



CANADA-CHINA SCIENTIFIC AND TECHNOLOGICAL COOPERATION

Guidelines for Canadian Applicants

Joint Call for Proposals for Collaborative R&D projects – 2010

INTRODUCTION

In January 2007, Canada and China signed a bilateral “Agreement for Scientific and Technological Cooperation”. The purpose of the Agreement is to encourage, develop and facilitate cooperative activities between the two countries in science and technology (S&T) for peaceful purposes in fields of common interest and on the basis of equality and mutual benefit.

Within the context of the Canada-China S&T Agreement, the two governments have identified funding mechanisms through which companies and research organizations may seek support for joint Canada-China research and development (R&D) projects and other activities intended to generate new or expanded research and technology-based partnerships between the two countries.

For Canada, funding and other services will be provided through International Science and Technology Partnerships Canada (ISTPCanada), a non-governmental organization selected by the Government of Canada for this purpose, and for China, through the Ministry of Science and Technology (MOST) of the government of China. Specific contacts and coordinates for the Canadian and Chinese implementation organizations are provided at end of this document.

These guidelines are specific to the Canada-China collaborative research and development projects submitted under the current call for proposal. ISTPCanada and MOST invite Canadian and Chinese participants to submit proposals for cooperative research and development projects

APPLICATION PROCESS

The collaborative R&D proposal process includes the submission of an EOI and a full proposal.

The Canadian team should e-mail cfp_china@istpcanada.ca before the EOI deadline of **Friday, July 17th, 2009** to get an Application Reference Number (e.g. CCRD09-nnn). This number **MUST BE** quoted when submitting the EOI and proposal to ISTPCanda by the Canadian Team and the proposal to MOST by the Chinese team.

The Canadian team and the Chinese team MUST co-develop the EOIs and Full Proposals to ensure that the submission in both countries provide the identical information on Project Title, List of Applicants, Goals and Objectives, Innovations, Methodologies, Deliverables, Division of Labor, Project Plan and Schedule, and Commercialization Plans and Benefits to both countries, etc.

Expression of Interest (EOI)

Submission of an EOI is mandatory. Applicants interested in submitting a full proposal must submit an EOI **by end of day, Friday, July 17th, 2009** to be eligible. An EOI provides a summary of the proposed project with enough detail for the reviewers to make an initial assessment of the merits of the project.

The EOI consists of two parts

Part 1 – Key Information Form:

- Applicants page – provides Title and list of all participants.
- Executive Summary - provides high level description of the project (no more than ½ page).

Part 2 – 2009 EOI Form:

- Budget page – provides lump-sum budget of each participant.
- EOI Body (no more than 5 pages) - This section should provide a summary of the sections on the innovation, analysis of the problem, the proposed solution, a short description of the project plan, the market need, the commercialization plan, the expected collaboration and the management plan.

Please fill in the attached file 2009 EOI Form and email it back to ISPTCanada as your EOI by **end of day, Friday, July 17th, 2009**.

Please note that the EOI review will have three possible outcomes:

- EOI meets all the requirements and lead participant requested to submit a full proposal.
- EOI clearly does not fit the program criteria and lead participant is advised not to submit a proposal.
- EOI fits most of the criteria, but the lead participant is requested to provide extra clarification or modification before a final decision can be made.

Please refer to the full proposal guidelines below to get a better understanding of what might be included to strengthen the EOI.

On top of the EOI Form, the Canadian team should also submit the following information in both Chinese and English using the Key Information Form:

- a. Project Title
- b. List of all Canadian and Chinese Applicants
- c. Executive Summary

Full Proposal

Depending on the feedback to the EOI, applicants may be invited to submit a full proposal to ISTPCanada by **end of day, Tuesday, September 15th, 2009.**

Proposals for the Collaborative R&D Projects include both a technical component and a business plan. The technical component describes the innovation, gives details of the proposed technical approach and contains a Research Program Plan. The business plan component covers the market analysis, commercialization plans, benefits to project participants, project organization and the management plan. The proposal should also provide a description of the companies and other participants along with detailed resumes of key project personnel. Accordingly, proposal guidelines consist of the following (an Application Template, similar to the EOI Form, will be provided to proponents whose EOI application is accepted by ISTPCanada):

Cover Pages (format provided in the Application Template)

Table of Contents (include page numbers)

Executive Summary

A clear and concise statement of:

- Specific objectives of the project;
- Commercial value of the proposed product or process, i.e. projected revenues and time period;
- Capabilities and performance records of the participants in relevant areas.

1. The Innovation

- What is the current "best practice"?
- What are the current limitations? This is an opportunity to elaborate on the shortcomings that exist in the proposed area as a prelude to the description of the innovation and how it can overcome these shortcomings. Current limitations could include: high cost, non-optimal performance, lack of attention to specific market opportunities, e.g., poor suitability to high-or-low-end markets, size, compatibility, nonconformance to standards, etc.
- What is the idea? Sketches, diagrams and tables could be included to help describe the innovation. This description should clearly identify in which way the innovation overcomes current limitations. **How** the idea overcomes these limitations is to be contained in this section.
- How much will the proposed program cost and how long it will take to develop the product to the point of commercial readiness?
- What is the patent situation, including background patents and the potential for new patents? Are there any obligations to other agencies which have supported any part of the innovation development?
- Which standards relate to the developed product? Will the proposed product meet current and/or emerging standards?

2. Proposed R&D Program

This section of the proposal could be organized in two parts: "Analysis of the Problem" and "Proposed Approach".

Analysis of the Problem

The purpose of this section is to establish a credible basis for the proposed R&D program, with the intent of identifying specific problem areas. These are the problems or challenges that need to be overcome in order to achieve the program objectives. For example, at the start of the project, the companies and participants are at Position A, which relates to the current limitations highlighted in the preceding section. By the end of the project, at the point of commercial readiness, the companies and participants expect to be at Position B. What specific problems must be solved or overcome in order for the companies to reach Position B, consistent with the project budget and timetable? Clearly, these problems and their resolutions should have been considered by the participants in formulating their Proposed Approach and in defining the Program Plan.

The problems may focus on a variety of technical issues – for example, how to achieve lower power consumption or higher circuit speed, with data indicating both the current situation and the target values for the innovation. Process challenges may include how to enhance measurement accuracy; improve manufacturing yield; make the software platform-independent; automate a process, etc. Product targets may relate to issues such as the design of a more streamlined system with fewer parts, improved temperature performance, greater reliability, smaller footprint, enhanced market appeal, or greater flexibility. In some cases, the problems may relate to the need for fundamental technological breakthroughs in order to develop a currently nonexistent product. In others, for example, the technological problems may be relatively straightforward, with key issues relating to product integration into an existing line or management of a complex, inter-disciplinary, multi-task project.

Additional items to be addressed in this section may include:

- Definition of the required properties and functions of the end-product that will be used in the service environment. Often, this is referred to as "the specifications sheet". This is the "Position B" referred to previously in this section. What market input has contributed to formulating the end-product characteristics?
- Identification and description of problems associated with realizing the required properties and functions. This is an in-depth discussion of the problems that must be solved in order to achieve the program's objectives. The participants should confirm that any critical technologies required are firmly under control.

Proposed Approach

This section must be sufficiently detailed for expert reviewers to assess the approach being followed for the research. It should include:

- A general plan of the proposed effort, setting the stage for the more detailed task descriptions. This overall plan includes the achievements that will make it possible to realize the program's objectives.
- Any technical or economic constraints.
- Identification and detailed description of each task. This is the heart of the technical part of the proposal, stating the objective for each task and identifying the participant with primary responsibility for the task.
- Describe - for each task - the specific approach that will be employed; i.e., detail the techniques to be used to solve the previously identified problems. In this

section, the participants demonstrate that they are aware of current best practice, its limitations and the opportunities inherent in the proposed innovation. As well, this section should demonstrate that the Proposer understands the problems associated with developing the idea of commercial readiness.

- Discuss alternate approaches to resolving problems and the basis for selecting the preferred solution. Even if a preferred solution has not yet been determined, the various alternatives should be reviewed, along with their relative merits.
- The detailed description of the technical approach should provide the reviewers with sufficient information to perform a meaningful review of the proposal. For each task, provide supporting information that justifies the specific approach, where appropriate.
- Since the final objective is a product or process, tasks addressed should include compliance to standards (or why the product will not comply with applicable standards), prototyping, regulatory approvals, exhibitions, marketing activities, documentation, etc. Again, for those tasks relating to "testing", for example, details should be given as to what is to be tested, how many tests are needed, test objectives, test methodology, expected results, etc.

3. Program Plan

Should the project be approved, the Program Plan section of the proposal will be incorporated into the project funding Agreement and will be used by ISTPCanada in monitoring project progress. MOST will also use the Program Plan from the proposal in its own funding agreement to monitor the progress. For projects of duration 18 months or less, the effort should be organized into one project period. For longer projects, the effort should be organized into two periods of roughly equal duration. Note that each project period will also be split into two segments for the purpose of project monitoring and reporting.

The Program Plan should consist of:

- A chronological schedule of program activities presented in graphical form, clearly indicating the estimated time required for the completion of each task in addition to milestones. Specific participant assignments for each task should be identified in the Program Plan even if this information was provided elsewhere, and task assignments for subcontractors and consultants should be delineated.
- A one page summary Gantt chart.
- A labour loading chart detailing the planned time commitment for each task, covering the same project duration.
- And encompass the entire duration of a multi-period program, including all activities that must be performed until commercial readiness.

4. The Market

Although there are uncertainties implicit in predictions of future markets and possible competition for any new product or process, it is important to demonstrate that the participants have made a thorough analysis of the market prognosis. Such an analysis can typically include the following considerations:

- What market needs are served? Are one or more participants currently active in developing, manufacturing and selling similar types of products in this market? What is the basis for this market need?
- What is the total addressable market for the product? What is the current position of the participants in this market? What is the expected growth of this market over the effective sales window of the product being developed, and what is the basis for this projection? What events could significantly alter this projection? What market share is expected to be captured in the year of market entry and over the product sales lifetime?
- What barriers, e.g., regulatory, might be encountered, and how will they be overcome?
- What competition exists or can be imputed? Provide an evaluation of the impact of competition on the commercialization of the proposed product.

This is not a complete list. The basic message is that developing innovative concepts for commercial gain is an intrinsically risky, uncertain, but occasionally highly rewarding undertaking whose prospects of success can be immeasurably improved by acute, objective and early planning. The participants should present whatever additional information they consider relevant.

5. Commercialization – Plans and Prospects

It is obviously beneficial to those making investment decisions regarding new technology if a single index can be derived which provides a "figure of merit" for deciding on a particular investment, or for evaluating various alternatives.

A preliminary financial analysis which includes the potential gain from successful implementation of the proposed project should be made using a Cash Flow Analysis approach of your choice.

Should the project prognosis be encouraging, the commercial program needs to be planned and implemented? Some of the questions to be discussed are:

- Will the participants be engaged in production? What are the existing manufacturing facilities and how can the proposed product manufacturing be incorporated into the existing infrastructure?
- Who will sell to which market regions? What is the current sales level of the participants in the primary target regions for the proposed product?
- Do any of the participants currently have a suitable sales and service network? If there is such a network, it should be described. Alternatively, does such a network need to be created from scratch? Describe the process by which the participants plan to establish such a network and the resources required.
- Considering the maximum cash requirements based on the cash flow analysis, to what extent are the necessary resources - financial or otherwise - available within the participating companies? If any additional resources will be required, how will they be mobilized? Describe all relevant potential sources.

6. Cooperation and Benefits

Previous sections deal with the proposed division of tasks between the participating participants in two countries. Please summarize here the projected mode and extent of cooperative activity.

The clear expectation of risk-sharing by participants during product development and of mutual benefit during commercialization is central to participation of Canada and China under the CCSTC. An important factor in evaluating the proposal, therefore, is the extent to which the participants will share in the research, product development and introduction to the marketplace, as well as the benefit to be derived by each participant during product commercialization. Also of importance is the benefit to Canada and China in the form of new export markets, new employment opportunities, new capital formation, productivity improvements, etc.

Please elaborate these issues in the context of the agreement between the participants with respect to their agreed-upon roles during the various project stages including the commercialization process.

If there are plans for exchange of young researchers involved in this project, please indicate the length of exchange and the role(s) to be played in the R&D activities. Also explain how the exchange of young researchers adds value to the project goals.

7. Organization and Management Plan

This section should contain a presentation of the proposed management procedures for the program, including the internal review procedures and overall management plan that will ensure, barring unforeseeable circumstances, implementation to design specifications, on schedule and within budget.

- Describe the procedures to be implemented to maintain timely communications between lead participant's project team in each country. Indicate the role of review meetings (when, where, for what purpose, with whom) during the project.
- Provide an organization chart for the project, identifying each participant's project leader and the overall program manager, and indicate the relationship of this *ad hoc* organization to the formal hierarchies in the participant's organization. Identify the program's key project personnel and their responsibilities.
- Regarding staff - indicate positions to be filled by new employees and identify the status of these staff.
- Identify the role of key consultants and subcontractors on the organization chart and indicate if a relationship between the consultants/subcontractors and the participants currently exist.

8. The Participants and the Project Personnel

In the final analysis, the determining factors in the successful commercialization of innovations are the people and the participating companies involved. Please provide information about each of the participants, including the following:

- In the case of company participants, please provide the year in which each company was established, company ownership and principal business of each company, revenue/profit, number of full time/part time/contractors, previous

- business focus and future plan, if applicable. Please fill up the Industrial Partner Information form (to be provided).
- Record of performance in similar/related undertakings. Describe the extent to which products similar or related to the proposed innovation have been developed and commercialized. What is the track record or history of each participant that also substantiates a positive prognosis for this proposed product's successful commercialization?
 - Degree to which the proposed project can be absorbed into the existing structure of each participant. To what extent are the staff, equipment, facilities, etc., available for the project? Identify the need to hire staff, obtain (purchase, lease or rent) capital equipment, or expand manufacturing operations.
 - Relationship of the proposed project to other participant projects that receive/have received support from any outside agency for development of the proposed innovation.
 - In the case of company participants, the financial information validating that the companies cannot only contribute their share of the project cost, but have the resources available for the commercialization phase. Public companies can submit annual and quarterly reports rather than specially prepared information. At a minimum, annual revenues expected during the current fiscal year and realized during each of the last two fiscal years should be given, in addition to an indication of the profitability of the company participant during this period. Number of employees at home, at field locations and abroad should be given, along with an indication of changes in the employment picture during the past two years.
 - Description of **relevant** facilities, equipment, infrastructure, etc., which are expected to be utilized during the project and during product commercialization.
 - Resumes of key personnel/researchers who will work on the project. The resumes should include each individual's role in the project, e.g., project manager, senior software engineer, field engineer, etc. Include the person's current affiliation with the participant's organization, job title, relevant job experience and significant accomplishments, starting from the most current position. List professional affiliations and committee memberships. Indicate higher education and degrees and provide a listing of relevant publications authored or co-authored (maximum, one page). Resumes of consultants should also be included. In general, the reviewers of the proposal need to see that the experience, education and capabilities of the professional staff are commensurate with the R&D tasks to be performed.
 - Additional pertinent information, such as product brochures, expressions of interest from potential customers in the products or processes to be developed, marketing agreements, etc., should be included.

9. Intellectual Property Treatment

Most of the collaborative projects funded under the CCSTC are expected to produce new intellectual property (IP). The program also recognizes the value to the participants of any background IP they might bring into the project. In general, a participant's background IP will remain vested with the owner.

Please provide a detailed list of the background IP brought into the project by all participants. The proposal must describe, to the extent possible, the new IP which is expected to result from the project and must address the proposed treatment of all the

intellectual property. This includes the ownership of new IP and sharing of the new IP between the participants. Any IP agreement between the participants must respect the IP laws of each country along with the IP policies of the academic and other research institutions involved in the project.

10. Project Budget

A separate budget should be presented for the project component in Canada and in China covering each participant's activities for each period of the project as proposed (Please use the appropriate budget sheet for Canadian and Chinese participant from appendix A). Each participant should provide its budget detail in a separate budget sheet and the lead participant should provide an overall budget for the project's national component. For a project whose duration is 18 months or less, the budget should be organized into one project period. If greater than 18 months, the budget should be presented in two project periods, using the format on the following page.

Furthermore, the funding of the project begins from the effective start date agreed upon in the project funding agreement signed with the successful lead participants. Expenses incurred by the participants prior to the effective start date of the project cannot be restructured to fit into the eligible expenditures.

11. Canadian Stacking Rules

Please note that Government of Canada stacking rule applies to all Canadian applicants. A stacking limit is the total of all government assistance as a percentage of eligible costs. Total assistance includes federal, provincial and municipal funding. This stacking limit is 75%. Any amount exceeding this limit is subject to recovery. It is the responsibility of the applicant to disclose all the sources of government funding in the proposal and during the life of project.

12. Project Agreement

On being successful, lead participants are expected to complete all necessary internal procedures for project implementation and enter into an agreement or contract with their implementing organization.

Appendix A

This appendix should include the following sheets:

- Proposed project budget sheet for Canadian participating organizations. One budget sheet must be completed by every Canadian participating organization.
- Accompanying Notes to the Budget Sheet for Canadian Participants
- Proposed project budget sheet for Chinese participants. This sheet must be completed by each Chinese participant (from MOST application form)

PROPOSED PROJECT BUDGET (one per Canadian Participating Organization)

Participant Name
(Project period duration in months)

TOTAL, \$

I. DIRECT LABOUR

	Gross Annual Salary, \$ ¹ A	% on Project ² B	Duration in Months, Divided by 12 C	Cost to Project, \$ D=AxBxC
<u>Name, Profession</u>	_____	_____	_____	_____
<u>Name, Profession</u>	_____	_____	_____	_____
<u>Name, Profession</u>	_____	_____	_____	_____
Total, Direct Labour, summation of D above (L)				_____
Benefits, up to 20% ³ on Labour (max=0.20*L)				_____
Total, Direct Labour +Benefits (max=1.20*L)				_____

II. EQUIPMENT⁵

	Date of Acquisition	Purchase or Lease Price, \$	% used on Project	Cost to Project, \$
<u>Item 1</u>	_____	_____	_____	_____
<u>Item 2, etc.</u>	_____	_____	_____	_____
Equipment total				_____

III. EXPENDABLE MATERIALS & SUPPLIES⁶

Item 1	_____	_____
Item 2, etc.	_____	_____

IV. TRAVEL⁷

Foreign sub-total	_____	_____
Domestic sub-total	_____	_____

Details:

<u>Trip #</u>	<u>Destination</u>	<u>Purpose</u>	<u># of Person</u>	<u>Cost per Person</u>
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

V. SUBCONTRACTS⁸

No. 1	_____	_____
No. 2, etc.	_____	_____

VI. CONSULTANTS⁹

No. 1	_____	_____
No. 2, etc.	_____	_____

VII. OTHER EXPENSES¹⁰

Item 1	_____	_____
Item 2, etc.	_____	_____

SUBTOTAL (T) _____

Overhead , up to 30%⁴ on total cost (max=0.30*T) _____

PARTICIPANT TOTAL PROJECT BUDGET (=1.30*T) _____

Note: Separate budgets are to be presented for the Chinese and Canadian Participants

Accompanying Notes to the Budget Sheet for Canadian Participants

1) Direct Labour

- i. Direct salaries and wages paid by the Canadian Participant are eligible at the rates shown in payroll documents. Payroll documents must be provided for verification and audit purposes.
- ii. The eligible personnel groups are scientists, engineers, technicians, technical writers, draughtsman, laboratory and experimental shop labour, analysts, programmers and technical personnel conducting the R&D Project.
- iii. The rate eligible for claims related to the salaries of senior management cannot exceed that of the highest paid functional engineer or scientist in the company or organization.
- iv. Individual employee time sheets or time logs for labour claimed must be maintained, and must be submitted to ISTPCanada on an occasional basis, as requested.
- v. Labour costs may include salaries of university and community college faculty members when the work performed takes place on university or college premises, provided that the academic institution is a Canadian Participant.
- vi. Salaries of administrative staff are only eligible within the overhead rate applied.

2) % time on project during the project period.

3) Actual costs of employment benefits are eligible. Actual benefits costs are claimed as a percentage of direct labour and cannot exceed 20%. Canadian Participants must calculate their benefits percentage by totaling all benefits costs of the organization as well as all base labour costs of the entire organization. The Canadian Participant can then apply this percentage to the direct wages claimed each quarter. Benefit costs can include the employer's portion of the following:

- CPP
- EI
- EHT
- Vacation Entitlements
- Health and Dental Plans
- Retirement Plans
- WSIB
- Other costs may be proposed by the Canadian Participant but must be approved in advance by ISTPCanada

4) Overhead expenses such as those identified in the following table, and as per the prior notice required in paragraph 5a of this schedule, are also eligible provided these overhead expenses are not more than 30% of the eligible costs.

Examples of Included Costs	Examples of Excluded Costs
Rent-Project Space only Insurance Office expenses Telephone Electricity and heat Admin Salaries & Benefits	Inventory Purchases Sales & Marketing Expenditures Any direct project costs Land & Buildings Income Tax Fines

Statutory holidays Professional fees (non R&D related)	Uncompensated Labour Interest & bank charges
Memberships	General Repairs and maintenance
General Amortization	Corporate Travel
Accounting	Sponsorships
Marketing	

5) Equipment necessary for the performance of the R&D Project can be included in the eligible costs but for only Depreciation, rental or leasing expenses, not capital expenditures.

- i. The equipment cost cannot exceed 25% of the total of all eligible R&D Project costs.
- ii. Lease costs or depreciation costs on eligible equipment that is used for the project may be claimed. Claim only for the % of time used on this specific project.
- iii. Copies of lease invoices or purchase invoices with the depreciation schedule must be provided.
- iv. Claims for complete capital costs must be pre-approved by ISTPCanada **and** will only be allowed if proof can be provided that the equipment is essential to the project **and** has no other uses.

List each item, include purchase/lease price, intended date of purchase/lease and % of time to be used on the project during this period. Give the schedule for equipment depreciation for purchased items.

6) List each major item under expendable materials and supplies and give the purchase price.

7) Travel must be essential to an R&D Project or exploitation of the results, as identified in the project workplan. Cost, Travel (e.g. airfare, local transportation, etc.), accommodation, meals, incidentals and other non-research expenses (such as translation services, photocopies, or hospitality), shall not exceed Treasury Board approved rates. All updates will be posted on the Treasury Board of Canada website found at <http://www.tbs-sct.gc.ca>.

Foreign or out of city travel budgets should specify number of trips, number of people and purpose.

8) Subcontractor's budget should identify each participant, the service to be performed and the cost for each service. Provide the basis for the costs.

9) Consultant's budget should identify each consultant, the nature of the activity, number of hours and hourly rate.

10) Typical "Other Expenses" include items such as exhibits, regulatory activities, standards certifications, field trials, etc., but not patent activities.

MOST Project Budget Sheet for Chinese Participants (from MOST application form)
