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# A Defence R&D Agency: A Framework For The Future

August, 1999

DEFENCE



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## FOREWORD

On 5 July 1999, we began a journey down an exciting new road when the Deputy Minister gave his approval for the Branch to become an Agency as of 1 April 2000. The next eight months will be a time of vision, creativity and innovation for us all, as we flesh out the new policies, processes and procedures needed with our new authorities and flexibilities.

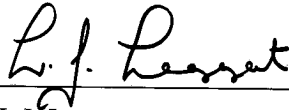
This booklet has been prepared to give you a good appreciation of why we are forming the Agency and what benefits we expect to realise – for the Canadian Forces, for our partners and for ourselves. It also lists the main tasks we face between now and 1 April 2000.

Over the past year, you may often have heard the term “Statutory Agency”. Indeed, the Business Case that we presented to the Defence Management Committee in May recommended creation of such an Agency via legislation. This case received broad support within the Department; however, timing in the current government cycle and departmental priorities gave rise to serious doubts as to whether legislation to establish the Agency could be passed in a timely manner. After further consideration, it was determined that in all key areas except Human Resource management, the Department can delegate the authorities that the Agency needs. This underpinned the decision to proceed to Agency status without legislation.

As to HR management, delegations that can be given by the Department, although useful, will not enable us to realize our full potential. We aim to develop an HR regime tailored to the unique requirements of our S&T culture and environment. Classification, terms and conditions of employment, and rewards and remuneration must all reflect our mission and goals. Only Separate Employer status will provide these key authorities, and we will be making a Treasury Board Submission to pursue an Order-in-Council for this status.

In closing, I want to emphasize that:

1. The Agency inauguration date of 1 April 2000 is firm.  
The end is near to many years of reviews and re-engineering!
2. The authorities and flexibilities that come with the Agency will enable us to increase productivity to the benefit of both the Canadian Forces and our industry and university partners.



L.J. Leggat  
CRAD



## WHAT ARE THE DRIVING FORCES FOR CHANGE?

Over the past few years, the Defence Research and Development (R&D) Branch has been making a concerted effort to adopt new practices and implement new ways of doing business. Our overall goal has been to increase productivity, manage our budget and our personnel more efficiently, and increase collaboration with the private and university sectors. To date, various initiatives have been undertaken to address these imperatives. While many improvements have been realized, it has become clear that the current framework limits further meaningful change – change that will allow the Branch to continue meeting departmental R&D requirements into the year 2010.

A number of trends – global, governmental and departmental – have made fundamental change a requirement rather than a passing whim.

### GLOBAL DEFENCE TRENDS

#### *The Nature of Warfare is Changing*

The future direction for defence R&D is tightly linked to the military's need to be well prepared for technology-driven warfare as well as new threats. In contrast to the Cold War context, defence requirements are now being driven by a broad spectrum of conflicts. At the same time, evolving technologies and new operational concepts are resulting in changes to the nature of warfare. These developments are being embraced by Canada's main allies, who have either led the Revolution in Military Affairs or have taken action to adapt to it.

#### *Western Defence Spending has been Reduced*

In spite of the growing reliance on technology, most western nations – including the US, the UK, Australia and Canada – have reduced their defence R&D spending. While governments are turning to civilian-led, dual-use technology, they are doing so within a tighter budget. And the use of dual-use technology also creates a need for in-house core R&D expertise, as defence organizations must be able to adapt civil technologies to the requirements of the military.

*Global trends in the defence environment include a change in the nature of warfare, new threats, evolving technology and reduced defence spending.*

## CURRENT CHALLENGES AFFECTING THE BRANCH

*The R&D Branch must be prepared to provide the CF with a technological edge and to support interoperability with allies.*

*Reductions in defence spending have resulted in a loss of expertise in Canadian industry and in other parts of DND, making it important for the Branch to retain and develop proficiency in core areas of defence technology.*

### *The Need to Help the CF Maintain its Edge*

As the Canadian military develops its long-term strategy to respond to the emerging military environment, the R&D Branch must be prepared to provide the CF with a technological edge and to support interoperability with allies. The Branch will also, as a member of the government science and technology (S&T) community, continue to be called on to contribute to federal government initiatives affecting wealth generation, job creation, productivity improvement and economic growth.

### *Impacts of Reduced R&D Funding*

Overall reductions in defence spending have resulted in a loss of expertise in Canadian industry and in other parts of the Department. This makes it important for the Branch to retain and develop proficiency in core areas of defence technology. The migration to new technologies also creates a need to retrain key members of the S&T staff as well as to recruit S&T personnel with new expertise.

Like many other organizations, the Branch has been dealing with the reality of having to do more with less. In addition to operating with a smaller budget and continuing to maintain excellence with 40% fewer staff members, the Branch has been searching for solutions to a number of ongoing challenges, including:

- severely degraded facilities and capital assets, creating a need for approximately \$13M annually for several years to cover replacement and refurbishment costs;
- increasing non-S&T demands, which tend to dilute the amount of time available for delivery of defence R&D;
- an aging workforce – with only 0.7% of Defence Scientists currently between 20 and 29 years of age; and
- challenges in attracting new scientists – when competing with the high-technology sector for limited human resources.

## BEST PRACTICES IN GOVERNMENT S&T

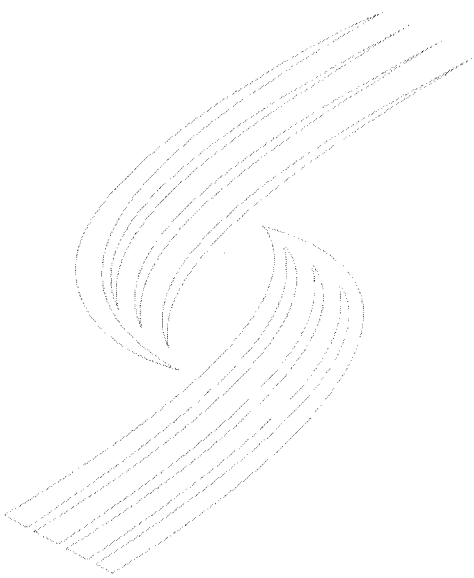
### *S&T is Recognized as an Important National Resource*

The federal government recognizes that its internal S&T capacity is a crucial national resource, and it is committed to managing its R&D activities in a more coherent and collaborative way. Recent studies have pointed out that one way of ensuring the quality and effectiveness of R&D is by adopting best practices that:

- encourage innovation;
- facilitate collaboration; and
- recognize the inherent value of employees.

These studies have also affirmed that government S&T must be of the best quality and comparable to that of industry, universities and private organizations – to ensure that the investment made by Canadian taxpayers yields value.

*Adopting best practices that encourage innovation, facilitate collaboration and recognize the value of staff is one of the steps in ensuring the quality and effectiveness of R&D.*







## WHAT ARE THE RISKS OF MAINTAINING THE STATUS QUO?

Despite our relatively small size, the Branch currently plays a significant role in the Defence Team by providing S&T leadership to the Department, the CF and the Canadian defence industrial base. Through our R&D activities, we also provide key advice to decision makers on defence policy, force generation and procurement.

### THE BRANCH NEEDS MORE LATITUDE

If the Branch is to continue to meet technological requirements into the year 2010 and maintain high-quality R&D support to the Department and the CF, we must have the latitude to carry out our program using the best practices in our field. We must also be in a position to compensate for resource reductions by working more closely with our partners and by planning for the longer term.

The tools exist to create an R&D organization capable of taking a leadership role in the S&T community, strengthening linkages with external partners, improving internal management and enhancing service to clients.

### POTENTIAL LONG-TERM IMPACTS

Given the above, maintaining the status quo carries a number of longer-term negative impacts on the quality and/or extent of the Branch's:

- R&D support to DND and the CF;
- ability to meet technological requirements into the next century;
- overall productivity;
- future workforce; and
- ability to continue conducting first-class research.

Maintaining the status quo would also result in lost opportunities for innovation and international R&D collaboration.

*If the Branch is to meet technological requirements into the year 2010, we must have the latitude to carry out our program using the best practices in defence R&D.*

*Maintaining the status quo carries a number of longer-term negative impacts on the extent of the Branch's ability to continue providing high-calibre support.*

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# WHY CREATE AN AGENCY?

## ACHIEVING OUR VISION OF THE FUTURE

Our vision of the future is an R&D organization that is:

- the Canadian centre of excellence in leading-edge defence technology, focused on the future needs of the Canadian Forces;
- a world leader in niche defence technology areas;
- the bridge that closes the innovation gap between emerging technologies and Canadian industry exploitation; and
- an employer and partner of choice.

To achieve this vision, we will need new abilities in human resources (HR), financial arrangements and partnering. Many of these abilities require flexibilities that would be difficult to put into place under the existing framework.

## AGENCY FLEXIBILITIES – ENABLERS FOR IMPROVEMENT

An Agency is the only available organizational mechanism that will permit us to achieve all of the required attributes while retaining our position as part of the Defence Team. The retention of a close linkage with the CF and the Department is key if we are to continue to play our role as a trusted advisor to the Deputy Minister, the CDS and other senior managers in the Department.

### *Gaining the Tools and Flexibility to Meet Challenges*

Converting to agency status will provide us with the tools and flexibility to effectively meet the challenges of declining resources, the internationally competitive HR market and the emergence of an integrated technology-driven battlespace. In addition to providing opportunities for a more cohesive and business-like relationship with the CF and the Department, more strategic collaboration with industry, and an increased profile for defence R&D, an agency framework yields new options for dealing with our legacy issues.

*To achieve our vision of the future, we will need new abilities in human resources, financial arrangements and partnering.*

*An Agency is the only available mechanism that will permit us to achieve all of the required attributes while still retaining our position as part of the Defence Team.*

Converting to an Agency is also in keeping with the National Advisory Board on Science and Technology's recommendation to establish management structures for government S&T organizations that allows them to:

- enter into contracts with other clients;
- own intellectual property;
- enter into licensing agreements;
- retain earnings; and
- carry on activities with "more focused mandates, less bureaucratic and unproductive overhead and improved management practices..."<sup>1</sup>

## **A NEW WAY OF THINKING**

These are the changes that will allow our organization to reposition itself to best meet the needs of our clients as well as the challenges of a rapidly evolving S&T environment. They reflect a new way of thinking about – and organizing – defence R&D activities.

1. National Advisory Board on Science and Technology, *Revitalizing Science and Technology in the Government of Canada: The Report of the Committee on Federal Science and Technology Expenditures*, 1990, p.12.



## WHAT AUTHORITIES WILL THE AGENCY HAVE?

The Agency will be a Level One organization within DND. The CEO will report to the Deputy Minister as an Assistant Deputy Minister, with authorities that are normally assigned to ADMs, as well as other authorities that specifically apply to the R&D setting. Some of the latter authorities include:

- an annual budget carry-over of up to \$20M;
- retention and reinvestment of revenues generated through conducting projects for clients outside DND;
- Regional Departmental Accounting Office for the Agency to manage its financial affairs;
- full management and effective exploitation of Intellectual Property;
- direct contracting with Public Works and Government Services Canada;
- Level One Realty Asset Manager status to permit more effective infrastructure management at the DREs. This will be of special benefit to DRES, DREA and DCIEM;
- full classification authority; and
- staffing authority.

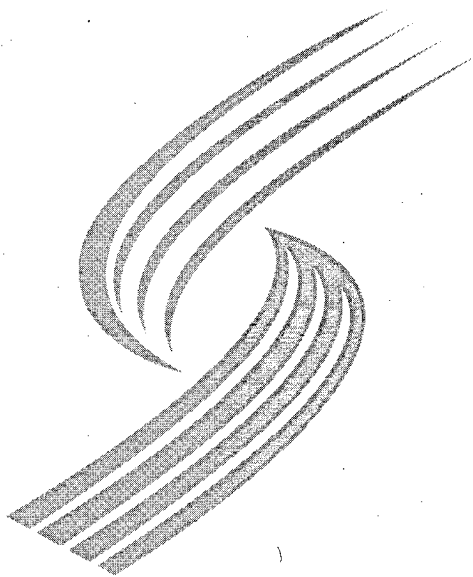
### IS LEGISLATION REQUIRED?

Most of the Agency's requirements can be met through delegation from DND and it will be created without invoking legislation. The Agency will operate within the Department of National Defence, be accountable to the Deputy Minister and receive financing through existing budgetary mechanisms.

It is strongly believed that the future viability of the Agency is dependent upon the ability to design a Human Resources management framework that will address the specific requirements of an R&D culture and one which will recognize and remunerate employees accordingly. Only Separate Employer Status will provide the opportunities to design a customized classification plan that would be the catalyst for an appropriate compensation plan and an expanded incumbent-based system. Separate Employer Status would further facilitate direct negotiation with unions on matters of commonality that are unique to the agency and its employees.

*The Agency will be created without invoking legislation and Separate Employer Status will be sought through Order-in-Council.*

Separate Employer Status will be requested through a Treasury Board Submission and if accepted, an Order-in-Council will allow the Agency to become a Separate Employer under the Public Service Staff Relations Act. The Public Service Employment Act would be retained, thereby assuring employees of existing mobility opportunities and other Public Service Commission benefits. Should Separate Employer Status be attained and the Agency becomes subject to Schedule I Part II of the PSSRA, employees would be made offers of employment to work for the Agency prior to implementation.





## HOW WILL AGENCY STATUS CHANGE THE WAY WE DO BUSINESS?

As an Agency, our organization will have greater visibility, as well as a simpler organizational structure and decision-making process. We will also continue to provide key advice to decision makers on defence policy, force generation and procurement.

### FOUR KEY BUSINESS LINES

To ensure a higher visibility of R&D activities for all clients and partners of the R&D Agency, we will deliver services along four business lines:

- **Business Line 1: R&D for the CF and DND**  
The majority of the Agency's resources will be directed to this business line, where most of its R&D activities will take place. Activities within this business line will be defined by service level agreements with each of the major client groups.
- **Business Line 2: Strategic S&T Policy and Advice**  
This business line includes the strategic advice and input to policy that the Agency provides to the Department and the CF. The activities in this area are critical to the relevance and effectiveness of the Agency and will be highlighted in annual plans.
- **Business Line 3: S&T with National Security Partners**  
This business line enables the Agency to exploit its S&T base to serve the needs of clients outside DND, including Canadian industry and other government departments. The Agency may also conduct projects for DND clients not covered by business lines 1 or 2. Under business line 3, the Agency will collect and retain revenues that will assist it to develop and maintain its technological capabilities.
- **Business Line 4: Corporate Management, Control and Organization Renewal**  
This business line includes the central administration, infrastructure, HR and executive overhead from R&D activities. Each of these areas is crucial to the efficient management of the Agency and, ultimately, to the achievement of a cost-effective R&D organization.

*We will deliver services along four business lines – together they will help us ensure greater visibility for our R&D activities.*

*A more collaborative approach with industry will be adopted as well as a more business-like approach to managing our intellectual property.*

We will continue to use a variety of methods in carrying out our R&D program. However, hands-on R&D is key to maintaining the necessary in-house expertise. While we will continue to play an important role in supporting and developing Canada's defence industrial base and to contract out up to 50% of our program, we will adopt a more collaborative approach with industry. We will also adopt a more business-like approach to managing our intellectual property.

## ENHANCING CLIENT LINKAGES

To maintain and enhance our focus on delivering high-quality and relevant R&D to our DND and CF clients, we will preserve the linkages we have forged over the past decade. We will also implement a more effective oversight system so that our clients will take on a proactive role in evaluating and reviewing our R&D activities. In addition to these linkages, we will work with clients at a more strategic level while ensuring that we continue to be an effective partner in the acquisition process.

*To maintain our focus on delivering high-quality, relevant R&D to our clients, we will preserve and augment the linkages we have forged in the past as well as implement a more effective oversight system.*

### *Strategic Planning Process*

As an Agency, our organization will report at the highest levels of the Department. To ensure that it contributes to, and reflects, DND's and the CF's strategic direction, a Management Advisory Board will be established and it will be chaired by the Deputy Minister, with representation from the CDS, ECSs, the Department and members of the external S&T community.

This Board will advise the Deputy Minister on the R&D Agency's overall direction and will recommend approval of its business plan as well as the level of revenue it generates from external sources. The Chief Executive Officer of the Agency will report to the Board on the performance of the organization.



## HOW WILL OUR CLIENTS BENEFIT?

Converting to an Agency will allow us to improve the efficiency and effectiveness of program delivery to DND and the CF. These and other benefits will also be felt in the broader Canadian economy.

### VISIBLE BENEFITS

Overall and long-term benefits to our clients will include:

- more responsive and accountable R&D services for the CF;
- increased productivity and more R&D for the same DND investment;
- increased industrial S&T participation in the defence arena;
- improved access to allied S&T;
- technologies that enable interoperability;
- increased wealth and knowledge generation; and
- enhanced visibility and improved public relations.

We will be in a position to achieve these benefits because our in-house program will be more efficient, and because our national and international partnerships will give us greater leverage. A high-calibre workforce, state-of-the-art facilities, and an appropriate balance between short- and long-term R&D will all play an important role in making the Agency the Canadian centre of excellence in leading-edge defence technology, as well as a world leader in niche defence technology areas.

### MAINTAINING STRONG LINKAGES WITH CLIENTS

An effective oversight system will help us maintain and enhance our focus on delivering high-quality and relevant R&D to our clients. Representation from the senior military clients and the Department on the proposed Management Board will help ensure that we continue to contribute to and reflect DND's and the CF's strategic direction. This reporting and planning relationship, together with other strategic interactions, will also help our clients gain a better understanding of the S&T perspective as well as the scientific values that drive our search for excellence.

*A high-calibre workforce, state-of-the-art facilities, and an appropriate balance between short- and long-term R&D will all play an important role.*

*Clients will gain a better understanding of the S&T perspective as well as the scientific values that drive our search for excellence.*

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## HOW WILL EMPLOYEES BENEFIT?

### MANAGING FOR VITALITY

Our vision of the future includes a dynamic R&D environment – not only to attract the best talent available but also to maintain a workforce that continues to take great pride in their place of work. Converting to an Agency provides us with the flexibility to set up an HR system and create a cultural environment that:

- recognizes employees as our most valuable asset;
- establishes teamwork, co-operation and synergies in the pursuit of common goals;
- promotes an entrepreneurial spirit that, in turn, fosters innovation, creativity and individual initiative; and
- cultivates a workforce-wide commitment to proficiency and excellence through continuous improvement in ourselves, our products and services, and our business practices.

*A highly developed HR system tailored to our organization and the circumstances and culture of an S&T environment is key to our success.*

Managing our HR effectively is key to remaining an employer of choice. Success lies in having the authority to create a highly developed HR system that is tailored to our organization and to the circumstances and culture of an S&T environment.

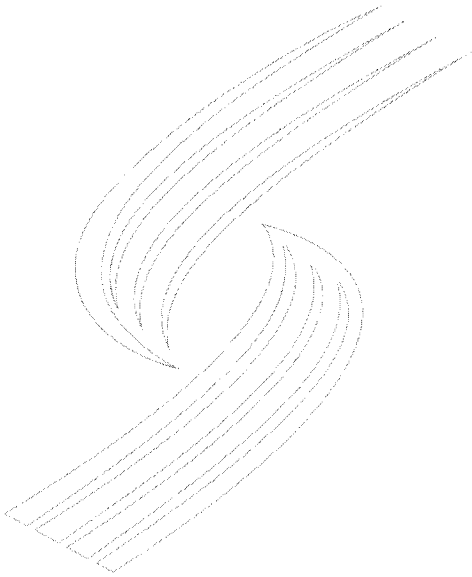
### ADOPTING BEST HR PRACTICES

Integrating the management of financial and personnel resources will provide us with the flexibility to employ a wide range of HR management strategies and best practices, including:

- developing retention programs for employees whose skills are in high demand;
- establishing a streamlined approach to hiring and training staff in order to respond quickly to emerging S&T opportunities;
- ensuring that managers and employees work together to identify – and take advantage of – opportunities for training and development in new skill areas to meet performance expectations and to develop formal succession plans; and
- promoting staff based on their demonstrated productivity, creativity and value to the organization.

While the details are yet to be worked out, HR management strategies will focus on all staff – their contributions, competencies, development, career management, training, and rewards and recognition.

*HR management strategies will focus on all staff – their contributions, competencies, development, career management, training, and rewards and recognition.*





## HOW WILL OUR PARTNERS BENEFIT?

*We will be a more innovative partner, and new authorities will result in a more streamlined contracting process.*

### MUTUALLY BENEFICIAL PARTNERSHIPS

We will continue to forge new relationships with our partners, particularly industry. While funding may no longer enable one-way contracting relationships, we intend to be a more innovative partner. New authorities will result in a more streamlined contracting process.

As an Agency, we will also:

- serve as a national centre of excellence in key defence technologies;
- play a key role in the national system of innovation, bringing industry and universities together to work on defence R&D technologies; and
- act as a bridge to close the innovation gap between emerging technologies and exploitation by Canadian industry.

To avoid duplication of capabilities, the Agency will use the scientific skills and facilities currently available within industry, academia, and other government departments and agencies whenever it is practical to do so. Our guiding principles will include a commitment to avoid competing with Canadian industry or providing services that could be provided more efficiently by industry.

### HELPING INDUSTRY GAIN A COMPETITIVE EDGE

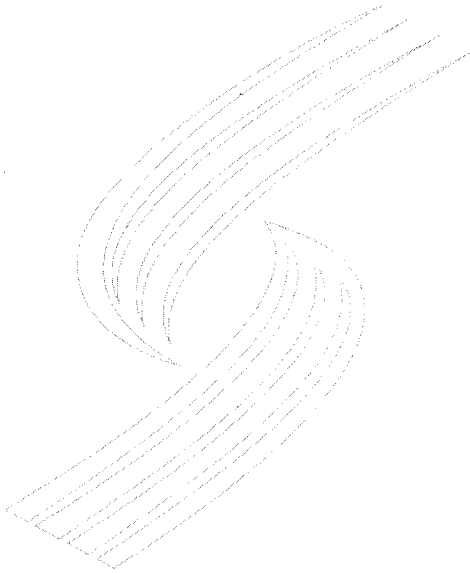
A key role of a Defence R&D Agency will be to support government objectives by contributing to the creation and maintenance of an internationally competitive Canadian defence industry. Many of the technologies we develop have both military and civilian application. By entering into more strategic collaboration with industry, we will contribute to Canada's innovation system by encouraging the commercialization of technologies while at the same time generating revenues to re-invest back into the program.

These collaborative relationships will help provide companies with a competitive edge in the international market. They will also expose industry to the R&D challenges that the CF will be facing over a 20-year time horizon and provide new opportunities to collaborate in meeting those requirements.

## SHARING PEOPLE AND FACILITIES

The Defence R&D Agency will also need to constantly renew itself and bring fresh perspectives on defence-related technology issues. With a limited budget, this renewal will be achieved through an exchange of personnel between the Agency and our S&T partners. Similarly, sharing our unique facilities with industry partners will provide benefits to both parties.

*Collaborative relationships will help provide companies with a competitive edge in the international marketplace.*





## WHAT ARE THE NEXT STEPS?

**B**eginning in the summer of 1999, many tasks will be pursued concurrently:

*Teams will be working concurrently on a number of strategic planning documents, including a communication plan, verification strategy and policies and procedures.*

- the Implementation Team will develop a communication plan and verification strategy to make sure that progress is properly tracked and reported;
- a Treasury Board Submission for Separate Employer Status (retaining the Public Service Employment Act) will be prepared and submitted in late 1999;
- a Level One Business Plan will be prepared for the Agency by early 2000;
- a Charter for the Agency will be prepared;
- working teams of staff, unions and HR specialists will develop applicable HR policies and processes;
- teams of Branch staff and specialists will develop policies and procedures covering finance, administration, infrastructure and intellectual property;
- the Agency will be created on 1 April 2000; and
- the target date for commencement of operation as a Separate Employer is 1 April 2001.

Throughout the process, staff will be kept informed of the progress of the Implementation Phase through a variety of vehicles, including *Leo Online* and ASD Communiqués via DESCARTES. Questions, comments and suggestions are welcome.



