



Agriculture and  
Agri-Food Canada

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Agroalimentaire Canada



# **Evaluation of the Agri-Opportunities Program**

## **Final Report**

**Office of Audit and Evaluation**

**November 2010**

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**The AAFC Evaluation Committee recommended this evaluation report for approval by the Deputy Minister on November 1, 2010.**

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## **Executive Summary**

In this evaluation we examined the relevance and performance of the Agri-Opportunities Program (AOP). The objectives were to determine:

- whether there is an ongoing need to support transformation and transition of the agriculture sector into new and value-added areas of opportunity,
- whether the AOP is aligned with federal priorities and departmental strategic outcomes,
- whether the AOP has achieved its expected outcomes, in an efficient and effective manner.

The work was conducted by the Office of Audit and Evaluation between December 2009 and August 2010. The evaluation is intended to inform the possible renewal of the program in 2011-12, as required by the *Financial Administration Act* (FAA). The evaluation was conducted in accordance with the Treasury Board Policy, Directives and Standards on Evaluation (2009).

### **Agri-Opportunities Program**

The Agri-Opportunities program was implemented in 2006-2007 as a five-year contribution program. The objectives of the program are to support the development of new opportunities for agriculture by assisting the sector to move into new value-added projects and new markets with prospects for long-term sustainability; and to enhance industry competitiveness and prosperity through supporting commercialization of new products, processes or services, especially where the risks are significant enough to present barriers to private sector investment. Under the program, repayable contributions are provided to eligible recipients to cover a range of project costs associated with commercialization, including facility construction or expansion, equipment and materials, labour costs, development of business plans and proposals, marketing, and product development and demonstration costs.

Total contribution funding for the program is \$119 million over five years (2006-2007 to 2010-2011). As of September 2009 a total of 20 projects had been approved, with a total contribution value of \$45.6 Million. An additional \$6.5 million has been committed for projects subsequently approved to September 2010.

Funded projects involve commercialization of a diverse range of products, processes and technologies, such as the production of increased higher value-added products from canola using a novel processing technology; the production of aspartic acid from sugar beet juice, using waste product from a nearby sugar refinery; production of heat and electrical energy from biogas processed from livestock manure; the production of plant extracts using a novel extraction technology for use in nutraceuticals, functional

food and cosmeceutical industries; and a novel technology that transforms whey, a by-product of cheese production, into animal feed.

The projects will benefit a range of primary production sub-sectors, including the dairy industry, canola producers, flax producers; sugar beet producers; and the horticulture industry.

## **Methodology**

The evaluation was based on evidence gathered from six sources: a document review, a literature review, case studies, a review of the program database and project files, interviews with program officials and industry experts, and a prospective economic analysis. Findings and recommendations are based on multiple lines of evidence.

## **Key Findings**

There is a continued need for government support for transition of the industry into new and value-added opportunities. The AOP is aligned with federal priorities and departmental strategic outcomes, and it has enabled project proponents to leverage substantial investments from other federal and provincial innovation programs, and from the private sector. AOP projects are expected to result in significant economic benefits in the next 3 to 10 years. That being said, four areas requiring attention were identified:

- The AOP's eligibility criteria, outcome statements and indicators are limited to activities at the commercialization stage along the innovation continuum, while the program's objectives, target areas and eligible activities cover the entire continuum. While the broad objective statements and eligible activities allow the program flexibility to support a wide range of projects that contribute to the development of new opportunities for agriculture, the lack of alignment with eligibility criteria, outcome statements and indicators creates the potential for confusion about the program's mandate and positioning vis-à-vis other AAFC innovation and competitiveness programs. It also makes it difficult to assess the achievement of program outcomes.
- Reflecting the inherent complexity of innovation projects, AOP expenditures have been considerably lower than originally budgeted, affecting the achievement of program immediate outcomes.
- The achievement of intermediate and end outcomes has been delayed due to unforeseen risks associated with project proposals, and outcomes that do not reflect what can realistically be achieved within a five-year timeframe.
- Program effectiveness is hampered by a lengthy project approval process that exceeds the program's current service standard.

Notwithstanding these issues, prospective economic analysis indicates that AOP projects are expected to result in significant economic benefits over the next three to ten years.

## **Recommendations**

Our evaluation makes five recommendations:

- The Farm Financial Programs Branch should ensure that program eligibility criteria, outcome statements and indicators are fully aligned with and reflect program objectives, target areas and eligible activities and recipients, in any future renewal of the Agri-Opportunities Program.
- To inform any future renewal of the program, the Farm Financial Programs Branch should reassess the expected level of year-over-year expenditures associated with the Agri-Opportunities Program, given the uncertainties inherent in funding innovation projects targeted at the commercialization of new, value-added products, processes and technologies.
- The Farm Financial Programs Branch should review the program immediate, intermediate and end outcomes to ensure they take into account program risks and reflect what can realistically be achieved within a five-year timeframe, to inform any future renewal of the program.
- Given the longer-term nature of innovation projects, the Farm Financial Programs Branch should examine possibilities for monitoring Agri-Opportunities projects beyond the five-year program lifecycle, so that long-term impacts can be measured and assessed.
- The Farm Financial Programs Branch should review the existing project approval process and program service standards, to ensure they reflect the appropriate balance between conducting due diligence on project proposals and facilitating the achievement of program objectives.

## **Introduction**

### **1.0 Background**

The Agri-Opportunities Program was implemented in 2006-2007 as a five-year, \$133.5 million contribution program. It was designed to fill a gap in programming at the commercialization phase of innovation, and it supports AAFC's strategic outcome of "innovation for growth". The objectives of the program are to support the development of new opportunities for agriculture by assisting the sector to move into new value-added projects and new markets with prospects for long-term sustainability; and to enhance industry competitiveness and prosperity through supporting commercialization of new products, processes or services, especially where the risks are significant enough to present barriers to private sector investment. Under the program, repayable contributions are provided to eligible recipients to cover a range of project costs associated with later-stage commercialization, including facility construction or expansion, equipment and materials, labour costs, development of business plans and proposals, marketing, and product development and demonstration costs.

### **1.1 Evaluation Scope and Methodology**

AAFC's Office of Audit and Evaluation evaluated the activities of the AOP from January 2007 to September 2009. The purpose of the evaluation is to assess the continued relevance and performance of the AOP, as required by the Treasury Board Policy on Evaluation (2009). Under relevance, the evaluation assessed the extent to which the program is aligned with government priorities and AAFC strategic outcomes and with federal roles and responsibilities; the continued need for the AOP to support innovation in the sector; and the extent to which the program overlaps with, or duplicates other AAFC or federal innovation programs.

With respect to performance, the evaluation assessed the extent to which the program has achieved short, intermediate and long-term outcomes. It also examined the extent to which the program demonstrated efficiency and economy in its implementation.

The evaluation was based on the following six lines of evidence:

#### **Qualitative methods:**

Document Review - including program foundational and management documents and other AAFC and federal government policy documents;

Literature Review – including reports or studies of the importance of innovation to the economy, barriers to innovation and the need for government support of innovation.

Case Studies - of nine of the twenty AOP projects approved as of September, 2009. The case studies included in-depth reviews of projects files and other documents and data; and interviews with key stakeholders.

Interviews (n= 12) with program officials and members of Agri-Opportunities' National Industry Review Committee.

### **Quantitative methods:**

Review of AOP Program Database - to develop a profile of funded projects in terms of geographic distribution; primary products impacted (e.g. livestock, grains and oilseeds); and the value-added processing sub-sector (e.g. food, bio products) represented.

Economic Analysis - for each of the nine case study projects, we conducted a prospective economic analysis to evaluate the achievement of long term outcomes. As all of the AOP projects have only recently been completed or are nearing completion, the economic analysis was, of necessity, prospective in nature. The methodology involved validation of original estimates of the economic impacts of projects (e.g. projected sales revenue and employment impacts) contained in the original project proposals; and modification of these estimates, based on the probability of their being achieved.<sup>1</sup>

The prospective economic analysis makes no assumptions as to whether individual projects or some percentage of projects will succeed or fail. As well, it should be kept in mind that the in selecting the case studies on which the analysis was based, the evaluation team selected more mature projects that had made at least some progress towards completion, as opposed to a purely random sample.

To the extent possible, evaluation findings are based on multiple lines of evidence. Preliminary findings from the evaluation were presented to officials of the Farm Financial Programs Branch (FFPB) in June 2010.

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<sup>1</sup> A detailed description of the methodology is provided in the Case Study Report, prepared as part of the evaluation.



## **1.2 Evaluation Constraints / Risks**

The key evaluation constraint was the limited availability of information on long-term outcomes of AOP projects. At the time the evaluation started, only 20 projects had been approved under the program, most within the last two years. These kinds of innovation/commercialization projects often require very long lead times (5-10 years) before longer-term outcomes are achievable. Consequently, the evaluation adopted a prospective analysis of these outcomes that involved validating the project funding recipient estimates of economic impacts, based on probabilistic methods. This approach resulted in more conservative estimates of economic impacts than were contained in the project proposals.

## **2.0 Program Profile**

Agri-Opportunities is managed by the Biofuels and Opportunities Division (BOD) of the Agricultural Transformation Programs Directorate (ATPD), Farm Financial Programs Branch of AAFC. BOD staff assess project proposals, with assistance from technical or other experts in other parts of the department; manage the Contribution Agreements with funding recipients; and monitor and report on project performance. In addition, an Industry Review Committee (IRC), comprised of individuals from the private sector with varied expertise, reviews all full project proposals and provides advice regarding acceptance or rejection of the proposal. Figure 1, overleaf, provides an overview of the AOP project approval process.

Initially, the AOP received funding of \$166.9 million over five years under Action Plan II. However, towards the end of fiscal year 2006-07 (the first year of the program), approximately \$33.4 million was transferred from the AOP to other priorities within the Action Plan for Agriculture. As a result, the budget for AOP was reduced to \$133.5, as shown in Table 1, below.

The main activities of the AOP are the selection, funding and monitoring of projects that involve the commercialization of products, processes or services submitted by individuals or organisations. The AOP provides up to \$10 million in repayable contributions per eligible project. Eligible projects must involve products, process or services that are not already produced or available in Canada; that will increase demand for primary products that are, or could be produced in Canada; or that lead to the creation of new or enhanced value-chains that will benefit both primary producers and value-added processors. Those eligible are individuals; not-for-profit organisations international corporations with a Canadian business entity; and non-governmental organisations.

**Table 1**

**Original and Revised Budgets: Agri-Opportunities Program  
After Adjustments**

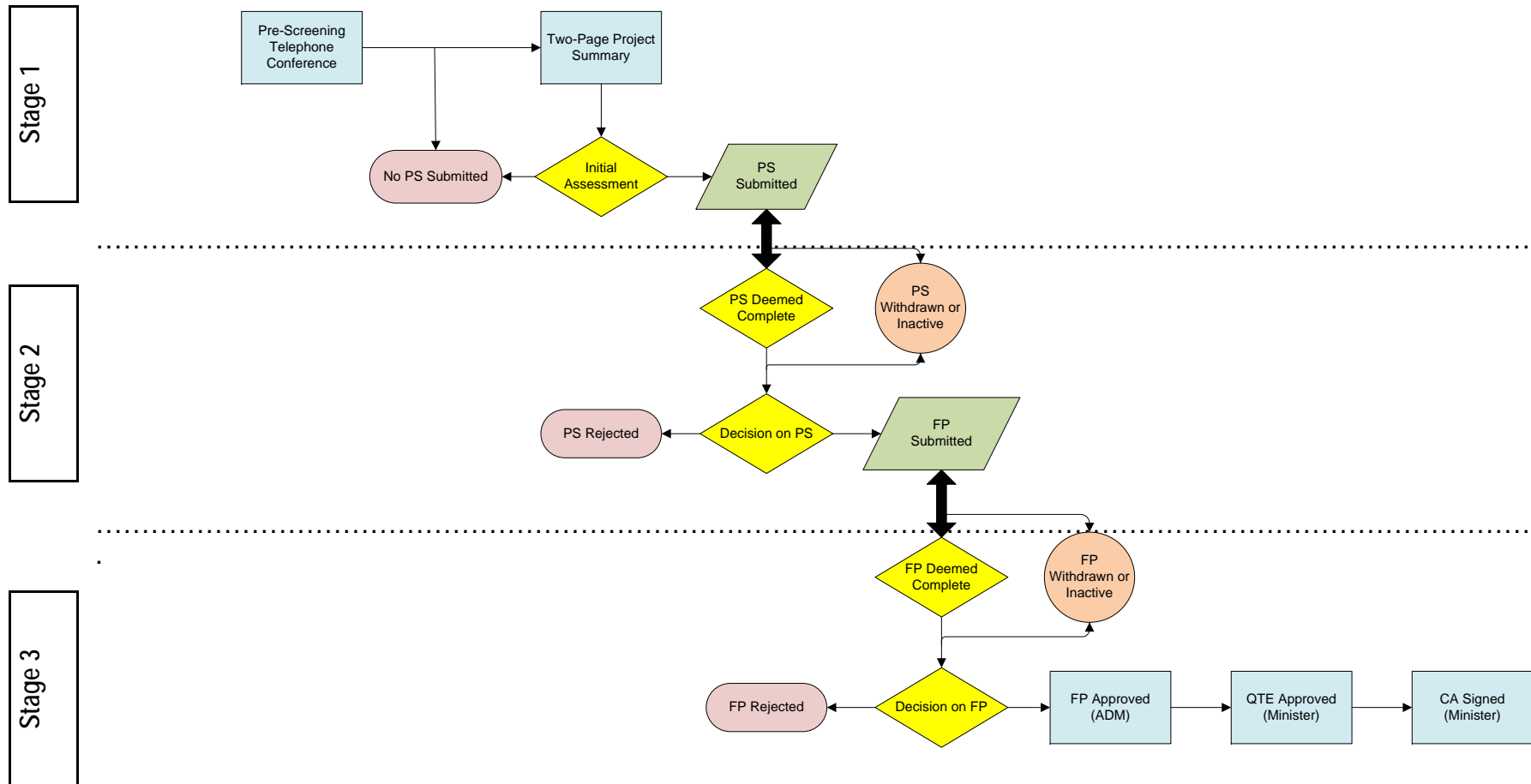
	2006-	2007-08	2008-09	2009-10	2010-11	Total d Budget
Vote 1 Salary	\$200,000	\$1,295,821	\$1,295,821	\$1,295,821	\$1,295,821	\$5,383,284
EBP (20%)	\$40,000	\$259,164	\$259,164	\$259,164	\$259,164	\$1,076,656
O&M	\$151,700	\$1,878,101	\$1,879,101	\$1,880,101	\$1,881,101	\$7,670,104
Total Vote 1	\$391,700	\$3,433,087	\$3,434,087	\$3,435,087	\$3,436,087	\$14,130,048
Vote 10 Contributions	\$200,000	\$28,513,356	\$28,264,856	\$31,096,456	\$31,095,456	\$119,170,124
Accommodation (13%)	\$26,000	\$168,457	\$168,457	\$168,457	\$168,457	\$699,828
	\$617,700	\$32,114,900	\$31,867,400	\$34,700,000	\$34,700,000	\$134,000,000
CRA Contributions	\$109,744	\$101,544	\$102,544	\$103,544	\$104,544	\$521,920
<b>Agri- Opportunities</b>	<b>\$507,958</b>	<b>\$32,013,356</b>	<b>\$31,764,856</b>	<b>\$34,596,456</b>	<b>\$34,595,456</b>	<b>\$133,478,080</b>

Funded projects involve commercialization of a diverse range of products, processes and technologies, such as the production of increased higher value-added products from canola using a novel processing technology; the production of aspartic acid from sugar beet juice, using waste product from a nearby sugar refinery; production of heat and electrical energy from biogas processed from livestock manure; the production of plant extracts using a novel extraction technology for use in nutraceuticals, functional food and cosmeceutical industries; and a novel technology that transforms whey, a by-product of cheese production, into animal feed.

The projects are intended to benefit a range of primary production sub-sectors, including the dairy industry, canola producers, flax producers, sugar beet producers and the horticulture industry.

As of September, 2009, the AOP had approved 20 projects, with authorized contribution funding of \$45.6 million. AOP funding recipients are broadly representative of the agriculture/ agri-food/ agri-products sector. Approved projects are distributed equitably across Canada, with 46% in Central Canada, 45% in the Prairies and BC and 9% in the Maritimes. The projects utilise a variety of primary agricultural products, including animal/livestock (27%); grains or oilseeds (22%); and horticultural products (18%).

Figure 1  
Agri-Opportunities – Application Review Process



## **3.0 Evaluation Findings**

### **3.1 Relevance**

In assessing the ongoing relevance of the AOP, the evaluation looked at the continued need for the program to support innovation; alignment with federal priorities and departmental objectives; and roles and responsibilities with respect to support for innovation in the sector.

#### **3.1.1 Continued Need for the Program**

Findings from both the literature review and the case studies confirm that there is an ongoing need for government support for transition of the industry into new and value-added opportunities. Barriers to innovation continue to exist in Canada that necessitate government support for transition of the industry into new and value-added opportunities.

The relationship between innovation and competitiveness has been well documented in reports of international organisations, including the World Economic Forum<sup>2</sup>. While Canada compares favourably with other developed countries, based on some measures of innovation, it fares less favourably on others, in particular, on measures of private sector investment in innovation. While data for the agricultural sector is limited, what there is indicates that the sector spending on innovation is increasing but is still lower than that in other manufacturing sectors.<sup>3</sup>

There appear to be a number of barriers that continue to underlie this innovation gap, according to recent research, including intellectual property issues, domestic and international regulatory barriers; the risk averse business culture in Canada; and the small size of the Canadian market compared to the US and Europe<sup>4 5</sup>. AAFC and other federal and provincial agencies have taken steps to address many of these barriers, including streamlining regulations; facilitating the transfer to potential users of intellectual property developed through AAFC's research programs; providing incentives for private investors to support research and development and pre-commercialization; and funding industry-led solutions to challenges requiring innovative responses. Despite these efforts, it will likely take many years to dismantle most of the barriers and some, such as the

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<sup>2</sup> World Economic Forum (2009), Global Competitiveness Report 2009-10, p.4.

<sup>3</sup> An Overview of the Canadian Agriculture and Agri-Food System, p. xv.

<sup>4</sup> Richard Gray and Simon Wesen of the University of Saskatchewan, Best Practices for Canadian Agricultural Innovation: Lessons from Theory and Practice, 2009, p. 7

<sup>5</sup> AAFC, Review of the Rationale for Commercialization of Agri-based Innovation Support, pp. 11-18

comparative disadvantage resulting from the small domestic market in Canada may be impossible to overcome completely.

Among the most important barriers are a lack of access to capital for innovations and difficulties in acquiring human resources with the required knowledge and skills.<sup>6 7 8</sup>

The difficulties in accessing capital by many innovative firms arise for a number of reasons, including the small size of many innovative firms. Commercialization of leading-edge innovations in Canada often is carried out by small firms established to pursue development of a specific product or technology.<sup>9</sup> Our review of AOP project files confirms this observation. All of the approved AOP funding recipients were small start-up firms, averaging less than fifty (50) employees.

These firms cannot normally meet the requirements for debt financing. However, due to poor rates of return on this type of investment in Canada, venture capital firms are also reluctant to invest in start-up or 'seed' companies. This shortage of capital has not been offset by an increase in "angel"<sup>10</sup> or informal investment.<sup>11</sup>

The case studies carried out as part of the AOP evaluation confirmed the continued existence of financial barriers to innovation in the sector. According to these individuals, banks and other capital providers do not necessarily have the capacity to understand innovation and make decisions about the potential of different projects submitted for funding. Based on our review of the funding profiles of case study projects, and on our interviews with case study participants, AOP and other government funding was essential to the success of all of these projects. Of the \$158.7 million invested in 20 file review projects, other federal and provincial government programs provided \$29.5 million (18%); AOP contributed \$45.6 million, (29%) and sources of private capital provided \$83.6 million (53%). Funding recipients reported that banking funds were the most difficult to secure due to the fact that those institutions do not have the resources to make an appropriate risk assessment of agricultural or agri-food projects. Two of the case study representatives indicated that, without AOP funding, their projects would not have gone ahead. The other seven said it would

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<sup>6</sup> Gray and Weseen, op cit, p.7

<sup>7</sup> Labrecque et al, op cit, p. 15

<sup>8</sup> AAFC, Review of the Rational for Commercialization of Agri-based Innovation Support, pp.13-17

<sup>9</sup> Report of the Expert panel on Innovation, op cit, p. 21

<sup>10</sup> An **angel investor** or **angel** (also known as an **informal investor**) is an affluent individual who provides capital for a business start-up

<sup>11</sup> Solving the Pre-commercialization Gap in Canada, National Angel Organisation, 2005, pp. 3-5

have been difficult or extremely difficult for their projects to proceed without this funding.

The case studies also confirmed the significant challenges accessing required knowledge and skills. Several case study firms have found it difficult to find individuals with the required scientific, technical or management skills they require. For example, one funding recipient is finding it hard to identify potential employees who understand the provincial regulatory market. In the case of this firm and several others, their geographic locations – far from major urban centres – has been a factor in attracting and retaining required skills.

These barriers cannot be addressed by the private sector alone. Even with current government initiatives to encourage the flow of venture capital, the smaller size of the Canadian market relative to the US or Europe, likely means that access to capital will be an ongoing challenge for SMEs in the agriculture/agri-food sector. AOP addresses this funding shortfall at the commercialization stage.

### **3.1.2. Alignment with Federal Priorities and Departmental Objectives**

#### **Alignment with Federal Priorities**

A review of Government of Canada publications and policy documents, such as Speeches from The Throne and Budget statements, and AAFC's foundational documents that articulate the department's strategic outcomes confirm that the program is aligned with federal priorities and departmental objectives.

In recent Speeches from the Throne, the Government has recognized that, "...advances in science and technology are essential to strengthen the competitiveness of Canada's economy"<sup>12</sup> and it has committed to supporting industries in trouble, including agriculture.<sup>13</sup> Agri-Opportunities aims at supporting the commercialization of innovative products, technologies and services and, thus, is aligned with these government-wide priorities. The program also supports projects that will create both temporary and permanent jobs, a priority of the 2010 Speech of the Throne.<sup>14</sup>

Currently, "an innovative agriculture, agri-food and agri-based products sector" is one of AAFC's three strategic outcomes. As well, the department's Science and Innovation Strategic Action Plan (2010) identifies "Enhancing economic benefits for all stakeholders" by, among other strategies, "...supporting innovation...in

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<sup>12</sup> Government of Canada, Speech from the Throne, November, 2008, p. 5

<sup>13</sup> Government of Canada, Speech from the Throne, January, 2009, p. 2

<sup>14</sup> Government of Canada, Speech from the Throne, March 3, 2010, p. 9

new and existing products, services, processes and markets”<sup>15</sup> as one of its seven priorities.

While AOP program foundational documents include several statements of objectives and intended outcomes, they are all focused on helping the sector become increasingly innovative, with particular emphasis on, “support for the commercialization of new products, processes or services, especially where the risks are significant enough to create barriers to private sector investment”.

Based on our document review and interviews with program officials and Industry Review Committee members, we conclude that the AOP is aligned with the department’s strategic outcome for innovation. It also indirectly supports AAFC’s strategic outcome for a more competitive sector, as innovation is strongly linked to competitiveness.

### **Alignment with Federal Roles and Responsibilities**

AOP is aligned with federal government roles and responsibilities with respect to agricultural/agri-products innovation. To address this issue we examined AOP program foundational documents to identify the policy objectives, rationale for the program, as well as the grounding of the program in AAFC’s mandate. We also examined relevant legislation to assess the alignment of the program with the department’s legal mandate.

The *Department of Agriculture and Agri-Food Act* provides the Minister of Agriculture and Agri-Food with very wide latitude to act in matters relating to agriculture, products derived from agriculture and research related to agriculture or products derived from agriculture.<sup>16</sup> Innovation is relevant both to agriculture and to products related to agriculture. Basic and applied research are usually the first stages of innovation, followed by pre-commercialization and commercialization (please refer to Figure 2, on Page 11).

### **Alignment with Other AAFC Innovation Programming**

The AOP aims at supporting the commercialization of new, innovative, value-added products by the agricultural/agri-food sector. Evidence obtained through the document review, interviews with program officials and Industry Review Committee members and the case studies confirm that the AOP has a unique focus among AAFC innovation programs, and does not overlap or duplicate other AAFC programs. AAFC has been providing G&C programming to support pre-commercialization and commercialization of agricultural products and processes

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<sup>15</sup> AAFC, *The Way Forward: Summary of Agriculture and Agri-Food Canada’s Science and Innovation Strategic Action Plan*: 2010, p.,

<sup>16</sup> *Department of Agriculture and Agri-Food Act (R.S., 1985, c. A-9). Section 4.*

since at least the mid-nineties, through programs such as CARD, ACAAF and CAFI.

The program is limited to the provision of repayable contributions to private sector firms or other eligible organizations for the commercialization of innovative products, processes or services that are not currently produced or available in Canada. Given this narrow range of activity the program does not overlap or duplicate programs targeting earlier stages of the innovation continuum (such as basic or applied research) or that are focused on other aspects of competitiveness, such as food quality.

AAFC delivers several other programs or services that address the late commercialization phase, including ecoABC, the AgriProcessing initiative the Agri-Marketing program; the AgriFlexibility program; and the Promoting Agri-based Investment Opportunities program. However, none of these programs are focused specifically on providing support to individual firms or organizations for the commercialisation of new or innovative products, processes or services not previously available in Canada, or that will increase demand for Canadian primary products. These findings suggest that the AOP works as part of a suite of AAFC programs that support the movement of innovations along the continuum from basic and applied research through to commercialization.

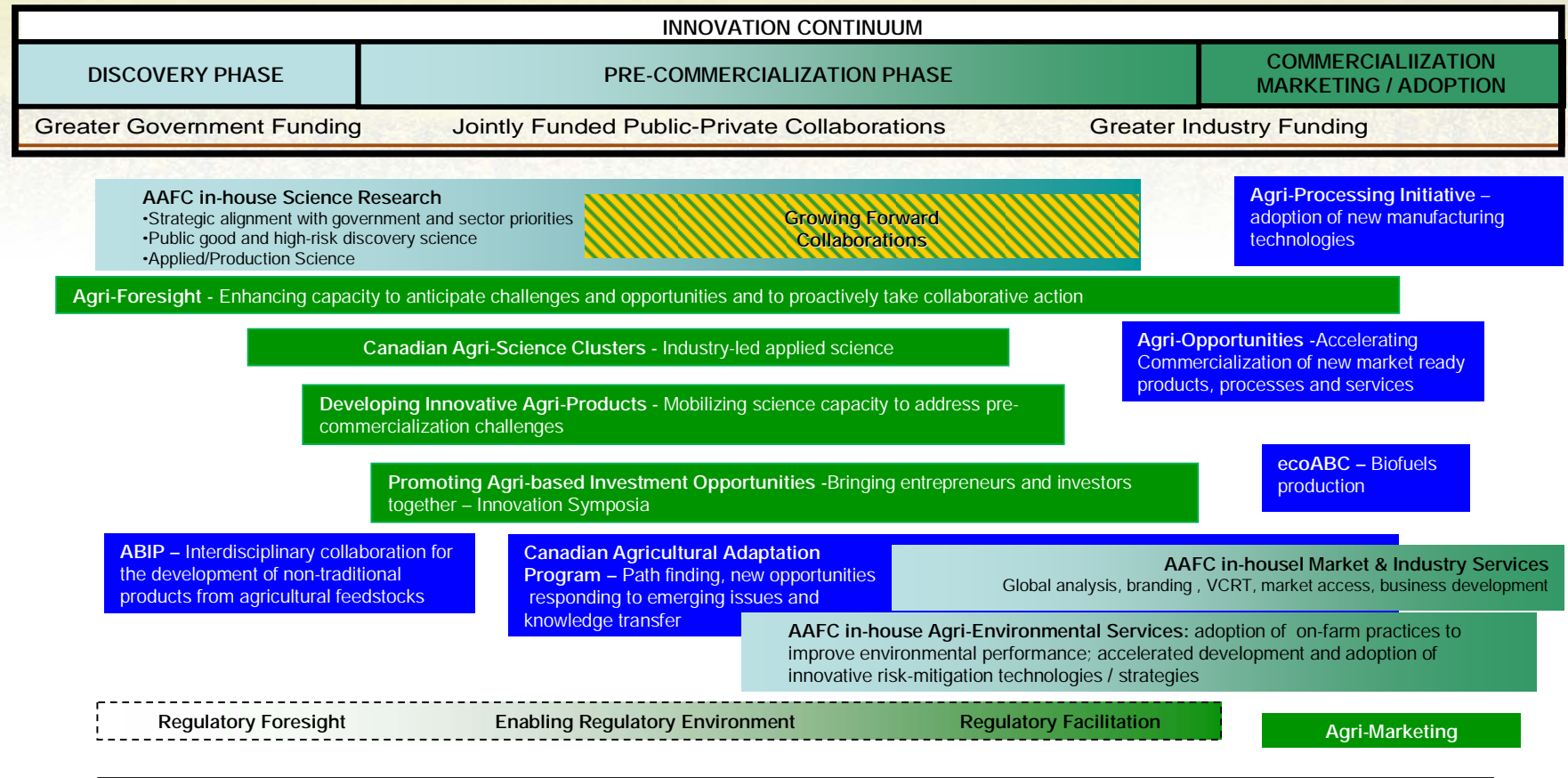
### **Alignment with Other Federal and Provincial Innovation Programs**

There are a number of federal and provincial government programs that support innovation but do not target specific sectors of the economy, (e.g. NRC's Industrial Research Assistance Program, Western Economic Diversification's Technology, Commercialization and Knowledge Infrastructure Sub-Activities; and ACOA's Innovation Program Sub-Activity). There are also a number of provincial programs targeted at the agriculture sector, for example, Alberta's Agri-Business and Product Development Grants; Ontario's Bioenterprise Corporation; and Nova Scotia's Agri-Food Industry Development Fund.

Based on the information obtained in the course of the case studies, AOP funding recipients had previously received funding from such programs as AAFC's ACAAF program and the Matching Investment Initiative (MII), the federal R&D tax Credit, and NRC's Industrial Research Assistance Program (IRAP) to support the R&D or pre-commercialization stages of the project. As well, eleven of twenty AOP projects reviewed have received funding from other federal or provincial programs for the commercialization phase of innovation.



Figure 2: AFC's Innovation Programming



These findings suggest that AOP investments enabled project proponents to leverage funding from other government programs and the private sector. At the same time, based on information provided by program officials, the AOP works collaboratively with these other programs to prevent overlap and duplication and to promote complementarity. This is achieved by:

- i) a requirement that funding applicants divulge all potential sources of funding;
- ii) requiring a minimum of 1/3 of project funding from the private sector and limiting funding from other government sources to 1/3 of the project value; and
- iii) liaising on a regular basis with other federal and provincial programs regarding funding of projects.

These features of the program, in our view, help to ensure it works in a complementary fashion with other programs to provide essential funding. The case study interviews confirmed that AOP funding, by itself, would not have been sufficient to enable these projects to go ahead, providing further evidence for the view that these programs complement one another. Further, the fact that private sector funding amounted to 53% of total eligible funding indicates that funding recipients were not simply relying on government contributions to absorb the risks of these projects.

In conclusion, AOP has a unique focus among AAFC innovation programs, in that it targets its support at firms wishing to commercialize products, technologies or processes, the technical potential of which has already been established. The AOP clearly fits within AAFC's mandate, it supports departmental objectives and it does not overlap or duplicate any other existing federal or provincial programming. The program works in a complementary fashion with other federal/provincial/territorial innovation programs that also support many of the same projects. Furthermore, evidence obtained from the case studies supports the view that AOP funding has been essential for these innovative projects to move forward.

### **3.1.3 Alignment of Program Objectives and Activities**

We assessed the alignment of the AOP's program rationale and objectives through the document review, and through detailed case studies. In terms of the document review, we assessed the coherence of stated program objectives. Through the detailed case studies, we assessed the eligibility criteria and how they have been applied in support of program objectives.

#### **Program Objectives and Target Areas**

A review of AOP foundational documents reveals several different statements of program objectives and target areas that are not entirely consistent with program eligibility criteria, outcomes and indicators. As well, the statements are very broad, implying a range of activities that go beyond what the program has actually funded to date. For example, one stated target area is to "promote nationally consistent product quality standards incorporating key objectives such as environmental sustainability &

health of Canadians” an area that is already being addressed through other AAFC initiatives. Another identified target area is “encouraging transitions into value-added opportunities, through vehicles such as cooperatives”. This appears to imply that the program aims at encouraging primary producers to become involved in value-added processing, which may be a desirable goal but is not reflective of the program’s outcomes, which are focused on the movement of projects towards commercialization of new agricultural products, processes and services.

## **Eligible Activities**

Program foundational documents include eligible activities that span the entire innovation continuum, from “applied research and development” through to later stage commercialization, while eligibility criteria, outcome statements and indicators are focused on activities at the commercialization stage. The program has the potential to fund activities that span the entire innovation continuum. However, a review of the program database and case studies confirm that no applied research projects have been funded under the program to date. Interviews with program officials confirmed that the program is specifically targeting investments that fall within the commercialization phase of the innovation continuum, but that this does not preclude potential projects from being considered at earlier stages of the continuum.

While this allows the program flexibility to support a range of potential projects that contribute to the development of new opportunities for agriculture, the lack of alignment between the AOP’s objectives, target areas and eligible activities, and the program’s eligibility criteria, outcome statements and indicators creates the potential for confusion about the program’s mandate and its positioning vis-à-vis other AAFC innovation and competitiveness programs. That being said, in terms of the 20 successful projects funded through the AOP to date, the activities are entirely focused on supporting organizations at the commercialization stage of innovation.

We reviewed AOP’s eligibility and selection criteria to ensure that they are aligned with the program objectives and intended outcomes. As part of our review of the 20 AOP project files and our nine case studies, we assessed whether funded projects met these criteria, to ensure that funded projects are contributing to achievement of AOP outcomes.

AOP’s Terms and Conditions specify three basic eligibility criteria that project proposals must meet. These are that:

- i) the products, processes or services are not commercially produced or available in Canada;
- ii) products, processes or services will increase demand for primary products, and that
- iii) projects lead to the creation of new or enhanced value-chains that will benefit both primary producers & value-added processors.

Our review of the project files confirmed that fifteen of the twenty AOP projects reviewed met the program's three basic eligibility criteria. For the remaining five AOP projects, interviews with AOP program officials confirmed that the definition of "primary products" was interpreted broadly to include, for example, waste residues from livestock and other processing waste. While these projects will not likely have a direct impact on demand for primary production, nor are they likely to increase overall demand for the primary product involved, they should contribute to reduced production costs, or increased revenue streams for producers or processors through the processing of agricultural or processing waste into value-added products, through improved product testing or through more environmentally sustainable production processes.

### **Eligible Recipients**

Program foundational documents prescribe a much broader range of eligible recipients for the AOP than have accessed the program to date. Eligible recipients for AOP include both the Canadian for-profit and not-for-profit organizations, including cooperatives, individuals, partnerships, associations, universities and colleges, marketing boards, non-governmental organisations, provincial, territorial and municipal governments, shared governance entities, aboriginal groups, Canadian firms and international firms with Canadian business entities.

This target group is much broader than the profile of successful applicants under the program to date. Based on our detailed review of the program database, all of the applicants (20) who have been successful in receiving AOP funding are private sector firms. One is a multinational firm with a Canadian entity; the others are, predominately, small Canadian firms engaged in value-added processing. All of the funding recipients have less than fifty (50) employees. While there have been a small number of applications from other eligible entities (e.g. seven from not-for-profit organisations, cooperatives or other levels of government) none have been successful, with most being rejected at the initial Proposal Synopsis stage as not new or innovative. Interviews with AOP program officials confirmed that they are targeting projects at the commercialization stage of the innovation continuum. Project proponents at this stage are typically private sector firms that have the capacity to leverage the required resources for commercialization projects from other sources.

In conclusion, the AOP's eligibility criteria, outcome statements and indicators are limited to activities at the commercialization stage along the innovation continuum, while the program's objectives, target areas and eligible activities cover the entire continuum, creating the potential for confusion about the program's mandate and positioning vis-à-vis other AAFC innovation and competitiveness programs. This alignment issue should be addressed in any future renewal of the program, to ensure the program has sufficient flexibility to fund innovative projects aimed at developing new opportunities for agriculture and that program impacts can be accurately measured and assessed.

## **3.2 Performance**

This section summarizes the findings of the evaluation with respect to the performance of the Agri-Opportunities program, in terms of achievement of intended outcomes, efficiency and economy.

### **3.2.1. Achievement of Program Outcomes**

#### **Immediate Outcomes**

The AOP is intended to bring about the following immediate outcomes:

- Capital is leveraged to commercialize new products, processes or services;
- Facilities have been established, modernized or expanded;
- Products, processes or services have been advanced towards commercialization; and
- Increased knowledge and skills of recipient organizations.

Based on the performance indicators and targets set for these immediate outcomes, AOP expenditures have been considerably lower than originally budgeted. As of September 2009, the AOP had approved 20 projects. While this number is in line with the target set at the beginning of the program (19-26 projects), the total value of contributions committed for these projects was only \$45.6 million, as opposed to the \$80 to \$100 million that was budgeted based on an anticipated \$4 million to \$6 million in funding per project.

Including six additional projects that have since been approved and two others that have received program approval but have not yet received Ministerial approval, the total amount of funding committed as of September, 2010 was \$52.1 million, out of the total \$119 million in approved contribution funding for the program. Three additional projects may be approved in 2010-2011; nevertheless, actual contribution expenditures for the AOP are expected to be less than one-half of the approved contribution budget (\$119 million).

Based on our detailed review of the program database, this lower than expected expenditure is a result of several factors:

- i) The program, although approved in principle in June of 2006, was not actually implemented until January 2007;
- ii) As is the case with any contribution program, there was a significant “ramp-up” time required to obtain program human resources and to develop program guidelines, processes and structures (e.g., the Industry Review Committee) and to inform the sector about the program before the program could begin screening and assessing applications;

- iii) The average value of the AOP contribution to each project (\$2.28 million) has been considerably less than originally estimated (\$4 to 6 million per project). In addition,
- iv) The lengthy time required to process proposals may also be also a factor. Innovation projects are inherently complex and subject to uncertainties regarding such aspects as financing, acquisition of required skills and market conditions, necessitating extensive due diligence on the part of government funding programs, such as the AOP. At the time of the evaluation, the program was still assessing 'Full Proposals' from 20 applicants. Interviews with program officials confirm that they are expecting to approve an additional six projects in 2010-2011. Given the average amount of funding per AOP project to date, it is likely that the program will not be able to maximize its contribution funding.

The AOP is the largest government contributor to the twenty projects included in the file review, providing 29% of project funding (\$45.6 million). Other government programs contributed 18% (\$29.5 million) of eligible funding, although most of this went to two projects, and the private sector contributed 53% (\$83.6 million). The case study interviews provided confirmation that AOP funding was a key factor in the ability of project proponents to obtain funding from other sources, especially the private sector. The fact that the AOP provided only 29% of the required project funding and the private sector provided the majority of the funding indicates a reasonable degree of confidence in, and commitment to these projects by their private sector partners.

Notwithstanding the program's success in leveraging funding from other sources for innovation projects, the bottom line is that AOP expenditures have been much lower than originally budgeted, affecting the achievement of immediate outcomes. Given the uncertainties inherent in funding innovation projects targeted at the commercialization of new, value-added products, processes and technologies, the Farm Financial Programs Branch should reassess the expected level of year-over-year expenditures associated with the Agri-Opportunities Program, to inform any future renewal of the program.

### **Intermediate Outcomes**

The intermediate outcome of the AOP is that "more, and new innovative products are brought to market in Canada"<sup>17</sup>

All of the twenty projects approved as of September 2009 are targeted for completion by March 31, 2011, the program end date. However, the project file review of these twenty projects indicates that several are at risk of not being completed by this date. Among the twenty (20) projects we reviewed, five (5) have started within the last six months and only three (3) are completed. Five (5) projects are significantly behind schedule and twelve (12) are on schedule or slightly behind schedule (see Table 2).

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<sup>17</sup> AAFC, Agri-Opportunities Program, Results-based Management Accountability Framework,, 2007, p. 7

The AOP project file review also confirms that, among those projects that are completed and operational, only one project is selling its product commercially and two other projects have been completed and are ramping up production, refining processes, and testing production volumes and quality. The remaining seventeen projects are not yet completed and five of these will likely not be completed before March 2011, as noted above.

**Table 2**

<b>File Review Projects - Likelihood of Completion by March 31, 2011</b>	
<b>Status</b>	<b>No. of Projects</b>
Completed	3
Likely Completed	12
Questionable	5
<b>Total</b>	<b>20</b>

In the case of projects that are behind schedule, project proponents have cited a number of reasons for the delays, including loss of funding from other sources, difficulties in acquiring essential management or technical skills, longer than estimated construction times or equipment delivery delays. In one case, the funding recipient had difficulty finding a location for their facility.

At this point in time, it is too early to project the likely dates by which the remaining nineteen projects will begin selling products commercially; however, most are expected to begin commercial production some time after March 2011. Consequently, the AOP may not realize its intermediate outcome of “more and new innovative products on the market” before its end date.

## **End Outcomes**

The AOP is intended to bring about the following end outcomes:

- Increased demand for primary agricultural products;
- New revenue streams among funded enterprises;
- Increased level and quality of employment for funded enterprises; and
- Increased participation in value added industries.<sup>18</sup>

It is too early in the lifecycle of the projects to evaluate the program against these outcomes on the basis of program data, as the achievement of these outcomes is targeted to be realized over the next three to ten years. It is generally recognized that end outcomes of innovation programming take time to achieve for several reasons, including normal market growth rates; economic cycles and impacts on demand; the need to address regulatory barriers in potential export markets and availability of financing for expansion or movement into new markets.

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<sup>18</sup> AAFC, Agri-Opportunities Program, Results-based Management Accountability Framework,, 2007, p. 7

That being said, in order to support an assessment of the potential achievement of program outcomes, for each of the nine case studies we undertook a prospective economic analysis of expected impacts, based on the following estimates provided by project applicants as part of their detailed business plans: projected sales revenue, direct employment, and demand for primary products. The detailed methodology for the economic analysis is described in Appendix A but, essentially, it involved the development of three scenario-based forecasts of the economic impacts of these projects. The forecasts were based on three scenarios: a low-probability of project success scenario, a medium probability of success scenario and a high probability of success scenario.<sup>19</sup> The forecasts themselves are expressed as the “expected values” of these impacts under each scenario. It should be noted that the findings are based on nine case study projects, which were selected in a non-random manner due to the need to obtain information on as many projects as possible that had made some progress by the time of the evaluation. Consequently, while they represent almost 50% of approved projects to-date, the estimates of project success are likely somewhat higher than if the entire family of projects had been selected for this analysis.

The evaluation findings based on this economic analysis are discussed in the sections below. For purposes of brevity, and to maintain a conservative approach to assessing these prospective economic outcomes, the analysis was limited to a five year time frame.

Based on our prospective economic analysis for the nine case studies, AOP projects are estimated to result in a total of \$207 to \$282 million in sales revenue over the next five years, depending on which probability of success scenario is used.

AOP projects are also expected to have a significant, positive impact on primary demand over the next five years. Seven of the nine case study projects indicated that they would have a direct or indirect impact on the demand in the primary agriculture sector. The expected cumulative value of increased demand for primary production for all of these projects, by year five, ranges from \$43.9 million under the low-success scenario to \$51.8 million under the medium-success scenario and \$59.8 million under the high-success scenario.

AOP projects are expected to produce other direct economic benefits for the sector over the next five years. Based on our analysis, these other direct benefits are expected to be \$16 million under the low probability of success scenario, \$23 million under the medium success scenario, and \$29 million under the high probability of success scenario.

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<sup>19</sup> The use of probability-based prospective scenarios is common in benefit-cost analysis and in business and government economic and financial forecasting.



<b>Table 3</b> <b>Summary of Expected Benefits and Costs of the Agri-Opportunities Program based on Nine Case Studies</b>			
<b>Original Estimate by Proponents</b>	<b>Low-Success Scenario</b>	<b>Medium-Success Scenario</b>	<b>High-Success Scenario</b>
<b>Benefits (million\$)</b>			
A. Expected Proponent Sales Revenue	\$206.9	\$244.3	\$281.8
B. Expected Impacts on Primary Production	\$43.9	\$51.9	\$59.8
C. Expected Other Direct Economic Benefits	\$16.3	\$22.6	\$28.9
D. Expected value of Direct Employment	\$26.9	\$32.9	\$38.9
E. Expected value: All Economic Benefits (Row A+ B +C + D)	\$294.1	\$351.8	\$409.5
<b>Costs (million\$)</b>			
F. Expected Costs of Contributions	\$12.2	\$9.8	\$7.5
G. Expected Cost of Program Delivery	\$2.1	\$2.1	\$2.1
H. Total Expected Costs (Row F+ G)	\$14.3	\$11.9	\$9.6
<b>Benefit to Cost Ratios</b>			
\$ value of Sales Revenue per \$1.00 of Program Expenditure	\$14.40	\$20.40	\$29.30
\$ Value of Total Economic Benefits per \$1.00 of Program Expenditure	\$20.60	\$29.30	\$42.50

In addition, based on this analysis, projects funded under the AOP are likely to result in significant positive employment impacts, the economic value of which exceeds the program costs. Table 4 summarizes the estimated direct cumulative employment impacts of the nine case study projects, based on the original estimates contained in project proposals and as adjusted by the evaluation team, based on our prospective analysis methodology. It also provides the average cost to the AOP per job created and the total costs of for all jobs created under the three success scenarios. The detailed methodology for determining the employment impacts is described in Appendix A.

As Table 4 illustrates, the cost per job created ranges from a high of \$112K under the low success scenario to a low of \$53K under the high success scenario. We obtained information from recent evaluations of innovation programs delivered by other federal departments or agencies (e.g. ACOA's Innovation Program Sub-Activity; the Eastern

Ontario Development Fund of Industry Canada), in order to compare the cost per job created with other, similar programs. However, we found that the costs per job created by other programs were highly variable, with some being somewhat lower than AOP and others significantly higher, making comparisons extremely difficult. We did observe that the cost per job tended to be lower for programs that had a strong focus on job creation, where employment costs represented the bulk of program costs. By comparison, the AOP funds projects with significant capital and equipment costs, in addition to the employment costs. This results in a higher cost per job created, comparatively.

<b>Table 4</b> <b>Economic Value of Jobs Created and Program Costs of Direct Employment</b> <b>Case Study Projects</b>				
	Original Estimate by Proponents	Low-Success Scenario	Medium-Success Scenario	High-Success Scenario
<b>No. of Jobs Created: 5 Years</b>	274	127	155	182
Total Value of Jobs over 5 Years (million\$)	\$59.7	\$26.9	\$32.9	\$38.9
Average Value per Job over 5 Years (million\$)	\$.218	\$.212	\$.212	\$.213
Cost per Job (million\$)		\$.112	\$.077	\$.053
Total Cost of Employment Created (million\$)		\$14.3	\$11.9	\$9.6

Notwithstanding the results of this prospective economic analysis, the achievement of program outcomes has been delayed due to unforeseen risks associated with project proposals, and outcomes that do not reflect what can realistically be achieved within a five-year timeframe for this type of innovation program.

It should be acknowledged that programs face a considerable challenge in trying to demonstrate the long-term, enduring benefits of programs within a five-year timeframe. Ideally, a seven to ten year timeframe would provide a more realistic horizon for assessing the achievement of program intermediate and end outcomes. However, the reality is that departments have to live within the five-year timeframe for articulating results, given that program authorities and funding are typically approved for a time-limited, five year period. As a result, the Farm Financial Programs Branch should review the program immediate, intermediate and end outcomes to ensure they reflect what can realistically be achieved within a five-year timeframe, taking into account the various risks faced by project proponents. Furthermore, given the longer-term nature of innovation projects, the Farm Financial Programs Branch should examine possibilities for monitoring Agri-Opportunities projects beyond the five-year program lifecycle, so that long-term impacts can be measured and assessed.

### **3.2.2 Program Efficiency and Economy**

Program efficiency refers to the extent to which maximal program outputs are achieved with a given level of inputs or, conversely, the minimal level of inputs or resources are used to achieve the maximum level of outputs. Efficiency can be measured in terms of inputs such as timeliness, human resources and demands on participants. Program economy refers to the costs of a program relative to the outputs or outcomes achieved. Our findings with respect to these aspects of program performance are summarized below.

#### **Efficiency**

AOP delivery costs are 8.3% of total program costs, based on actual and estimated expenditures to March 31, 2011. These costs include the cost of screening initial Proposal Synopses for some 172 proposals and reviewing and evaluating 70 Full Proposals. For more recent applications, it included staff time to screen 25 initial 2-page summary project descriptions to determine eligibility, in lieu of a Proposal Synopses. It also includes the staff time to manage projects and to manage the program as a whole.

This ratio of delivery costs to total program costs appears to be reasonable when compared to other AAFC grant and contribution programs. For example, the national component of AAFC's Advancing Canadian Agriculture and Agri-Food program (ACAAF) (now the Canadian Agricultural Adaptation Program), which is delivered by AAFC's National Headquarters, incurred program delivery costs of 12% over the five-year life of the program. The costs for the delivery of the regional components of the ACAA program, which were delivered by Industry Councils in each province, were 13%.

We attempted to obtain data on the ratio of delivery costs to total program costs from recent evaluation reports for a number of other innovation programs delivered by federal departments and agencies. We were able to find this data for only one program – the National Research Council's (NRC) Industrial Research Assistance Program (IRAP). Based on a recent evaluation of IRAP by the NRC, the direct delivery costs for the IRAP were 17.2% in 2006-07.<sup>20</sup> However, the IRAP follows a very different business model, under which program officers establish ongoing relationships with client small and medium size enterprises (SMEs) and engage with them on an ongoing basis to provide advice, rather than managing individual projects.

In summary, while there are no clear guidelines for federally delivered program costs, the AOP's delivery costs appear to be in line with other similar innovation programs at AAFC, and with the IRAP program at NRC.

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<sup>20</sup> National Research Council, NRC-IRAP Impact Evaluation, 2007, P.54

## Effectiveness and Economy

In terms of program economy, evidence obtained through the detailed review of the program database and case studies suggest that the time required to process applications may be putting the achievement of program outcomes at risk.

Agri-Opportunities initially assessed projects through a three-step process:

- **Initial Pre-Screening Call:** to screen out projects that are clearly ineligible before applicants invest significant time.
- **Proposal Synopsis (PS):** a 15 to 20 page document that provides a basis for assessing projects against three basic eligibility criteria.
- **Full Proposal (FP):** a detailed proposal with supporting materials (e.g. business plan) that provides a basis for in-depth assessment of the project.

Based on our analysis of data on the AOP program database, the average time required to screen and assess proposals that were ultimately successful under the program was 429 days<sup>21</sup>. This included all of the calendar time from receipt of the initial PS, through to approval of the Contribution Agreement. Processing times for applications received in 2007-08 averaged 473 days. This declined to 413 days in 2008-09, and to 255 days in 2009-10. Nevertheless, 255 days still exceeds the program service standard by 105 days. In terms of the service standard, there is a balance that needs to be struck between conducting due diligence in assessing project proposals, and processing applications on a timely basis in order to facilitate the achievement of program objectives.

**Table 5**  
**AOP - Application Processing Times**

<b>Calendar Year Application Received</b>	<b>Average Processing Time (in Days): From Receipt of PS to Signing of Contribution Agreement</b>
2007-08	473
2008-09	413
2009-10	255
All Applications	429

In 2008, in an attempt to improve the efficiency of the assessment process, AOP program officials introduced a new step, requesting applicants to submit a two page summary project proposal, prior to submitting the Proposal Synopsis. Approximately 25 proposals have been assessed using this new step. Of these, only 10 went on to submit a Proposal Synopsis, suggesting that this new step may reduce processing time. Based on our database review, case studies and interviews with program officials, there are a number of factors that have contributed to these lengthy processing times, not all of which are under the control of program officials. Among these factors are:

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<sup>21</sup> Appendix B describes in detail the methodology used for the time interval analysis.

- **Time in Client Hands**

Time in client hands includes the time from a positive decision letter to the applicant, inviting them to submit a Full Proposal, to receipt of the Full Proposal. It also includes some of the time from receipt of the PS and receipt of the Full Proposal to the date these were deemed complete by program officials. Time in client hands averaged 106 days of the 429 days required for processing applications.

- **Time Required to Process the Full Proposal**

The time required for processing and approving the Full Proposal and obtaining senior management sign-off accounted for 135 days of the 429 days processing time. The bulk of this time is spent by the AOP Project Manager reviewing and conducting due diligence; a review of the proposal by departmental program areas with technical or other expertise in the project subject matter; and the review by the Industry Review Committee. Once these steps have been completed, the proposal is sent through internal approval processes for sign-off by AAFC senior management.

- **Post-Program Approval and Signing of the Contribution Agreement**

This stage accounted for approximately 165 days and includes several stages of Ministerial approval leading up to the signing of a Contribution Agreement by both AAFC and the project proponent. While the bulk of this time can be considered time in government hands, in a few cases clients delayed signing their Contribution Agreements. Based on information provided by program officials, this was due to the fact that project proponents wanted to defer project start dates given market conditions or financial issues. (However, it should be noted that once the Contribution Agreements were signed, successful applicants could be reimbursed for project costs retroactive to the date on which the project received Ministerial approval).

The time required to assess proposals was also affected by the large number of Proposal Synopses received (172), of which 50 were invited to submit Full Proposals. Four case study funding recipients indicated that the time required to process their applications was a disadvantage, and in some cases, caused a delay in the start of their project.

In conclusion, our evaluation found that program effectiveness and economy was hampered by a lengthy project approval process that exceeds the current program service standard. Accordingly, the Farm Financial Programs Branch should review the existing project approval process and program service standards, to ensure they reflect the appropriate balance between conducting due diligence on project proposals and facilitating the achievement of program objectives.

## 4.0 Conclusions and Recommendations

### 4.1 Conclusions

**The AOP continues to be relevant to the needs of the agricultural/agri-food sector and to current government roles and priorities.** The AOP addresses a continued need for government financial support for commercialization of innovation. The program is consistent with current government priorities for innovation and for the agricultural sector, and with AAFC's mandate, which includes extensive involvement in innovation programming in recent years.

**The AOP is aligned with other AAFC innovation programming and complements other federal and provincial innovation programming.** The AOP has a unique focus among AAFC innovation programs in that it focuses on financial support to private sector firms or other organisations for later-stage commercialization of innovations that are new to Canada and that will impact positively on Canada's primary production sector. Other AAFC innovation programs are either targeted at earlier stages of the innovation continuum or are focused at different target groups (e.g. established firms) or eligible activities (e.g. expansion of existing manufacturing facilities or networking) than the AOP.

The AOP works in a complementary fashion with other federal and provincial programs through joint funding of projects, enabling funding recipients to leverage a critical mass of government funding while ensuring a significant investment from the private sector.

**The AOP is funding what appear to be worthwhile projects that are expected to result in significant economic benefits in the long-term (3 -10 years).** The AOP is funding projects that are expected to increase demand for agricultural primary products by at least \$44 million over the next five years and to realize total economic benefits of some \$294 million to \$410 million. This compares with a program expected costs of \$10 to \$14 million, taking into account the expected value of repayment of contributions.

Despite these positive aspects of the program, there are several aspects of the program that require attention, including the following.

**The AOP's eligibility criteria, outcome statements and indicators are focused on activities at the commercialization stage along the innovation continuum, while the program's objectives, target areas and eligible activities cover the entire continuum.** While the broad objective statements and eligible activities allow the program flexibility to support a wide range of projects that contribute to the development of new opportunities for agriculture, the lack of alignment with eligibility criteria, outcome statements and indicators creates the potential for confusion about the program's mandate and positioning vis-à-vis other AAFC innovation and competitiveness programs. It also makes it difficult to assess the achievement of program outcomes.

**Given the nature and complexity of innovation projects, AOP expenditures have been considerably lower than originally budgeted, affecting the achievement of program immediate outcomes.** While the number of AOP projects approved at the time of the evaluation (20) was in line with program targets (19-26), committed contributions were only \$45.6 million, of the total approved contribution funding of \$119 million, due to a smaller than expected average contribution value; lengthy application processing times and delays in the implementation of some projects by funding recipients. Taking into account the eight additional projects subsequently approved by program officials, program contribution expenditures will total only \$52.1million, of an available \$119 million in contribution funding.

**The achievement of program intermediate and end outcomes has been limited to date, in part, due to unforeseen risks associated with project proposals and outcomes that do not reflect what can realistically be achieved within a five-year time frame.** Of the 20 projects approved as of September 2009, only three have been completed and five are significantly behind schedule for various reasons. Only one funding recipient is actually selling its product commercially. It will be several years before the intermediate and end outcomes, such as new products, processes and services being brought to market, and projected increases in demand for agricultural products, sales revenue and employment can be measured and assessed based on actual data.

**Program effectiveness is hampered by a lengthy project approval process that exceeds the program service standard.** AOP application processing times average 429 days from the time the initial proposal is received to the date the Contribution Agreement is signed. While the average processing time has declined from 473 in 2007-08 to 255 in 2009-10, the latter still substantially exceeds the program service standard of 150 days.

While there is a balance that needs to be struck between conducting due diligence in assessing project proposals, and processing applications on a timely basis, this lengthy processing time almost certainly has been a factor in the limited achievement of program outcomes to date.

## **4.2 Recommendations**

- 1. The Farm Financial Programs Branch should ensure that program eligibility criteria, outcome statements and indicators are fully aligned with and reflect program objectives, target areas and eligible activities and recipients, in any future renewal of the Agri-Opportunities Program.**

### **Management Response and Action Plan:**

The Farm Financial Programs Branch will ensure that, if Agri-Opportunities is renewed, foundational documents including Memoranda to Cabinet, Treasury Board Submissions, Terms and Conditions, and program guidance documents will be aligned with respect to program objectives, target areas, eligible activities and recipients and be reflective of expected program outcomes. This alignment will be undertaken with a view to bringing greater clarity while not compromising the flexibility this initiative requires to address evolving innovation and commercialization priorities by targeting funds at areas of greatest importance and need, and where they can generate the greatest benefit.

*Target Date: March 31, 2011 (Responsibility: Director General, Agriculture Transformation Programs Directorate)*

- 2. To inform any future renewal of the program, the Farm Financial Programs Branch should reassess the expected level of year-over-year expenditures associated with the Agri-Opportunities Program, given the uncertainties inherent in funding innovation projects targeted at the commercialization of new, value-added products, processes and technologies.**

### **Management Response and Action Plan:**

The Farm Financial Programs Branch has reassessed what the expected level of expenditure would be for a renewed Agri-Opportunities program in light of the different factors and risks experienced by the program during its first five-year cycle. Factors such as program start up, the economic downturn, the average cost and duration of projects, and changing (increasing) trend in program uptake now that the program is established and the economy is recovering from the financial crisis have been considered. Program expenditure estimates, informed by this assessment, will be used if the Agri-Opportunities program is renewed.

*Target Date: March 31, 2011 (Responsibility: Director General, Agriculture Transformation Programs Directorate)*



- 3. The Farm Financial Programs Branch should review the program immediate, intermediate and end outcomes to ensure they take into account program risks and reflect what can realistically be achieved within a five-year timeframe, to inform any future renewal of the program.**

**Management Response and Action Plan:**

The Farm Financial Programs Branch has begun the review of Agri-Opportunities outcomes and will ensure that, if the program is renewed, immediate and intermediate outcomes, and end outcomes where practicable, are measurable within the timelines of the program. The Farm Financial Programs Branch will set realistic targets taking into consideration past risk events and other factors that impact progress towards and time required to achieve outcomes. These outcomes will be reflected in the Performance Measurement Strategy if the program is renewed.

*Target Date: March 31, 2011 (Responsibility: Director General, Agriculture Transformation Programs Directorate)*

- 4. Given the longer-term nature of innovation projects, the Farm Financial Programs Branch should examine possibilities for monitoring Agri-Opportunities projects beyond the five-year program lifecycle, so that long-term impacts can be measured and assessed.**

**Management Response and Action Plan:**

The Farm Financial Programs Branch will lead, with the support of Research Branch, a department-wide examination of options for monitoring the end outcomes of innovation programs beyond the five-year program lifecycle, recognizing that the achievement of program outcomes are influenced by external factors including market growth rates, regulatory barriers, availability of financing, and the impact of economic cycles on program demand. In the development of options, consideration will be given to the complexity and expense that would be involved as well as the long term reporting burden that would be placed on clients.

*Target Date: March 31, 2011 (Responsibility: Assistant Deputy Minister, Farm Financial Programs Branch, Assistant Deputy Minister, Research Branch)*

- 5. The Farm Financial Programs Branch should review the existing project approval process and program service standards, to ensure they reflect the appropriate balance between conducting due diligence on project proposals and facilitating the achievement of program objectives.**

**Management Response and Action Plan:**

The Farm Financial Programs Branch has already made some changes to the assessment procedures which brought about reduced processing times for applications. As well, the Biofuels Opportunities Division has developed a system

that more accurately reflects departmental processing time versus time elapsed in clients' hands.

If the program is renewed, the Farm Financial Programs Branch will continue to improve on elements of the assessment and approval process with an aim to establishing and achieving service standards for application processing that realistically reflect the time necessary to undertake due diligence and ensure proper governance for project approvals, thereby improving client services and facilitating the achievement of program objectives. A list of changes to the assessment process that identifies the stage of the process impacted and estimates the impact in terms of number of processing days will be created if the program is renewed.

*Target Date: April 2011- potential program renewal date (Responsibility: Director General, Agriculture Transformation Programs Directorate)*

## **APPENDIX A**

### **Methodology – Prospective Economic Analysis of AOP Long-Term Outcomes**

#### **I. Calculation of Expected Value of Direct Benefits**

Direct benefits include:

- Proponent/recipient revenue
- Increased primary production
- Increases in non-primary sector revenues and/or cost savings
- Value of direct employment
- Number of jobs created

To arrive at the expected values in the tables:

1. We started with the original estimated values of direct benefits, as presented in the program Decision Documents and/or Contribution Agreements for each project (which we will refer to as targets). During our interviews with contribution recipients, we asked them to validate or modify these estimates.<sup>22</sup>
2. We asked recipients and other stakeholders to estimate the probability, within a twenty (20) percentage point range, of meeting their revenue and employment targets. We accepted the majority view as to the appropriate twenty-point range and used the low end, mid-point, and high end, in further calculations. For example, if the majority view of the likelihood of success was 80 to 100 percent, we used 80%, 90% and 100% respectively, to represent the low success, medium success and high success scenarios. It should be noted that this methodology makes no assumptions as to whether individual projects or some percentage of projects will fail or succeed. The expected values under each scenario could be the result of, for example, some projects fully succeeding and some failing completely; or of all projects succeeding to some degree.
3. Recognizing the 'soft' nature of these subjective estimates, with a possible bias toward optimism, we applied a discount for the gap between progress and schedule. This gap was calculated as the difference between the percentages of agreed contributions used (progress) and the percentage of available project time<sup>23</sup> elapsed (schedule), on the simplifying assumption that progress is linear over time. For example, if the project had used 50% of its contribution agreement with 65% of the available time elapsed; the gap would be minus 15%. This would be subtracted from the estimates derived in step 2.
4. The result of steps 2 and 3, for each project, is a numeric value representing each of three success scenarios. For example, in a project where the

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<sup>22</sup> In all cases but one, original estimates remained unchanged.

<sup>23</sup> We know that the available time is finite because the program is due to terminate on March 31, 2011.

stakeholder consensus was 80% to 100% probability of meeting targets and the project had used 50% of its contribution agreement with 65% of the available time elapsed, the resulting midpoint likelihood of success would be 75% - i.e.  $(90\% + (50\% - 65\%)) = 75\%$ . The corresponding range would be from 65% (low-success scenario) to 85% (high-success scenario).

5. We multiplied each target value by these likelihood of success values to obtain the expected values under each scenario.
6. Finally, as this procedure was carried out for each project separately, the results were aggregated to provide the figures in the Summary Table above.

## **II. Calculation of Cost to AOP per Job Created**

The total expected cost under each success scenario is calculated as the un-repaid contribution amount plus program administrative costs. The expected cost per job is the expected total cost divided by the expected number of jobs. The values in the Summary Table were derived as follows.

- Total Contribution Agreement Values is the sum of contribution agreements for the nine case study projects.
- Contributions are repayable over an eight year period beginning, at the latest, three years after completion of the project; however, they are repayable only if the project is realising positive net revenues. On the assumption, therefore, that contribution repayment would be proportional to project success as we have defined it above, we averaged the probabilities of success over all case study projects (as calculated in step 4 above) and used this as the probability of repayment under each scenario. We multiplied the CA amount by this percentage to give the expected repayment amount.
- The expected cost of contributions is the CA value minus the repayment amount.
- To arrive at the expected cost of program delivery for each project we calculated the anticipated program delivery cost as a percent of the total program cost (8.9%) and allocated the corresponding amount (8.9% of the CA value) to each of the nine case study projects. The administration cost is assumed to be the same under all three success scenarios.
- The total expected cost under each scenario is the cost of contributions plus the allocated program delivery cost.
- The expected number of jobs was derived using the method described above for 'Direct Benefits'.
- The expected cost per job was arrived for each scenario by dividing the expected total cost by the expected number of jobs created.

## **Appendix B**

### **Methodology: Analysis of Application Processing Times**

The analysis of AOP application processing times was carried out based on an analysis of the time interval between dates entered in the program database for various steps in the application process. There are three main stages in the process:

- **Initial Pre-Screening Call:** to screen out projects that are clearly ineligible before applicants invest significant time.
- **Proposal Synopsis (PS):** a 15 to 20 page document that provides a basis for assessing projects against three basic eligibility criteria.
- **Full Proposal (FP):** a detailed proposal with supporting materials (e.g. business plan) that provides a basis for in-depth assessment of the project.

The database provides for inputting of a number of dates for individual steps within the PS and FP stages. However, from these we selected a limited number of dates for analysis for two reasons:

- i) there are a limited number of dates that were critical to the analysis; many other dates were very close in time to other, more critical dates;
- ii) some data fields were incomplete for large numbers of projects, meaning no useful analysis could be conducted on them; consequently, for some dates, from a range of closely related dates, we chose one that was representative of the most projects.

The starting point of our analysis was the Proposal Synopsis (PS) as there is no date information for the pre-screening call and, in any case, the PS is the start of the formal application process. The dates we utilized for each stream of projects (approved, rejected, withdrawn, inactive) were the following:

#### **I. Approved Projects**

##### **PS Stage**

- Date the Proposal Synopsis (PS) was Received
- Date the PS was deemed complete
- Date of the positive PS Decision Letter

##### **FP Stage**

- Date of the PS Decision Letter to Date of receipt of the Full Proposal (FP)
- Date of Receipt of the FP to Date the FP was Deemed Complete

- Date the FP was deemed complete to the Date the Project was approved by the ADM
- Date the Proposal was approved by the ADM to Date the FP (or Quote) was approved by the Minister
- Date the Proposal was approved by the Minister to Date the Contribution Agreement (CA) was signed

## **II. Projects Rejected, Withdrawn or Inactive at the PS Stage**

### **PS Stage**

- Date the Proposal Synopsis (PS) was Received
- Date the PS was deemed complete
- Date of the Rejection Letter, Withdrawn Acknowledgement Letter or Deemed Inactive Letter for Projects Rejected, withdrawn or inactive at the PS Stage

## **III. Projects Rejected, Withdrawn or Inactive at the FP Stage**

### **PS Stage**

- Date the Proposal Synopsis (PS) was Received
- Date the PS was deemed complete
- Date of the positive PS Decision letter

### **FP Stage**

- Date of the PS Decision Letter to Date of receipt of the Full Proposal (FP)
- Date of Receipt of the FP to Date the FP was Deemed Complete
- Date of the Rejection Letter, Withdrawn Acknowledgement Letter or Deemed Inactive Letter for Projects Rejected, withdrawn or inactive at the PS Stage

For each stream, we conducted, firstly, a high-level analysis of the time interval, in calendar days from the date the PS was received to the final date in the application process for that stream, as shown in Table B-1, below. For approved projects this was the interval from receipt of the PS to the date the CA was signed. For rejected, withdrawn, or deemed inactive proposals, this was the date of receipt of the PS to the date of the rejection letter, the letter acknowledging withdrawal of the project or the dated of the letter from AAFC to the applicant indicating the projects was deemed inactive. These letters occurred at the PS stage in some cases and at the FP stage in other cases.

We then conducted a more detailed analysis of the time intervals between additional steps in the process that occurred between receipt of the PS and the final decision. The results of this detailed analysis are also shown in Table B-1. The reasons for this more detailed analysis were two-fold.

One reason was to identify how much of the application processing time was time in client hands and how much was time in AAFC's hands. Time in client hands includes the time from receipt of the PS decision letter, for projects approved at this stage, until the FP is received by the program. It also includes a portion of the time from the date when the PS or FP is received to the date the PS or FP was deemed complete. Specific data on the proportion of this time interval that was time in the client's hands was not available but program officials indicated that they took little time to review proposals and deem them complete if, in fact, they were complete, and that the large majority of this time interval was time in clients' hands. We, therefore, allocated 66% of this time to the client for purposes of our analysis.

A second reason for the more detailed analysis was to identify specific steps in the process that appeared to be problematic so as to provide some direction to the program regarding where they might look for improvement.

Finally, we examined the changes in processing times for approved over the first three years of the program's life (2007-08 to 2009-10) to determine whether there had been any improvement in processing times. For this comparison, we made use of analyses recently carried out by the program, using the same data we had for our analysis.

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**Table B-1**  
**Master Summary Sheet - Application Processing Times Analysis Based on Program database (All Years/Applications)**

Detailed Analysis	PS Received to CA Signed	PS Received to PS Decision Letter	PS Received to FP Rejection Letter	PS Received to FP Withdrawn Letter	PS Received to FP Inactive Letter				
<b>Approved Projects</b>									
No. of Calendar Days	429	x	x	x	x				
No. in Sample	22								
<b>Rejected at PS Stage</b>									
No. of Calendar Days	x	59	x	x	x				
No. in Sample		60							
<b>Withdrawn at PS Stage</b>									
No. of Calendar Days	x	138	x	x	x				
No. in Sample		23							
<b>Inactive at PS stage</b>									
No. of Calendar Days	x	61.6	x	x	x				
No. in Sample		8							
<b>Inactive at FP Stage</b>									
No. of Calendar Days	x	x	58	38	57.7				
No. in Sample			7	6	13				
Detailed Analysis	PS Rec'd to PS Deemed Complete	PS Deemed Complete to PS Decision Letter	PS Decision Letter to FP Received	FP Received to FP Deemed Complete	FP Deemed Complete to FP Rejection/Withdrawn /Inactive letter	FP Deemed Complete to Signed by ADM	Signed by ADM to QTE Signed by Minister	QTE Signed by Minister to CA Signed	Total days
<b>Approved Projects</b>									
No. of Calendar Days	29.1	13.1	67.4	29.4	n/a	135.5	25.4	129.4	<b>429.3</b>
No. in Sample	22	22	22	22		20	20	21	
<b>Rejected at PS Stage</b>									
No. of Calendar Days	39.4	27.5	x	x	n/a	n/a	n/a	n/a	<b>66.9</b>
No. in Sample	50	38							
<b>Withdrawn at PS Stage</b>									
No. of Calendar Days	38.6	135	x	x	n/a	n/a	n/a	n/a	<b>173.6</b>
No. in Sample	18	13							
<b>Inactive at PS Stage</b>									
No. of Calendar Days	53.7	15	x	x	n/a	n/a	n/a	n/a	<b>68.7</b>
No. in Sample	6	3							
<b>Rejected at FP Stage</b>									
No. of Calendar Days	75	47.5	64.1	0	x	n/a	n/a	n/a	n/a
No. in Sample	4	2	7	1					
<b>Withdrawn at FP Stage</b>									
No. of Calendar Days	35	21.5	236	N/A	x	n/a	n/a	n/a	n/a
No. in Sample	4	2	5						
<b>Inactive at FP Stage</b>									
No. of Calendar Days	52.8	15.3	184.7	92	542	n/a	n/a	n/a	<b>n/a</b>
No. in Sample	12	7	11	1	1				