



INDIA-CANADA SCIENTIFIC AND TECHNOLOGICAL COOPERATION

Application Guidelines

India - Ontario (Canada) Joint Call for Proposals for Collaborative R&D Projects November 2010

INTRODUCTION

Under the India-Canada Agreement for Scientific and Technological Cooperation, the Governments of India and Canada have agreed to foster joint research and development (R&D) projects.

This India-Ontario (Canada) Call for Proposals (CFP) will be delivered by the Global Innovation & Technology Alliance (GITA), a non-governmental organization, engaged by the Department of Science and Technology (DST), Government of India on the Indian side; and by International Science and Technology Partnership Canada (ISTPCanada), a non-governmental organization selected by the Ministry of Research and Innovation (MRI), Government of Ontario on the Canadian side. In Ontario (Canada), ISTPCanada is responsible for the implementation of the Ontario/India Collaborative Research Fund, which directly supports four goals established by the Government of Ontario.

These guidelines are specific to the India-Ontario (Canada) collaborative research and development projects submitted under the current call for proposal. ISTPCanada and GITA invite Canadian and Indian participants to submit proposals for cooperative research and development projects.

Please note that the proposal preparation guidelines should be seen as suggestions that will be helpful to applicants in preparing an EOI and a full proposal. The guidelines address the issues that are relevant to innovation, commercialization and the successful execution of the project and future commercialization of the product. The guidelines will be helpful to applicants in preparing a strong proposal.

APPLICATION PROCESS

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

Expression of Interest (EOI)

Submission of an EOI is mandatory. Applicants interested in submitting a full proposal must submit an EOI before the due date (**See the Call for Proposal for deadlines**) 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 should be no longer than 6 pages of content excluding the cover page. Please use the template provided with call documents for submitting the EOI (Call documents are available at www.istpcanada.ca and www.gita.org.in). **Incomplete EOI template or EOI's submitted in any other format will not be accepted.**

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

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

The decision of the Implementation Organizations on the acceptance / rejection / enhancement of EOIs will be communicated to the applicants within two weeks of the EOI deadline.

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

Full Proposal

Applicants invited to submit a full proposal will receive an application template along with the EOI acceptance letter from the implementation organization in India and Ontario (Canada). **Applications in any other format will not be accepted.** Proposals for the Collaborative R&D Projects will 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 will also provide a description of the companies and other participants along with detailed resumes of key project personnel. Please refer to the following sections to get a better understanding of what will be covered in the application form:

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 of innovation as a prelude to the description of the innovation and how it can overcome these shortcomings. Current limitations could include: high cost, sub-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 what way(s) 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 will it 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".

2.a 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 resolution 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.

2.b 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. GITA will also use the Program Plan from the proposal in its own funding agreement to monitor the progress. For projects with 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 regardless of the project duration, progress and financial reporting will be required every six months.

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. 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 do you expect in the future? 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 finely tuned, 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 prospects 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 the 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 Ontario (Canada) and India under this program. 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 Ontario (Canada) and India 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 innovation 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;

- 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 this program 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. A signed IP agreement between all participants in the project is required before funds will be released to the project team.

10. Project Budget

A separate budget should be presented for the project component in Ontario (Canada) and in India covering each participant's activities for each period of the project as proposed (Please use the appropriate budget sheet for Canadian and Indian participant. Applicants whose EOI's are successful will receive a template for the full proposal along with the budget sheets). Each participant should provide its budget detail in the prescribed budget sheet and the lead participants should provide an overall budget for the project's national components. On the Indian side, lead participants are expected to provide a utilization certificate before release of subsequent installments, and on completion of the project.

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 a stacking rule applies to all projects. A stacking limit is the total of all government assistance as a percentage of eligible costs. Total government assistance includes federal, provincial and municipal funding. This stacking limit for this program 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.

For example, if the Canadian cost of the R&D project is \$200,000, a maximum of \$150,000 could be provided by federal, provincial and/or municipal government agencies, programs or institutions (labs etc). The remaining \$50,000 of the project budget must be derived from a non-government source. The proposed project budget for the EOI and full application observe the stacking rule limit.

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.

For further information contact:

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