DETERMINATION OF THE STATUS

OF THE FEDERAL GOVERNMENT POLICY

ON OWNERSHIP OF INTELLECTUAL PROPERTY

ARISING FROM R&D CONTRACTS

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BACKGROUND

On September 19, 1991, Treasury Board changed the 1954 policy on ownership of intellectual property (IP) arising from R&D contracts issued by government departments and agencies. Prior to this change, the Crown was deemed to own all intellectual property resulting from R&D contracts; after the change, "intellectual property resulting from the performance of the contract is presumed to vest with the contractor unless the contracting department determines that Crown ownership is justified". The main intent of the new policy was to encourage the commercialization, in Canada, of inventions and know-how arising from government contracts.

It was agreed at the time that an evaluation of the impact of this new policy would be undertaken by Industry Canada. In preparation for the evaluation, a consulting firm was engaged in 1994 to prepare an evaluation framework. During this activity, problems were identified that brought into question the ability to evaluate accurately the impact of the policy. Among the problems identified were: the ambiguity over the scope of the policy (i.e. does it apply only to R&D contracts per se or to all general procurement contracts for goods and services that involve R&D), lack of consistent application of the policy across government departments and agencies, and a possible lack of commitment by government personnel to the intent of the policy. It was also noted that departments that adhere to a narrow view of the scope of the policy might not be willing to collect data to enable an evaluation to take place.

More recently, complaints that government departments and agencies are not following the policy have been received by Industry Canada and Public Works and Government Services Canada (PW&GSC) from the Information Highway Advisory Council, and industrial associations such as the Ottawa-Carleton Economic Development Corporation (OCEDCO), The Geomatics Industry Association of Canada, and the Canadian Defence Preparedness Association (CDPA). Software developers, some of whom are represented by the Information Technologies Association of Canada, have been especially vocal on this issue.

This brief review of the application of the new intellectual property policy was commissioned to provide a basis for better understanding of the range of problems associated with its implementation.

SURVEY OBJECTIVE

This overview framework review had as its objectives to determine the actual state of implementation of the revised intellectual property policy and to identify the barriers to, and the problems encountered in implementing the revised policy by both the Crown and the private sector.

METHODOLOGY

Information was obtained through personal meetings and telephone interviews with the IP or contracts officers from the major science based departments and agencies that routinely issue R&D contracts to the private sector. These include:

Agriculture and Agri-Food Canada
Canadian Space Agency
Department of National Defence (CRAD)
Environment Canada
Fisheries and Oceans Canada
Health Canada
Industry Canada (Communications Research Centre)
National Research Council of Canada
Natural Resources Canada
Public Works and Government Services
Transport Canada (Trans. Development Centre)

Information from the private sector was obtained through contacts with private sector national and provincial industrial organizations. They provided the names of companies that they believed could contribute to this review. In addition, we used the National Research Council (NRC) Industrial Research Assistance Program (IRAP) network to ask their Industrial Technology Advisors if they have heard of any problems the private sector has had with the application of the policy.

OCEDCO and the CDPA provided copies of correspondence they had sent to Ministers or government officials on the Treasury Board policy or its application, particularly in relation to the contract clauses. In addition, we obtained copies of earlier correspondence and presentations to government on this issue from the Canadian Chamber of Commerce, Geomatics Industry Association of Canada, and the Aerospace Industries Association of Canada. The key points of their representations are contained in the association section of this report.

Representatives of large and small technology-based companies across Canada were contacted to obtain their input. Representatives included contracts negotiators and lawyers in the larger companies and senior officers in the smaller companies. Most of the interviews were conducted by telephone though some in the Ottawa area were conducted by personal interview.

Because we were specifically asked to identify the problems with, and the barriers to implementation of the 1991 policy, the sample of companies was, for the most part, not random. Rather, some of the companies contacted us to volunteer information or they were identified by

associations as "people we might like to talk to". In many cases one respondent referred us to another. We also selected a number of companies from the Science Branch computer print-outs of the R&D Bulletin where the IP ownership had vested with the Crown. In most cases after initial telephone contact to determine their willingness to participate, we faxed them a letter outlining the policy review. Some, however were phoned "cold-turkey", and asked whether they were satisfied with the IP ownership decision, whether they were given the reason for the Crown taking ownership in the particular contracts, and their views on the policy as a whole and how its application might be improved.

We also contacted corporate and independent lawyers who specialize in technological intellectual property to obtain their views on the 1991 policy.

Canadian Science Counselors in Australia, Britain, France, Germany, and Japan were asked to provide information on national IP policies connected with R&D contracts. U.S. departments and agencies were approached directly to obtain information but it proved difficult in some cases to identify the appropriate spokesperson for the department. Information was therefore also obtained from a 1994 course manual on "Rights in Technical Data and Computer Software" that had been provided to participants on a course for U.S. Government contractors. The manual was provided by a manager in a local high technology firm who had attended the course last year.

TREASURY BOARD POLICIES ON INTELLECTUAL PROPERTY

In the course of this review of the 1991 Treasury Board policy on intellectual property ownership, we noted the existence of another Treasury Board policy issued in 1993 concerned with intellectual property which has a major impact on the application of the 1991 policy. This 1993 policy deals with retention of royalties from Crown-owned intellectual property. Descriptions and background information about these policies are given below.

1991 Treasury Board Policy on Title to Intellectual Property Arising Under Crown Contracts

Background to the Development of the 1991 Policy

A review of documents dated November 1989 of the Intellectual Property Advisory Committee (IPAC) Sub-group 4 (comprising public and private sector participants), showed that there was considerable disagreement on an appropriate policy on ownership of intellectual property arising from Crown contracts. In considering various options, from full Crown ownership with case-by-case negotiation of a license to contractor ownership with no constraints by the Crown on the manner of exploitation, the committee was unable to endorse any of the options presented. It was noted that the National Research Council (NRC), the Department of National Defence (DND) and Canadian Patents Development Limited (CPDL) representatives agreed with the principle of Crown ownership with case-by-case negotiation of license.

The option discussed that comes closest to the present policy was contractor ownership with rare exceptions. Eleven of the sixteen members of the committee present disagreed with that option. Federal departments were concerned that contractor ownership by right did not safeguard the Crown's interest in the intellectual property. Private sector participants were concerned with the scope of the possible exceptions to this policy option, and the uncertainty that would result.

One government respondent who was closely associated with the development of the policy indicated that the thrust of the policy was triggered by a public statement by the then Minister of Science, Dr. Bill Winegard, that ownership of intellectual property resulting from government contracts would automatically be vested with the contractor. He felt that the ensuing rush to fulfill the minister's promise resulted in a poorly drafted policy. He also said that at the last minute, the wording of the policy was changed to widen the scope to include all contracts involving R&D. Consultations during development of the policy had only been held with representatives from science based departments. Several other government respondents indicated that they thought that the policy had been unduly rushed through the system without adequate consultation.

One respondent said that without the six exceptions to the contractor ownership provision, the policy would not have received Treasury Board approval.

Intent of the Policy

In developing the policy in 1991, Industry, Science and Technology Canada wanted to place control of intellectual property most often in the hands of those who will be best placed to ensure its commercial exploitation, by implication, the private sector. They also wanted to respond to complaints from the private sector that the current policy (Crown ownership of all IP developed under contract) and contracting process result in the government appropriating the ideas and technologies previously developed by the contractor.

In drafting the policy, Industry, Science and Technology Canada appreciated that there was a risk of technology flowing out of Canada or not being developed to the benefit of Canada. They believed, however that the potential benefits of the new policy should outweigh any possible increased risk of technology leakage out of Canada.

Clearly the authors viewed this policy mainly as an industrial development policy not simply a procurement policy.

The 1991 Policy - TB 817067

The policy was approved by the Treasury Board on September 19, 1991. The formal announcement of the new policy was contained in a letter dated October 30, 1991 from R.J. Kelly, Manager, Contracting Management, Administrative Policy Branch to all Functional Heads, Administration/Finance. (Annex 1)

It summarizes the new policy as: Increased Flexibility in Research and Development Contracting is Achieved by the Elimination of the Presumption of Crown Ownership of Intellectual Property Resulting from such Contracts.

The Annex to the letter states:

1.1 This policy applies to all departments and agencies listed in Schedules I and II of the Financial Administration Act.

1.2 This policy applies to the intellectual property arising from Research and Development (R&D) carried out in the course of work under contracts issued for the procurement of goods and services.

3.1. Intellectual property issues are to be addressed prior to the award of a contract involving R&D, and contractors are to have a clear understanding and certainty regarding the nature of, and conditions regarding their rights to intellectual property arising under the contract.

3.2. When reviewing intellectual property aspects in preparation for the award of a contract involving R&D, departments are to start with a presumption that contractors will take title to intellectual property. It is recognized that circumstances may arise when this presumption is not supportable. Such cases are to be documented and justified.

3.3. When intellectual property is to vest with the Crown, the Deputy Minister of the Department sponsoring the contract shall be accountable for proper and valid justification supporting the decision.

3.4 In determining exceptions to the presumption of contractor ownership, and in addressing Crown objectives related to the application of the results of R&D performed under contract, the guidelines in section (4) below are to be followed.

The following are key extracts from Section 4:

4.2 Factors Indicating Crown Title

a. Title to background technology vests with the Crown and the contractor is simply adding to the technology package by providing a service.

b. Prior obligations to third party or parties (such as a research partner or research consortium) would preclude title vesting with the contractor.

c. The contractor has no intention or capability of pursuing commercialization in a timely manner in Canada.

d. National security.

e. The main purpose of the work is to generate knowledge and regulatory information for public dissemination.

f. Mutual agreement.

4.3 Procedures

a. In requesting proposals or solicitations to bid, departments should make clear when an exception to the presumption of contractor ownership will apply, and provide the reasons therefore.

b. When the vesting of title to intellectual property may depend on information provided by bidders, departments should describe to potential bidders the circumstances under which title to intellectual property would vest with the Crown.

In addition, when ownership of intellectual property was to vest with the contractor, preparation of bid solicitation documents and the drafting of contracts, sponsoring departments and agencies and the Department of Supply and Services (now Public Works and Government Services Canada) should address the following factors:

a. Disclosure and protection of intellectual property arising from the contract.

b. The Crown's right to use, and have others use, the intellectual property for the Crown's purposes.

c. Access by the Crown to background technology owned or controlled by the contractor.

d. Access by contractors, for the purposes of commercialization, to related background technology owned and controlled by the Crown.

e. Optimization of post-contract economic benefits to Canada, within a reasonable time.

f. Export mandates from a Canadian base.

The 1991 IP policy does not explicitly make mention of IP ownership in the case of joint or cost-shared contracts with the private sector. This is becoming a more common vehicle of contracting with many science-based departments and agencies. Ownership of IP that results from a joint or cost-shared contract between government departments and the private sector is of particular concern in discussions of the development of the "Information Highway".

Departments and agencies are responsible for the application of the policy, and for the interpretation of the numerous exceptions to Contractor ownership.

1991 Policy Promulgation

Promulgation of the 1991 policy to a wider audience was not an assigned responsibility for any department or agency and thus timely dissemination of information about the policy was inadequate. With one exception, industry associations did not appear to have made any special effort to advise their membership of the new policy.

Because of initial confusion over the intent and scope of the 1991 policy, the TBS issued a memo on December 18, 1991 to clarify what was expected of departments and agencies in applying

the policy. As with the October memo, this memo went to heads of administration and finance, not to technical or scientific heads.

Some of our respondents, in both the public and private sectors, have voiced concerns that the introduction of the policy in 1991 was poorly handled. One government respondent noted that procurement manuals were not amended at the time to reflect the change in policy. We were told by a Treasury Board official that TBS refused to amend the procurement manuals unless they could rewrite the policy; permission was denied by Industry, Science and Technology Canada.

It is not apparent that any great effort was made to announce the change in policy to either the private sector or to government employees who handle contracts. Although promulgation of the 1991 policy was not considered to be their job, an announcement of the policy change was made in the October 1991 issue of PW&GSC's R&D Bulletin. A government respondent advised us that the Licensing Executives Society (a private organization) made a point of informing their members about the change. Another government official believes there was an item in the Ottawa Citizen about the policy. Some people in the private sector only learned about the change in policy when we contacted them to ask if they would participate in this review. Whether the line department scientists who would make the initial decision on ownership were fully aware of the policy change and its intent, is debatable. One government department representative said that many managers and scientists were still unaware of the policy and did not address the IP issue in contracts. As many contracts with potential R&D-related IP from that department do not go through PW&GSC, the legal representatives have to try to resolve IP issues after the fact, i.e., when the contract has been completed and the contractor would like to commercialize the technology. This has resulted in a number of problems.

It should be noted that the vast majority of government contracts do not involve the development of IP and this made it more difficult to ensure that those who do deal with contracts involving IP were aware of the new policy.

1993 IP Policy on Retention of Royalties and Fees

On July 19, 1993 Treasury Board announced the approval of a submission from the Minister of Industry, Science and Technology and the Minister for Science regarding the retention of royalties and fees from the licensing of Crown-owned intellectual property.

Under this policy, departments and agencies were authorized to receive, through Supplementary Estimates, an annual appropriation equal to all revenues arising from the licensing of Crown-owned IP which the department or agency remitted to the Consolidated Revenue Fund in the previous fiscal year. (Annex 1)

The monies thus earned were to be used "toward the costs associated with incentive awards for technology transfer and other technology transfer activities undertaken by the department or

agency". No mention is made of using the funds to support direct research activities, but the funds could be used to fund awards under the Public Servants Inventions Act.

GOVERNMENT DEPARTMENTS' POSITION ON THE POLICY

Application of the 1991 Policy

> "We have basically gone on the premise that every case is an exception and we cannot think of any single case where we would pay someone to develop technology and then want to give them ownership of it". - Public Service Marketing Manager

In general the spirit and intent of the policy are, with few exceptions, **not** being followed by the government departments and agencies reviewed. While many claim to follow the policy, their practice is to interpret the six allowable exceptions to vesting ownership with the contractor quite liberally. This results in relatively few contracts that might result in commercializable IP being vested with the contractor.

Although R&D contracts were being reviewed with respect to the 1991 policy, it was much less clear that the more general procurement contracts for goods and services were receiving the same scrutiny. These more general procurement contracts, even those involving the development of technology-based equipment, are not processed through the Science Directorate of PW&GSC and no statistics are kept on whether they involve IP. We were told by a PW&GSC respondent that personnel in the information technology groups in the line departments lack knowledge of the 1991 policy and may not know that it applies to software development. Another PW&GSC respondent thought that some government departments were purposely writing RFPs so they would by-pass the Science Branch of PW&GSC and thus avoid monitoring for IP and subsequent application of the policy.

Where departments have regional offices or research stations, many procurement contracts for services, especially software services, are issued locally, and issues of IP are, in many cases, not reviewed with respect to the 1991 IP policy, with the result that ownership defaults to the Crown.

Most of the government representatives interviewed during this review who had participated in the pre-policy discussions of 1989-91 did not agree with the policy of vesting ownership of R&D-related IP with the contractor. Most believed the policy should have stayed the same except where a case could be made for contractor ownership; i.e. Crown ownership should be presumed with contractor ownership the exception. Some stated flatly, "if the Crown pays; the Crown owns".

Health Canada, and the Forestry Branch of Natural Resources Canada where the development of commercializable IP is the exception, not the rule, make use of NRC's fee-for-service intellectual property office, which is set up as a mini-CPDL. The advice of this office is to retain ownership of any IP that might have commercial potential and to offer the contractor, where appropriate, a royalty-based license. This advice coming from a government agency appears to be contrary to the 1991 policy. A PW&GSC respondent commented that he found it "rather odd" that NRC was running a mini-CPDL, in light of the 1991 policy. The NRC office is also in a conflict of interest situation as it financially benefits from fees collected from IP licenses it manages on behalf of its government clients. The Transportation Development Centre of Transport Canada is also an NRC client.

A Treasury Board official believes that the government should adopt the same position on IP ownership as the private sector. Determination of private sector practice was outside the mandate of this review, however, one legal respondent claimed, that in general, software firms left ownership of IP with their contractors.

During the course of this review, we had the opportunity to meet with a few present and former private sector consultants who have provided advice to government departments such as Department of National Defence, Canadian Space Agency and Natural Resources Canada on IP issues. These consultants also take the position that government departments should retain ownership of IP and then license to the private sector. One considered that if the Communications Research Centre had carried out an aggressive policy of Crown ownership and licensing in the past (even before 1991) that today most of its present operating budget would be covered by royalties and fees.

Departmental Decision on IP Ownership

In general the initial decision on IP ownership is made by the bench scientist or engineer as part of the process of preparing a request for contract work. In Agriculture and Agri-Foods Canada (AgCan), CRC, DND, Natural Resources Canada (NRCan) and the Transportation Development Centre, the requisitioner is provided with a check list to guide their IP ownership decision. These checklists include the six exceptions to contractor ownership, and some include items added by the department.

In Fisheries and Oceans, a senior manager makes the IP ownership decision when approving the RFP requisition.

The CSA, "Internal Request for Proposal Requisition Form for Research and Development" does not provide for the requisitioner to make any decision on IP ownership as the form already contains the following Crown IP ownership justification statement:

> Given the unknown nature of the technology being proposed in a bid response, its relationship to Crown owned or controlled IP, and the uncertainty as to the ability and commitment of the company to commercialize the FIP, a provisional decision in favour of Crown ownership is made. A final decision, Crown or Contractor, will be made in favour of the approach which will maximize the potential for commercialization of the technology. This decision will be made during the contract negotiation stage.

CSA interviewees stated that any IP arising from contracts issued through their Radarsat or Space Station Programs is automatically vested with the Crown, and this applies to any sub-contractors. The reason given for Crown ownership in the case of Radarsat was to continue the past practice of Crown ownership, while in the case of the Space Station, it was to avoid fragmentation of the ownership of the technology. Only in the case of the small STEAR program was 75% of the resulting IP vested with the contractor.

In organizations such as NRC, contractor ownership of potentially valuable IP is the exception and not the rule, thus the decision is driven by informal policy.

In addition, some departments such as AgCan, CSA, Environment Canada, NRCan, and NRC have manuals or bulletins which the RFP requisitioner can refer to for guidance on IP issues.

Only CRC and DND said that all R&D RFPs are reviewed to ensure consistency of application of the policy. In the other departments, only in cases where there was some uncertainty or disagreement over the IP ownership issue was the departmental IP expert brought in for advice. No one indicated that RFPs or even draft contracts for general procurement of goods and services were reviewed for IP ownership issues.

PW&GSC advised us that they do not make IP ownership decisions but only ensure that their client departments have indicated their ownership decision by checking an appropriate box. The department does not have to advise PW&GSC of the reason for their decision.

Perceived Benefits of Crown Ownership

The major, non-financial reason for wanting to retain Crown ownership was to avoid the fragmentation of ownership of technology that was going to be part of a larger system, such as a space station.

Other reasons cited for retaining Crown ownership were:

- to be able to license the technology to a firm that is
capable of fully exploiting it, which may not be the contractor;

- to avoid creating a sole source situation for further government procurements;

- that taking an ownership position is easier to handle by the bench level scientist or engineer who has limited knowledge about intellectual property issues;

- that it would be easier to monitor, and if necessary, revoke a license for non-exploitation of a technology than it would be to take away ownership; and

- government ownership of the IP might make potential infringers reluctant to act especially in the case of small firms that would not have the resources to fight patent litigation battles.

Explicitly stated by some of the interviewees, and implicit in the responses of the rest was the underlying reason that if there was any money to be made through potential licensing fees or royalties, the government department wanted it. Only CSA said monetary consideration was not important as they generally provided royalty-free licenses.

Many of the respondents give the impression that they think they know better than the private sector what can be commercialized and how it should be done. Despite their lack of current business background, they also appear to believe that they are fully capable of judging whether a firm is in a position to exploit a technology.

Education of Government Personnel About the 1991 Policy

After the policy was implemented in 1991, some of the departments had workshops or seminars on the application of the new policy. However, as pointed out by Environment Canada respondents, attendance at such events was voluntary, and there is no guarantee that all of the staff, who should be knowledgeable about the policy, are fully aware of how the policy should be applied.

AgCan, CRC and F&O stated that they had not provided any training for their staff in the application of the policy.

In the Department of National Defence, seminars were given to personnel in their research and development units (CRAD) but their offer of giving the seminars to DND's general procurement people was not taken up.

One government respondent said that PW&GSC officers in the regions did not appear to be well versed in the IP policy.

Intellectual Property Statistics

At the moment there is no adequate data base of statistics available that captures the extent of the intellectual property developed and the disposition of ownership as a result of either an R&D procurement contract or a more general procurement contract for goods and services involving R&D.

Even in the case of software development contracts, not all of these go to the Informatics Branch of PW&GSC which does not yet keep statistics on IP. We were advised by one department that a considerable amount of software development and maintenance was done under local purchase orders.

In some cases, departments (in particular, regional offices) issue contracts directly to contractors, by-passing PW&GSC altogether, for activities such as data gathering and software development. No departmental statistics are kept on IP ownership.

In addition, statistics are not collected on contracts for the purchase of goods and services that are not specifically identified as R&D but have an R&D component with potential IP. For example, equipment development for the Canadian military which might have considerable commercial potential is handled by the Aerospace Marine and Electronic Systems Sector of PW&GSC, where again, statistics on IP ownership are not collected.

Since 1991, the Science Branch of the Science and Professional Services Directorate of PW&GSC has been collecting statistics on ownership of IP arising from R&D contracts (Annex 2). It should be noted, however that the vast majority of contracts issued by government departments and agencies do not involve, either directly or indirectly, R&D and hence do not go through the Science Branch of PW&GSC.

The Science Branch statistics are not, however, a good measure of the IP ownership practices of the departments where potentially commercializable IP is involved. The statistics include not only R&D contracts that may result in commercializable technology or information, but also contracts for data gathering or for analyses of collections of specimens or samples that have little or no commercial potential. For example, the statistics for Agriculture and Agri-Foods Canada for 1993/94 indicate that they spent $41.49 million on external R&D contracts, of which the IP was retained by the Crown in the case of $34.14 million of the contracts. If one did not know that three of the contracts accounting for $32 million in which the Crown retained ownership of the IP were for urine analysis of race horses, one could get a negative impression of this departments IP ownership practices. On the other hand, statistics showing that a department is vesting ownership of IP with the contractor in 50% of their contracts may also be misleading if the

IP vested with the contractor has no commercializable potential (i.e. data gathering)

To try to obtain a better perspective, we obtained a computer print out of the contracts that had been awarded through the Science Branch of PW&GSC for the periods September to December 1992 and 1993 that indicated whether the Crown or the contractor retained IP rights. After eliminating university and cost-shared research contracts, no pattern for the decision on ownership was found, except for a bias towards contractor ownership for data gathering. In the examples of cost-shared contracts, all of which were from Natural Resources Canada, contractor ownership was generally the norm.

Without a detailed audit of the actual contract documentation it is not possible to determine from the PW&GSC statistics whether the Treasury Board policy of 1991 is being followed by the departments and agencies when considering potentially commercializable IP.

When arranging meetings with government departments and agencies, we asked them if they could provide us with any statistics they had on ownership of intellectual property on R&D or more general procurement contracts issued since 1992. Unfortunately, most departments and agencies have not been keeping any statistics or information on IP ownership despite the policy requiring them to document and justify such decisions (Sec. 3.2 and 3.3). In one department, the reason given for non-compliance is because their general practice is to retain ownership in all but very limited circumstances. In these and most other cases the departments have no system or mechanism for tracking the information. One unit of one department did provide us with information on contracts issued during 1994, with a detailed breakdown of the reasons for Crown retention of IP. The other departments gave 'best guesses' or approximate percentages.

When the policy was put in place, there was a requirement that its impact would be evaluated approximately four years from its inception. The evaluation criteria should have been established in 1991 so that departments could have set up internal reporting and data collecting mechanisms for gathering the information required to enable an evaluation to take place. Because this was not done, not even basic statistical information is available.

Interpretation of the Policy

> "The 1991 policy was not implemented in a way that matched the intent of the Ministers" - PW&GSC

Scope of the Policy

There is confusion among some officials in the central agencies over the scope of this policy despite the clarification in the December 18, 1991 memo from TBS (Annex 1) which states

that, "the policy applies **as broadly as possible** to all goods and services contracts involving research and development activities".

One respondent in the Treasury Board Secretariat considers that the IP policy is simply a procurement policy and should only apply to general procurement of goods and service, not to R&D contracts where the Crown is paying for R&D to be performed. This respondent considers that in the case of an R&D contract, the Crown should own all resulting IP. Only in the case of IP developed incidentally to the purchase of goods and services should the contractor own the IP.

However, a respondent in PW&GSC believes that Treasury Board does not think that the policy applies to general procurement contracts that involve the incidental development of IP. He would like to see the policy cover both R&D contracts and general contracts involving R&D.

Even within some departmental documents designed to provide guidance to their scientific staff on application of the policy there is confusion over the scope of the 1991 policy. For example, under "Purpose" in Agriculture Canada's Manual of Administrative Policy and Procedures Bulletin is the statement, "the new government policy on rights to intellectual property arising from contracts for goods and services involving R&D activities", and yet in the next paragraph the Bulletin implies that the policy only applies to IP developed under R&D contracts. Environment Canada's 1991 bulletin on ownership of IP to its employees only discusses the policy in terms of R&D contracts. They do, however, in their yet to be released internal IP policy dated March 14, 1995, state that the TB policy is intended to apply to contracts involving R&D that result in outputs of a technological nature.

In a draft "Policy Manual for the Management of CRC's Intellectual Property", it is stated that the TB policy applies to R&D contracts. No mention is made of more general goods and services contracts.

A DND respondent believed that while the CRAD section of DND was reasonably aware of the IP policy and tried to apply it, contracts for the purchase of a product went through their Commodities group which he felt were not all that aware of the policy.

Additional Exceptions to Contractor Ownership

The memo from Alan Winberg, Director, Policy and Evaluation Division, Administrative Policy Branch, Treasury Board of Canada Secretariat, dated December 18, 1991 further weakened the 1991 policy by pointing out that the guidelines in the policy were not mandatory, and that the six exceptions to contractor ownership were not an exhaustive list of reasons for Crown ownership, thus inviting departments to add their own. In addition, the letter went on to say that "Some departments are in the process of developing procedures to administer this policy. While these

procedures are being put in place, difficulties with the implementation of the policy may be another reason to justify Crown ownership".

In light of this letter, some departments have added additional exceptions to Treasury Board's six to avoid vesting IP ownership with the contractor.

For example AgCan has added the following additional reasons for exception from contractor ownership:

- have any promise and/or agreements been contemplated as to the exploitation of the arising intellectual property?

- is this a major project with a number of independent (sic) companies involved under contract to do different parts of the contract work? (i.e. no major contractor)

DND adds the following reasons on the their checklist to identify instances when exceptions to the presumption of contractor ownership may arise and ownership of IP by the Crown is appropriate:

- Relative to the preserving an inventor's rights under the Public Servant's Inventions Act will this contract involve the development or use of an existing PSI invention?

- To avoid fragmented ownership, and facilitate system integration

In a Deputy Minister Circular of August 11, 1992 on the Management of Intellectual Property, Transport Canada has added the following justification for Crown ownership: the contract is part or phase of a multi-phase or larger project.

Several departments simply add a box called "Other" to the checklist. CSA gives as an example of an "other" reason, "foreign ownership or control of the contractor".

Procedures Are Not Followed in Applying the Policy

In examining a sample of RFPs and from feedback from private and public sector respondents, it is apparent that government departments and agencies are not following the Treasury Board policy and accompanying guidelines for administration of the 1991 policy.

Unfortunately, the memo from Mr. Winberg, noted earlier, which was designed to clarify the application of the policy only added to the confusion. In it, he states that Section 3 of the policy sets out the requirements with which "departments must comply". One of those requirements is subsection 3.4 which states, "... the guidelines detailed in section 4 below are to be followed". Mr. Winberg goes on to write, "Guidelines are provided to help departments implement the policy and are not mandatory". A reader is left uncertain whether the guidelines, and the procedures contained within them are to be followed or not.

As noted earlier, departments and agencies do not appear to be documenting the reasons for their ownership of IP decisions as called for in Sections 3.2 and 3.3 of the policy.

While, according to one interpretation of Mr. Winberg's letter, they are not obliged to follow their own procedures contained in the policy's guidelines, it does cause some consternation in the minds of the private sector contractors who naively assume that procedures would be followed.

Departments and agencies are not providing a reason in their RFPs for retaining Crown ownership, as called for in Procedure 4.3.a in the Guidelines.

Many government respondents complained about having to commit to vesting with the contractor before they knew who it was going to be. Departments are not taking advantage of Procedure 4.3.b which allows them to simply state the conditions under which Crown ownership will take place, and that their decision will depend on information provided by the bidders. CSA for example, takes a Crown ownership position up front, then tells the winning bidder they might have the IP ownership if certain conditions are met.

Monitoring the Application of the Policy

A major weakness in encouraging uniform application of the 1991 IP policy across government departments and agencies is the lack of monitoring or policing of the policy. We were advised by respondents that neither Treasury Board or PW&GSC sees it as their responsibility to monitor or enforce the application of the policy.

In March of 1994, a meeting of IPAC subgroup four, chaired by the Director of Patents, Canadian Intellectual Property Office, was held to discuss the policy. It was clear from the discussion that the government as a whole did not have a standard approach to the Treasury Board policy. In addition, a government representative pointed to the complex clauses and government preference for retaining Crown ownership of intellectual property as possible sources of the implementation difficulties with the policy. Private sector participants also felt that they had no opportunity to negotiate the standard clause used by PW&GSC. These observations did not result in any corrective action.

Impact of the 1993 IP Revenue Retention Policy on the Application of the 1991 Policy

> "If there is even a remote possibility of picking up a revenue stream, I am going to exhaust that avenue before giving anything away" - Public Servant.

This opinion was reiterated in various ways by most of the government personnel interviewed. For example, some of the departments said that they have no problem in giving away ownership rights in data as there is no revenue generating potential from data.

One CRC respondent said that IP rights have become a bigger issue since the labs have been able to retain revenues. Most of the people interviewed in both the public and private sectors recognize there is an inherent conflict.

Another public servant in PW&GSC said that the 1993 TB policy on IP revenue retention is, "an absolute incentive for the department to retain the IP". He went on to say that, "Ministers are going to have to resolve that". A second PW&GSC respondent stated, "there is no question that there is confusion at Treasury Board when it issues one policy that says you are giving away the IP and issues another that says you can keep any royalties".

A few government respondents from those departments that do not develop a lot of commercializable technology felt that the 1993 policy did not have a great impact on their IP ownership decisions because the amounts of money involved were so small relative to the laboratory's budget.

It is clear, however, that the ability of a laboratory to retain revenues generated from Crown ownership of intellectual property influences the decision whether to retain IP rights or vest them with the contractor especially in those departments where the possibility of producing potentially valuable IP is substantial.

Suggested Modifications to the 1991 Policy

The predominant view of the departmental representatives is that the 1991 policy on IP ownership should be re-examined as they do not support it in its present form, and believe that contractor ownership of IP does not necessarily result in the most effective commercialization of government funded technology.

In addition to this recommendation, they have the following suggestions:

- clarify the scope of the policy;

- define what is meant by R&D;

- remove the presumption of contractor ownership while retaining the capability of doing so;

- simplify the contract clauses;

- improve definition of what constitutes background and foreground information;

- inclusion of a clause that would enable ownership to be revoked in cases of non-exploitation (i.e. claw-back clause); and

- creation of a central office to monitor compliance with commercialization conditions to reduce duplication of infrastructure across departments.

PROVINCIAL GOVERNMENT AND PROs

Information was obtained from officials in the B.C., Alberta, Manitoba and Nova Scotia governments that are concerned with industrial or economic development. Only the B.C. respondent mentioned hearing of problems concerned with IP ownership but could not provide any details.

Five provincial research organizations were contacted (see Annex 3) but they also had not heard of any problems associated with the 1991 policy. One Saskatchewan respondent said that they did not think that companies in their province were all that aware that a policy change had taken place. Another Saskatchewan respondent said that firms did not believe any change had taken place.

PRIVATE SECTOR

Numerous associations and private individuals have voiced their concern over the application of the 1991 TB policy. In the final report of the Copyright SubCommittee of the Information Highway Advisory Council [Copyright and the Information Highway, March, 1995], they state that, "The SubCommittee agrees with the concerns expressed in some of the submissions that this policy is not uniformly applied and strongly recommends that the federal government take steps to reinforce the application of the policy" (Ch. 6, p. 23).

Industrial Associations

Nineteen industrial associations were contacted (see Annex 3). Some of them agreed to survey their members to determine whether they had had any problems in securing ownership of IP from federal government contracts since January of 1992. Many provided us with the names of firms that they felt could contribute to this review.

Except for the national associations based in Ottawa and OCEDCO, none of the provincial industrial associations indicated that they had heard of any problems from their members on this issue. Respondents from four of the associations based in western Canada had not heard of the policy change.

Several respondents pointed out that one of the possible reasons for the lack of problems with the policy outside of Ontario and Quebec was the perceived reduction in federal R&D government contracts going to the west, and that many of their member companies deal more with the private sector and provincial governments than with the federal government.

The Geomatics Industry Association of Canada expressed concerns that the revenue generation activities of the federal government are causing the departments to invoke the exceptions to contractor ownership in order to gain revenue through licensing. They fear that in adopting a more business-like mode of operation, the government departments will be in direct competition with industry.

As noted earlier we have obtained copies of complaints made to the federal government on either the IP ownership issue or the associated contract and licensing terms and conditions. The following is a short summary of their main points.

OCEDCO, in their position statement on intellectual property, states that many local companies do not believe that the IP policy is being implemented. They ascribe this lack of implementation to cost-recovery pressures on the departments. They further state that when a company mentions the 1991 policy to a contracting department, the company is "often given an eleventh-hour take it or leave it proposition". They cite two cases where their members have experienced difficulties as a result of vesting ownership with the Crown. (Annex 4)

The Aerospace Industries Association of Canada, during a presentation at an Intellectual Property Forum in November of 1993 questioned the sincerity of the vesting of the IP ownership with the contractor. They questioned why the policy had been saddled with clauses that although they vest ownership with the contractor, did not give the contractor the right to sub-license, the right to consideration if assigned, or the right to publish or disclose, while retaining for the Crown the right to dictate usage, the right to receive credit, the right to consideration if assigned, and the right to repossess.

They also pointed out that IP is one of the most important assets of a company; that it is difficult to separate background information from foreground information incrementally created on a particular contract; that the time spent in negotiating terms of usage affects their ability to get a product to market quickly; and that anything other than unrestricted ownership rights dilutes a company's competitive advantage. (Annex 5)

In April 1993, in a letter to the Minister of Supply and Services, the Canadian Chamber of Commerce voiced their displeasure with the contracting clauses used by the government. (Annex 6) They also consider that indefiniteness as to contractor ownership and the almost unlimited rights retained by the Crown, created by PW&GSC clauses were unacceptable to industry. They felt that these clauses could negatively affect established business relationships that the contractor had with other parties. In a 1994 submission, the Chamber reiterated their stand and added, "the fact remains that this issue will continue to place Canadian firms in the R&D sector at a competitive disadvantage with firms in other nations. It will also serve to continually increase the frustration of the Canadian business community on the treatment of intellectual property in its dealings with the federal government".

The Canadian Defence Preparedness Association in a brief to PW&GSC in August of 1995 states that, although the Crown ownership of intellectual property is supposed to be documented and justified, in practice all a department has to do is put a check mark in a box on a form besides one of the reasons to withhold ownership (Annex 7). Even if the contractor demonstrates that the reason is wrong, PW&GSC does not insist the 1991 IP policy be enforced. They also point out that the policy is by-passed when departments use consulting and professional services agreements in which all IP vests with the Crown, rather than using R&D contracts. [It should be noted, that the PW&GSC does not have any authority to insist that the policy be enforced as the CDPA requests; as one PW&GSC respondent stated, implementation is the responsibility of the client department and Treasury Board.]

Like the Aerospace Industries Association of Canada, CDPA questions the ability to make a clean separation between background and foreground IP. They also question clauses whereby the government "can have access to the total knowledge (past, present and future) gained from the company's work and pass it on to others". They provide suggestions for changes in clauses that would be more acceptable to industry. The AIAC have advised members to protect themselves against predatory clauses.

While the Canadian Manufacturers Association did not mention hearing of any complaints about the ownership question, a representative did say that he advises their members to assume that unless there is a specific statement in a contract stating that they own the foreground IP, they should assume that somewhere in the general terms and conditions of the contract, Crown ownership of IP will prevail.

There has, to date, been no satisfactory resolution of these complaints.

Companies

> "I can't say how the new policy works because the major departments we deal with don't follow the rules".

We received input from thirty-four companies across Canada, and six private sector intellectual property lawyers, most of whom were very unhappy about the way the 1991 policy is being applied. Company size ranged from multi-million dollar, multi-nationals to small Canadian owned firms. Only one firm argued for a return to Crown ownership because it was easier to get licenses to develop software for different applications under the old system. Most of the firms complaining about the policy were in the software or computer systems area. This should not, however, be construed as only software or computer systems providers are having problems with the application of the 1991 policy.

We were warned at the beginning of this review by several lawyers that firms were very reluctant to give details on their problems with government departments for fear of losing any future contracts. This warning proved to be true as few companies were willing to provide many details about their difficulties over ownership of IP. As one company respondent said, "if you make them angry, they can clobber the company". This reluctance was noted during a seminar sponsored by OCEDCO. Many of the private sector participants had been interviewed for this review but didn't speak up during the seminar although they had told us about problems.

All of the firms interviewed were aware of the 1991 policy change. One respondent commented, however, that there was not an intensive effort by DSS to promulgate information about the new policy in 1991 and that most likely there are many people who do not know about the change.

Application of the Policy

> "Nobody pays any heed to the new IP policy"

Most of the companies believe that the 1991 policy is not being effectively applied. To them, the departments are taking a position of Crown ownership unless forced to do otherwise. In the view of one respondent, "there has been a reluctance by the departments to buy into the implementation of the TB guidelines".

Several respondents volunteered that when the new 1991 policy was announced they were quite encouraged that they would be able to commercialize government supported technology more effectively. The lack of application has resulted in a mood of cynicism. As one respondent said, it appeared to be "a very strong incentive to pursue commercialization of IP, otherwise the company is just contracting out laboratory services, full stop, with no real strong inclination on the part of the private sector to invest, or to take the technology forward".

Some large company respondents noted that they were able to retain ownership of what they felt to be their intellectual property by simply refusing to go along with government contractual conditions that called for Crown ownership of IP. One respondent said that they got the argument from PW&GSC personnel that, "everyone else accepts Crown ownership clauses, why don't you". Based on his experience, he thought that the policy was not well known within the departmental bureaucracy.

Small company respondents, however, felt that they had to comply for fear of jeopardizing future contract opportunities. Several stated that they had encountered a "take the contract on our terms and conditions or leave it" attitude by government personnel. Others thought that fighting for the ownership would jeopardize any future contracts.

Faced with demands for background source code, many companies now agree to put such codes and background IP into an escrow account, held by their lawyer, that can only be accessed by the government if the company goes out of business, or goes into a totally new line of business.

One respondent from a smaller software company said that when he complained to a minister about the ownership retention practices of Environment Canada, he felt that he was subsequently excluded from further contracts. He believes that individuals within departments have too much discretion and can blackball companies that complain.

One respondent complained that DND "is very entrenched; they have not changed anything". Another that DND was sending out mixed signals on the ownership question. However another stated that they found DND "very progressive on the IP issue" and were able to retain ownership in many of the contracts they had been awarded since 1992. One DND supporter said that "they haven't routinely invoked the security exception to retain ownership".

Several respondents complained about the ownership stance of the former Canadian Centre for Remote Sensing of Natural Resources Canada. They felt that CCRS was trying to claim ownership of IP that was the property of the private sector.

The greatest number of complaints by the respondents was the lack of application of the policy by the Canadian Space Agency. The Canadian Space Agency was described as having a legalistic, arbitrary and proprietary position on IP. As noted earlier, CSA takes an automatic Crown ownership position in the case of contracts dealing with Radarsat or Space Station Program. It general practice is to issue royalty-free licenses wherever possible.

Many of the thirty-four companies complained about departments making liberal use of the exceptions to avoid vesting IP ownership with the contractor. Several noted an increased hard line stance in the past two years. One stated that their firm was forced to accept the "Mutual Agreement" exception to contractor ownership.

A respondent from a large computer systems supplier said that every single procurement of any substance or size uses one of the six exceptions so there is no change in practice. One respondent from a small firm stated that they haven't been able to retain ownership of IP from Environment Canada, CSA or NRCan since 1992. He is not happy with Crown ownership of IP but "he has to live with it".

A few respondents mentioned that although they supported the policy, the projects they had worked on since 1992 had little commercial application and so the ownership of IP was not an issue with them.

Several respondents considered that contrary to PW&GSC's statements of neutrality on the ownership issue, certain groups within PW&GSC were an active participant in advising departments to take a Crown ownership position. As one interviewee put it, "DSS has its own parochial and particular view of how contracts should be operated; they superimpose that view on both the departmental client and the industrial organization". Another interviewee stated that the AMES group in PW&GSC encouraged Crown ownership among its clients.

Lack of Consistent Application

> "It is not clear from observing the behaviour of departments what the policy on IP is."

The lack of consistency in the application of the policy was a common theme. Many respondents commented that the application of the policy appeared to be dependent not only on which department they dealt with, but also on the person within the department. They perceived that the individual public servants had great latitude in deciding the ownership question.

One respondent remarked that in the absence of clear documentation about how the policy is supposed to be interpreted, firms face a situation in which, "the bureaucrats don't appear to know what they are doing". Another said that there can be radically different interpretations of the policy.

One respondent pointed out that even within DND, there is an inconsistency in the application of the policy. Some groups such as the magnetics group insist on keeping all the IP, while other groups are not so rigid.

One firm, while agreeing with the lack of consistency with TDC tightening up, and DND relaxing its ownership stance, felt that it was in general easier to deal with government on this issue than in the past.

Perceived Scope of the Application

One major systems supplier felt that the PW&GSC people he dealt with limited the application of the policy to R&D contracts only. He stated that when the government buys a system, such as the Canadian Forces Supply System Upgrade, the government takes the position that the Crown owns all the IP. Citizenship and Immigration take a similar stance. Since 1992, his firm has not retained ownership of IP for any contracts they have won.

Some respondents questioned whether departments were using professional services contracts to by-pass the policy. One respondent stated that he had seen a major contract for professional services associated with software development, and there is no specific mention of who owns any IP. He thought that perhaps the general government services clauses would govern and the Crown would claim the ownership. Another stated that the use of Standing Offers that contain Crown ownership clauses to develop software was defeating the 1991 policy's intent.

One respondent pointed out that NRC, "now tries to paint everything as collaborative research and hence take an IP ownership position". He felt that people within the NRC were making up the rules.

Clarity of Reasons for Crown Retention

Most of the interviewees stated that RFPs did not clearly state the ownership position of the contracting department. Most simply referred to clauses in PW&GSC manuals. The reader had to have a copy of the manuals in order to determine the ownership position of the department. Respondents stated that none of the RFPs that they had seen had given a reason for the Crown ownership position. Our review of a limited sample of RFPs confirms this.

Several respondents also noted that the Open Bidding Service (OBS) of the federal government did not indicate the Crown ownership position in their electronic summaries of contracts. Our review of notices of proposed procurements on the OBS confirmed this.

Several firms mentioned the difficulty in talking to departmental personnel about IP ownership issues when an RFP is out for bids. If the bidder takes an aggressive stance they may be considered non-compliant. One company respondent said he was told that their aggressive stance on ownership had contributed to their loss of a contract for software development.

Perceived Benefits of Contractor Ownership

"It is not true that licensing is the same as ownership"

Not unexpectedly, we found that the private sector feels quite strongly that ownership is

preferable to licensing. They consider that when they have unencumbered ownership, they are in a better position to exploit market opportunities.

Ownership gives them the assurance that any additional investment and development of the technology can be exploited by their firm alone. They do not completely trust the government not to issue a license to a competitor, thus destroying their competitive advantage. As one respondent said, "access to technology is important, but it must be access with confidence that no competing scenario is going to develop under the auspices of the Canadian government's rights to technology".

Ownership of the IP enables smaller firms to obtain financing or venture capital more easily as the IP is considered as one of the firm's assets. While banks and venture capitalists place considerable weight on the quality of the management of a firm when making investment decisions, ownership of the firm's IP is an important factor.

Another advantage of ownership over license occurs when a firm is trying to partner with a foreign firm. Several respondents commented that it becomes very important in structuring an effective business relationship with foreigners that an organization can state that it has rights to the technology it is providing to the partnership. Rights are better in the form of ownership instead of having to determine the strength of a license. The foreign partner generally has even less faith that the Canadian government won't revoke the license, or issue one to a competing organization. As Canadian companies try to become more globally oriented in the future, this problem will become more critical to their success.

Unencumbered ownership would allow a company to sub-license offshore as part of an off-set agreement, which may be a condition of getting a major foreign government contract.

One large company is presently working on a major government contract for which they would have liked to retain ownership of any resulting IP to enable them to market the technology abroad. They were denied ownership of the IP and to date, have not even received any assurance that they will get a license on completion of the contract.

A medium sized company respondent made the point that the intent of the policy must be clarified. She stated that if it is to enable industry to exploit the developed technology at a later date, then Crown ownership was inconsistent with that intent. She went on to say that if a company knows in the beginning that it will own the IP, the firm's people will be looking for opportunities to exploit the IP as soon as work starts on the contract.

As noted in the "Association" section, some respondents complained about the amount of administrative overhead some of the ownership clauses appear to impose. One respondent commented that, "often the ownership of the IP comes with a lot of silly terms and conditions".

Several respondents also mentioned the interaction between obtaining R&D tax credits and IP ownership, especially as it concerns general government contracts for goods and services where

development of IP in incidental to fulfilling the contract. There is presently a dispute between Revenue Canada and the firms about whether tax credits can be claimed from such government contracts. In the past it was allowed, and one of the main criteria Revenue Canada used to determine eligibility was who owned the IP.

Few disagreed with the government having the ability to make full use of a developed technology for its own use, or for the government to rescind ownership of a technology if the "owner" made no effort to exploit it in a timely manner.

Impact of the 1993 IP Policy

"Government laboratories are now competing with the private sector for profit"

All of the interviewees were well aware that government laboratories were increasing their efforts to obtain revenue from selling their services, licensing fees and royalty payments as a result of budget cutbacks in the science-based departments and agencies. Many were also aware of the 1993 IP policy on revenue retention. Some thought that they had detected an increase in Crown ownership positions since 1993.

One respondent felt that departments were abusing the six exceptions to contractor ownership listed in the policy so as to retain ownership of the resulting IP and generate revenue for themselves.

One respondent noted that one of the results of the laboratories needing money was that the royalty or license fees makes it more expensive for industry to use the technology. It also may make it more difficult for the firm to get the licensing arrangement it wants. i.e. may want a broader license than the department is willing to grant.

In addition several respondents believe that the 1993 policy is encouraging the departments to try to get possession of a firm's background technology so they have a complete technology or system to license. One firm stated that on two occasions they have been approached by a government department suggesting they transfer ownership of their IP back to the department and pay a royalty to use it.

One respondent felt that the internal reward and recognition system in government departments was giving greater rewards for revenue generation than for successful technology transfer.

One interviewee questioned whether the present revenue generation and retention mood of government was in fact in the best interests of Canada. "The people who really push for up front payments and cash royalties are those laboratories that are in the cost recovery mode. To some extent this clouds the issue as to what is in the best interests of the Canadian economy and in getting the technology used".

Several respondents felt revenue retention was behind the position of many government departments such as NRC, to want Crown ownership even when doing work fully paid for by an industrial client (i.e. contracting-in). Some felt it was a rather hypocritical stance given their 'he who pays, owns' policy. CRC has a similar policy of Crown ownership.

Special Problems Associated with Software Developers

At the root of the problem with software developers is the industry's method of selling their product. When a buyer "purchases" a software package, the buyer is not in fact buying the package but only buying a non-exclusive license to use the package. The software developers feel the same principle should apply to software developed under government contracts, hence they are very reluctant to provide the government with either background or foreground technology in the form of source codes and algorithms.

We received input from seven lawyers, most of whose clients were connected with software development or computer systems integration. When asked why ownership was so important to their clients, the lawyers responded that ownership was an important asset that could be used to obtain venture capital.

One lawyer felt that IP ownership problems occur mainly in general procurement contracts involving R&D. He also said that the spirit of the revised IP policy was not being honoured by government departments.

Several lawyers commented that they felt that some of the problems with government contract clauses occurred because the people issuing the contracts or writing the contract clauses had little legal background in intellectual property. "They are bumping into each other in the dark".

One lawyer who had received many complaints about the policy from clients said the problem is that, "the client departments in the federal government have basically said, 'screw the policy, we will do whatever we wish'".

Another lawyer pointed out that the present government clauses do not fully take into account background technology owned by a foreign firm whose intellectual property is subject to laws outside of Canada.

We were advised that there are presently two cases before the Federal Court concerned with ownership of software. We were not able to get any details on the cases because of lawyer confidentiality and the PW&GSC representative who was aware of the cases refused to provide any details. Inquiries to the Federal Court were unsuccessful because we could not provide enough information for a computer search to be conducted.

The lawyers also said their clients were having problems in obtaining licenses to software they had developed for the government and for which the Crown retained ownership. Problems included the length of time required to produce draft licenses and the clauses in the licenses that give the Crown the right to transfer software source code and algorithms to third parties, and the demand for any future improvements or enhancements free of charge.

In general, the lawyers said that it will be very difficult to obtain concrete examples of problems with the policy. Companies are very reluctant to complain because they fear retaliation from the line departments.

Software providers cited a number of problems encountered when the Crown retains ownership of IP. If software is developed for a specific government department and the department retains ownership, a copy of the software can be deposited in the Government Software Exchange and picked up for use by other departments. Usually the requirements of the other departments are not exactly the same as those of the original department and the software requires modification. There is little incentive for the contractor to make the modifications, especially if the software is a few years old, because there is little money in it for the contractor and the technology has developed beyond the original software. The software providers feel that when a department buys software, its use should be limited to that department and the company should be free to offer customized software, based on the original, to other departments.

Software providers also feel that the software codes and algorithms they developed should not be passed on to other, possibly competing contractors, as part of background IP for other contracts.

Government Employees' Lack of Understanding of Business

> "The government employees in the departmental business units have little understanding of business".

Several respondents from smaller firms commented that public servants seem to think they know their business area better than they did. One respondent said, "the Transportation Development Centre tends to be a bit manipulative in terms of a company's overall business strategy. They tend to want to drag the company in a certain direction with their development contracts". The respondent went on to say that he knew of one Montreal company that stopped dealing with TDC because of interference with their business strategy.

One interviewee who felt strongly about government interference in the management of his firm stated that so many people encounter such difficulties in dealing with the bureaucracy in terms of the impediments to doing the work, the financial and contractual complications, plus the fact that given the tendency of the bureaucrats to know better than you on how to do your business, they often end up directing or assessing the work and making recommendations in a way that is not well

structured from a business standpoint. "You can end up doing lots of work for the Canadian government and nobody benefits from it in terms of future manufacturing".

One respondent felt that one of the root causes for the lack of consistent implementation of the 1991 policy across government departments was the public servant's lack of knowledge about how business really operates. He felt that they should be allowed to work part-time for industry to overcome this deficiency.

Another went as far as saying the government should get rid of all of its technology commercialization people.

Contract Terms and Conditions

Companies have also mentioned many problems with the standard clauses used by PW&GSC in R&D contracts (see Annex 3 & 4). Some clauses appear to be ambiguous, confusing and contradictory. Small firms that do not normally hire the services of a lawyer are being forced to do so, at considerable expense, to protect their rights.

One firm complained that PW&GSC wanted them to sign an agreement that would bind them blindly to any further amendments brought in by the government.

As noted earlier, some respondents consider that the AMES group in PW&GSC encourages Crown ownership and uses Crown-retention clauses in their contracts.

Licensing

> "Not knowing whether a company will get a license slows down the commercialization process"

The "quality" of the license issued by the government determines how much effort a company will invest in commercializing a technology. A non-exclusive license is virtually useless as there is always the threat that more licenses will be issued thus undermining the commercialization efforts of a company.

A non-exclusive license with just the promise of not issuing any more, which some departments offer, is equally weak. As one respondent said, governments change, civil servants come and go, there might be no commitment to past decisions.

One respondent would accept that a license is as good as ownership only if the license was relatively exclusive, and for a time period that covers the period of the product life cycle.

One respondent said that sole or exclusive licenses prevent other companies from developing software for different applications and different markets. He said that he would like to see licenses for government owned software being applied to the basics (codes and algorithms) only with the rest of the software stripped out. The basic software can then be developed further.

One interviewee notes that a company that develops the original software sometimes cannot get a license to it if the department official decides that they cannot commercialize it. He said that government employees do not understand that software can be developed for different market applications.

License Clauses

Several firms complained about CSA's policy of encouraging them to license technology even before it is fully developed. One firm mentioned being pressured to license a technology even when it had no commercial potential. They thought that the reward structure in CSA was emphasizing the number of licenses an employee had negotiated and this was pressuring them to insist on licenses even when the commercial benefits were non-existent. Another complained about having to enter into a licensing agreement that pertained to general know-how which had no commercial potential.

Company respondents also complained about clauses that allowed the government to get free upgrades of software regardless of how much extra effort and money the company put into it. A non-software company also complained about government department wanting free improvements as a condition of getting a license to the foreground technology the firm had developed.

Specific complaints were made about the CSA virtually wanting to run all aspects of the marketing of a licensed technology.

One firm stated that they had refused to sign a contract with the Transport Development Centre because of clauses that tried to acquire their background technology. Another firm echoed similar complaints about TDC trying to acquire ownership of their IP. They felt that TDC was "anti-industry" and was impeding their efforts to commercialize technology.

In the case of unsolicited proposals, one respondent said that the government generally wants Crown-owned clauses in the contract.

Time Required to Obtain Licenses

Many firms complained about the length of time it took to obtain a license, especially from DND.

One respondent said that licensing is a nice idea but that their experience is that DND is not prepared to discuss licensing for a few years by which time the market could be gone. Another respondent confirmed the delays in receiving licenses from DND. He stated, "you get yourself rolled into a bureaucracy and paper war that will go on for months, when business decisions must be made in a few weeks, sometimes in a few days".

One firm complained that they had even invested some of their own money in a DND project, and had not received any rights to exploit it.

Royalty Payments

Since the serious budget cuts that have affected government laboratories' ability to function, royalties have become an important albeit small source of funds.

One respondent remarked that it is easy for a public servant to overestimate the amount of royalties that a product will tolerate. Another noted that their firm refused a lucrative licensing opportunity when the department asked for a 33% royalty on net revenue.

One interviewee stated that departments want royalties in the 15-20% range. In one case, a department wanted 10% of gross company revenues as they said it would be difficult for them to specifically identify the revenues from the IP developed under the contract. As the respondent said, "that kind of demand can bankrupt a small company".

In the case of at least one government department, they leave the ownership of the IP with the contractor, but demand a royalty payment that will eventually pay off the amount of the government contribution to a project. This appears to go against the IP policy.

Suggested Improvements to the 1991 Policy

The main suggestion for "improvement" of the 1991 policy is for the government to **actually apply it** in a honest, consistent manner, and not hide behind real or imagined exceptions.

Among the specific recommendations for improvement are:

- clarify the intent and scope of the policy and have clear rules that apply to all departments;

- inform the public servants who administer the policy of its intent, so as to reduce individual interpretation;

- provide the public servants with benchmark examples to guide them in their application of the policy;

- set up an ombudsman or independent appeal process to allow for review and adjudication of Crown ownership decisions;

- force the departments to give a full explanation for Crown retention of IP ownership; not just ticking off a box;

- when Crown is to own IP, the department should have licensing arrangements already set out for discussion;

- limit the 1993 IP revenue retention policy to Crown **developed** IP, not Crown owned;

- remove the exception that new work is just an addition to an existing government technology base; it is self-sustaining; and

- announce the 1991 policy change in detail so that business people are aware of it, the exceptions, and how it is applied.

FOREIGN IP POLICY AND PRACTICES

In June 1989, the Intellectual Property Advisory Committee (IPAC), Subgroup 4, conducted a survey of the practices of some foreign countries that affected the exploitation of intellectual property arising from government funded research. The information was based on reports from the science and technology counselors in those countries.

Before obtaining the report of the survey, we had contacted science counselors in Germany, Japan, France, the United Kingdom, and Australia to obtain essentially the same information. We had also contacted a number of science-based U.S. departments directly as we were told that the departments tended to have their own policies, depending on their mandates.

This review summarizes our findings, and updates the 1989 IPAC Subgroup 4 report.

Note that this review gives the official policies of the governments and government departments contacted. As in Canada, the policies may not reflect the actual practices of the various government departments and agencies.

The United States

"Rights in Technical Data and Computer Software", Federal Publications Inc., 1994, (a manual for a course for contractors for the U.S. federal government), notes that the allocation of rights in inventions varies across departments, depending on the R&D needs of the agency on how to best fulfill its needs.

It notes, (p. A-4) that a February, 1983 Presidential Memorandum expresses the current policy of Federal Patent Rights. This decree directed the heads of all departments and agencies to extend the benefits of Public Law 96-57 (Patent and Trade Mark Amendments of 1980) to all research and development contracts, including those to large businesses and profit making organizations. Public Law 96-57 granted small businesses, universities and other non-profit scientific or educational organizations the right to retain title to inventions derived under federally funded R&D contracts and grants. The rationale, expressed in the memorandum, was that "evidence has shown that, in most instances, allowing inventing organizations to retain title to inventions made with Federal support is the best incentive to obtain the risk capital necessary to develop technological innovations".

Pursuant to the presidential memorandum, Federal Acquisition Regulation (FAR) 27.302 (b) provides that each contractor may, after the required disclosure to the Government under the Patent Rights Clause, elect to retain title to any invention made in the performance of work under the contract, unless the agency's statutory requirements necessitate a different policy or procedure, in which case, the policies or procedures must be in the agency's supplement to FAR 27.302 (p.A-5).

Agencies can alter the general rules of granting title to the contractor in three specific circumstances:

a. When the contract is for the operation of a Government-owned research or production facility;

b. In "exceptional circumstances" when the agency determines that restriction upon the right to retain title will better service the FAR policy objectives;

c. When granting title to an invention would endanger the security of the U.S. intelligence or counterintelligence activities.

In practice, when submitting bids, the potential contractor demonstrates its technical competence and its ability to commercialize inventions, and requests the contracting agency to waive ownership rights. If the request is granted, which it is in most cases, appropriate clauses are included in the contract. If the request is denied or deferred, the contractor may petition during or after completion of the contract, for a waiver of rights or for ownership of specific inventions.

Where the contractor elects to take title to the intellectual property, under 35 US Code, Section 200, "the federal agency shall have a non-exclusive, non-transferable, irrevocable paid-up license to practice, or have practice for, on behalf of the U.S., any subject invention around the world, and may, if provided in the funding agreement have additional rights to sub-license to any foreign government".

The government's unlimited rights under the basic data rights clauses, includes the right to distribute data to competitors in order to enable those companies to manufacture the same or similar equipment. (p. A-51).

Contracts provide for "march-in" rights should the contractor fail to exploit the technology.

Although the FARs apply to the government departments in general, each department has supplementary FARs that take precedence over the general FARs. Therefore the actual practices of each department or agency may deviate from the general policy.

Section E of the manual is devoted to the special problems in dealing with computer software. The Department of Defense Supplemental FAR (DFARS) and the general FAR have different definitions of computer software. It is also noted that NASA is revising its policies, procedures and instructions relating to computer software. From the discussion in the document on the various clauses in the Federal and Departmental Acquisition Regulations, it is obvious that the issue of how to deal with computer software varies among departments and has not been resolved.

Although the policy in the US appears to give the contractor all commercial rights, one interviewee in the U.S. Office of Science and Technology, stated that "if the government pays - the government owns". Therefore, as in Canada, practice may not always follow policy.

It should be noted that unlike Canada, the U.S. does not have the right of Crown Copyright. U.S. government departments and agencies cannot claim copyright protection for work done in or for their organizations. Thus software, which is generally covered by copyright protection is the property of the developer, and cannot be "owned" by a government agency. The government agency gains control over material covered by copyright by making the automatic licensing of the IP back to the department on an exclusive basis a condition of awarding a contract. The nature of the license back can vary depending upon what rights the department wants to retain for itself and what rights it wants to leave with the contractor. (e.g. commercialization rights)

Japan

The following Japanese science-based departments were contacted:

Ministry of International Trade and Industry (MITI)

Agency of Industrial Science and Technology (AIST)
New Energy and Industrial Technology Development Organization (NEDO)
Ministry of Agriculture, Forestry and Fisheries (MAFF)
Ministry of Transport (MOT)
Environment Agency (EA)
Science and Technology Agency (STA)
Ministry of Health and Welfare (MHW)
Ministry of Posts and Telecommunications (MPT)
Ministry of Construction (MOC)

When contracted R&D is 100% funded by the government department or agency, all of the departments, with the exception of NEDO) retain all intellectual property rights. NEDO has a joint ownership policy, retaining 50% of the property rights itself and vesting 50% with the private sector contractor.

MAFF also provides subsidy or investment grants to the private sector, and in these cases, 100% of IP ownership is vested with the industry recipient of the subsidy.

The MOT also provides grants-in-aid of research to private sector contractors and the IP ownership rights are vested with the contractor.

There is considerable variation in the treatment of intellectual property rights when the contracted R&D is funded jointly by the government and contractor. MITI, AIST and NEDO vest 100% of intellectual property rights with the private sector contractor. MAFF and MOT share the rights in accordance with their respective contributions to the research (in terms of financial contribution, human resources and physical resources). MHW, MPT and MOC share rights to IP on a 50/50 basis. EA and STA do not contract out research on a joint funding basis.

The situation in Japan is basically the same as was reported in 1989. As we were asked to obtain information on policy pertaining to IP ownership, we did not ask the counselors to obtain information on licensing. However, the 1989 report indicated that IP is made available to industry through licensing (whether to the contractor or to any companies interested, and the types of licenses are not given in the report).

The United Kingdom

It was reported that the UK government's policy on intellectual property rights is flexible and that there are no prescriptive rules on the ownership of intellectual property rights. The details of agreements between partners on ownership rights, user rights, and royalty payments should reflect the particular circumstances.

A wide range of options could exist in negotiating and determining intellectual property rights arising from government funded research contracted to the private sector and would depend on:

- the type of research;

- the department commissioning the research;

- capability of the contractor to exploit the research; and

- whether the private sector lab is set up to exploit R&D.

For example, the Department of Defence may require full ownership by the Department (presumably for security reasons). With other science based departments, in general the IP rights will vest with the contractor. Where an inventor's normal duties are such that an invention might arise in the course of those duties, IP rights would, in general, belong to the inventor's employer. This practice is analogous to the European Community approach to the subject of IP rights.

Since the early 1990s, the focus of the government's attention has been on encouraging a climate to facilitate the exploitation of an invention. In some collaborative research programs (e.g., LINK University-Industry Program) collaborating partners are asked to make arrangements for sharing intellectual property. Two award schemes of the Department of Trade and Industry (DTI), which are aimed at technology development, puts the onus on companies to ensure they are entitled to intellectual property involved in the R&D development project at the time of applying for funds under the technology development schemes.

Australia

According to the Commercial Officer in the Canadian High Commission in Canberra, Australia, the situation with government supported intellectual property is as follows.

In general, the policy of the Australian government is not to seek to own intellectual property born out of public research and development (R&D) projects. In the area of software development however, where jobs may be performed by contractors on behalf of government agencies, there can be exceptions to the practice depending upon the arrangement that exists between the parties and/or the level of resources each of them brings to the software development effort at its onset.

Australian public R&D contracts are not administered centrally, but are more usually controlled and paid for by individual government agencies. R&D contract administration is a cost to these departments. Moreover Australian science-based agencies particularly CSIRO, are

increasingly under pressure to become self-funding. Naturally, these R&D costs and income requirements must be met. Australian science-based organizations such as the CSIRO meet their obligations by using proceeds derived from the commercialization of breakthroughs that result from their R&D activities. A proviso to Australian government policy not to seek ownership of intellectual property is that some (but not all) Australian government agencies obtain ownership of intellectual property, particularly when R&D is their core activity. It may be, however, considering that product commercialization is not usually a forte of government departments, that agencies prefer a royalty stream secured under a licensing agreement to direct involvement in a business formed to capitalize on their discoveries.

In Australia, there are no set mechanisms to ensure consistent application of ownership of intellectual property policy throughout Australian science-based agencies. Mechanisms of this type are judged to be inconsistent with the present environment where R&D contracts are not issued by a central authority and every deal struck is basically ad hoc. Standardization of the ownership process, it is argued, jeopardizes the successful commercialization of R&D innovations. i.e. set mechanisms risk being too rigid to discern unique opportunities to commercialize an R&D outcome or encompass the many business approaches to resolving the challenges involved.

Every test of contractor ownership is done on a case-by-case basis. Every allocation of equipment and other general procurement contracts that might result in intellectual property is considered on its own merits.

Germany

According to the law department of the Federal Ministry for Education, Science, Research and Technology (BMBF), the German government secures in all government funded contracts (whether 100% funded or cost-shared), an ownership in intellectual property rights. This stance is based on the principle of making public funded R&D results widely available to private and public sector users and thus maximize benefits from invested funds. In contracts with private sector partners, the government has a non-exclusive property right. Details on what and how intellectual property rights are to be owned and shared are part of the contract.

All government R&D contracts are handled on behalf of BMBF by project management groups which are affiliated with the national research centres (comparable to NRC institutes). These project management groups contract out, manage and supervise government funded R&D activities. They negotiate with the private sector partner, the extent and details of the contract, including intellectual property rights.

The information provided on the current situation of intellectual property right ownership under government contracts in Germany is in contrast with the 1989 report, which stated that intellectual property rights vested with the performer of the R&D but with a range of obligations that increased with the proportion of government support. If government funding was greater that

50%, the performer had to offer licensing opportunities to others in the FRG, and where funding was 100%, the performer might be obligated to provide direct technical assistance to the third party.

Although the policies differ, the net effect appears to be the same, in that any company in Germany can be given a license to exploit intellectual property that arises from government funded R&D.

DISCUSSION AND RECOMMENDATIONS

Initially, the reluctance of departments to accept and apply, in a consistent manner, the 1991 Treasury Board Policy on ownership of intellectual property was based on their belief that the results of public expenditures on federal government contracts involving R&D are more properly managed for the benefit of Canada and Canadian taxpayers through Crown ownership and case-by-case licensing of IP. They did not agree with the Minister of Industry, Science and Technology that vesting relatively unencumbered IP ownership with the private sector would be in the best interests of Canada.

After 1993, an additional reason for the lack of application of the policy was the opportunity to generate and retain revenues from the licensing of Crown-owned intellectual property. As one public servant stated, "it is contrary to the intent of the 1991 policy that someone be able to keep the IP simply because they can generate royalties from it".

Another factor complicating any policy which deals with IP transfer from government laboratories to industry is that not all government laboratories have the same opportunity to transfer technology to the private sector. Some, such as NRC, AECL, CRC and the former CANMET have a strong mandate to interact with the private sector and the way they plan, manage and organize their R&D must reflect this mandate. Others, such as Environment Canada, DND, and Health Canada have a mandate that is more focussed on satisfying an internal government customer and interaction with the private sector is on a more occasional basis. Technology transfer from these latter departments can be described more as a "spin-off" activity rather than a concerted, dedicated effort, described by some as a technology utilization activity. Thus IP policies must bridge very different mandates and cultures within the departments and agencies.

Examination of the practices of foreign countries does not provide any definitive guidance; some countries such as the U.S., allow the private sector to decide the ownership issue while in Japan, the government claims the IP and then licenses to the private sector.

Given the present financial situation facing departmental laboratories, the 1993 IP Treasury Board policy virtually cancels out the 1991 IP policy in terms of vesting IP with commercial potential with the contractor.

The government trusts the private sector to exploit government supported technology in a manner beneficial to Canada when that support is in the form of a grant or contribution and ownership of any resulting IP is automatically vested with the recipient. Why does that trust evaporate when the support is in the form of a contract for goods and services, for which the government receives a direct benefit. It could be argued that the 1991 TB policy on ownership of IP is a logical extension of the government's policies of vesting ownership of IP resulting from grants and contributions with the recipient.

The government will have to decide whether to abandon the 1991 policy as many public servants desire, enforce it, which is in line with industry demands, or look for a new approach which would better reflect the changing role of government laboratories, and needs of industry. At the moment public servants with the apparent approval of Treasury Board have decided not to follow the 1991 policy. They have effectively abandoned the 1991 policy in favour of the 1993 policy (i.e. to ensure revenue generation and retention for their departments).

Increasing international competitiveness in technologically based products and services, along with shortening product life cycles demands that a decision be taken as quickly as possible to ensure that Canada reaps the maximum benefits from government procurement of goods and services involving R&D.

Actions to be Taken If Policy is to be Abandoned

Modify the Wording of the 1991 Treasury Board Policy

On the principle that the government will not totally reverse itself and declare the 1991 IP policy null and void, it can modify it so as to reduce industry expectations.

The present wording of the policy has built up great expectations in the private sector that most, if not all, IP developed during the conduct of a contract will be vested with the contractor. This expectation is clearly not being met, and in the present circumstances where the government's focus is on revenue generation and retention, will not be met.

The wording should be modified so that the presumption of vesting of ownership with the contractor is removed, but the ability to do so is retained in appropriate circumstances. This will reflect present practice.

Provide Accurate Information to Public Servants and Industry

One of the criticisms of the 1991 policy is that its introduction to both the private and public sector was flawed. If the policy is modified it should be clearly written and include explicit information on its scope. The private sector should be informed about the exceptions so as to lower their expectations.

Actions to be Take if the 1991 Policy is to be Enforced

In introducing any major change, an approach that can be used to mollify strong opposition is to state that the change is for a fixed period of time, and that the impact of the change will be assessed at that time to determine whether the change should be adopted permanently or abandoned. If the 1991 policy is to be enforced and policed to ensure real adoption, it might be advantageous to have a testing period of perhaps 10 years during which statistics will be collected to determine its impact. It will have to be a true application of the policy, not the present smoke and mirrors.

State Explicitly What the Policy Covers

The government must make it crystal clear that the policy is to cover both R&D contracts, and general contracts involving R&D. The present wording of the Treasury Board memos announcing the policy are ambiguous when concerned with, for example, software development. Examples of the types of contracts the policy covers should be provided as illustrations. What is meant by R&D should be defined (i.e. is it as defined in the "Make or Buy Policy?)

Crown Ownership Too Easy to Invoke

The exceptions that can be used to deny ownership of IP to a contractor are designed to maintain the old status quo.

New technology and knowledge always builds upon prior knowledge, thus the exception that the contractor is simply adding to the technology package by providing a service could cover anything.

The "Mutual Agreement" exception is problematic when a government department is dealing with a small firm that has little choice but to agree if it wishes to be awarded a contract.

Ticking off a box claiming Crown ownership of IP on the request for an RFP to be issued by PW&GSC does not allow anyone outside a department to easily monitor the application of the policy. This contravenes the policy requirements in Section 3.2 and 3.3. Fuller explanation of the reasons for Crown ownership should be provided.

"National security" and "contractor not interested in exploiting the technology" should be the only valid reasons for Crown ownership. The other exceptions are already covered under the need to cross license with other IP owners to exploit the technology, if necessary. Having only these two exceptions would put the policy in line with American IP ownership policy.

Public Servant Conflict of Interest

The present wording of the 1991 and 1993 Treasury Board policies on intellectual property puts a public servant who is making a decision on ownership of IP in a conflict of interest situation.

Given the considerable financial pressures that most government laboratories are under as a result of budget cuts, the public servant is being asked to give away, without any remuneration, valuable assets that may generate a revenue stream for the laboratory under one policy, and is being encouraged to generate and retain revenue under another. Under the present financial situation, self preservation of the laboratory dictates that the public servant will be tempted to bend and stretch the interpretation of the six exceptions to vesting ownership with the contractor to justify Crown ownership.

In addition, as revenue received from license fees and royalties can go to fund awards under the Public Servants Inventions Act, a bench scientist or engineer can have direct financial gain if he/she opts to retain Crown ownership. This can give the impression that the public servant is making a decision based on personal financial gain.

Several public servants have suggested that the patent office of NRC is also in a conflict of interest situation, as they are financially benefiting from licenses they manage on behalf of some government departments.

The final decision on ownership should be made by a senior manager who is aware of the intent of the policy which is to encourage commercial exploitation of the IP, and not to enhance the revenues of the department.

Modify Wording of the 1993 Treasury Board Policy

As noted earlier, the 1993 IP policy in its present form is a major impediment to the application of the 1991 policy.

The wording of the 1993 policy should be modified so that it does not refer to Crown-owned intellectual property but to retention of earnings from Crown-developed intellectual property developed within the government laboratories by government employees.

Departments would be free to commercialize IP it has developed in its laboratories and retain any resulting revenues. In the case of a truly collaborative R&D project, the resulting IP should be vested with the contractor, subject only to a "use it or lose it" clause, with the government sharing in any revenues in proportion to its contribution to the total cost of the innovation.

Third Party Resolution - Ombudsman

At the moment, smaller firms have no real recourse except to comply with any conditions the government wishes to set for both contracts and licenses. There should be a rapid response, third party mediation process that could make decisions when conflicts arise between prospective contractors and government departments.

This resolution process could be in the form of a tribunal, with one person drawn from a neutral department or a central agency, one from the private sector, and one from the scientific or technical area under dispute. As in provincial small debts court, the use of lawyers by the parties should be discouraged, if not altogether forbidden. This would equalize the playing field for the parties.

Declaration of Ownership in RFP

Departments mistakenly believe that they must declare the ownership status prior to knowing who might win a contract. This results in some departments initially declaring Crown ownership even though they are willing to vest ownership in a suitable contractor.

Departments and agencies willing to vest IP ownership with a contractor should make use of the flexibility offered to them in the Treasury Board guidelines (4.3.b.) and simply state the conditions under which such vesting will take place.

When Crown ownership is to be taken, the RFP should contain a clear explanation for that decision, as is called for by the Treasury Board guidelines.

As more and more requests for RFP bid packages results from perusing the RFP summaries on the Open Bidding Service, information on the ownership of IP should be included in those summaries.

Improved Dissemination of Information about the Policy

During our interviews we talked with large companies that only found out about the change in policy last year, and some individuals in associations and provincial government organizations who had not heard of the change. Clearly there is a need to disseminate information about the intent and scope of the policy to both government employees and the private sector. Information on how the policy should be applied, along with examples, should also be provided.

Dissemination of information should only occur after the scope of the policy has been clarified **and** understood by senior managers in all of the government departments and agencies, including PW&GSC.

Actions to be Taken to Develop a New Approach

If a new approach or a middle option is to be developed concerning the ownership of IP and revenue retention by government departments, it must be done jointly and in cooperation with private sector associations. Consultation is not enough to ensure acceptance.

Re-activate the IPAC, with two Sub-committees
To Identify New Options or Approaches to IP Ownership
and Revenue Generation and Retention by Government

To identify new options or approaches to the questions of IP ownership and revenue retention by government departments, discussions at a senior level should be undertaken with the private sector. Because of the particular nature of the software industry, two sub-committees should be struck; one to deal with software or computer system integration issues, and one to deal with any other non-software/computer issues.

In addition, the deep conflict over the ownership, contract and licensing clauses must be resolved to the mutual satisfaction of both the government and the private sector. Too many private sector resources, especially in small firms, are being expended on fighting the government over the clauses rather than fighting foreign competitors.

Perhaps new arrangements can be developed that allow for increased contractor ownership, with departments sharing in the resulting profits.

Cost-Benefit Analysis of the Present System

It is questionable whether the financial benefits of each department operating a technology commercialization office and retaining license fees and royalties outweighs the cost of government personnel salaries and overhead. Respondents have informed us that CPDL never did recover its operating costs from licensing.

Recent studies, such as a pilot study done for Environment Canada, indicate that government laboratories generate far more income from collaborative R&D agreements than from licensing.

It is recommended that a cost benefit analysis be conducted to determine the true value of the revenues received from license fees and royalties.

As a result of this review, departments may wish to focus their revenue generation and retention efforts more on collaborative R&D projects, rather than on licensing.

CONCLUSION

In its present form, with the existing low level of support by the line departments, the confusion among officials of the central agencies over its scope, the pressure for government departments to generate and retain revenue, and the impact of the 1993 TB policy on revenue retention from Crown-owned IP, the 1991 Treasury Board Policy on the Ownership of Intellectual Property Arising from Federal Government Contracts **is dead in the water**.

The result is that application of the 1991 policy by government departments and agencies to intellectual property that may have commercial potential ranges from almost total non-compliance to partial compliance at best. The complete latitude that departments have in interpreting the six exceptions to contractor ownership leads to inconsistent application, even within departments.

The government must decide how its procurement of goods and services that result in the development of potentially commercializable intellectual property can best benefit the Canadian economy. Are benefits maximized through Crown ownership and targeted licensing practices, and revenue retention from licenses; by vesting ownership with the private sector which gives it more control and encourages additional investment, or some other approach.

It is reasonable to assume that both industry and government can agree that the best interests of Canada can be served by the speedy exploitation of technological innovations regardless of source or legal arrangement. Finding the solutions to the increasing complexity of ownership of intellectual property issues will not be an easy task. However, the increasing popularity of joint industry-government ventures, or consortia may provide some clues to the resolution of the IP ownership, and government revenue generation problems. Perhaps contractor ownership combined with departments sharing in the profits resulting from successful commercialization of the IP would satisfy both industry's need for control, and government departments need for new sources of revenue.

Annex 3. List of Associations Contacted

Vancouver Island Advanced Technology Association

B.C. Biotechnology Alliances

Information Technology Alliance, B.C.

Alberta Research Council

Edmonton Council of Advanced Technology

Electronics Industry Association, Edmonton

Environmental Industries Association of Alberta

Saskatchewan Research Council

Software Technology Centre, Saskatchewan

AgWest Biotech, Saskatchewan

Economic, Innovation and Technology Council of Manitoba

Manitoba Information and Electronics Association

Manitoba Aerospace Association

Canadian Manufacturers Association

Canadian Chamber of Commerce

Ottawa-Carleton Economic Development Corporation

Aerospace Industries Association of Canada

Information Technologies Association of Canada

Geomatics Industry Association of Canada

Canadian Advanced Technology Association

CRIQ, Quebec

Nova Innovation Corporation, Halifax

Software Industries Association of Nova Scotia

New Brunswick Research and Productivity Council

For reasons of confidentiality, the names of the thirty-one companies taking part in this review cannot be revealed.