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## **Audit of Technology Partnerships Canada**

**Audit and Evaluation Branch**

**October 2003**

**Canada**

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(IRAP-TPC only)**

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## 1.0 Executive Summary

Technology Partnerships Canada (TPC) was formed in 1996 and is a Special Operating Agency of Industry Canada supporting directly Industry Canada's key objectives. TPC is a technology investment fund established to contribute to Canada's economic growth, jobs, wealth and sustainable development. Its purpose is to encourage private sector investments in an attempt to maintain and grow the technological capabilities and technology base in Canada. TPC invests in projects developing new technologies that, without TPC's financial assistance, would not proceed within the desired scope, timing and location.

In 1998, TPC partnered with the Industrial Research Assistance Program (IRAP) of the National Research Council Canada (NRC) to support innovative small and medium enterprises (SMEs) by investing in projects in the pre-competitive or pre-commercialization stage. This distinct sub-program within TPC is known as the IRAP-TPC initiative.

The primary objectives of the audit were to assess: the adequacy of internal controls related to the selection, approval, payment and review of TPC and IRAP-TPC projects and operations; the propriety of transactions; the economy, efficiency and administrative effectiveness of contribution operations and delivery systems; and general compliance by recipients to terms and conditions of agreements, TPC Terms and Conditions and the adequacy of management efforts to determine compliance.

The audit found that, in general, controls related to the selection, approval, payment and review of TPC projects and operations are in place and operating effectively. Effective management practices noted included: the existence of an established approval process; a formal claims process; and the outsourcing of the repayment administration function. However, opportunities exist to strengthen aspects of the control framework in such areas as: strengthened project file documentation, the analysis of actual versus forecasted repayments; the classification of amendments and the prioritization of investment outlines in the Enabling and Environmental sectors. For IRAP-TPC, in general, controls related to the selection, approval, payment and review of projects and operations are also in place and operating effectively. Effective management practices noted included: the existence of an established approval process and the effective utilization of the repayment administration function. However, opportunities exist to strengthen project file documentation and ensure that technical advisors have the business backgrounds and/or business related experience needed to minimize the risk that items, of a critical financial nature, are not appropriately considered in the due diligence and monitoring processes. The audit did not find any instances of impropriety with the transactions tested.

In general, contribution operations and delivery systems are carried out with regard to economy, efficiency and administrative effectiveness. TPC and IRAP-TPC officials are taking steps towards improving key business processes. However, there are opportunities for improvement. In particular, the audit noted that documentation in a number of files was incomplete and/or non-standardized, especially surrounding due diligence. This increases the risk of TPC and IRAP-TPC not being able to demonstrate the level of due diligence performed on funding proposals and the rationale for decisions made. Further, TPC is constrained through its Terms and

Conditions to limit program administration costs to 3 % of total program funding. This has resulted in key positions not being staffed and increases the risk that program monitoring, delivery, management and administration are not as effective as they should be.

The audit did not note any significant instances of non-compliance by recipients to terms and conditions of agreements and TPC Terms and Conditions.

## 2.0 Background

Technology Partnerships Canada (TPC) was formed in 1996 and is a Special Operating Agency of Industry Canada supporting directly Industry Canada's key objectives. TPC is a technology investment fund established to contribute to Canada's economic growth, jobs, wealth and development. Its purpose is to encourage private sector investments in an attempt to maintain and grow the technological capabilities and technology base in Canada. TPC invests in projects developing new technologies that, without TPC's financial assistance, would not proceed within the desired scope, timing and location.

Since its inception in 1996, the TPC program has undergone many evolutionary changes. In the beginning, the program concentrated efforts heavily on obtaining new projects and establishing process guidelines and procedures. As more and more projects are now entering the benefits phase, where repayments of funded contributions are to occur, TPC has had to review the processes for the administration and monitoring of repayments to ensure they are effectively managed. Additional administrative changes are planned as TPC fills proposed managerial positions and strives to continue to strengthen their business processes.

In 1998, TPC partnered with the Industrial Research Assistance Program (IRAP) of the National Research Council Canada (NRC) to support innovative small and medium enterprises (SMEs) by investing in projects in the pre-competitive or pre-commercialization stage. This distinct sub-program within TPC is known as the IRAP-TPC initiative.

As of June 30, 2002 the TPC portfolio consisted of 447 projects, of which 289 were funded by IRAP-TPC. The following is a breakdown, by year, of TPC (including IRAP-TPC) funded contributions:

Year	Value of Contracted Projects	Cumulative Value of Contracted Projects
1996-1997	\$408,283,045	\$408,283,045
1997-1998	\$153,972,376	\$562,255,421
1998-1999	\$213,591,699	\$775,847,120
1999-2000	\$370,792,456	\$1,146,639,576
2000-2001	\$499,343,563	\$1,645,983,139
2001-2002	\$201,860,698	\$1,847,843,837

The assignment examined the both the TPC program as well as the IRAP-TPC initiative. Approximately 95% of TPC funding was directed to projects where the contribution amount exceeds \$500,000 and the remaining 5% was directed to IRAP-TPC projects, all under \$500,000.

In the fall of 2002, Ernst & Young LLP ("Ernst & Young") was engaged by Industry Canada – Internal Audit Department – to carry out an audit of the administration of financial contributions for TPC and IRAP-TPC.

### A. TPC – Overview of the Program

TPC supports research, development and innovation in:

- ❖ Environmental technologies;
- ❖ Enabling technologies; and
- ❖ Aerospace and Defence.

Fiscal 2001-2002 TPC funding was equal to the following approximate allocation by each of the three sectors:

- Aerospace and Defence = 61%
- Enabling = 24%
- Environmental = 15%

TPC contributes to the advancement of technologies by investing in companies in an attempt to accelerate the pace of innovation. Some of TPC's guiding principles include the following:

- ❖ Fostering R&D with private sector companies;
- ❖ Responding to companies' needs for contributions;
- ❖ Sharing the risk and reward with its private sector partners;
- ❖ Requiring repayment of contributions;
- ❖ Limiting TPC investment;
- ❖ Paying its share of claims; and
- ❖ Reinvesting repayments into TPC.

Eligible recipients are organizations established in Canada that: conduct research, development, and innovation activities; meet the eligibility criteria; and can achieve the stated objectives of the proposed project.

The following represents the assessment criteria against which applications for contributions under TPC are evaluated. Applicants must demonstrate that:

- a) the project contributes to the strategic objectives of the government, including technological and net economic benefits to Canada;
- b) the project is technologically feasible, and that the applicant possesses, or can reasonably be expected to secure, the requisite technological and managerial capabilities, and financial resources, to achieve the stated objectives of the project;
- c) a contribution under TPC is necessary to ensure that the project (either individually or as part of a portfolio of related activities of the applicant) proceeds with the desired scope, timing or location; and
- d) the contribution will be repaid.



TPC shares both the risks and rewards associated with proposed projects. The rewards are seen not only in the economic benefits provided to Canada, but also in the financial returns obtained by the government. TPC investments are generally *conditionally* repayable, as repayment terms are based on the applicant achieving a specified level of success from the investment initiative (i.e. technology sales). Should the specified level of success not be achieved (i.e. dollar amount of technology sales), repayment would not be due.

Repayment is also not necessarily limited to the original contribution amount funded. Repayment terms are individually negotiated on a contract-by-contract basis. TPC takes an investment approach with an average sharing ratio of assistance normally not to exceed 33% of the eligible costs of the project. All repayments remain in TPC to fund future client initiatives.

Please refer to Annex A for flowchart diagrams and process narratives outlining, at a high-level, both the TPC and IRAP-TPC process models.

## **B. IRAP-TPC – Overview of the Program**

TPC has partnered with the National Research Council (NRC) to provide pre-competitive or pre-commercialization assistance to small and medium sized enterprises (SMEs) through NRC's Industrial Research Assistance Program (IRAP). IRAP-TPC accounts for approximately 5% of the total value of TPC contracts awarded and over 60% of the total projects.

The IRAP-TPC program, which has been in place since 1998, differs from TPC in that IRAP-TPC is focused on serving a specific market niche of applicants ("Clients"). Potential applicants must be an SME, defined as a company having 500 or fewer employees. In addition, the forecasted eligible costs of the project cannot exceed \$1.5M, the project must also fit in one of three eligible technology areas and the activities must be eligible for Pre-commercialization Assistance. The three eligible technology areas (Environmental technologies, Enabling technologies and Aerospace and Defence) and the investment sharing ratios are the same as those outlined above for TPC. All of IRAP-TPC contracts are *conditionally* repayable.

The IRAP-TPC program is more decentralized than TPC, which is primarily handled out of Ottawa. IRAP-TPC is segregated into seven different regions: Ontario (Toronto), Quebec (Montreal), Maritimes (Halifax), Prairies (Winnipeg), BC (Vancouver), Alberta (Edmonton) and Newfoundland (St. John's).

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### 3.0 Objectives, Scope and Approach

#### Objectives

The primary objectives of the assignment were to assess:

- ❖ Adequacy of internal controls related to the selection, approval, payment and review of TPC and IRAP-TPC projects and operations;
- ❖ Propriety of transactions;
- ❖ Economy, efficiency and administrative effectiveness of contribution operations and delivery systems; and
- ❖ General compliance by recipients to terms and conditions of agreements, TPC Terms and Conditions and the adequacy of management efforts to determine compliance, including audits of contribution recipients. An example of the specific Terms and Conditions tested pertain to eligibility, assessment criteria, funding percentage allocation and stacking.

Annex B outlines the detailed audit criteria for both TPC and IRAP-TPC.

The assignment did not include an examination of the management control framework and verification of compliance with the Transfer Payments Policy (TPP). Although the audit did not specifically verify compliance with the TPP, this was addressed to the extent that some of TPC's Terms and Conditions, such as those relating to eligibility, provision for audit and stacking provisions, were derived from the TPP.

#### Scope

The scope of the assignment applied to the following eligible areas:

- ❖ Environmental technologies that will contribute to the achievement of sustainable development while having significant environmental benefits;
- ❖ Enabling technologies including advanced materials, processes and applications, applications of biotechnology, and applications of selected information technologies.
- ❖ Aerospace and Defence technologies that sustain and expand the technological capacity and capability of these sectors.

## A. TPC

A sample of 58 TPC contribution files was examined, totaling approximately \$1.18B worth of project funding. The sample included a combination of contribution files that had not entered the benefits phase and files in the benefits phase. For the files not in the benefits phase, testing concentrated on applications received in 1999 and later, since changes occurred to the overall TPC process and file documentation as a result of the World Trade Organization (WTO) restructuring that took place in the latter part of 1999.

## B. IRAP-TPC

A sample of 25 IRAP-TPC files was also subject to examination, totaling approximately \$9.9M worth of contracts awarded. Consistent with the TPC testing performed, IRAP-TPC files that had not entered the repayment phase and files in the repayment phase were examined. Given that IRAP-TPC files are not segregated into industry sectors, the files chosen for testing were randomly selected. Contribution files from the four largest regions, based on dollar value of contributions, were subject to verification. They are Ontario (Toronto); Quebec (Montreal); B.C. (Vancouver); and Alberta (Edmonton).

## Approach and Methodology

The audit was carried out in two distinct phases. **Phase 1** was a discovery phase that took place in November 2002 for TPC and December 2002 for IRAP-TPC. Based on interviews, review of documentation and flowcharting, the processes and internal controls, an understanding of TPC and IRAP-TPC programs and operations was obtained. An overall understanding of the program allowed us to identify the areas of risk, which helped scope the nature and extent of procedures to be performed when completing the audit. **Phase 2** involved performing the detailed audit work. The file testing occurred mainly in November/December 2002 for TPC and January 2003 for IRAP-TPC.

In summary, our approach included the following procedures:

### *Discussions and Inquiries:*

- Meetings and discussions with TPC and IRAP-TPC personnel;
- Interviews with TPC and IRAP-TPC process owners including:
  - a) Investment Officers (TPC)
  - b) Industrial Technology Advisors (IRAP-TPC)
  - c) Technology sector Directors (TPC)
  - d) Program Directors (TPC & IRAP-TPC)
  - e) Director of Program Services Board (TPC)
  - f) Other staff

Over 20 interviews were conducted with TPC and IRAP-TPC personnel during the course of our audit.

*Documentation Review:*

- a) TPC Terms and Conditions
- b) Agreements for Services from PPM to TPC
- c) Audit Framework TPC
- d) Audit Framework IRAP
- e) Treasury Board Risk Based Audit Framework Guide
- f) TPC Evaluation and Accountability Framework
- g) IRAP-TPC Portfolio Administration Policy
- h) IRAP Repayment Guide – Understanding Royalty-Based Repayment
- i) TPC and IRAP-TPC files not in the benefits/repayment phase
- j) TPC and IRAP-TPC files in the benefits/repayment phase
- k) TPC and IRAP-TPC sample template documents (i.e. contracts, proposal outlines, claim forms, etc.)
- l) Other relevant documentation.

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## 4.0 TPC – Detailed Findings

Since the introduction of the program, TPC has been continually striving to improve its business processes and controls. Overall, TPC business processes and controls are generally effective, with the exception of the areas identified where improvements should be made. Effective TPC practices, as well as observations and recommendations, were identified during the assignment and are discussed below.

### 4.1 *Objective: Adequacy of internal controls related to the selection, approval, payment and review of projects and TPC operations.*

#### *Effective Management Practices*

##### *Established Approval Process*

TPC has established a formal approval process that must be adhered to when a contribution agreement is contracted. The escalating levels of approval are based on the dollar value of the projects being funded. During the audit, all required documents and signatures relating to the approval process were present in each file examined. No instances were noted of non-compliance with TPC's approval level policies.

##### *Formal Claims Process*

TPC has instituted structured procedures that are to be followed for each claim submission. Two levels of signatures are required to release a claim for payment at TPC. In addition, TPC has engaged PWGSC to perform high-level claim verifications to ensure all required supporting documentation has been provided with each submission. Using the resources of PWGSC serves not only as a review function, but also provides a level of independence between the Investment Officer and the claim submission process. We understand PWGSC's involvement ended March 31, 2003.

##### *Outsourcing of Repayment Administration to Program Policy Management Branch (PPM)*

In 2000, TPC outsourced the repayment administration function to PPM in order to profit from their skills and to assist TPC in monitoring the files in the benefits phase. PPM specializes in both monitoring and repayment administration functions, and provides objectivity and a level of segregation of duties.

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## Observations and Recommendations

Based on the analysis performed, areas for improvement and corresponding recommendations were identified in the internal controls related to the selection, approval, payment and review of projects and the TPC operations; they are outlined below.

*a) Some TPC amendments do not fall under Industry Canada's specific categories of substantive and non-substantive amendments.*

Amendments to original contracts occur frequently at TPC. Industry Canada has definitions of substantive vs non-substantive amendments which include nine different categories of substantive amendments, 24 categories of non-substantive amendments and a category under each called "other" if the circumstances do not fit any of the 33 definitions. These definitions were developed before the creation of TPC and may not fit the kind of circumstances that occur with TPC's multi-year research and development projects. Several of the amendments we reviewed did not fall under any of the 33 definitions which resulted in them being classified as "other". Because this category is not clearly defined in Industry Canada's policies, it requires judgment for interpretation of the significance of the proposed amendment. As a result, there is an increased risk that a substantive amendment would be classified as non-substantive with the result that the increased level of due diligence and approval process required for substantive amendments would not be performed.

### Recommendation

We recommend that TPC review the circumstances under which amendments were classified as "other" in order to obtain the authority to revise the categories substantive or non-substantive amendments to better address the circumstances occurring with TPC's multi-year research and development projects, reduce subjectivity in amendment classifications and ensure that appropriate due diligence and approval procedures are performed for each type of amendment.

*b) Prioritization of Investment Outlines is not consistently applied between sectors.*

The Environmental and Enabling sectors prioritize incoming investment outlines (applications). The intent of the prioritization process at TPC is to both rate and rank all investment outlines received by a panel of up to six personnel from varying Industry Canada sectors. This serves as a means of identifying strong potential applicants, who are then encouraged to proceed to the formal investment proposal stage, while addressing the limitations that result from funding restrictions.

The formal prioritization process implemented several years ago in the Enabling sector and approximately one year ago in the Environmental sector is not consistently applied. It was observed that personnel from varying Industry Canada sectors were involved in the prioritization and that a ranking was assigned to the Investment Outlines. The inconsistency arose when several key steps in the prioritization process were not formally completed. For example, standard rating sheets were sometimes not completed by personnel involved in the process; a

document summarizing the results of the prioritization meeting was not prepared; and the summary document was not formally approved by the Executive Director and Deputy Executive Director. We understand these steps were informally completed through discussions and verbal approvals, but not formally documented in each file.

The Aerospace and Defence sector has a different process to identify strong potential applicants. This process includes a detailed review of the investment outline, discussion with the applicants and several internal discussions. The prioritization process is not completed in the Aerospace and Defence sector since funding constraints in this sector are not as restrictive as in the other sectors. We observed that file documentation did not fully capture the rationale regarding the decision as to whether or not to request a proposal from an applicant. This increases the risk that the basis for decisions is not adequately documented and support for the decisions made by TPC relating to proposals from applicants does not exist.

### **Recommendations**

We recommend the Aerospace and Defence sector consistently document the rationale supporting the decision to request or not a project proposal from applicants. Such documentation will represent support to demonstrate that appropriate analysis was performed by TPC management and to assist in maintaining TPC's corporate memory.

We recommend the formal prioritization process implemented in the Enabling and Environmental sectors be consistently and formally applied in order to ensure the rating, ranking and analysis procedures performed and the rationale behind acceptance and/or rejection of an investment outline are properly documented and supported in each file.

#### *c) Repayments of contributions differ from estimates and forecasts.*

For a number of TPC files in the benefits phase, actual repayments to date differ from original forecasted amounts. As of December 31, 2002, of the files examined, Clients had made approximately 25% of originally forecasted repayments (actual repayments were approximately \$22 million as compared to forecasted repayments of approximately \$88 million). In addition, the original forecasted date that repayments were scheduled to begin often differed from actual. The TPC program has been in operation for just over six years and only in the past few years have files entered the benefits phase, where repayments were anticipated to occur. Factors such as the lack of historical repayment trend information, combined with the economic slow-down, impacted the amount of repayments received and created significant gaps between actual and forecasted repayments. Annual information updates and repayment-based information were received from Clients; however, TPC did not formally review and assess the impact these factors had on the level of repayments to determine whether any modifications to the due diligence process and the funding agreement repayment terms were required.

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## Recommendation

We recommend TPC improve the documentation of their follow-up procedures on annual information updates and repayment-based information received from Clients to help identify the causes for the current gap between actual and forecasted repayments. TPC should use this information to determine whether additional steps should be taken during the due diligence process and changes made to funding agreement repayment terms in order to address the causes for the experienced repayment gap and high risks of repayments.

### 4.2 *Objective: Propriety of transactions*

Of the files examined, no issues were identified relating to the propriety of transactions. As a result, no observations and/or recommendations were noted relating to this objective.

### 4.3 *Objective: Economy, efficiency and administrative effectiveness of contribution operations and delivery systems.*

## *Effective Management Practices*

### *Continuous Effort Towards Improvement*

Members of TPC are taking steps towards improving key business processes. Examples include the institution of prioritization in both Enabling and Environmental and the solidification of proposal requirements at TPC.

Based on the work performed, on the economy, efficiency and administrative effectiveness of contribution operations and delivery systems, the following observations were identified and recommendations for improvement have been made.

## Observations and Recommendations

a) *Project file documentation is not standardized and/or complete.*

- i) The due diligence phase is an important element of the TPC process. It is designed to provide input, both technical and financial, from a variety of multi-disciplined reviewers, to support TPC's decision of funding or not funding a given project. Documentation of the due diligence process is not always clear and evident in the files. The composition of the due diligence team, including their area of expertise, the risk analyses, recommendations and final conclusions were not always formally documented. This lack of documentation increases the risk of TPC not being able to demonstrate the level of due diligence performed on funding proposals and the rationale for decisions made.

The development of standardized forms would assist all sectors in documenting the names, positions, area of expertise, risk analyses, findings and recommendations of all due diligence team members. The forms could include specific areas for each multi-



disciplinary team member to document information such as opportunities, risks, weaknesses and strengths of the projects, resolution regarding concerns raised and a section for final recommendation by the reviewer and would ensure that information requested from the reviewers during the due diligence is included in the file and the position of the reviewers regarding the project submitted by the applicant is documented. This documentation would also facilitate management of the file by the Investment Officer (IO) or the review of the files by Quality Assurance or the Directors.

Due diligence reports from the Economic and Business Case Analysis (EBCA) unit are routinely done for all investment proposals providing valuable financial information to the due diligence team, and its opinion and recommendations is a key factor in the due diligence process. However, it was found that in some instances the report was not on file and the report, although final, was still marked draft.

### **Recommendations**

We recommend standardized forms be developed for all sectors to assist in documenting the names, positions, area of expertise, risk analyses, findings and recommendations of all due diligence team members.

We recommend due diligence report(s) from the Economic and Business Case Analysis (EBCA) unit clearly indicate final opinions and recommendations. We also recommend the final and complete copy of the EBCA report(s) be always included in each file.

- ii) Once a project enters the claims stage, annual meetings are held between the Client and the associated project IO. The purpose of this meeting is for TPC to obtain information on the overall project progress, status, forecasts and risks. These annual meetings provide valuable information in the preparation of the annual risk assessment rating. Records of discussions of the meetings, however, are not always formally documented. We understand the risk assessment forms are an outcome of the annual meetings, but we do not consider them to constitute formal records of discussions. The absence of formal records of discussion for these meetings constitutes a gap in providing appropriate support of the occurrence of the meeting and information obtained during the meeting which will support the annual risk assessment performed by TPC.

### **Recommendation**

We recommend meetings between Clients and TPC be documented with records of discussion to maintain appropriate records and to support the annual risk assessment of the project.

- iii) We observed that the due diligence process in the Aerospace & Defence sector often involved only one or two reviewers, due to a limited number of experts in certain industry sectors. The small number of reviewers in the due diligence process increases

the risk that the review of the Investment Proposal does not take all business and technological factors into consideration.

#### Recommendation

When there is a limited number of experts available to participate in the Multi-Disciplinary team, we recommend TPC's policy require that file documentation reflect the rationale and the actions taken to ensure appropriate due diligence procedures were performed.

- iv) When the files enter the benefits phase, they are transferred to PPM by TPC. Once the files are transferred, PPM officers are responsible for performing annual risk assessments of the projects. When a company with no previous history is transferred, PPM has limited knowledge of the applicants and we understand that in some instances PPM has difficulty completing a full annual risk assessment. This could increase the risk of an inaccurate risk assessment being completed. An inaccurate risk assessment will not achieve its objective of timely identification of risks associated with the project.

#### Recommendation

Where there is limited knowledge of certain project files, we recommend TPC and PPM jointly perform and document annual risk assessment summaries for those files transferred to PPM, in order to ensure the accuracy and completeness of the risk update. We also recommend Directors' of both TPC and PPM sign-off on the final risk rating summary sheet. These additional procedures will help identify and mitigate risks associated with projects in the benefit phase.

- v) TPC file documentation is currently in hard copy, electronic copy and can be found in various locations. There is an inconsistent approach to document filing which increases the risk of lost documentation.

#### Recommendation

We recommend TPC review and improve its practice for documentation retention. We understand that a checklist currently exists identifying all documents for inclusion in an applicant file. We recommend the checklist be used on a more consistent basis. The existing Quality Assurance process should be strengthened to ensure completeness of documentation. These recommendations will ensure files are properly supported and mitigate the risk that documents are lost or misplaced.

*b) Current human and financial resources place strain on the program.*

A number of functions remain unstaffed within the TPC organizational chart due to budget constraints. As stipulated in section 7.7 of TPC's Terms and Conditions, TPC's program administration costs are limited to approximately three percent of total program funding. Program administration costs include all costs to administer, manage, deliver and monitor the program. TPC representatives have raised concerns whether sufficient resources are available to appropriately monitor the increasing number of projects funded by TPC. The strain on resources will also increase due to the number of agreements that will be entering the monitoring phase; therefore, significantly increasing the level of work required in that area, in addition to the monitoring and verification of Client claims, which are currently very limited. The impact of the 3% budget constraint on Client claim and repayment focused audits is discussed below in 4.4.

### **Recommendations**

We recommend TPC review its budget requirements to ensure all TPC business processes are appropriately resourced, including the monitoring of project risks.

TPC should ensure files are transferred to PPM on a timely basis to benefit from PPM specialization and allow TPC's human resources be re-allocated in order to continue improving the monitoring process required for the increasing number of project files.

**4.4 Objective: General compliance by recipients to terms and conditions of agreements and the adequacy of management efforts to determine compliance, including audits undertaken of recipients of contributions.**

### ***Effective Management Practices***

#### ***Terms and Conditions***

The audit assessed the extent of compliance to program Terms and Conditions and, except as noted below, did not note any instances of non-compliance. Specific areas of compliance noted included the following:

- Projects funded fell within prescribed eligible areas (Enabling technologies, etc.);
- Evidence that applicants are being assessed in accordance with stated criteria;
- Requirements for type and amount of assistance, and stacking provisions, are being met;
- Evidence of proper approvals of contribution agreements;
- Risk-based approach for conduct of audits of recipients;
- Evaluation of TPC was underway at the same time as the audit;
- Repayment files require recipients to submit annual information updates on projected and actual repayments.

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## Observations and Recommendations

Our analysis identified, however, some observations and recommendations.

### *Compliance with TPC Terms and Conditions relating to audits.*

Contribution repayments are conditional and begin when the degree of success of the financed technology, as specified in the agreement, is achieved. Once the level of success is achieved, repayments of the contribution begin. For example, royalties are commonly based on gross revenues generated from the technology during a specified period. Once in the benefits phase, the Client must submit sales reports to TPC to support the level of activity and success of the technology. These reports have to be signed by senior financial management from the Client organization. According to section 11 of TPC's Terms and Conditions, "the Minister retains the right to have audits undertaken in order to confirm the amounts repayable to the Crown, on the basis of the contribution agreement." TPC has obtained some third party assurance on files in the benefits phase to ensure completeness and accuracy of the financial results provided by Clients.

Section 11 also states that audits are permitted for the purpose of validating claims made by Clients for reimbursement of eligible costs. Audits are being performed on a yearly basis; however, few audits are currently performed as a result of budget constraints. The audit budget of approximately \$300,000 is limited by the fact that the TPC administration expenses cannot exceed 3% of total program funding. This impacts the degree of monitoring that TPC can apply on claim submissions and increases the risk that money claimed by Clients does not constitute eligible costs.

### Recommendations

We recommend TPC continue to obtain third party audit assurance on files in the benefits phase to ensure completeness and accuracy of the financial results provided by Clients. TPC should monitor the level of resources allocated to this area to ensure it is appropriate given the increasing number of files reaching the benefits phase.

TPC should, as well, review the budget allocation for the performance of audits of Client claims to ensure an appropriate sample of claim submissions are being audited on a yearly basis.

**5.0****IRAP-TPC – Detailed Findings**

Since program inception, IRAP-TPC has been making continuous efforts to improve business processes and controls. Overall, IRAP-TPC business processes and controls are generally effective, with the exception of the areas identified where improvements should be made. Effective IRAP-TPC practices, as well as observations and recommendations, were identified during the assignment and are discussed below.

**5.1 Objective: Adequacy of internal controls related to the selection, approval, payment and review of projects and IRAP-TPC operations.*****Effective Management Practices******Established Approval Process***

IRAP-TPC has established a formal approval process that must be adhered to when a contribution agreement is contracted. The escalating levels of approval are based on the dollar value of the projects being funded. During the assignment, no instances were noted where actual approval levels deviated from IRAP-TPC's policy. Further, all necessary documents and signatures relating to the approval process were present in each file examined.

***Utilization of Portfolio Management Unit (PMU)***

In 2002-03, IRAP management established the Portfolio Management Unit (PMU) to provide advice, assistance and monitor repayments. PMU assists regional staff in administering IRAP-TPC agreements, while providing a communication link with the Finance Branch on issues relating to the recovery of accounts in arrears. Recently, the mandate of the NRC IRAP PMU was expanded to include responsibilities for coordinating and providing national leadership to all IRAP-TPC activities across Canada.

**Observations and Recommendations**

Based on the analysis performed, several areas for improvement and corresponding recommendations were identified in the internal controls related to the selection, payment and review of projects and IRAP-TPC operations; they are outlined below.

***a) Industrial Technology Advisors (ITA) are not required to have designated business backgrounds.***

ITAs are not required to have designated business backgrounds and/or business related experience, although it is encouraged. ITAs do not have the same financial and technological support that IOs have with TPC. Currently, ITAs perform the financial due diligence and are responsible for approving and monitoring the status of on-going projects and the financial and operational results of the Client's business. A lack of financial and/or business expertise increases the risk that items of a critical financial nature are not appropriately considered in the

due diligence and monitoring processes. In a sample of the files examined, financial and business information was included in the file, which highlighted certain risk factors that were not addressed by the ITAs. Examples of risk factors include a going concern note in a Client's financial statements and negative operational cash flows, for the last three years, in another Client's financial statements which were not addressed in the files.

### **Recommendation**

We recommend IRAP-TPC put greater emphasis on business and financial knowledge/experience in the ITA screening process given the degree of business background that is required in order to complete the necessary due diligence. A business background will also assist ITAs to appropriately monitor the financial and operational status of the projects and the Client's business.

#### *b) Repayments of contributions differ from estimates and forecasts.*

For a number of IRAP-TPC files examined in the repayment phase, actual repayments to date differ from original forecasted amounts. As of March 31, 2003, of the files examined, Clients had made approximately 11% of originally forecasted repayments (actual repayments were approximately \$833,000 as compared to forecasted repayments of approximately \$7.4 million). In addition, the original forecasted date that repayments were scheduled to begin often differed from actual. The IRAP-TPC program has been in operation for just over four years and only recently have files entered the repayment phase, where repayments are anticipated to occur. The lack of historical repayment trend information combined with weak market conditions, makes it difficult for IRAP-TPC to anticipate the amount and timing of future repayment of contributions. Annual information updates and repayment-based information were received from Clients; however, a formal enquiry process to examine the causes of a Client's failure and/or lack of timely repayments was not always performed or documented. IRAP-TPC has not formally evaluated the causes for the delays in repayment and as a result has not modified its due diligence process and funding agreement repayment terms to take these factors and risks into consideration.

### **Recommendation**

We understand that IRAP-TPC has identified several factors explaining the large variance between forecasted and actual repayments. IRAP-TPC is in the process of reviewing their current practice to take these factors into consideration to assist them in determining forecasted repayments. We recommend that IRAP-TPC prioritize this process review in order to modify their current due diligence phase and funding agreement repayment terms to capitalize on past experience.

## 5.2 *Objective: Propriety of transactions.*

Of the files examined, no issues were identified relating to the propriety of transactions. As a result, no observations and/or recommendations were noted relating to this objective.

## 5.3 *Economy, efficiency and administrative effectiveness of contribution operations and delivery systems.*

### *Effective Management Practices*

#### *Continuous Efforts Towards Improvement*

IRAP has recognized the additional volume of contribution agreements that are soon going to be entering the repayment phase and, as such, the “IRAP-TPC Portfolio Administration Policy” was issued in 2002. This policy was distributed to IRAP employees in early December 2002. Its purpose is to assist staff with the management of IRAP-TPC contribution agreements in the repayment phase.

Based on the work performed on the economy, efficiency and administrative effectiveness of contribution operations and delivery systems, several observations were noted and recommendations for improvement have been made.

### **Observations and Recommendations**

a) *Project file documentation is not standardized and/or complete.*

- i) The due diligence phase is an important element of the IRAP-TPC process. It is designed to provide input, both technical and financial, from a variety of reviewers, to support IRAP-TPC’s decision of funding or not funding a given project. Documentation of the due diligence process is not always clear and evident in the files. The composition of the due diligence team, including their area of expertise, the risk analyses, recommendations and final conclusions were not always formally documented. The lack of documentation increases the risk of IRAP-TPC not being able to demonstrate the level of due diligence performed on funding proposals and the rationale for decisions made.

#### **Recommendation**

We recommend standardized forms be developed for all sectors to assist in documenting the names, positions, area of expertise, risk analyses, findings and recommendations of all due diligence team members. The standardized forms should include specific areas for each team member to document information such as opportunities, risks, weaknesses and strengths of the projects, resolution regarding concerns raised and a section for final recommendation by the reviewer. Such a form will ensure information requested from the reviewers during the due diligence is

included in the file and the position of the reviewers regarding the project submitted by the applicant is documented. This documentation will also facilitate management of the file by the ITA or the review of the files by the Director.

- ii) Once a project enters the claims stage, annual meetings are held between the Client and the associated project ITA. The purpose of this meeting is for IRAP-TPC to obtain information on the overall project progress, status, forecasts and risks. Records of discussions of the meetings, however, are not always formally documented. The absence of formal records of discussion for these meetings constitutes a gap in providing appropriate support of the occurrence of the meeting.

### **Recommendation**

We recommend meetings between Clients and IRAP-TPC be documented with records of discussion to maintain appropriate records and to support the annual risk assessment of the project.

- iii) IRAP-TPC file documentation is currently in hard copy, electronic copy and can be found in various locations. There is an inconsistent approach to document filing which increases the risk of lost documentation.

### **Recommendation**

We recommend IRAP-TPC introduce a standardized policy for documentation retention. A checklist should also be developed, identifying all documents for inclusion in an applicant file. A Quality Assurance process should be developed to ensure completeness of documentation. These recommendations will ensure files are properly supported and mitigate the risk that documents are lost or misplaced.

*b) Liaison position between TPC & IRAP-TPC remains vacant.*

Efforts are currently made between TPC and IRAP-TPC to meet on a quarterly basis to discuss relevant issues and share best practices. We observed, however, that these meetings do not always occur due to time constraints. In the past, there was a full-time position filled by an employee who acted as a liaison between IRAP-TPC and TPC on a regular basis; this position has been vacant for approximately one year.

### **Recommendation**

We recommend IRAP-TPC and TPC meet regularly to share information and best practices. We also recommend the liaison position be filled to facilitate communication and synergies between the two programs.



*c) Current human and financial resources place strain on the program.*

IRAP-TPC representatives have raised concerns whether sufficient resources are available to appropriately monitor the increasing number of projects funded by IRAP-TPC. The strain on resources will also increase due to the number of agreements that will be entering the monitoring phase; therefore, significantly increasing the level of work required in that area, in addition to the monitoring and verification of Client claims, which are currently very limited.

## **Recommendations**

As all phases of IRAP-TPC operations are critical, we recommend IRAP-TPC review its budget requirements to ensure all IRAP-TPC business processes are appropriately resourced, including the monitoring of project risks.

**5.4 Objective: General compliance by recipients to terms and conditions of agreements and the adequacy of management efforts to determine compliance, including audits undertaken of recipients of contributions.**

### ***Effective Management Practices***

#### ***Terms and Conditions***

The audit assessed the extent of compliance to program Terms and Conditions and, except as noted below, did not note any instances of non-compliance. Areas of compliance noted during audit testing included the following:

- Projects funded fell within prescribed eligible areas (Enabling technologies, etc.);
- Evidence that applicants are being assessed in accordance with stated criteria;
- Requirements for type and amount of assistance, and stacking provisions, are being met;
- Proper approvals of contribution agreements;
- Risk-based approach for conduct of audits of recipients;
- Evaluation of TPC was underway at same time as the audit;
- Repayment files require recipients to submit annual information updates on projected and actual repayments.

## **Observations and Recommendations**

Our analysis identified, however, some observations and recommendations.

*Compliance with TPC Terms and Conditions relating to audits.*

According to section 11 of TPC's Terms and Conditions, "the Minister retains the right to have audits undertaken in order to confirm the amounts repayable to the Crown, on the basis of the contribution agreement." IRAP-TPC's contribution repayments are based on the "Firm's gross revenue" defined in a typical contribution agreement as "... all revenues, receipts, monies and other consideration of whatever nature earned or received by the Firm ...". The contribution agreements as well require that Clients submit to IRAP-TPC an annual audited report of gross revenues which are used to substantiate the repayments made by Clients.

We observed three instances where annual audited reports of gross revenues were not present in the files. However, in two instances the audited financial statements were present. While audited financial statements provide reasonable assurance over Clients' overall financial results, they may not necessarily provide the level of assurance expected from IRAP-TPC over the annual gross revenues earned by Clients as the scope and depth of testing performed for an audit of financial statements will generally differ from that of an audit of annual gross revenues of an organization.

In addition, section 11 also states that audits are permitted for the purpose of validating claims made by Clients for reimbursement of eligible costs. IRAP-TPC performs audits on a biennial basis using the National Research Council Canada ("NRC") audit sampling methodology.

**Recommendations**

As dictated under section 5.3 of the contribution agreement template, IRAP-TPC is required to obtain from Clients in the repayment phase an annual audited report of gross revenues. We recommend IRAP-TPC regularly follow-up with Clients to ensure that these annual audited reports of gross revenues are obtained on a timely basis.

## 6.0 Overall Conclusion

Both TPC and IRAP-TPC are funding programs that continue to evolve. As contribution funding provided to private sector companies increases and more projects enter the benefits phase, both programs continue to establish new process guidelines, procedures and controls.

Our review constituted examining TPC files from the latter part of 1999 onward and IRAP-TPC files since the inception of the program. As older files were compared to more recently funded contributions, progress was noted in regards to program policy developments and betterments.

Effective TPC and IRAP-TPC practices were identified as a result of TPC and IRAP-TPC making a continuous effort to improve business processes and controls. Some of these best practices are as follows:

### TPC

- The existence of a formal approval process that must be adhered to when a contribution agreement is contracted, with escalating levels of approval based on the dollar value of the projects being funded;
- TPC has instituted structured procedures to be followed for each claim submission. Two levels of signatures are required to release a claim for payment at TPC;
- Engaging PWGSC to perform high-level claim verifications to ensure all required supporting documentation has been provided with each submission. Using the resources of PWGSC serves not only as a review function, but also provides a level of independence between the Investment Officer and the claim submission process. (Note: As of April 1, 2003 this service was no longer being provided);
- Outsourcing the repayment administration function to Program Policy Management Branch (PPM) in order to profit from their skills and to assist TPC in monitoring the files in the benefits phase. PPM specializes in both monitoring and repayment administration functions, and provides objectivity and a level of segregation of duties;
- Evidence of ongoing efforts to improve key business processes. Examples include the institution of prioritization in both Enabling and Environmental and the solidification of proposal requirements at TPC.

### IRAP-TPC

- The existence of a formal approval process that must be adhered to when a contribution agreement is contracted. Required approval levels escalate as the dollar value of projects funded rise.
- Establishment of the Portfolio Management Unit (PMU), which serves as a contact reference for staff requiring assistance with repayment issues. Recently, the mandate of the NRC IRAP PMU was expanded to include responsibilities for coordinating and providing national leadership to all IRAP-TPC activities across Canada.
- Recognition of the increasing number of files that are soon going to be entering the repayment phase has lead to the issuance of a “IRAP-TPC Portfolio Administration Policy”.

This document is designed to assist staff with the management of IRAP-TPC files in the repayment phase.

There do remain, however, areas for improvement in order to strengthen the overall administration of TPC and IRAP-TPC financial contributions. The more significant TPC related findings are as follows:

- Documentation was noted in a number of files as being incomplete and/or non-standardized, in particular as it relates to demonstrating due diligence.
- A detailed analysis should be performed in order to support the differences between actual repayments of contributions and forecasted repayments.
- Shortages of both human and financial resources place a strain on the program.
- Subjectivity in classification of amendments as either a substantive or non-substantive amendment.
- Prioritization in the Enabling and Environmental sectors is not always being fully adhered to.

The more significant IRAP-TPC related findings are as follows:

- ITAs are not required to have designated business backgrounds and/or business related experience.
- Documentation was noted in a number of files as being incomplete and/or non-standardized, in particular as it relates to demonstrating due diligence.
- A detailed analysis should be performed in order to support the differences between actual repayments of contributions and forecasted repayments.

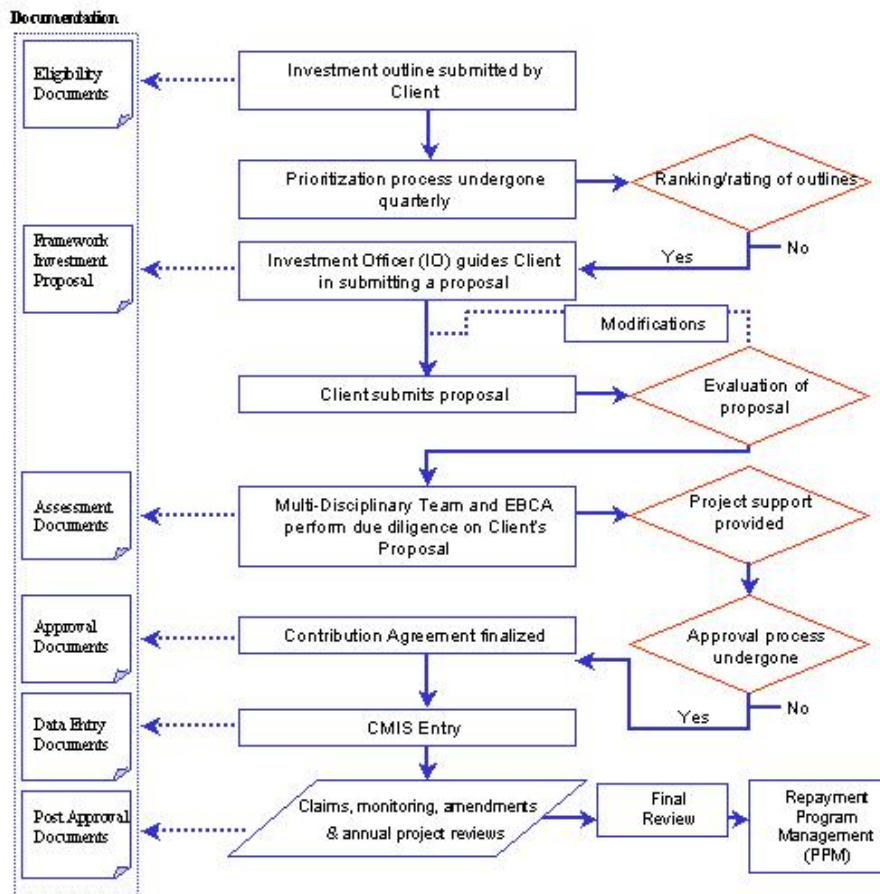
# ANNEX A



**A. TPC Overview**

The following high-level diagram illustrates the TPC process model.

**Technology Partnerships Canada Program**



**LEGEND**



## **Description of the TPC Process**

Since its inception in 1996, TPC has significantly evolved. This is evident in the improvements in the TPC processes in recent years including, but not limited to, the monitoring and the administration of the repayment phases, which are described below. The mandate and vision of the TPC program is as follows:

TPC is a technology investment fund established to contribute to the achievement of Canada's objectives of increasing economic growth, jobs and wealth creation, and supporting sustainable development. TPC will advance and support government initiatives by investing strategically in research, development and innovation in order to encourage private sector investment, and so maintain and grow the technology base and technological capabilities of Canadian industry. TPC will also encourage the development of SMEs in all regions of Canada.

### *Investment Outline*

The investment outline process is the initial stage involved in obtaining potential TPC funding. Clients are encouraged to self-assess their eligibility to meet TPC requirements through an Investment Application Guide available both in hardcopy and on-line. Should a client believe that they are an eligible TPC funding candidate, they complete and submit an Investment Outline. An Investment Outline is generally an Executive Summary of a company's business plan, approximately ten pages in length.

### *Prioritization*

The prioritization process occurs formally in both the Environmental and Enabling sectors. This stage is a relatively new step in the process that has been instituted at TPC only in the last few years. Prioritization involves stakeholders from several governmental departments assisting in the rating and ranking of Investment Outlines.

### *Proposal Preparation*

For those Investment Outlines that have achieved both high ratings and rankings, Clients are requested to submit an Investment Proposal in accordance with TPC's FIP (Framework Investment Proposal). Unlike the Investment Outline, an Investment Proposal is a very lengthy and comprehensive business plan that requires significant time and effort to compile.



### *Due Diligence*

Both the Economic and Business Case Analysis unit (“EBCA”) of TPC and various technical experts make up multi-disciplinary teams that perform the financial and business case due diligence on Investment Proposals. The duration of the due diligence process is highly dependent on the quality of the proposal and availability of due diligence team members. This phase typically lasts between three to five months. As a result of the due diligence phase, an Investment Decision Document (“IDD”) is prepared by the Investment Officer assigned to the project. The IDD is a summary document that condenses the information obtained from both the Investment Proposal and the due diligence analysis.

### *Approval Process*

Various formal approval levels are required for TPC projects, depending on the dollar value of the funding being requested. Should the due diligence results yield overall positive support for the project funding to proceed, the IDD enters the formal approval stage. For those projects where the total contribution exceeds \$500,000, the Investment Officer and/or respective Director present the project to Program Services Board for approval. In addition, where the total contribution exceeds \$20M, the Minister of Industry Canada, Treasury Board and Cabinet are all involved in the approval process.

### *Contracting*

Once the necessary approvals have been obtained, a formal contract is drafted. Public Works and Government Services Canada (“PWGSC”) is involved in the contract preparation. The Department of Justice serves as legal advisor and assists in drafting specific contract clauses. Quality assurance is performed on the formal agreement to ensure that all information presented in the IDD is appropriately included in the final contract.

### *Claims*

Claims are submitted by each Client to TPC in accordance with the terms of the final contract (i.e. monthly, quarterly, etc.). Claim submission forms, with attached technical progress reports, are sent to TPC, and then forwarded to PWGSC for a review of the eligibility and accuracy of expenses claimed. Upon completion of the PWGSC review, the Investment Officer reviews the technical reports to ensure that there have been no major alterations to the statement of work that would prevent payment of the claim. Both the Investment Officer and the Director of the sector must approve the claim submission for payment. Once approved, the claim is then sent to the Comptroller’s Branch of Industry Canada for disbursement.

### *Final Review*

A contract enters the final review stage once the work phase is complete and all claims have been paid. At this point in time, the Investment Officer performs a final risk assessment, which is approved by the Director. The purpose of the risk assessment is to annually update the financial, technical, business, compliance and repayment related risks associated with a given project. This information is communicated to program management to keep them abreast of risk factors identified should action need to be taken to mitigate some of the risks outlined. For projects that will be entering the “benefits phase”, the files are forwarded to the Program Policy and Management Branch (“PPM”), which is responsible for handling the monitoring and repayment administration function on TPC’s behalf.

### *Annual Project Reviews*

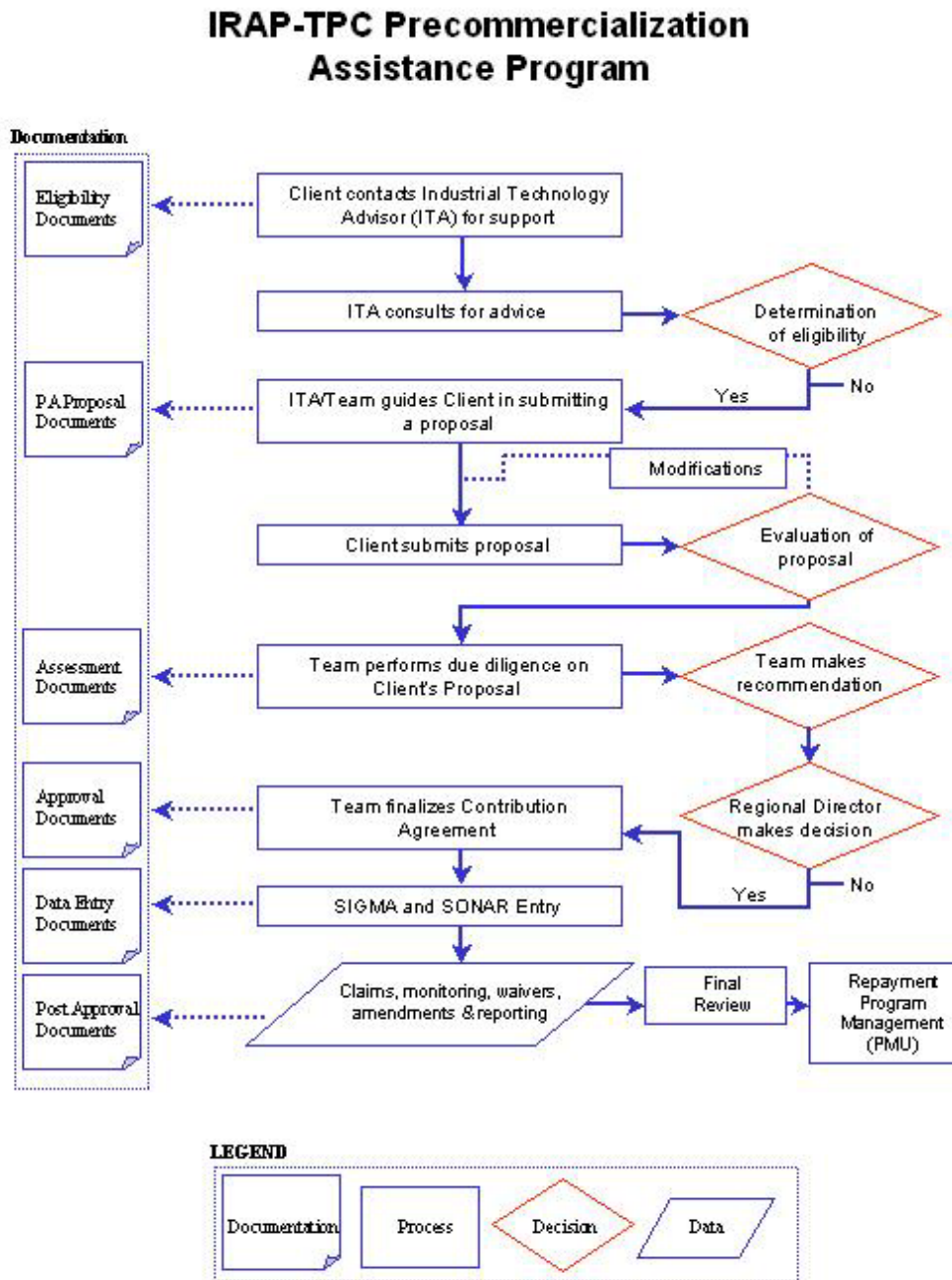
The Investment Officer is responsible for ensuring that the Annual Information Update (“AIU”) is obtained from the client. Included in the AIU are multiple progress reports, which vary depending on the specific contract agreement of each project. The Investment Officer also meets with the Client and completes an updated annual risk assessment summary.

### *Repayment Administration*

PPM provides management services to TPC for the monitoring and administration of TPC agreements where the statement of work (SOW) has been completed, the final claim has been paid and the project has entered the benefits phase. Engaging PPM’s services for the repayment phase permits TPC to segregate duties and achieve a level of objectivity.

**B. IRAP-TPC Overview**

The following high-level diagram illustrates the IRAP-TPC process model.



## **Description of the IRAP-TPC Process**

As outlined in the vision and mandate of the TPC program, TPC encourages the development of SMEs in all regions of Canada. Therefore, in 1998, TPC aligned with the Industrial Research Assistance Program (IRAP) of NRC to develop IRAP-TPC. IRAP-TPC is specifically targeted at providing pre-competitive or pre-commercialization assistance to small and medium enterprises that desire to enhance their technological capabilities.

### *Contact Phase with Applicant (Client)*

The client contact phase is the initial phase in the IRAP-TPC Pre-commercialization Assistance (PA) program. Potential clients of the IRAP-TPC program are familiarized with the funding option through contact with an Industrial Technology Advisor (ITA). ITAs work for IRAP and are trained to assist clients in obtaining funding from various IRAP programs, including IRAP-TPC funding. Should an ITA believe that a Client is potentially eligible to obtain IRAP-TPC funding, a team is assembled of several ITAs, each having their own area of expertise, which together perform a preliminary assessment of the Client's eligibility.

### *Proposal Preparation*

Clients that are considered to meet IRAP-TPC eligibility requirements are requested to submit a proposal. The proposal that is prepared by the Client is essentially a very comprehensive business plan. The proposal is prepared in accordance with IRAP-TPC specifications, as well as Industry Canada and Government of Canada policies and standards.

### *Due Diligence*

The IRAP-TPC due diligence phase is entwined within the proposal preparation phase given that these two stages typically occur concurrently, as the lead ITA works with the client and other team members to assist the client in developing the client's proposal. The following assessments are generated as a result of the due diligence phase: 1) Technical Assessment 2) Proof of Concept 3) Marketing Assessment and 4) Business Assessment. All ITAs are responsible for completing their designated reviewer assessment forms; however, they also have input into all other assessments.

### *Contribution Agreement*

The lead ITA works with the Client directly in generating the contribution agreement, after the due diligence is completed. All IRAP-TPC contribution agreements are based on a standard template that the lead ITAs uses in the contribution agreement phase.

### *Approval Process*

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## AUDIT OF TECHNOLOGY PARTNERSHIPS CANADA MANAGEMENT RESPONSE AND ACTION PLAN – TPC

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The Regional Directors (“RD”) of each of the seven regions are responsible for approving the contribution agreements. Each RD has an approval limit of \$500K. Should a project exceed \$500K, the Director General’s signature is required (at the date of our audit, no IRAP-TPC projects have exceeded \$500K).

### *Claims*

Claims are submitted by each Client to the lead ITA in accordance with the guidelines established in the final contract (i.e. monthly, quarterly, etc.). Claim submission forms, with attached technical progress reports, are sent to the lead ITA for a review of the eligibility and accuracy of expenses claimed, as well as the completeness of reports submitted. Upon completion of the lead ITA review, the claim submission is forwarded to the Regional Contribution Agreement Office (RCAO) where a further review of the claim is performed. Once the RCAO has completed their review, the claim submission is sent to NRC Finance, in Ottawa, for data entry. Once entered, the claim is sent to the Comptroller’s Branch of Industry Canada for disbursement. Should an individual claim exceed \$50,000, the approval signature of the Regional Director is also required on the claim submission form, in addition to that of the ITA.

### *Monitoring*

The ITA is responsible for ensuring that the all required annual information, as stipulated in the contribution agreement, is obtained from the client. Typically included within this annual information are progress reports, annual audited financial statements and other documents, which vary depending on the specific contract agreement of each project.

### *Final Review*

A contract enters the final review stage once the project work phase is complete. At this point, a final technical report is required to be submitted by the client to the lead ITA. For projects that will be entering the “repayment phase”, information is forwarded to the Portfolio Management Unit (“PMU”), which is responsible for handling the monitoring and repayment administration function on IRAP-TPC’s behalf.

### *Repayment Administration*

Once the funds are fully disbursed, the project enters the launch phase, which can last up to four years. Repayments will generally begin upon completion of the project launch phase. PMU provides management services to IRAP-TPC for the monitoring and administration of TPC agreements that have completed the launch phase. Engaging PMU’s services for the repayment phase permits IRAP-TPC to segregate duties and achieve a level of objectivity.



# **ANNEX B**





## A. TPC Audit Criteria

### *Audit Criteria*

#### 1. Investment Outline

- Investment outline is prepared and submitted in accordance with the Investment Guide.

#### 2. Prioritization

- Projects are prioritized in accordance with TPC eligibility requirements.
- Personnel performing prioritization are unbiased and knowledgeable of the projects or industry at hand.
- Prioritization process is standardized.
- Projects in the proposal phase obtained required levels of approval.

#### 3. Proposal Preparation

- Proposal is prepared and submitted in accordance with Framework Investment Proposal (FIP).

#### 4. Due Diligence

- Documentation exists to support the due diligence of the contribution.
- Divisions performing the due diligence are unbiased and knowledgeable of the project at hand.
- Due diligence process is comprehensive and standardized.
- IDD contains relevant, accurate and complete information.
- Approved project obtained the majority support of the Multi-Disciplinary Teams and EBCA.

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## AUDIT OF TECHNOLOGY PARTNERSHIPS CANADA MANAGEMENT RESPONSE AND ACTION PLAN – TPC

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### 5. Approval Process

- Approved contributions are only for eligible TPC approved sectors and activities.
- Contributions are approved to eligible recipients.
- Contributions are approved for eligible projects that meet the selecting investment criteria.
- Contributions made by TPC are in accordance with the sharing ratio described in its guiding principles.
- Contributions obtain appropriate and required levels of approval.

### 6. Contracting

- All clauses are included in the funding agreement (i.e. repayment terms, contract exemptions, clauses, etc.).
- Contracts and funding are authorized by appropriate signing authorities (Executive Director/Acting Director of General Operations & customer).
- TPC takes appropriate action to mitigate liability and enforceability.

### 7. Claims

- Claims are paid toward eligible costs.
- Claims are not paid when a company has experienced significant material changes and submission should be put on hold.
- Claims are only paid once for each submission.
- Claims are only paid with appropriate authorization.
- Claims are only paid with appropriate documentation.

### 8. Final Review

- Files are transferred on a timely basis with accurate and complete documentation to PPM in accordance with the completion of the SOW (statement of work).
- Risk ratings are updated once projects are complete.
- Contract enters the Final Review phase only once complete.

### 9. Annual Project Reviews

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## AUDIT OF TECHNOLOGY PARTNERSHIPS CANADA MANAGEMENT RESPONSE AND ACTION PLAN – TPC

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- Annual Information Update, Project Progress Report and/or Annual Meeting are obtained in a timely manner.
- Information is communicated to the necessary personnel when material changes are identified during the various levels of annual reviews.
- Annual Risk Update is reconsidered to reassess the appropriateness of the risk rating.
- Amendment is brought to the appropriate authorization level.
- High-risk projects are selected for audit.

### 10. Repayment Administration

- Repayments are received.
- Late repayments are followed-up on a timely basis.
- PPM keeps TPC abreast of all relevant monitoring project issues.

EY also ensured that compliance with TPC's terms and conditions was assessed on each contract tested. Some of the specific Terms & Conditions that EY examined included eligibility, assessment criteria, funding percentage allocation and stacking.

## **B. IRAP-TPC Audit Criteria**

### *Audit Criteria*

#### 1. Client Contact

- Personnel involved in Client contact phase are unbiased and knowledgeable of the projects or industry at hand.

#### 2. Proposal Preparation

- Proposal is prepared and submitted in accordance with the “Client Proposal Outline for Precommercialization Assistance (PA)” developed by NRC.

#### 3. Due Diligence

- Documentation exists to support the due diligence of the contribution.
- Divisions performing the due diligence are unbiased and knowledgeable of the project at hand.
- Due diligence process is comprehensive and standardized.

#### 4. Contribution Agreement

- Clauses are included in the funding agreement (i.e. repayment terms, contract exemptions, clauses, etc.)
- IRAP-TPC uses a standardized contribution agreement when drafting contracts with Clients.

#### 5. Approval

- Contracts and funding are authorized by appropriate signing authorities (Regional Director & Client).
- Approved contributions are only for eligible IRAP-TPC approved sectors, activities and recipients.
- Contributions made by TPC are in accordance with the sharing ratio described in its guiding principles.
- Contributions obtain appropriate and required levels of approval.

#### 6. Claims

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## AUDIT OF TECHNOLOGY PARTNERSHIPS CANADA MANAGEMENT RESPONSE AND ACTION PLAN – TPC

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- Claims are paid toward eligible costs.
- Claims are not paid when a company has experienced significant material changes and submission should be put on hold.
- Claims are only paid once for each submission.
- Claims are only paid with appropriate authorization.
- Claims are only paid with appropriate documentation.

### 7. Monitoring

- Annual information updates are obtained in a timely manner.
- Information is communicated to the necessary personnel when material changes are identified during the various levels of annual reviews.
- Amendment is brought to the appropriate authorization level.

### 9. Final Review

- Final technical reports are obtained from the Client upon completion of the project work phase.
- Contract enters the Final Review phase only once complete.

### 10. Repayment Administration

- Repayments are received.
- Late repayments are followed-up on a timely basis.
- PMU keeps the regions abreast of all relevant monitoring project issues.

EY also ensured that compliance with IRAP-TPC's terms and conditions was assessed on each contract tested. Some of the specific Terms & Conditions that EY examined included eligibility, assessment criteria, funding percentage allocation and stacking.



# ANNEX C





AUDIT OF TECHNOLOGY PARTNERSHIPS CANADA  
 MANAGEMENT RESPONSE AND ACTION PLAN – TPC

Recommendation	Management Response and Proposed Action	Responsible Official	Action Completion Date
<p><b>4.1. a)</b> We recommend that TPC review the circumstances under which amendments were classified as “other” in order to obtain the authority to revise the categories substantive or non-substantive amendments to better address the circumstances occurring with TPC’s multi-year research and development projects, reduce subjectivity in amendment classifications and ensure that appropriate due diligence and approval procedures are performed for each type of amendment.</p>	<p>Agreed. TPC will conduct a review of amendments to date that have been classified in the “other” category with a view to further define amendments to better address TPC’s unique circumstances</p>	<p>Director General, Operations</p>	<p>Spring 2004</p>
<p><b>4.1. b) i)</b> We recommend the Aerospace and Defence sector consistently document the rationale supporting the decision to request or not a project proposal from applicants. Such documentation will represent support to demonstrate that appropriate analysis was performed by TPC management and to assist in maintaining TPC’s corporate memory.</p>	<p>Agreed. We note that the basis for all investment recommendations is documented in the Investment Decision Document. TPC will develop a procedure addressing the requirement for documentation in support of the rationale for all decisions to request or not a project proposal from applicants.</p>	<p>Director General, Operations</p>	<p>Spring 2004</p>
<p><b>4.1. b) ii)</b> We recommend the formal prioritization process implemented in the Enabling and Environmental sectors be consistently and formally applied in order to ensure the rating, ranking and analysis procedures</p>	<p>Agreed. We emphasize that the prioritization process has been reviewed, adapted and refined on an ongoing basis and that a review is underway to develop a more structured and</p>	<p>Director General, Operations</p>	<p>Spring 2004</p>

AUDIT OF TECHNOLOGY PARTNERSHIPS CANADA  
 MANAGEMENT RESPONSE AND ACTION PLAN – TPC

Recommendation	Management Response and Proposed Action	Responsible Official	Action Completion Date
performed and the rationale behind acceptance and/or rejection of an investment outline are properly documented and supported in each file.	consistent prioritization approach for all TPC components.		
<p><b>4.1. c)</b> We recommend TPC improve the documentation of their follow-up procedures on annual information updates and repayment-based information received from clients to help identify the causes for the current gap between actual and forecasted repayments. TPC should use this information to determine whether additional steps should be taken during the due diligence process and changes made to funding agreement repayment terms in order to address the causes for the experienced repayment gap and high risks of repayments.</p>	<p>Agreed. Actions are being taken to improve the documentation of TPC’s follow-up procedures on annual information updates and repayment- based information received from clients.</p> <p>TPC’s business model review currently underway includes consideration of results reporting including these issues.</p> <p>In addition, TPC will conduct a study to analyze the causes for significant repayment variances that will serve as input into the ongoing review of the due diligence process and contribution agreement repayment clauses.</p>	Director General, Operations	Spring 2004
<p><b>4.3. a) i)</b> We recommend standardized forms be developed for all sectors to assist in documenting the</p>	Agreed. Standardized forms have been developed to address this recommendation.	Director General,	Spring 2004

AUDIT OF TECHNOLOGY PARTNERSHIPS CANADA  
 MANAGEMENT RESPONSE AND ACTION PLAN – TPC

Recommendation	Management Response and Proposed Action	Responsible Official	Action Completion Date
names, positions, area of expertise, risk analyses, findings and recommendations of all due diligence team members.	<p>TPC is pilot testing these to determine its applicability to all parts of the business.</p> <p>TPC will continue this work and conduct a review of the file documentation process pertaining to the advice and recommendations obtained from external advisors and will develop procedures as required.</p>	Operations	
<p><b>4.3. a) i)</b> We recommend due diligence report(s) from the Economic and Business Case Analysis (EBCA) unit clearly indicate final opinions and recommendations. We also recommend the final and complete copy of the EBCA report(s) be always included in each file.</p>	<p>Agreed. TPC will enhance processes to ensure that EBCA reports clearly indicate final opinions and recommendations and that the final reports are included on file.</p>	<p>Director General, Portfolio Affairs</p>	<p>Winter 2003-04</p>
<p><b>4.3. a) ii)</b> We recommend meetings between Clients and TPC be documented with records of discussion to maintain appropriate records and to support the annual risk assessment of the project.</p>	<p>Agreed. TPC will develop procedures to ensure that records of decisions from annual meetings between clients and Investment Officers are documented on file.</p>	<p>Director General, Operations</p>	<p>Spring 2004</p>
<p><b>4.3. a) iii)</b> When there is a limited number of experts available to participate in the Multi-Disciplinary team,</p>	<p>Agreed. We acknowledge that there are situations where there are a limited number of</p>	<p>Director General,</p>	<p>Winter 2003-04</p>

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Recommendation	Management Response and Proposed Action	Responsible Official	Action Completion Date
<p>we recommend TPC's policy require that file documentation reflect the rationale and the actions taken to ensure appropriate due diligence procedures were performed.</p>	<p>external advisors; however, TPC takes measures to address this. TPC has a comprehensive due diligence process which includes the production of an Investment Decision Document and subsequent review and approval by the TPC Management Board and the Industry Canada's Programs and Services Board.</p> <p>TPC will develop procedures to ensure that the rationale for a limited number of available experts, where applicable, is documented on file.</p>	<p>Operations</p>	
<p><b>4.3. a) iv)</b> Where there is limited knowledge of certain project files, we recommend TPC and PPM jointly perform and document annual risk assessment summaries for those files transferred to PPM, in order to ensure the accuracy and completeness of the risk update. We also recommend Directors' of both TPC and PPM sign-off on the final risk rating summary sheet. These additional procedures will help identify and mitigate risks associated with projects in the benefit phase.</p>	<p>Agreed. We note that TPC has developed processes to ensure that all relevant client information and knowledge is transferred to PPM at the time of file transfer, and that TPC Investment Officers are available to support PPM as required.</p> <p>TPC will ensure that, where there is limited knowledge of certain project files, annual risk assessment summaries for those files transferred to PPM will be performed and</p>	<p>Director General, Operations</p>	<p>Winter 2003-04</p>

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Recommendation	Management Response and Proposed Action	Responsible Official	Action Completion Date
	documented jointly with PPM.		
<p><b>4.3. a) v</b> We recommend TPC review and improve its practice for documentation retention. We understand that a checklist currently exists identifying all documents for inclusion in an applicant file. We recommend the checklist be used on a more consistent basis. The existing Quality Assurance process should be strengthened to ensure completeness of documentation. These recommendations will ensure files are properly supported and mitigate the risk that documents are lost or misplaced.</p>	<p>Agreed. TPC is in the process of reviewing its practice for documentation retention and its existing checklist. TPC will strengthen its Quality Assurance process to ensure completeness of documentation.</p>	<p>Director General, Operations</p>	<p>Winter 2003-04</p>
<p><b>4.3. b) i)</b> We recommend TPC review its budget requirements to ensure all TPC business processes are appropriately resourced, including the monitoring of project risks.</p>	<p>Agreed. TPC will continually review its budget requirements to ensure all TPC business processes are appropriately resourced, including the monitoring of project risks.</p>	<p>Executive Director</p>	<p>Ongoing</p>
<p><b>4.3. b) ii)</b> TPC should ensure files are transferred to PPM on a timely basis to benefit from PPM specialization and allow TPC’s human resources be re-allocated in order to continue improving the monitoring process required for the increasing number of project</p>	<p>Agreed. TPC has already developed processes to ensure that files are transferred to PPM on a timely basis.</p>	<p>Director General, Operations</p>	<p>Ongoing</p>

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Recommendation	Management Response and Proposed Action	Responsible Official	Action Completion Date
files.			
<p><b>4.4 i)</b> We recommend TPC continue to obtain third party audit assurance on files in the benefits phase to ensure completeness and accuracy of the financial results provided by Clients. TPC should monitor the level of resources allocated to this area to ensure it is appropriate given the increasing number of files reaching the benefits phase.</p>	<p>Agreed. TPC has already taken measures to address this issue by: hiring an Audit Manager; increasing the budget to conduct sales audits for the 2003/04 fiscal year; and, entering into an MOU with Consulting and Audit Canada to conduct integrated sales and cost audits for a sample of clients.</p> <p>TPC will closely monitor the progress and results of sales audits and the level of resources allocated to this area.</p>	<p>Director General, Portfolio Affairs</p> <p>Director General, Operations</p>	<p>Ongoing</p>
<p><b>4.4 ii)</b> TPC should, as well, review the budget allocation for the performance of audits of Client claims to ensure an appropriate sample of claim submissions are being audited on a yearly basis.</p>	<p>Agreed. TPC has already taken measures to address this issue by: hiring an Audit Manager; and, entering into an MOU with Consulting and Audit Canada to conduct cost audits.</p> <p>TPC will closely monitor the progress and results of cost audits and the level of resources allocated to this area.</p>	<p>Director General, Portfolio Affairs</p> <p>Director General, Operations</p>	<p>Ongoing</p>

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<b>Recommendation</b>	<b>Management Response and Proposed Action</b>	<b>Responsible Official</b>	<b>Action Completion Date</b>

# ANNEX D





RECOMMENDATION	MANAGEMENT RESPONSE AND PROPOSED ACTION	RESPONSIBLE OFFICIAL	ACTION COMPLETION DATE
<p><b><i>5.1.a) Industrial Technology Advisors (ITA) are not required to have designated business backgrounds.</i></b></p> <p>We recommend IRAP-TPC put greater emphasis on business and financial knowledge/experience in the ITA screening process given the degree of business background that is required in order to complete the necessary due diligence. A business background will also assist ITAs to appropriately monitor the financial and operational status of the projects and the Client’s business.</p>	<p>NRC-IRAP recognizes that there is a need to enhance business and financial competencies and to improve the due diligence process for IRAP-TPC projects.</p> <p>This situation will be addressed in a number of ways:</p> <ul style="list-style-type: none"> <li>• NRC-IRAP recently completed a hiring process and all ITAs are now NRC employees which allows greater management of this segment of human resources. It should be noted that it is not the intention of IRAP’s management for every ITA to have expertise in business/ financial analysis. NRC-IRAP will offer training to selected ITAs to expand their business/finance competencies;</li> <li>• NRC will augment its business analysis capacity in most regions in the coming year to supplement and support ITAs with business skills and/or experience;</li> </ul>	<p>Director General, IRAP in cooperation with the Regional Directors.</p>	<p>Ongoing.</p>

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<b>RECOMMENDATION</b>	<b>MANAGEMENT RESPONSE AND PROPOSED ACTION</b>	<b>RESPONSIBLE OFFICIAL</b>	<b>ACTION COMPLETION DATE</b>
	<ul style="list-style-type: none"><li>• A group of IRAP-TPC Liaison Officers has developed Business Assessment Guidelines as a tool to ensure a minimum standard of due diligence when screening client proposals. This work was initiated well in advance of TPC audit. The Guidelines will soon be disseminated within NRC-IRAP; and</li><li>• When creating teams to assess IRAP-TPC proposals, the lead ITA ensures the team composition includes a business analyst or an ITA with business/financial skills.</li></ul>		

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RECOMMENDATION	MANAGEMENT RESPONSE AND PROPOSED ACTION	RESPONSIBLE OFFICIAL	ACTION COMPLETION DATE
<p><i>5.1.b) Repayments of contributions differ from estimates and forecasts.</i></p> <p>We understand that IRAP-TPC has identified several factors explaining the large variance between forecasted and actual repayments. IRAP-TPC is in the process of reviewing their current practice to take these factors into consideration to assist them in determining forecasted repayments. We recommend that IRAP-TPC prioritize this process review in order to modify their current due diligence phase and funding agreement repayment terms to capitalize on past experience.</p>	<p>The need to review forecasted repayments has been given a high priority. The Program will conduct a study to analyze the causes for significant repayment variances. This information will be used to modify the current due diligence process and funding agreement repayment terms.</p>	<p>IRAP-TPC Senior Projects Officer.</p>	<p>30 Sep 2004.</p>

RECOMMENDATION	MANAGEMENT RESPONSE AND PROPOSED ACTION	RESPONSIBLE OFFICIAL	ACTION COMPLETION DATE
<p><b>5.3.a) Project file documentation is not standardized and/or complete.</b></p> <p>5.3.a) i) We recommend standardized forms be developed for all sectors to assist in documenting the names, positions, area of expertise, risk analyses, findings and recommendations of all due diligence team members. The standardized forms should include specific areas for each team member to document opportunities, risks, weaknesses and strengths of the projects, and resolution regarding concerns raised and a section for final recommendation by the reviewer. Such a form will ensure information requested from the reviewers during the due diligence is included in the file and the position of the reviewers regarding the project submitted by the applicant is documented. This documentation will also facilitate management of the file by the ITA or the review of the files by the Director.</p>	<p>IRAP-TPC already has a standardized form built into its SONAR System (i.e. the Program’s client relationship management system) for ITAs to express their views regarding the opportunities, risks, weaknesses and strengths of the project. This information is considered part of the project file.</p> <p>NRC-IRAP management remains committed to improvements to the IRAP-TPC due diligence process and will be increasing the training and guidance provided to staff in this area.</p>	<p>Director General, IRAP</p>	<p>31 March 2004</p>

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<b>RECOMMENDATION</b>	<b>MANAGEMENT RESPONSE AND PROPOSED ACTION</b>	<b>RESPONSIBLE OFFICIAL</b>	<b>ACTION COMPLETION DATE</b>
5.3.a) ii) We recommend meetings between Clients and IRAP-TPC be documented with minutes to maintain appropriate records of discussions and to support the annual risk assessment of the project.	It is normal practice for ITAs to capture decisions in the SONAR system or on the hardcopy file. In future, direction will be provided to ITAs to ensure that in addition to decisions, issues and follow-up action are recorded on file.	Director, Program Support in cooperation with the Regional Directors.	Ongoing.

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RECOMMENDATION	MANAGEMENT RESPONSE AND PROPOSED ACTION	RESPONSIBLE OFFICIAL	ACTION COMPLETION DATE
<p>5.3.a) iii) We recommend IRAP-TPC introduce a standardized policy for documentation retention. A checklist should also be developed, identifying all documents for inclusion in an applicant file. A Quality Assurance process should be developed to ensure completeness of documentation. These recommendations will ensure files are properly supported and mitigate the risk that documents are lost or misplaced.</p>	<p>NRC has developed a Records Management Policy to provide guidance to NRC employees regarding document retention. NRC-IRAP will develop a checklist that clearly identifies what documents should be included in an IRAP-TPC applicant file and disseminate it within IRAP over the coming year.</p> <p>As documented in its Risk-Based Audit Framework, NRC already has in place two quality assurance processes to ensure completeness of documentation. Given the audit findings, NRC-IRAP will ensure that over the coming year there is more effective follow-up of findings from these two quality assurance processes.</p>	<p>Director,          Program Support          in cooperation          with the Regional          Directors.</p>	<p>1 July 2004.</p>

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RECOMMENDATION	MANAGEMENT RESPONSE AND PROPOSED ACTION	RESPONSIBLE OFFICIAL	ACTION COMPLETION DATE
<p><b>5.3.b) Liaison position between TPC &amp; IRAP-TPC remains vacant.</b></p> <p>IRAP-TPC and TPC to meet regularly to share information and best practices. We also recommend the liaison position be filled to facilitate communication and synergies between the two programs.</p>	<p>Measures to share information are outlined in the new IRAP-TPC Memorandum of Understanding (MOU) signed in March 2003 by the two organizations. The MOU commits both organizations to develop a better understanding of each other’s business operations related to program delivery and to achieve effective cooperation and coordination, particularly as it relates to external communication. The Director General of IRAP and the Executive Director of TPC will meet at least once a year to review the implementation of the MOU. The two organizations have agreed to a national IRAP-TPC and TPC joint action plan for 2003-04.</p> <p>The IRAP-TPC Senior Projects Officer will be the point of contact for coordination and alignment of activities. Since June 2003, an interim IRAP-TPC Senior Projects Officer has been appointed. This position was filled on a permanent basis as of 1 October 2003.</p>	<p>Director General, IRAP.</p>	<p>Ongoing.</p>



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RECOMMENDATION	MANAGEMENT RESPONSE AND PROPOSED ACTION	RESPONSIBLE OFFICIAL	ACTION COMPLETION DATE
<p><b>5.3.c) <i>Current human and financial resources place strain on the program.</i></b></p> <p>IRAP-TPC to review its budget requirements to ensure all IRAP-TPC business processes are appropriately resourced, including the monitoring of project risks.</p>	<p>While the IRAP-TPC budget remains at around \$30M, NRC does not anticipate substantially increasing the human resources, although enhanced business analysis capacity will be added as outlined in the response to Recommendation 5.1a).</p> <p>Over the coming year, NRC-IRAP plans to clarify the roles and responsibilities for repayment administration and project monitoring. NRC-IRAP will also be reviewing its human resource requirements. This review process will allow NRC-IRAP to ensure that all IRAP-TPC business processes are appropriately resourced, including the monitoring of project risks.</p>	<p>Director General, IRAP.</p>	<p>31 March 2005.</p>

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RECOMMENDATION	MANAGEMENT RESPONSE AND PROPOSED ACTION	RESPONSIBLE OFFICIAL	ACTION COMPLETION DATE
<p><b><i>5.4 Compliance with TPC Terms and Conditions relating to audits.</i></b></p> <p>As dictated under section 5.3 of the contribution agreement template, IRAP-TPC is required to obtain from Clients in the repayment phase an annual audited report of gross revenues. We recommend IRAP-TPC regularly follow-up with Clients to ensure that these annual audited reports of gross revenues are obtained on a timely basis.</p>	<p>IRAP-TPC has established the Portfolio Management Unit (PMU) to ensure that these annual audited reports of gross revenue are obtained on a timely basis.</p>	<p>IRAP-TPC Senior Projects Officer.</p>	<p>Ongoing.</p>

Approved:

Director General, Industrial Research Assistance Program