# IN DETAIL...

# TECHNOLOGY DEVELOPMENT AND DEMONSTRATION PROGRAM

Environment Canada

Environnement Canada

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In its new orientation, Environment Canada's Technology Development Section is encouraging pollution prevention and sustainable development. The Technology Development Section is applying its scientific expertise and financial assistance program to partnership projects with industries and enterprises promoting technology. The program's main priority is to carry out demonstration projects fostering adoption of clean technologies and those that virtually eliminate the release of toxic substances into the environment. The Technology Development Section can also steer firms toward other federal government financial assistance programs.

A range of assistance programs exists since the federal government adopted its strategy for the Canadian environmental industry in September 1994. This strategy underwrites initiatives in this leading-edge industry, one in which Canada has 3.5% of the world market. The Canadian environmental industry comprises some 4,500 small and medium-size businesses offering technologies, processes, products and services designed for resolving environmental problems. Over 150,000 Canadians are employed in this industry, which has sales of $11 billion and a growth rate of 10% yearly.

**Technology Development:**

**Effective tool for sustainable development**

# THREE AREAS OF INTERVENTION

The Technology Development Section operates in three areas:

## 1- Industrial technologies

Under the terms of the St. Lawrence Action Plan Vision 2000, launched jointly by the federal and Quebec governments, 106 priority plants have been identified and will be required to reduce their toxic substances released into the environment. The Technology Development Section will assist the private sector in achieving this objective by supporting development of closed-loop technologies, recovery of raw materials and minimizing of industrial wastes. This industrial technology development program is also open to companies other than those targeted by St. Lawrence Vision 2000.

**Industrial technologies:**

**Elimination of toxic discharges**

## 2- Clean-up technologies

Many firms have stockpiled hazardous wastes on their property or are striving to deal with contaminated land, two major sources of contamination of groundwater and waterways. The Technology Development Section will work with the private sector to demonstrate new technologies for soil remediation and the elimination, recycling or reuse of hazardous wastes.

**Clean-up technologies:**

**Hazardous wastes, elimination and soil remediation**

## 3- Dredging and contaminated sediment remediation technologies

Nearly 750,000 $m^3$ of sediments are dredged out of the St. Lawrence River each year. The contaminants trapped in these sediments can start circulating again in the environment when maintenance work is undertaken on the shipping channel and harbours. The Technology Development Section will support development of tools for analysis and decision-making for the better management of St. Lawrence sediments. It will also support projects dealing with the extraction, dumping and processing of contaminated sediments and control of shoreline erosion.

**Remediation technologies:**

**Decontaminated sediments management**

The Program's annual budget is 1M$.

The Program runs until March 31, 1998

# NATURE OF FINANCIAL ASSISTANCE

The Technology Development and Demonstration Program has an annual budget of $1 million and runs until March 31, 1998. Its purpose is to support two kinds of initiatives:

## Demonstration projects

Funding is based on cost sharing between Environment Canada and the promoter, up to a maximum of 50% of the direct eligible costs arising from a project, with a ceiling of $500,000.

Joint funding by Environment Canada and other agencies is possible, but total funding from public sources (federal, provincial, municipal governments and non-governmental organizations) cannot exceed 75% of total eligible project costs.

## Studies

Funding of eligible studies is 75% of costs up to a maximum of $75,000.

# OBJECTIVES

Objectives:

To support private sector initiatives in the development and demonstration of new environmental technologies

To work with the private sector to promote the use and transfer of environmental technologies

The Program's objectives are:

To support private sector initiatives in the development and field demonstration of new environmental technologies at the pilot or precommercial stage;

To work with the private sector to promote the use and transfer of environmental technologies.

# PRIORITIES

Priority is given to projects in the following areas:

## Industrial technologies

- monitoring for zero discharge of toxic substances in liquid effluents and atmospheric emissions from industrial sources;
- development of clean industrial processes.

## Clean-up technologies

- soil decontamination;
- recycling, recovery or rehabilitation of hazardous waste from industrial sources.

## Dredging and contaminated sediment remediation technologies

- management of contaminated sediments;
- effective dredging and treatment methods for contaminated sediments;
- wildlife habitat remediation;
- control of shoreline erosion.

Technology promoters are invited to run their demonstration in co-operation with one of the 106 priority plants targeted by St. Lawrence Vision 2000.

# ELIGIBILITY

## Eligible organizations

The Program is intended for companies incorporated in Canada (either federally or provincially), industrial organizations and associations, Crown corporations and non-profit organizations capable of developing and applying environmental technologies.

## Eligible projects

Projects submitted should propose development and demonstration of technologies which will provide solutions to environmental problems.

Such projects may:

- develop or test innovative technologies;
- develop or test adaptations of existing technologies to new conditions;
- eliminate toxic wastes;
- relate to one of the Program priorities;
- include bench or field demonstration at the pilot or precommercial stage;
- foster technical and financial collaboration between a promoter and a user in developing and executing the project.

### Eligible studies

Eligible studies are:

- studies of issues and for the establishment of R&D priorities for industries with plants along the St. Lawrence and its tributaries;
- technology inventories;
- guides for assessing environmental technologies.

Only studies to be conducted by independent consultants will be accepted.

## PROJECT EVALUATION CRITERIA

Depending on the nature of the work proposed, projects will be evaluated on the basis of the following criteria:

**Evaluation criteria:**

### Project

- relevance of the proposed technology to attainment of the objectives of St. Lawrence Vision 2000;
- expected performance of the proposed technology in reducing toxic substances in the St. Lawrence and its tributaries;
- potential of the technology for meeting Program priorities;
- technical feasibility and degree of innovation of the proposed technology;
- scientific quality of the proposal;
- significance of the demonstration stage and of the application of the proposed technology for the 106 priority plants targeted by St. Lawrence Vision 2000;
- scale of the expected spin-off for the Quebec and Canadian environmental industries.

**Relevance of proposed technology**

**Performance**

**Potential**

**Technical feasability**

**Significance for the 106 priority plants of St. Lawrence Vision 2000**

**Expected spin-off for environmental industries**

### Promoter

- competence of team;
- financial and technical participation by private enterprise (promoter/user) in running the project and applying the technology;
- promoter's ability to capitalize on the proposed technology technically and commercially, especially with the 106 priority plants targeted by St. Lawrence Vision 2000.

## PROPERTY RIGHTS, CONFIDENTIALITY AND COMMUNICATION OF RESULTS

All property rights, including intellectual property, arising from the project remain with the promoter. Any information provided by the promoter will be treated as confidential unless otherwise indicated.

However, to allow Environment Canada to fulfill its mandate to make potential users aware of environmental technologies available or under development, communication of project results will be negotiated with the promoter before an agreement is signed.

## ELIGIBLE WORK AND COSTS

### Eligible work

Eligible work for a demonstration project covers the following:

- feasibility studies;
- applied research;
- design;
- engineering work;
- construction of a prototype;
- demonstration of the technology;
- scientific monitoring of the project;
- operations pertaining to the environmental evaluation of the technology (characterization of inputs and outputs, sampling and laboratory analysis, mass balance, etc);
- drafting of scientific reports.

NB: This program does not cover installation of permanent pollution abatement facilities. However, validation of innovative technologies using permanent pollution abatement facilities may be approved.

## Eligible costs

Only direct costs inherent in the execution of the project are eligible. These may include:

- direct labour;
- telephone, facsimile transmission and project management (accounting, clerical help, etc) charges, to the extent that the promoter can produce supporting documentation at any time. A portion of overhead may be charged directly to the project to cover expenditures of this kind;
- materials and supplies (including items of equipment costing less than $1,000);
- travel and accommodation costs;
- rental charges;
- other direct costs not in the categories listed above but which can be traced clearly to execution of the project;
- prototype;
- equipment: cost of equipment needed for the project and whose residual value on completion of the project will be zero;
- in exceptional cases, depreciation of a major item of new equipment equivalent to the proportion of its life devoted to the project.

# SUBMISSION OF PROPOSAL

## Preliminary meeting

**Preliminary meeting with the team of the Technology Development Section to prepare the proposal**

Before you submit a proposal, we propose that you to meet with the staff of the Technology Development Section in order to:

- present your project's objectives and verify that they are consistent with Program goals;
- provide information on how the project is to evolve, both scientifically and technically;
- establish the broad lines of your project's financial structure.

## Submission of proposal

In order to help your company submit its proposal and have it evaluated, we suggest that you read the submission guide appended hereto.

Proposals should be sent to:

Head
Technology Development Section
Environmental Protection Branch
Environment Canada, Québec Region
685 Cathcart, 8th floor
Montréal, Québec
H3B 1M6

Telephone: (514) 283-9274
Facsimile: (514) 496-2901

# Appendix A

# GUIDE TO THE DRAFTING OF PROPOSALS UNDER THE TECHNOLOGY DEVELOPMENT AND DEMONSTRATION PROGRAM

**In order to help companies with the drafting of their proposals and to expedite the assessment process, we have drawn up a list of the relevant elements to be included in a submission.**

Seven elements essential in a proposal:

Promoters' information

Partner's information

Proposed technology

Project description

Staffing

Costs

Funding

## 1- Information concerning promoters

a) Company name, address and telephone number, number of employees and instrument of incorporation;

b) Name and title of the representative who will act as liaison with Environment Canada;

c) Proof of representative's decision-making and signing authority (resolution of board of directors);

d) Description of the company and its operations:

- annual sales (domestic and international), profit record;
- production and processing, size of plant, research and development, consulting, etc;
- range of services offered or products made;
- previous participation in research, development and commercialization projects for technological innovations;
- any other information permitting the evaluation of the promoter's ability to develop, operate or commercialize the new technology.

## 2- Partners

The promoter's scientific and technical collaborators in the project (research centres, universities, etc) will be identified (name, address and telephone number of key contact). A brief description of the organization, its role in the project and the nature of the agreements entered into will be included.

## 3- Proposed technology

a) Give a full description of the proposed technology, specifying whether it is new or a new application of an existing technology; demonstrate the originality of the proposal in relation to the current state of research and development and state the limits of the application of the technology;

b) Demonstrate that the research phase has been completed;

c) Name the holders of the patents on this technology; provide all relevant details of patents and report any licenses issued (exclusive/non-exclusive), where applicable;

d) Describe the environmental benefits of the technology;

e) Describe the economic benefits expected to flow from the use of this technology;

f) Identify the commercial potential of the technology. Define its fields of application, the scale of markets and potential customers.

## 4- The project

a) Objectives: describe the intended objectives of the project (eg criteria, performance, etc);

b) Problem area:

- identify the pollution problem addressed, the technical difficulties of resolving it and the scientific and technical background to the development of the technology. Clearly state the stage of development which the proposed technology has reached and specify anticipated technical variables;
- Append an annotated bibliography; where appropriate, identify environmental standards that will need to be met;

c) Description of work:

Break down the project into stages and for each stage specify:

- the nature of the work;
- the specific objectives;
- the timetable;
- the material and equipment needed;
- the types of tests and analyses called for;
- staffing requirements;
- subcontractors and their duties.

Describe the responsibilities of all those involved in the project (partners, funding agencies, collaborators), eg by means of an organization chart;

d) Environmental control methods:

Describe the approach for listing and measuring substances, sampling methodologies and quality control and quality assurance protocols;

e) Project timetable:

Present an overall timetable for the project, describing the critical points at each stage in the progress of the work and the main decision-making milestones (go/no go). Provide budget projections for each stage of the work. An implementation timetable sheet is shown in Appendix B of the brochure.

**Information confidentiality will be protected and respected by Environment Canada**

## 5- Staffing

Provide a list of key project personnel, indicating their respective roles. Include their curriculum vitae.

## 6- Project costs

It is important that direct project costs be specified in as great detail as possible. Costs should be shown for each project stage in accordance with the timetable (a sample is shown in Appendix C) and broken down as follows:

- direct labour costs;
- cost of materials and supplies;
- travel costs;
- equipment costs;
- prototype costs (where applicable);
- rental costs;
- analysis costs;
- subcontracting costs.

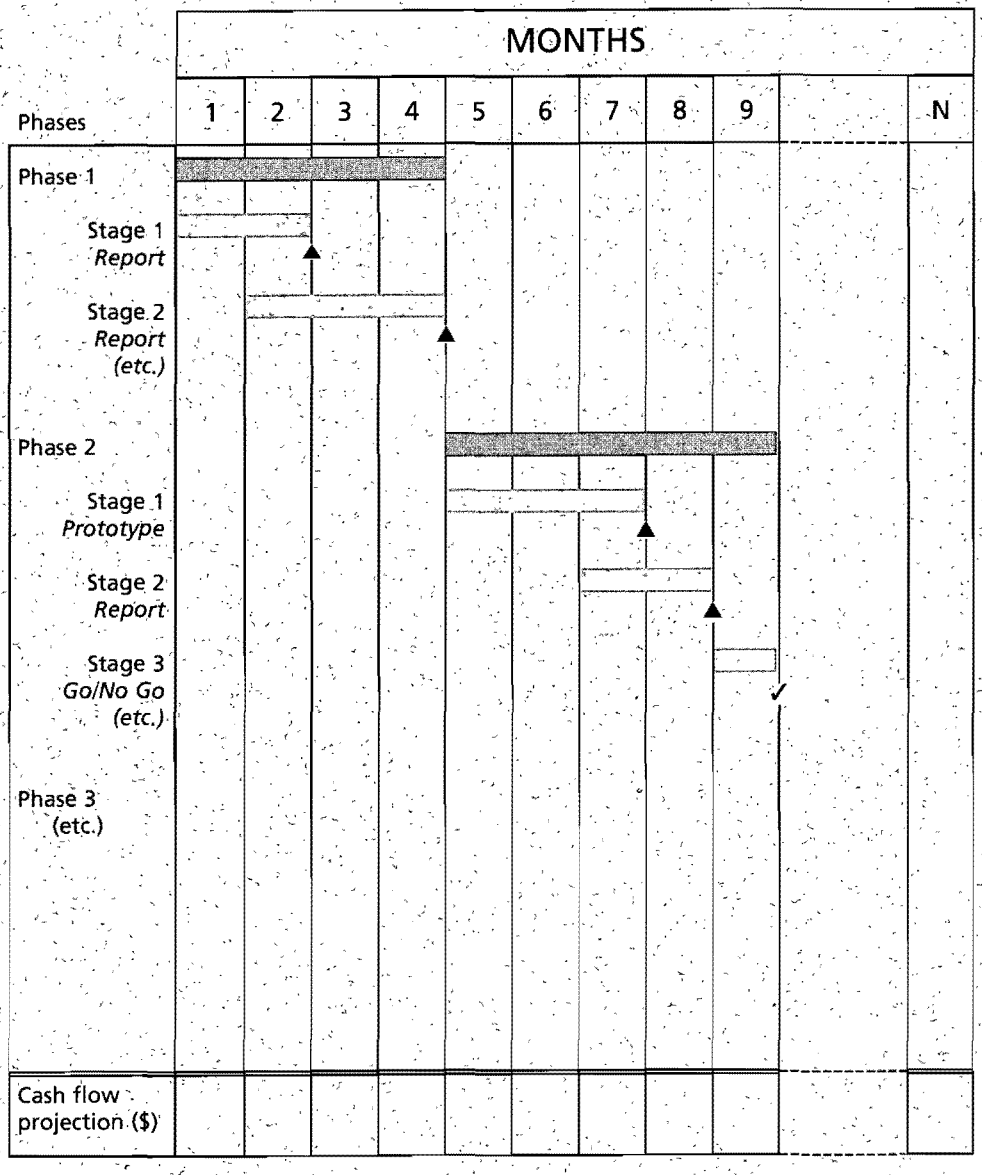
For calculation of direct labour costs and professional fees, the per diem rates used should be shown. Only overhead directly chargeable to the project will be accepted.

## 7- Project funding

The proposal should identify anticipated sources of funding for all costs associated with the project (financial plan). Name the organizations approached for project funding and the amounts sought or obtained.

# Appendix B
# Project implementation timetable

Suggested presentation



# Apendix C
# Project budget summary

**Suggested presentation**
**Cost break-down**

| Phases | Salaries | Materials and supplies | Travel | Prototype | Equipements | Rental | Overhead | Sub-contracts | TOTAL |
|---|---|---|---|---|---|---|---|---|---|
| Phase 1 | | | | | | | | | |
| Stage 1 | | | | | | | | | |
| Stage 2 (etc.) | | | | | | | | | |
| Phase 2 | | | | | | | | | |
| Stage 1 | | | | | | | | | |
| Stage 2 | | | | | | | | | |
| Stage 3 (etc.) | | | | | | | | | |
| Phase 3 (etc.) | | | | | | | | | |
| TOTAL | | | | | | | | | |