

Legislative Council Panel on Trade and Industry
The Applied Research Fund

INTRODUCTION

This paper provides an update on the application and management of the Applied Research Fund (ARF) since the last update on 9 May 2000.

BACKGROUND

2. The ARF is a government owned venture capital fund set up in 1993 to provide funding support to technology ventures and research and development (R&D) projects that have commercial potential. The longer term aim is to increase the technology capability and hence the competitiveness of local industry, thereby promoting high value added economic development in Hong Kong. The ARF is controlled and administered by the Applied Research Council (ARC), a company wholly owned by the Government and formed specifically for this role.

3. When it was created in 1993, the ARF had a capital of \$250 million and its day-to-day management, including project evaluation, was carried out by the staff of the then Industry Department (ID). To follow up the relevant criticisms of the Director of Audit's Value for Money Report (No. 29), the then ID conducted in late 1997 a review on the operation of the ARF. The review identified major weaknesses in the management of the ARF at the time, which were related to the then ID's inability to proactively identify projects, its inadequate commercial sense and expertise in project assessment, the predominance of funding through straight loans (instead of equity participation), passive project management and participation, and lack of expertise in arranging investment exit. The review concluded, inter alia, that these weaknesses were of an institutional nature which could not be remedied by improving

the existing modus operandi.

4. On this basis, the review recommended the appointment of venture capital firms to manage the ARF. This would also encourage venture capital firms to become interested in financing local technology development. In March 1998, noting the findings and recommendations of the review, Finance Committee approved further capital injection to bring the total size of the ARF to \$750 million. In approving this fresh capital injection, Finance Committee had also agreed to dispense with the original target of a 5% return on investment in recognition of the risky nature of technology ventures and the public mission of the ARF (which is social and economic, not financial, in nature).

5. In November 1998, the ARF started to appoint private sector venture capital firms to be its fund managers. At present, the ARC has four fund managers. These are Walden Technology Management (HK) Ltd., AsiaTech Ventures Ltd., Softech Investment Management Ltd. and HSBC Private Equity Management Ltd., with allocations of \$300 million, \$250 million, \$250 million and \$50 million, respectively. The fund managers are responsible for identifying and evaluating investment proposals, and providing management, marketing and networking input to add value to the ARC's financial investments. The ARC assumes supervisory role and ensures that the public mission of the ARF is met.

6. Thus the investments of the ARC fall into two categories: those which were processed by the then ID and funded before the appointment of fund managers and those which were identified by fund managers and funded after the appointment of fund managers.

LATEST DEVELOPMENT

Projects processed by the then ID

7. The ARC approved 27 projects in this category with a total amount of \$97 million. The projects cover a wide range of technology areas including electronics, information technology (IT), biotechnology, precision machinery, materials and environmental technology. The funding support provided to the companies are mainly in the form of straight loans, although there are cases of convertible loans or equity injection. A full list of the projects is at Annex A and the sectoral distribution of the projects is shown in Annex B.

8. The ARC has recently conducted an up-to-date critical review of all the 27 cases. The findings are as follows:

- (a) Four projects, or 26% of the total approved amount, are still in progress. It is too early to assess their performance;
- (b) Eight projects, or 28% of the total approved amount, are demonstrating satisfactory progress. Seven out of these eight projects involve loans from the ARC. The companies concerned either have repaid fully or are repaying. The remaining one involves equity injection; and
- (c) The remaining 15 projects, representing 46% of the total approved amount, are considered problematic in one way or the other. Four of them are equity injection cases involving a total investment of \$19 million. Our recent assessment indicates that their chances to grow or improve are not very encouraging. The ARC considers it more desirable to sell its shares in these cases and we are discussing with potential buyers for this purpose. On the other hand, the other 11

projects involving loans at \$22 million from the ARC have repayment difficulties. We have already started legal action in two cases and similar actions would be instituted against the other non-performing cases.

9. The above situation is not really impressive but it is a reflection of the conditions under which the ARF was operated initially. Prior to 1999, the ARF was de facto the only major venture capital fund directed towards technology based companies in Hong Kong. In a Hong Kong context it was well known in that period that there was plenty of funds available in the capital market but there was little or no venture capital as it was understood in the United States. Very little of the funds then available were channeled into technology start-up firms or into technological upgrades. Very few institutional investors had such investments as a focus of their strategy. Indeed most precluded technology investments altogether. There was little question that there was a gap in the financial market at the time. The pioneering nature of the ARF, the lack of expertise, experience and precedents and the institutional problems as reported in earlier paragraphs all have contributed to a lacklustre performance against the background of a very trying environment prevailing at the time.

Projects funded through fund managers

10. By the end of September 2000, the fund managers received 1 622 enquiries and 1 488 business proposals. As of 27 November 2000, the ARF has supported 18 projects involving a total funding of \$298 million. Of these 18 projects, 11 are start-ups at the time of investment. The fund managers have also co-invested \$60 million in these companies. On the whole, most of the investments are progressing satisfactorily, notwithstanding a somewhat less conducive environment in Hong Kong following the collapse of the dotcom boom and the subsequent adjustment of the capital market locally and in the US since April this year.

11. Against this background, Members may wish to note that two of our investments had not performed well, partly due to the poor worldwide investment climate in the last few months. Our equity in one company was sold at nominal value in August. Another investee company was liquidated in September and our investment was written off. This means a total loss of \$36 million, or 12% of the approved amount.

12. Details of the existing 16 investments are at Annex C. The sectoral distribution of these funded projects is shown in Annex D.

13. While the losses incurred in the above two cases are unfortunate, we take the view that the financial performance of the ARF should be considered in the long term from the overall perspective of the total portfolio being managed by the fund managers. In this context, the latest valuation on 30 September 2000 of all the projects managed by our fund managers totalled at 245% of the investment at cost. But the more fundamental point is that the ARF's public mission is not for maximizing financial returns on its investment but to promote, in a financially responsible manner, the development of technology ventures and the undertaking of R&D activities.

ADVICE SOUGHT

14. Members are invited to note the content of this paper.

Commerce and Industry Bureau

December 2000

**List of Applied Research Fund Investments
approved before November 1998**

Biotechnology

<u>Company Name</u>	<u>Technology Area</u>	<u>Funding Approved (\$)</u>
Hong Kong Bio-Pro Co. Ltd.	Development of Bst enzyme for DNA sequencing	2,059,000
Merck Apotec Co.Ltd	Research on scale-up production of controlled release drugs	3,280,000
Diagnotech Co. Ltd.	Development of rapid whole blood and serum/ plasma test for HBV & HCV	5,356,000
Hong Kong Transgenic Ltd.	Development of transgenic crops and animals	5,865,000
Total		16,560,000

Electronics

<u>Company Name</u>	<u>Technology Area</u>	<u>Funding Approved (\$)</u>
Security Systems (F.E.) Ltd.	Development of an alarm signalling system	570,000
Winning Signals Limited	Development of mini-electrocardiograph monitor	1,200,000
Telinstrument Co. Ltd.	Development of LPD transceiver	862,000

<u>Company Name</u>	<u>Technology Area</u>	<u>Funding Approved</u> (\$)
Compass Technology Company Limited	Research to study the methodology of forming Micro-Via in the manufacturing of multi-layer chip scale package by laser and electro-less plating technologies	10,000,000
Wireless Logic Technologies Ltd.	Development of spread spectrum IC's for long range cordless phone	6,316,000
CelluWare Research Technology Ltd	Development of land mobile radio network planner	7,377,700
Truly GSM Technologies Ltd.	Development of digital mobile phones conforming to GSM standard	4,800,000
Telinstrument Co. Ltd.	Development of marine fishery's rescuing communication system	3,040,000
Winning Signals Limited	Development of chipset for digital telephone answering machine	1,490,000

Total 35,655,700

Precision Machinery

<u>Company Name</u>	<u>Technology Area</u>	<u>Funding Approved</u> (\$)
Concord Technology Limited	Development of an automatic in-circuit tester	5,100,000
Kras Asia Ltd.	Development of new system for forming and reconditioning IC leads	4,860,000
Pearl Technologies Ltd.	Development of underwater remote operating vehicle	4,630,000

<u>Company Name</u>	<u>Technology Area</u>	<u>Funding Approved</u> (\$)
Asia InfoSciences Corp. Ltd.	Development of a rapid electrode-abrader machine	1,000,000

Total 15,590,000

Environmental Technology

<u>Company Name</u>	<u>Technology Area</u>	<u>Funding Approved</u> (\$)
Caterly Technology Ltd.	Development of degradable packing materials	909,500
Eikometrics Ltd.	Development of software for quantitative environmental assessment	4,000,000

Total 4,909,500

Materials

<u>Company Name</u>	<u>Technology Area</u>	<u>Funding Approved</u> (\$)
Sunderland Technology Ltd.	Development of shape memory and super elastic alloys	3,702,000
Plasma Technology Ltd.	Design and construction of a plasma immersion ion implanter for surface treatment and modification of industrial materials and components	1,000,000

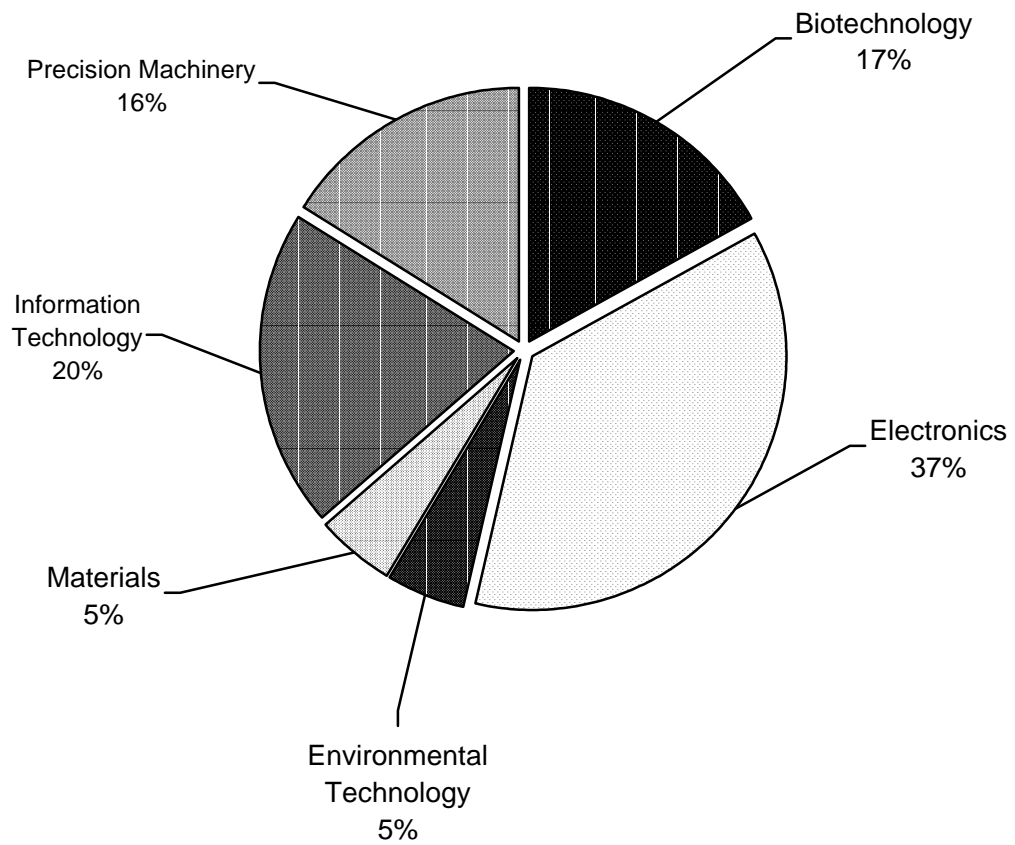
Total 4,702,000

Information Technology

<u>Company Name</u>	<u>Technology Area</u>	<u>Funding Approved</u> (\$)
Citron Technologies Ltd.	Development of a computer aided design software package	2,700,000
Superlogic Technology Ltd.	Development of a fascimile management system	390,000
Continuous Technologies International Ltd.	Development of enhanced services system for telecom operators	3,773,530
Excel Consultancy Limited	Development of real-time stocks trading	4,000,000
Veridata Limited	Development of court recording and transcribing system	4,000,000
LECCO Technology Ltd.	Development of SQL software tool	5,000,000

Total **19,863,530**

Sectoral Distribution of Funded Projects



Applied Research Fund - List of Approved Investment Managed by Fund Managers

Information Technology

Investee Company	Fund Manager	Technology Area	Funding Approved (HK\$m)
QuotePower Information Ltd.	AsiaTech Ventures Ltd	Provision of online financial information and real-time electronic trading	8.00
InfoTalk Corporation Ltd.	Walden Technology Management (HK) Ltd	Automatic speech recognition	15.55
I-Quest Corporation (HK) Limited	AsiaTech Ventures Ltd	Highspeed Internet access for the hospitality industry, portal developer	23.51
ecVision Limited	Walden Technology Management (HK) Ltd	Business-to-business e-commerce software and services	27.25
LECCO Technology Ltd.	Walden Technology Management (HK) Ltd	Software tools	19.44
Wisers Information Ltd.	Walden Technology Management (HK) Ltd	Electronic aggregation and distribution of Chinese language-based content	11.67
Inlooktech.com Ltd.	AsiaTech Ventures Ltd	Enterprise Resource Planning solutions	7.79
Uni-tech Systems Engineering Ltd.	AsiaTech Ventures Ltd	System integration, application hosting services	15.55

Investee Company	Fund Manager	Technology Area	Funding Approved (HK\$m)
WebPro Ltd.	Walden Technology Management (HK) Ltd	Internet and e-commerce technologies for the Asian electronics components industry (internet & e-commerce)	15.60
RealVision Technology Limited	AsiaTech Ventures Ltd	To provide enterprise solutions based on wireless PDA technology	7.74
I-Security Solutions Ltd.	Walden Technology Management (HK) Ltd	To develop and market encryption and authentication tools to facilitate e-commerce functions	10.82
Linux Center (HK) Limited	Softech Investment Management Company Limited	To provide web-related and software solutions based on the Linux platform	0.68

Total **163.60**

Telecommunications

Investee Company	Fund Manager	Technology Area	Funding Approved (HK\$m)
Wafer Systems Holdings Ltd.	HSBC Private Equity Technology Ltd	Data networking	46.50
Unitech Networks Ltd.	Walden Technology Management (HK) Ltd	Internet/Intranet system integrator	11.63
Continuous Technologies International Ltd.	AsiaTech Ventures Ltd	Computer telephony applications	16.15

Total **74.28**

Electronics

Investee Company	Fund Manager	Technology Area	Funding Approved (HK\$m)
NSM Technology Ltd.	AsiaTech Ventures Ltd	Original design manufacturer of telecom equipment	15.58

Total **15.58**

Sectoral Distribution of Funded Projects

