

SCIENTIFIC COLLABORATION BETWEEN GOVERNMENT AND INDUSTRY

**A viewpoint position paper on sharing intellectual
property rights within the framework of collaborative
research agreements between the federal government
and the private sector**

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Foreword

At the March 11, 2003, meeting of the members of the Federal Partners in Technology Transfer (FPTT) network, Quebec Chapter (Canada), the issues involved in intellectual property (IP) rights as they relate to technology protection and transfer and the evaluation of collaborative and non-collaborative research projects, their spinoffs and impact, and return on R&D investment were discussed.

Those who attended the meeting in St. Jean sur Richelieu raised a number of points regarding the various federal approaches in which the government 1) retains all intellectual property rights, 2) assigns all intellectual property rights or 3) shares intellectual property rights

The Network of technology transfer specialists decided to undertake a comprehensive, transparent analysis of the criteria, definitions, advantages and consequences of these three approaches to handling intellectual property rights from a perspective of maximizing the technical and economic spinoffs for Canadian society. Each of the three approaches is to be assessed in the near future.

This viewpoint position paper focusses on the sharing of new (or so-called “foreground”) intellectual property resulting from a collaborative research project with the government to which the collaborating company has contributed scientifically and financially. I hope that this paper, based on the experience I have gained over a decade in which the issue of intellectual property rights in an economy based on knowledge, know-how and skills in a highly competitive industrial environment has continued to grow in importance, will help further the ongoing debate and impress upon stakeholders the importance of adopting flexible, creative policies respecting intellectual property rights.

Introduction

Intellectual property is a term generally defined as including copyright, trademarks, trade secrets and patents⁽¹⁾. The term thus implies the concept of an intellectual accomplishment by a creator, inventor or innovator who wishes to protect his or her ownership rights.

This viewpoint paper⁽²⁾ focusses on the experience of an Agriculture and Agri-Food Canada research centre, the Food Research and Development Centre (FRDC), which over about eight years has developed an approach to scientific collaboration with the private sector and, more specifically, food companies that count food science teams and technologies among their assets.

Over the past decade, model collaborative research agreements and knowledge-and-technology-transfer licensing agreements have been drafted for a target industrial client base in the subsectors of food and beverage processing and preservation. These models, unique to the FRDC, were devised from concrete cases, according to company profiles and the types of technology jointly developed. Of course, the models, based on the sharing of new intellectual property arising from joint R&D projects with the private sector, were reviewed and revised many times by the Research Branch and the legal services of this scientific department.

This model for sharing intellectual property simply responds to a reality of scientific collaboration that the FRDC has been involved in for several years now with the private sector, which also has scientific and technological expertise.

The question of whether to hold on to or assign all intellectual property rights may seem easy to decide, but is it really? For whom? Under what conditions? And at what cost?

Much more than just legal considerations hang in the balance, and it must be kept in mind that the ultimate goal of research is useful, usable results that provide a certain return on investment. How good was the department's return on R&D investment last year? Over the past decade? On projects where it kept all intellectual property rights? On projects where it assigned complete ownership? On projects where intellectual property was shared?

Now, as a scientific department that wishes to work with the private sector in the fields of science and technology, what should we do in the future? Should we aim to work with industrial collaborators who put the useful, usable results of a joint project to use, are technologically and commercially successful and are willing to share both patenting costs and their success through the payment of royalties? On condition that their scientific contribution to the co-invention or co-innovation is recognized by an arrangement where we share the intellectual property between us!

This report is about a desire to build a permanent, long-term relationship that benefits the parties represented by industrial companies and government research centres. Despite the philosophical and cultural differences between the parties, we must be allowed to find the best conditions for quickly and successfully commercializing the results of collaborative research in the spirit of a win-win relationship.

This paper does not deal with in-house research done by the government or with research accomplished through contracting out or outsourcing or contract services.

Background on AAFC IP Policy

A memo dated August 7, 2002, from the acting assistant deputy minister of research, on AAFC Policy on Joint Ownership of Intellectual Property advised all research centre directors under the Research Branch of AAFC's position on the issue of non-sharing of intellectual property. Here are a few excerpts (in italics) that sum up the memo.

The AAFC Intellectual Property Policy states that IP resulting from collaborative research involving AAFC shall, to the extent possible, remain the property of AAFC and that co-ownership should be avoided.

The AAFC IP Policy advises against joint ownership because it results in an environment that does not support good technology transfer and commercialization.

In certain circumstances, AAFC may determine that another organization is better situated with regard to the transfer/exploitation of the foreground IP. If such a course is deemed appropriate, a business case can be made to the National Program Leader associated with the program.

I believe it is important to attempt to assess any and all consequences of the strict application of AAFC policy on intellectual property. Obviously, such an assessment is no easy undertaking, and unfortunately, it may only be time that will allow us to put a dollar figure on the situation. In recent months, discussions with our industrial partners on this particular point have led us to abort embryonic joint scientific projects when there is disagreement on the federal government's claim to all intellectual property rights and the terms and conditions of implementation. The new versions of the departmental collaborative research agreements that have been in effect since August 2002 are being handed out by marketing officers in their meetings with private-sector businesses.

This paper therefore seeks to underscore the benefits of sharing new intellectual property within the specific context of scientific collaboration in which the government and the private sector both contribute scientifically and financially.

It is worth noting that under the Australian Patents Act, 1990 (Stone, March 2003, p. 23-26) the co-owners of a joint patent have property rights, and one co-owner cannot offer or assign a licence without the consent of the other.

As far as the Canadian Government is concerned, National Research Council's 2000 policy has included guidelines on joint research or collaborative projects and IP sharing is not excluded and will be negotiated in good faith by the parties since NRC's interest is creating optimal wealth for Canadians (CNRC Intellectual Property Policy, December 2000, section 1.7.3).

Objectives of sharing intellectual property through collaborative research agreements

1. Respect the scientific and financial contributions of the collaborators
2. Recognize joint ideas
3. Recognize mutual and complementary scientific and technological skills of the parties
4. Recognize that co-inventors both have ownership rights over an invention developed jointly
5. Ensure equity in joint development of a project's protocol and experimental design
6. Recognize contributions of co-inventors/co-innovators in researching and obtaining joint results
7. Respond to expectations of a company to which the ownership or co-ownership of intellectual property and R&D results is a *sine qua non* condition of pursuing the project and signing the collaborative research agreement
8. Maximize the company's chances of success in finding financial and other partners to scale up and use the process and to commercialize useful, usable results

9. Maximize the spinoffs from the return on R&D investment with the company that codevelops and uses the results
10. Move from a government subsidy or sponsorship model to a collaborative or partnership-paradigm.

Objectives of sharing intellectual property through licensing agreements with industrial research collaborators with whom there have been collaborative research agreements

1. Ensure that the federal government has the right to continue its activities for research purposes
2. Ensure that the federal government has the right to take back the intellectual property rights if the company does not use or exploit the results of the research
3. Ensure that the federal government has the right to offer the technology to potential buyers in other fields of use and for other applications
4. Ensure that the company has the right to use, exploit and commercialize the joint results arising from its own scientific collaboration using its own resources involved in the collaborative research project for a specific field of use in which it is growing
5. Grant exclusive rights to the company conditional on its performance in using, exploiting and commercializing the results of the research and paying royalties on the principle of a return on the federal investment and the sharing of its commercial success
6. Include provisions for joint protection of the intellectual property, responsibilities and any cost-sharing arrangements and, above all, its defence
7. Define the company's vision for the technology, future investments and technological capabilities
8. Draft provisions covering future enhancements to the technology and rights of first refusal
9. Decide on the future of the joint intellectual property in the event of major changes in company shareholders and owners or in the event the company seeks bankruptcy protection
10. Negotiate any other provisions and terms that might help avoid problems or provide for various technology-transfer scenarios
11. Be sure to protect the exploitation rights acquired by the company in the event laws and regulations are amended, especially with regard to intellectual property at AAFC

Some of these objectives are not necessarily exclusive to collaborative research and licensing agreements, with or without shared intellectual property rights. Provision must be made to prevent one of the co-owners from offering a licence or assigning a right to a licence without the consent of the other. It should be all the easier to negotiate this sort of provision since the industrial collaborator will maintain the exclusive right to use the technology in a given field of use, while the government will never exploit the technology or its by-products commercially in the same field of use, thus leaving the industrial collaborator, who is also the co-owner, free to negotiate with a third party. The collaborator/ co-owner should have the necessary flexibility to exploit co-ownership of the invention commercially on the basis of sharing income or revenue from the joint invention.

Perceptions and realities related to one party's claims to 100% ownership of intellectual property

When it is announced that the department is demanding full ownership of all intellectual property rights under collaborative research agreements with the private sector, which is making a scientific contribution, certain perceptions and questions must be addressed. For example, does the fact that

the department holds 100% ownership of intellectual property rights ensure that it will act as the (true) owner? Will it protect the intellectual property and prevent any unauthorized use or counterfeiting of the results? Will it assume the costs of filing for a patent, the patentability study, maintenance fees, PCT and, above all, defending its rights? Out of which departmental budget, for which branch, which program? To start with, research centres like the FRDC have no budget for patenting, which explains partly why after 15 years of research it holds few patents. These questions were an integral part of the model for sharing intellectual property with a company willing to share this type of cost as long as it was co-owner, or even co-inventor. What financial impact will the department's current model of not sharing intellectual property have on research centres, research programs and their teams? And when? What are the financial implications to the department of making maximum use of this model of non-sharing?

What will happen when, in the course of a two- or three-year project, one of the parties that had agreed not to share in the intellectual property reassesses its scientific contribution as having been major and even protectable (patentable)? What are the consequences to the company of not having ownership or co-ownership of intellectual property rights when it seeks financial partners or other alliances, when it already has a corporate portfolio of patents and licences? What will happen in the case of a strictly financial partner who insists on co-ownership of intellectual property rights and even on playing a leadership role in commercializing the research results?

(This is not a hypothetical question.) Will the agreement have to be reopened and joint ownership negotiated? And what if, towards the end of the project, the company claims full ownership of the new intellectual property, assuming that it is right and can prove it? Research and licensing agreements should cover all these points.

What happens when an industrial collaborator describes background intellectual property that is necessary and essential to carrying out a joint project with the FRDC?

In AAFC collaborative research agreements, which have been standardized since August 2002, where it says that all intellectual property now devolves to the Crown, there are provisions dealing strictly with intellectual property issues. As an example, let us take section 6.3 of the standard collaborative research agreement:

6.3 No Sale of Company's Intellectual Property

During the term of the Collaborative Agreement the Company shall not sell, transfer, assign, encumber or license, directly or indirectly, in whole or in part, the Company's Background [earlier] Intellectual Property necessary in any way to any of the Project or Foreground [new] Intellectual Property or Commercialization without the prior written consent of [the Government of] Canada. It will be reasonable for Canada to withhold its consent if the Background

*Intellectual Property is necessary for the success of any of the Project, or Foreground Intellectual Property or Commercialization.*¹

¹ Comments in square brackets added to facilitate understanding.

Of course there are acts, regulations, principles and, above all, clauses that seem to ignore the fact that for any collaborative research agreement to be successful, it must be a win-win situation for the parties signing it. When the responsibilities and duties seem to be one-sided, and the notion of reciprocity is practically disregarded, it looks like a case of one party clearly being abusive, and the spirit of collaborative research suffers. We are still nowhere near being able to talk about a licensing agreement.

This notion of reciprocity is also very important in the win-win approach, because once the parties have agreed on their respective expectations, it is advisable to check the legal aspect of the collaborative research or licensing agreement and to go through no more than three or four drafts. With lawyers' fees of several hundred dollars an hour, the companies we deal with cannot afford to engage in a lot of back-and-forthing with a firm of intellectual property experts. It is predictable that with a non-reciprocal 79-page licensing agreement (not including appendixes), as standardized by the department's legal services, our dealings with small businesses are going to dry up.

In all these legal and commercial considerations, should we not be attempting to maintain a relatively simple, flexible and effective approach that encourages the use and exploitation of useful, usable research results with a potential for return on public R&D investment?

Definition of collaborative research between government and private sector

Here is a definition of the FRDC's philosophy of scientific collaboration with an industrial company, as we have been defending it for several years now:

Intellectual property rights will be shared in the case of a collaborative research project between the FRDC and an industrial company when there is:

- Equitable sharing of scientific risk and financial risk that translates into
- Shared scientific interest, shared development of a scientific protocol, shared brainpower, and shared scientific and human resources
- Sharing of physical and financial resources
- Recognized sharing in a technological assessment report approved and co-signed by the parties to the collaborative agreement, sharing of intellectual property rights to the results of the collaborative research project and
- Sharing of commercial success of exploitation of the results of the project by the co-signatory to the scientific collaboration agreement who is also the co-developer of the project and the co-owner of the results of the project

Ownership of the new intellectual property developed jointly by the government and the industrial scientific collaborator will thus be negotiated in good faith on the basis that the government believes it is in this way creating and contributing to the optimal growth of society. It is of the utmost importance to be able to choose the most appropriate mechanism to optimize the transfer of intellectual property, knowledge and technology.

Context of negotiating agreements between government and private sector

The philosophy of scientific collaboration described above can be implemented through a win-win negotiating style. In other words, there is no need for a hard-nosed — i.e. inflexible or aggressive — negotiating approach or style, nor a mild-mannered, naive style. The negotiating conditions we are talking about are ones where the parties are not being forced to work together or collaborate; they are therefore willing to combine their efforts on an equal footing by making their respective, complementary scientific and financial commitments in a win-win negotiating situation.

What do we have to win or lose in all this? Our common interest in negotiating a project of mutual interest. In other words, open, frank, respectful, constructive negotiations, conducted in good faith, that foster the maintenance and consolidation of a long-term professional relationship as part of a logical collaboration agreement that is fair and acceptable to all parties.

It is clearly essential for a scientific department to maintain relationships with companies that devote science and technology resources to research projects. Should we not be asking ourselves what has to be done to maintain long-term government-industry relations? In my view, it is the quality and durability of this relationship that has the greatest technical and economic impact in terms of its R&D investments and its contributions to technological innovation. It is also clear, in my view, that virtually everything is negotiable as long as we can agree on the issue of intellectual property.

Consequences of not sharing new intellectual property

Here is a list of the consequences that the FRDC sees in a one-way approach where AAFC demands 100% of the intellectual property in scientific collaboration when there is a real scientific and technological intellectual contribution made by the collaborating companies:

- Risk of losing private-sector partners in an industry where there is hardly an abundance of companies conducting R&D and able to exploit technological innovations
- Risk of a (sharp) drop in scientific collaboration projects with the private sector in a context of a growing number of projects and companies
- Refusal by industrialists and other university and government collaborators to get involved in scientific collaboration projects with the FRDC
- Drop in research activities and studies by FRDC researchers
- Scientific collaboration on R&D lines of inquiry related to industry problems could become impossible
- Risk of loss of credibility with clientele and of tarnishing the image and reputation of the FRDC which, for over 10 years, has been advocating true collaboration according to the proposed definition
- Annihilation of the FRDC's efforts over the last 10 years to build up its credibility and profile with the private sector in a more business-like approach in order to create a bridge or interface between science and the business community
- Contradiction between federal messages advocating collaboration with industry and the vision and mission of the FRDC and AAFC's Research Branch in dealings with the private sector
- Risk of disseminating false messages (e.g. apparent decision by AAFC to cut the MII program)

- Apparent unfairness on the part of AAFC (e.g. how do we explain/justify *a priori* that one party can claim a right to all the intellectual property when it stems from two parties?)
- Appearance of unjustified and unjustifiable centralization by the government
- Risk of moving away from R&D with industry applications and no longer producing useful research results that can be used by the private sector
- Harder to show the relevance of R&D activities
- In many cases, it is industrialists who, through their market problems, come up with the scientific and technological lines of inquiry and the know-how
- Drop in commercial and socioeconomic impact of R&D on private sector and society
- Technology transfer activities reduced to minimum
- Lower rate of success in the transfer of knowledge, know-how and technology to Canadian industry
- Increase in technical publications for the advancement of science around the world, with international industrialists and multinationals being the ones that have the resources to take advantage of these advances in research
- Risk of researchers and their teams losing contact with food industry realities and returning to situation where two communities are isolated from one another
- Loss of motivation and thus of highly qualified human resources in which AAFC has invested a great deal and whose replacement will be long and expensive

What is the future impact of not sharing intellectual property on scientific collaboration between the government and the private sector?

In the private-sector R&D world of Canada's food-processing industry, which is relatively small and very competitive in an economic context in which companies merge and create alliances on a regular basis, it is essential to have a good grasp of all the issues involved in technological competitiveness. What will happen when the industrial clients and collaborators of AAFC's research centres (including the FRDC) say No to giving up their intellectual property rights as owners or co-owners? How will it affect the focus of research? What will happen to the applications of research results? What will happen to the real transfer of knowledge and technology? What will happen to return on R&D investment?

What flexibility and latitude will we have to negotiate professionally, to the best of our knowledge and in good faith, the best collaborative research agreements with the best possible spinoffs?

Given the kind of industrial clientele with which the FRDC and AAFC negotiate collaborative projects to which private-sector PhDs are making scientific contributions, there is and always will be an existing reality and a future potential concerning the sharing of intellectual property rights.

Characteristics of the FRDC's environment in its collaborative research relationships with the private food-processing and preserving sector

- Scientific and business culture with private-sector companies
- Culture of sharing of intellectual property through a hundred or so collaborative research agreements with collaborating companies that contributed scientifically and financially for over eight years, until August 2002

- A culture in which the researcher delays the publication of R&D results in order to allow the company to extend its technological advance, file a patent application, etc.
- Cultural duality of doing science and business with the agri-food community
- An industrial clientele that prefers the concept of trade secret as a method of protection while paying royalties to the research centre under technology licences that may or may not be patentable
- The industrial fabric of the food-processing subsectors
- Quebec's regional products and specialties
- Integration with the business community
- Its participatory approach, with its Board of Governors
- Its synergy with a not-for-profit agency whose exclusive mission is to serve private-sector companies in the areas of food science and technology: the Governors Foundation
- Its geographic location in the heart of the St. Hyacinthe Agri-Food Science Park and the City of Agri-Environmental, Agri-Food and Veterinary Biotechnology
- Its specialized laboratory facilities and pilot plants
- Its Food Industry Pavilion, which offers a knowledge-transfer program
- Its Biotechnology Innovation and Incubation Centre
- Presence of an NRC IRAP adviser on site at the FRDC
- Presence of a Quebec government maple syrup industry research team on site at the FRDC
- Its collaboration with the Veterinary and Food Biotechnology Institute of the University of Montreal's Faculty of Veterinary Medicine in St. Hyacinthe

It is worth recalling that the mission of Agriculture and Agri-Food Canada's Food Research and Development Centre is "to increase knowledge of food systems and foster innovation and growth of the Canadian food industry by offering an access to expertise, infrastructure and information and by the transfer of knowledge and technologies."

The FRDC's industrial clientèle, while not excluding large companies, consists primarily of small and medium-sized businesses and emerging-technology companies.

Assessment of collaborative research

It is important to assess the impact and spinoffs of collaborative research between the government and the private sector, situate our performance, and validate the objectives of a research centre that supports industry, and it is from that perspective that the FRDC's Commercialization and Business Development section undertook an assessment project in 2000–2001 to put together a comprehensive portrait of collaborative research based on information from companies. The portrait was based on a study of a pool of 90 industrial research projects carried out jointly with the FRDC over a period of several years ending March 31, 2001. These projects were executed under collaborative research agreements with sharing of the intellectual property.

The value of all collaborative research projects between the FRDC and private companies covered by the study is \$40 million

For the eight-year period ending March 31, 2001, some 50 companies carried out and completed 91 collaborative research projects with the FRDC. The 91 projects took a total of 1,900 months (close

to 150 years!) and represented R&D investments of a total value of close to \$40 million. Approximately a third of these resources, in kind and in cash, consisted of contributions from companies; another third was contributions from the FRDC; and the last third came from other sources of funding, including Agriculture and Agri-Food Canada's MII Program.

This assessment study highlights spinoffs that are other than economic and financial. It is therefore not a question here of tax implications and econometric models of business performance in terms of growth in sales, number of permanent and part-time employees, efforts at exporting or not, and their use of R&D tax incentives offered by governments.

It is important to underscore the recognition and awards that the companies have garnered over the last few years for their achievements in collaborative research projects with the FRDC. They received some 10 or so awards acknowledging the excellence of collaborative research and technological innovation given by either Agriculture and Agri-Food Canada or the Governors Foundation. We should mention the 2003 Excellence Award of the Federal Partners in Technology Transfer (FPTT) program for a continuous osmotic dehydration process for cranberries developed jointly with Canneberges Atoka Inc., a company in Manseau, Quebec.

Interviews with company heads and managers served to identify the extent of the spinoffs of the collaborative research. The examples cited most often were: the high quality of the skilled workforce, the synergy of the research teams, and the benefits and impact of the federal government's MII.

In September 2001, seven new collaborative research projects eligible under the MII were negotiated and preauthorized with the same number of companies and the same number of FRDC researchers. These projects, approved by FRDC management, represent total contributions of \$1,698,553 from companies for the fiscal years from 2001–2002 to 2003–2004.

According to the MII's statistical forecasts at March 31, 2002, eligible contributions from companies represented a grand total of \$14,548,896 since 1995 for collaborative projects with the FRDC. As of the spring of 2001, there had been six meetings of an approximate total duration of 10½ hours with 10 executives representing six companies. Of these companies, two are emerging firms and three of them have signed knowledge-and-technology-transfer licensing agreements with the FRDC.

These meetings with companies already investing in R&D revealed few actual dollar figures regarding the current or expected spinoffs from collaboration with the FRDC, whether for reasons of strategy, competition, confidentiality or current developments. On the other hand, the people we met said that the collaborative research led to or would lead to greater scientific rigour on their teams, improved analysis and quality-control methods, and increased R&D activity.

The comments of these business leaders in the food-processing industry are also in line with the objectives of the federal government's MII program, which are based on partnership between the department and the private-sector food processing and preservation science and technology community. The objectives of this joint investment program promote sharing of the scientific and

financial risk of R&D through science and technology activities that are both useful and usable. Industrialists said they were concerned about the possibility that the department's MII program might be discontinued, for a number of reasons, including their own weakness in R&D, the industry's low profit margins and the fierce competition.

More directly, the benefits and current and future spinoffs of the collaborative research strategy shed light on the following points:

- Development of skills and expertise in promising technological niche markets
- Improved corporate image and better collaboration with the government on science and technology projects
- Technical support of a research centre through a unique business-government formula
- Access to networks of S&T experts and to cutting-edge knowledge
- Scientific supervision and greater research rigour
- Joint financing coupled with shared scientific risk
- A departmental MII program that is beneficial to the sector
- Easy access to R&D infrastructure in terms of proximity and method of operation

This assessment and consultation with business leaders also provided an opportunity to identify structural projects and the expectations or needs that the FRDC must evaluate and prioritize as part of its strategic planning and action plan.

Companies clearly indicated at that time their intention to maintain a link with the FRDC provided a professional relationship can be developed on a long-term basis. This kind of sustainable development between the Centre and an industrial clientèle implies, for instance, the drawing up by the FRDC of a code of ethics governing the operating practices between private-sector and government researchers in an environment of highly aggressive company competitiveness and market globalization. The code of ethics would provide a certain degree of transparency and would afford or improve the climate of confidence and confidentiality required between collaborators and partners and the research establishment for R&D investment.

Another example was some industrialists' new preoccupation with the many issues relating to intellectual property and commercialization protection in a context of globalization. We heard suggestions from current clients that represent opportunities to be seized by the FRDC, which should also establish a strategy to expand its activities with new collaborators in the targeted market niches.

Operational ethics of collaborative research

It is not a question here of the ethics of project-oriented research *per se*, but of adopting an operational code of ethics for the implementation of collaborative research projects between the government and the private sector.

On a number of occasions in recent years, during discussions between the FRDC and research partners in industry, we have been asked whether the FRDC had a code of ethical conduct for collaborative research projects involving its staff and outside teams from the private sector or

elsewhere. The answer to this specific question is that we do not. I think we have now got to the point where we can cross this bridge, so that FRDC (and AAFC Research Branch) management and researchers can demonstrate, to anyone who wants to know, that we do have a standard approach and that our conduct, among ourselves and toward others, is exemplary.

Why a code of ethics for collaborative research? I believe that this exercise will not only be beneficial to our own organization, but also enable us to foster an atmosphere of trust by facilitating and consolidating our short-, medium- and long-term relationships with our customers and partners. A code of ethical conduct should also apply reciprocally to our partners in the private sector and even to university institutions and other government agencies. It could even be included, as an appendix or as specific clauses or some other formulation, in our collaborative research agreements, our technology-transfer agreements, etc.

The issue of ethics came up specifically in discussions and meetings that were part of the collaborative research assessment project, in 2001–2002, between the FRDC and participating companies. The Board of Governors is also interested in this issue, which it has raised a number of times, and has urged us to draw up a code of ethical conduct as soon as possible. A member of the Board has been designated to advise us in developing a code of ethics for collaborative research between the government and the private sector.

We are not talking here about a code of ethics for the cloning of embryos or other lines of research, the governance provided by boards of directors or what have you, but rather about simple rules of conduct that can be applied to our relationship with our research partners, as ethics goes further than legal issues. The success of a code of ethics lies, of course, in how it is used, how it is endorsed personally by each employee. The code should apply to all staff, but particularly to research teams. It is also important to raise staff awareness of the issues involved and to schedule an annual review of objectives and rules of conduct.

I examined a number of sources of ethical codes but didn't really find anything that suited my objectives. A number of codes are, of course, available on the Web (e.g. USDA) and there are some organizations that deal specifically with ethics (e.g. International Institute for Public Ethics <http://www.iipe.org/>). Also, our department has set up its own working group to tackle this issue. While I am not up to date on what the group has achieved in the past year or so, I believe it is aiming to develop a general and corporate code of ethics for the department as a whole, whereas my proposal focusses on the professional relationship between Research Branch staff and the private sector in the specific context of collaborative research projects. Clearly, a code of conduct of the kind I am proposing would complement one governing AAFC as a whole.

I have therefore drawn up a draft code of ethics for the FRDC, which I have proposed to the Research Branch and the department's Intellectual Capital Office, and which is available unofficially. The code deals chiefly with the relations, duties and responsibilities of research teams toward customers. It must also cover management and accessibility of commercial and confidential files related to industrial projects and the companies involved in them, and potential conflicts of interest with competing companies that may be present in the same centre or in different centres of the Research Branch's network of research centres.

A code of ethics of this kind could also serve the interests and respond to the concerns of those who are developing good practices guidelines for conducting research projects and managing relationships between government research teams and private-sector or university or other research teams.

I believe that the need for this kind of code of ethics for collaborative research has become increasingly obvious with the revelations in recent months and in 2002 of financial scandal at a time when the economy and the stock markets are destroying public trust and investor confidence.

It is my view that the government cannot ignore this situation and it is essential, I feel, to take steps to restore the confidence of the public and our partners by ensuring that our conduct is exemplary and so create an ethical climate and culture between partners in collaborative research or even for research we carry out ourselves. We have two main assets: our skills and intellectual property is the first, while the second is our reputation.

Conclusion of comments from AAFC's FRDC researchers

In winter and spring 2002, a number of FRDC researchers expressed their apprehensions and fears about the rigorous application of the upcoming policy of not sharing intellectual property rights with their scientific collaborators in industry; this policy came into force in August 2002. Here is a summary of their comments: to maintain, conserve and strengthen collaborative efforts between the government and the private sector, it is of strategic importance to be able to offer, professionally and efficiently, the sharing of intellectual property within the framework of collaborative scientific research projects with the private sector when the industrial partner makes a real scientific contribution according to the definition proposed earlier in this paper.

General conclusion

There are always legal issues involved with intellectual property rights, whether the rights arising from research contracts or collaborative research project agreements between the government and the private sector are assigned, shared or retained. However, there are just as many if not more considerations to take into account when it comes to assessing government objectives to ensure the best return on public money invested in R&D, without losing sight of the best technology-transfer practices in order to maximize the use, operation and commercialization of the useful, usable results of research projects by the private sector.

Our health in terms of technological innovation depends on our ability to implement (legally, of course) the guiding principles that underlie our R&D mission in a way that stimulates creativity and innovation.

What really matters in a government–industry collaborative research agreement is to agree on the intellectual property rights and to offer the industrial co-owner the best positioning conditions so that the company will enjoy commercial success exploiting the new technology.

FRDC recommendation

That AAFC's Research Branch and legal services adapt the policies/directives issued in August 2002 to offer research centres and their research teams, as soon as possible, the flexibility required to assess the possibility, in all fairness and good ethics, of sharing or not sharing intellectual property in collaborative scientific research projects with industrial or other clients (universities, non-profit organizations, associations).

In the case of not sharing intellectual property, it is likewise necessary to have the flexibility to negotiate the retention or assigning of rights to the new intellectual property arising from the collaborative research project with a scientific-technological industrial partner. Shouldn't scientific management and its technology transfer officer be made accountable and be given the resources they need, as the technology transfer officer is often the key player in phrasing mutual benefits in terms of intellectual property and negotiating licensing agreements respecting how the co-owners may exercise their rights?

The motto "Think globally, act locally" is as valid and relevant as ever, I believe.

It is this search for greater latitude that could foster collaborative research and bring us technologies developed through high-risk scientific projects that may have very great impacts and benefits for Canadian society.

About the author

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⁽¹⁾ Excerpt of collaborative research agreement respecting definition of intellectual property:

"Intellectual Property" ("*propriété intellectuelle*")

- Means:

- 1.11.1 all patents, trademarks, copyrights, industrial designs, trade names, *trade secrets* and other intellectual property rights whether registered or not, owned by or licensed to a **Party**;
- 1.11.2 all technical information, including know-how, show-how, inventions, processes, products, formulae, designs, records, proprietary or not, including without limitation any and all *confidential information*; and

1.11.3 the *material*

- (2) La version française de ce document s'intitule *La Collaboration scientifique entre le gouvernement et le secteur industriel*.

References on joint IP & joint ownership

1. CNRC Intellectual Property Policy — A New Way of Doing Business, Dec. 2000 (section 1.7.3. Joint Research or Collaborative Projects)
2. **Dillahunty, T.G.** January 2003. *How to (and How not to) deal with inventorship in joint development agreements*. Licensing Executive Society Conference, Kananaskis.
3. **Dutton, R. and Johnson K.L.** May 2002. *Managing Joint Inventions between Universities*. AUTM Manual, Part IX, Chapter 6: p. 1-28.
4. **Israelsen, N.A.** March 2003. *Managing Intellectual Property in Alliances*. BioProcess International, p.30-33.
5. **Rod, M.R.M. and Paliwoda, S.J.** August 2003. *Multi-sector collaboration: a stakeholder perspective on a government, industry and university collaborative venture*. Science and Public Policy, p.273-284.
6. **Stone, A.** March 2003. *Allocation of Ownership of Inventions in Joint Development Agreements – The Australian Perspective*. LES Nouvelles, p.23-26.

Selected Intellectual Property & Technology Transfer internet sites

Association of University Research Parks www.aurp.net

Association of University Technology Manager www.autm.net

Canadian Intellectual Property Office www.opic.gc.ca

Federal Laboratory Consortium for Technology Transfer www.federallabs.org/

Intellectual Property Institute of Canada www.ipic.ca/

Intellectual Property Newswire www.ipnewswire.com/newsletters/2003-04.html

IPR Helpdesk <http://www.iprhelpdesk.org>

Joint Ownership of Property Rights <http://www.ipr-helpdesk.org>

National Technology Transfer Center in US www.nttc.edu/products/publications/tt.asp

Licensing Executives Society in US and Canada www.usa-canada.les.org

Licensing Executives Society International inc. www.lesi.org

Science and Technology Program in Canada www.infoexport.gc.ca/science/