
Forestry Research Partnership



ANNUAL REPORT - 2009/2010 -

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Approvals

This Annual Report is submitted to you as a summary of the activities and expenditures of the Forestry Research Partnership from April 1st 2009 to March 31st 2010.

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General Manager, Forestry Research Partnership

On behalf of the primary partners of the Forestry Research Partnership, we accept the Annual Report for fiscal 2009/2010 of the Forestry Research Partnership:

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Forestry Research Partnership

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The Forestry Research Partnership (FRP) was formed in 2000 through an agreement between Tembec, the Ontario Ministry of Natural Resources, and the Canadian Forest Service in response to sections of the 1999 Ontario Forest Accord pertaining to science partnerships and the implementation of intensive forest management practices on the forest landscape.

1.0 Mission of the Forestry Research Partnership

The Mission of the Forestry Research Partnership is to identify, develop and implement ecologically sustainable and scientifically defensible leading edge forestry practices required to maintain and enhance an economically viable supply of quality fibre to Tembec mills, and to the communities those mills support, over the long term.

The success and value of the Forestry Research Partnership is to be measured by the degree to which it demonstrates:

1. Increased certainty around current and future wood supply;
2. The application of new and improved science and information in the implementation of enhanced forest productivity practices on the ground.
3. Shareholder and taxpayer value;
4. An effective science partnership that focuses forest science expertise on critical management issues not only in Ontario, but across the country, and;
5. The influence of new science and information in informing policy and guideline review and development.



2.0 FRP Program Goals - 2006 to 2010

The FRP chose an adaptive management approach with a very specific goal to guide its investments: to increase available wood volume by 10% over 10 years – i.e. 10/10. Short, medium and long-term objectives were set and project selection criteria were determined before the program was initiated. Phase 1 addressed short- and medium-term objectives. Phase II addressed longer-term objectives.

The majority of the FRP work between 2000-2005 focused on Phase 1, and involved building a solid foundation of knowledge and information from which to conduct a series of sensitivity analyses to determine if the long-term 10/10 goal was plausible and, more importantly, sustainable. Phase 2 will continue that process, but with a greater emphasis on application and implementation. This annual report summarizes the progress of the FRP during year nine (i.e. 2008/09) of the partnership.

The Forestry Research Partnership Strategic Plan 2006-2010 specified five goals as detailed below. Readers can refer back to these five goals to get a better understanding of how the milestones and achievements of the FRP during fiscal 2009/2010 (as presented in Section 3.0) relate to these overall program goals.

Goal #1: Application of Enhanced Forest Productivity

- Validate Patchworks model outputs through on-the-ground verification;
- Integrate research recommendations into operational EFP strategies in Forest Management Plans;

Goal #2: 10/10 Sustainability Science

- Continue and refine the science work done to date to identify strategies that will result in a 10% increase in allowable cut in 10 years, within an ecologically and economically sustainable context;



Goal #3: Extension

- Continue the emphasis on networking, communication, and interaction between the partners, between researchers and practitioners, and between scientists and policy makers;

Goal #4: Policy Development & Implementation

- Increase the effort directed to synthesizing the science outputs generated by the FRP and informing policy development and implementation provincially, both within government and within industry;

Goal #5: Enhance the Sustainability of the Forestry Research Partnership

- Maintain an open and transparent approach to managing the FRP, and seek to attract more collaboration at both the project and program levels from a larger number of more diverse partners;
- Develop stronger linkages to other research providers, primarily in Ontario and Quebec to increase the influence and effectiveness of the FRP;
- Maintain an entrepreneurial spirit in the FRP to enable flexibility and promote nimble responses to attractive and pertinent opportunities when they occur.

These five primary goals will provide the framework upon which the annual activities of the FRP will be determined going forward.



3.0 Summary of FRP Activities/Achievements 2009/2010

The Forestry Research Partnership supported 37 individual applied research projects in 2009/10. Details of work completed in each project can be found in specific project status reports available at the FRP, however a brief synopsis of some noteworthy milestones over the fiscal year are provided in Section 3.1 below.

3.1 Milestone Achievements:

- Milestone 1:** Pathworks was adopted for use as the spatial modeling tool on two additional Tembec forests with great success. A best management practices document was prepared and provides clear direction for the use of the model in planning while be maintained as a living document.
- Milestone 2:** An agreement was signed with FPInnovations for the FRP to deliver knowledge exchange services in the field of forest operations and management research in Ontario.
- Milestone 3:** Managed 37 projects successfully meeting budget objectives and leverage and tax credit objectives (details of planned versus actual cash and in-kind spending are provided in Section 4.0 below).
- Milestone 4:** Made great strides in the development of enhanced FRI (forest resource inventory) with particular success integrating LiDAR (Light Detection and Ranging) with enhanced digital photography to predict non traditional FRI attributes such as volume, DBH (diameter at breast height), and basal area
- Milestone 5:** This past year the FRP collaborated with a number of partners in the biomass area. The largest project is in collaboration with OFRI, CWFC, OPG and numerous SFL's and forest companies. This project looks at the impacts and opportunities related to biomass harvesting in tolerant hardwood stands in the Great Lakes St. Lawrence Forest. Another initiative relating to biomass was the FRP support for an operational biomass harvest trial in collaboration with FPR-Feric, Tembec, the local MNR district and an SFL partner, this project focuses on seeking operational answers relating to full tree biomass harvest systems in



tolerant hardwood stands.

Milestone 6: Continued development of relationships with academia; in particular closer ties were fostered with Queens University, Nipissing University, Trent University, University of Waterloo and Lakehead University.

Milestone 7: The FRP was featured in a national electronic-lecture series hosted by the Canadian Institute of Forestry, during the fall of 2009. The five e-lectures presented through the series provided an overview of the Partnership as well as detailed information on specific projects: LiDAR and enhanced forest inventory, Growth and Yield curves, Forest Co-op Growth and Yield Science Unit PGP project, the effects of pre-commercial thinning and the Patchworks Spatial Model. The series attracted an average of 80 sites and over 300 individual participants from across Canada for each lecture, with the majority of participation occurring in Ontario. Additional FRP series are planned for 2010-2011.

Milestone 8: The FRP hosted a number of very successful workshops and seminars in 2009-2010 including two events focusing on the integration of the Patchworks Spatial Model with FPInterface (Petawawa and Timmins), and a Woodland Caribou session in Timmins featuring research overseen by the Forest Co-op. A stand density management seminar that included a field tour to pre-commercial and commercial thinning sites, was also held in Chapleau.

Milestone 9: The ARIO VMAP (vegetation management options and alternatives) project began wrap up in 2010. Plans for a series of related workshops, an e-lecture series focusing on vegetation management, as well as a themed publication through the Forestry Chronicle are underway for 2010-2011.

Milestone 10: The partnership with the Canadian Institute of Forestry to assist in the delivery of the FRP's extension and knowledge exchange program worked very well during 2009-2010, allowing the effective pooling of human resource capacity to maintain and produce quarterly e-newsletters, an up to date website, 10 TreeTip technical notes, various workshops, seminars, field tours, core team meetings, as well as assistance and participation in numerous related events around Ontario.



3.2 Year-end Review of Specific FRP Objectives:

The Forestry Research Partnership identified nine specific objectives in the 2009/2010 FRP Annual Plan. These objectives are re-stated below with details of how each one was addressed during fiscal 2009/2010.

Objective 1: To manage the 37 proposed FRP projects in an efficient manner meeting leverage objectives, delivery milestones and tax credits

A total of 37 projects were successfully managed in the 2009/10 FRP work plan. The Tembec/CEC contributions of \$20,000 in cash and 317,600 in-kind achieved significant additional leveraged cash of \$2,209,121 and \$1,738,000 in-kind contributions from primary partners (MNR and CFS) and other collaborators.

Objective 2: To continue the development and implementation of Patchworks through the production of a best management practices document (which will be a living document), user training and support of extension needs ie core teams and the development of tools for annual planning and reporting.

Patchworks is being used as the primary spatial modeling tool with great success in forest management planning for two additional Tembec forests namely the Gordon Cosens in Kapuskasing and for the Martel forest in Chapleau. The best management practices document is a living document and continues to be up-dated as new information and directives are developed. Training and support have been on-going for both of these planning teams through both the core team approach and individual planning teams to meet their needs. With operations curtailed on the Romeo Malette Forest, little progress has been made with annual planning and reporting. A new initiative was kicked start at the end of the year directed at the Martel Forest in Chapleau. In conjunction, work has been initiated on blending the FERIC model Interface Map with Patchworks to maximize both models' capabilities.

Objective 3: To prepare a summary document depicting the cost savings and wood supply results of FRP project results implementation into forest



management plans and operations on the Romeo Malette and Gordon Cosens Forests.

This summary document is in the conceptual stages and will include a technical review of Patchworks as a model. This will be lead by the specialists in MNR.

Objective 4: To maintain and enhance the work being done on resource inventory research and development, and to support further development of the AFRIT concept and to develop a pilot project on the RMF that demonstrates the ability of AFRIT to enhance the existing inventory using imagery and LIDAR combined to predict additional attributes on a polygon basis such as basal area, volume, diameters, biomass, and more accurate tree height predictions.

Significant progress has been made on this objective and continues to be a major focus of the on-going program within the FRP.

Objective 5: To build and maintain strategic partnerships at the provincial and national levels, helping to enable improved forest sector competitiveness through FRP's strengths in applied research and targeted knowledge transfer, including alignment with national innovation programs (e.g. FPInnovations – value chain optimization), and linkages with government and academic research organizations in Ontario and Quebec.

The FRP has shown great success in negotiating an agreement with FERIC-FPInnovations to deliver a knowledge transfer program in Northeastern Ontario with the support of the Canadian Wood Fibre Centre (CWFC). FPInnovations together with the CWFC have identified the FRP as being an important player in knowledge exchange services in Ontario. Through close collaboration on specific projects, the FRP played a significant supporting role in delivering the Ontario portion of the FPInnovations' contract with the CWFC.



Objective 6: To engage in R&D opportunities with partners to develop a monitoring framework consistent with the adaptive management process described in the FRP Special Issue of the Forestry Chronicle (*Vol 84, October 2008*) and the FRP Science Strategy.

Did not achieve.

Objective 7: To initiate strategic planning by conducting an environmental scan, with consideration of the state of the forest industry, to establish research design and priorities moving forward.

Did not achieve.

Objective 8: To explore FRP involvement in the emerging Bio-fibre/Bio-economy field of study in support of the FRP goals.

Significant gains have been made on the bio-fibre/bio-economy front. A large project has been initiated in cooperation with the Eastern Canada Hardwood Initiative which has resulted in two collaborative biomass field studies in the GLSL. In addition, the FRP has been very active with Nipissing University's Biomass Innovation Centre including collaboration on a very large and successful biomass workshop. There was also collaboration with the Sustainable Bio-economy Centre from Queens University on a biomass inventory workshop. The FRP has also made contact with CRIBE and are currently planning some project submissions to CRIBE. The Nipissing University Bio-economy Research Chair produced a methodology for correlation *Taxis Canadensis* abundance with needle biomass and has done some preliminary analysis of ELC based ecosites correlation tree growth with ecosite.

Objective 9: To provide support for Core Teams as part of the Extension Plan reflecting their lead role as the delivery mechanism of the latest science and to obtain feedback from them to identify new science needs in the adaptive management process.



Several core team meetings were held in Timmins and Chapleau, allowing the direct interaction of forest management staff with FRP affiliated scientists and researchers. Themes for these meetings included stand density management (pre-commercial and commercial thinning), species at risk, woodland caribou, FPInterface and Patchworks, as well as general review of FRP affiliated science and research. Core Team members identified woodland caribou and vegetation management as key areas where FRP could provide assistance through its extension and knowledge exchange program; these requests were addressed directly through follow-up meetings and workshops.

4.0 Budget & Expenditures 2009/2010 (Planned versus Actual Spending)

The 2009/2010 FRP planned budget supported total cash and in-kind spending from all partners of \$4,582,300 with actual being slightly less at \$4,284,721.

Table 1, Figure 1, and Figure 2 (following pages) provide a summary of planned versus actual cash and in-kind spending by partner over fiscal year 2009/2010. Note that total actual cash expenditures was \$297,579 less than planned and total actual in-kind contributions were less than the planned.



Table 1: Summary of Planned versus Actual Expenditures – FRP Partners 2009/2010*

	Cash		In Kind		Total	
	Planned	Actual	Planned	Actual	Planned	Actual
Tembec	\$30,000	\$20,000	\$412,500	\$317,600	\$442,500	\$437,600
MNR	\$377,500	\$387,400	\$745,500	\$749,000	\$1,123,000	\$1,136,400
CFS	\$82,000	\$64,562	\$405,000	\$335,000	\$487,000	\$399,652
CWFC	\$546,000	\$733,518	\$	\$249,700	\$204,000	\$902,518
Collaborators	\$1,798,800	\$1,023,641	\$185,000	\$404,300	\$2,329,800	\$1,427,941
Total	\$2,834,300	\$2,229,121	\$1,748,000	\$2,055,600	\$4,582,300	\$4,284,721

** This is an estimate of actual expenditures based on project reporting data available on April 30, 2010.*

Figure 1: FRP Total Planned vs Actual Cash Expenditures by Partner – 2009/2010

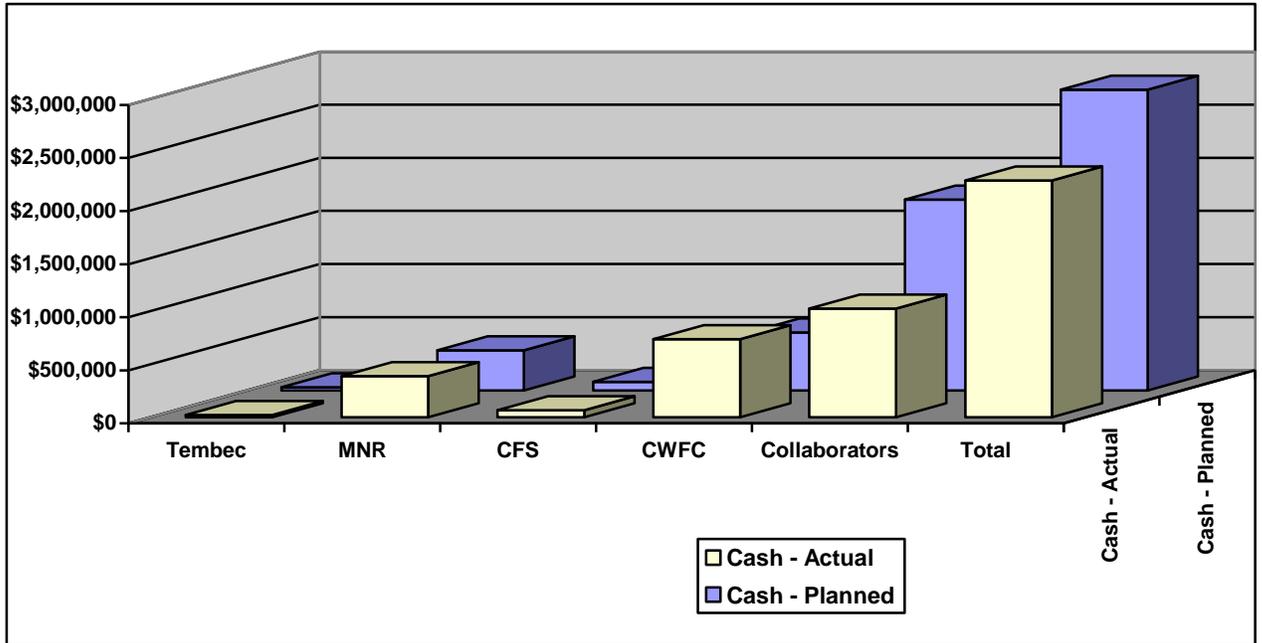


Figure 2: FRP Total Planned vs Actual In-Kind Expenditures by Partner – 2009/2010

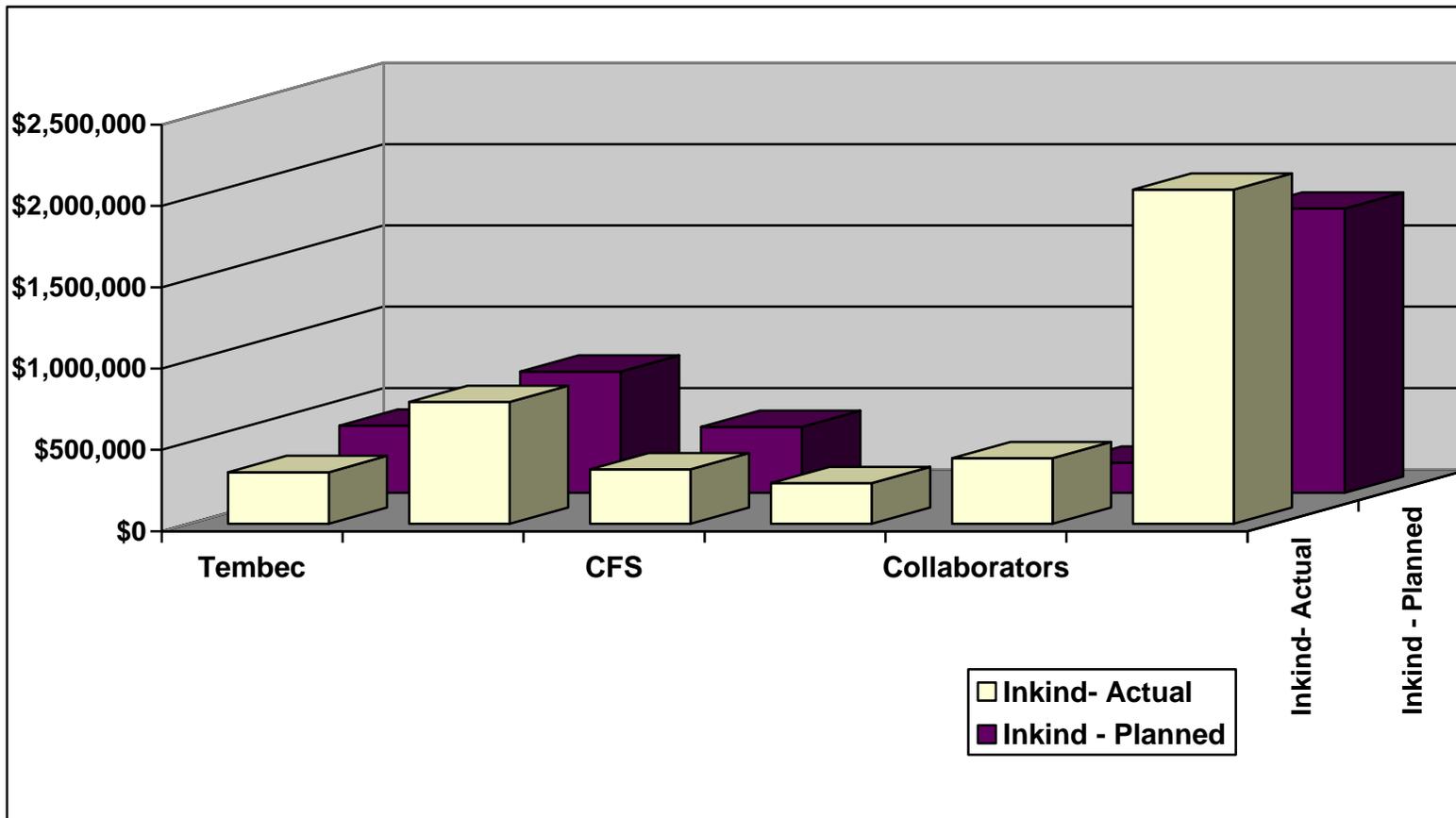




Table 2: Percentage of Total Spending (cash plus in kind) by Project Theme

Project Theme	Percentage Planned	Percentage Actual	(+/-)
100 Administration (general)	4.0%	4.8%	+0.8%
110 Research Affiliations	0.0%	0.1%	+0.1%
120 Spatial Analysis	20.1%	28.3%	+8.2%
130 Fibre Production	49.8%	53.4%	+3.6%
140 Sustainability & Guidelines	15.4%	3.6%	-11.8%
150 Forest Management Context	1.3%	0.6%	-0.7%
160 Operational Implementation (Protection)	1.1%	0.8%	-0.3%
180 Knowledge Transfer	8.2%	8.3%	+0.1%
	100%	100%	0.0%

Table 2 provides a percentage breakdown of total planned versus actual spending (cash plus in kind) by project theme. As in 2008/09, the Fibre Production and Spatial Analysis themes accounted for the majority (81.7%) of program spending in 2009/2010, while Knowledge Transfer was third. There was a significant shift in emphasis toward Spatial Analysis away from Sustainability and Guidelines.



Table 3: Percentage of Total Spending (cash plus in kind) by Project Theme – Comparison to Fiscal 2008/09

Project Theme	% Actual 08/09	% Actual 09/10	(+/-)
100 Administration (general)	4.3%	4.8%	0.5%
110 Research Affiliations	0.3%	0.1%	-0.2%
120 Spatial Analysis	21.1%	28.3%	7.2%
130 Fibre Production	47.5%	53.4%	5.9%
140 Sustainability & Guidelines	14.2%	3.6%	-10.6%
150 Forest Management Context	0.8%	0.6 %	-0.2%
160 Operational Implementation (Protection)	2.9%	0.8%	-2.1%
180 Knowledge Transfer	7.9%	8.3%	0.4%
	100%	100%	0.0%

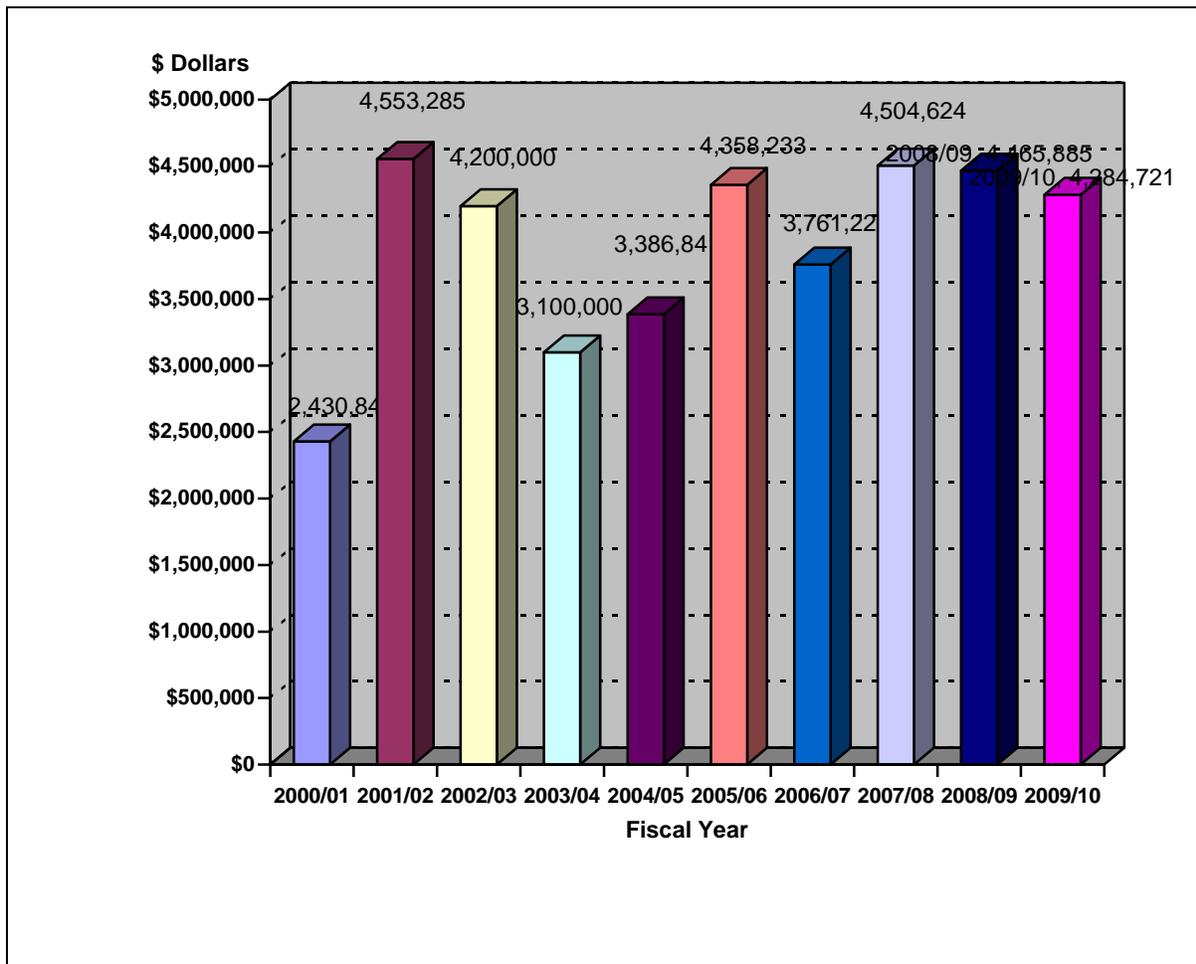
Table 3 (page 16) compares the percentage project theme expenditures between this year and last fiscal year (2008/09) to bring attention to those areas where the FRP has increased and/or decreased program emphasis. Of note is the increase in spending that took place in the Fibre Production theme involving two projects addressing Biomass studies in Eastern Hardwood forests.



5.0 Annual Trend of Actual FRP Expenditures

The following chart illustrates the annual total spending (cash plus in-kind) by year since the inception of the FRP in 2000/01 up to and including fiscal 2009/2010. Spending in fiscal 2009/2010 was very much in line with historical levels.

Figure 4: Comparison of Total Annual FRP Expenditures (cash plus in-kind) by Year



**Note: The expenditure value for 2009/10 is a best estimate as of April 30, 2010*



6.0 Conclusion

The Forestry Research Partnership continued to increase its focus on science application and implementation in 2009/10 as exemplified through the FRP's ongoing involvement in the completion of the Romeo Malette forest management plan, and the development of the Gordon Cosens and Martel Forest Management Plans. As well in 2009/10 the FRP continued to build on its efforts of advancing the implementation of enhanced forest productivity across northeastern Ontario through very active extension work by all FRP partners. The FRP has become a leader in the advancement of inventory science and technology development and implementation in 2009/10 with the increased attention and dollars to the Advanced Forest Resource Inventory Technology Project. In addition, the FRP has taken an active role in discussions and research in the area of biomass inventory and management.

The Forestry Research Partnership remains highly relevant to its individual members and an effective force for advancing and applying forest science. The Partnership will continue to capitalize on past success while simultaneously pursuing new and innovative approaches that directly apply the resulting forest science in the acceptance and implementation of enhanced forest productivity in central and north-eastern Ontario. In addition, the FRP will continue to explore opportunities with respect to emerging developments in the forestry and natural resources sector, including state of the art forest inventory science and technology.

It is important to point out that the commitment of the three primary partners remains intact and strong after ten years in the partnership; this despite extremely dire economic and fiscal circumstances faced by primary industry partner Tembec over the past few years. The strong support of the Canadian Wood Fibre Centre has meant that the FRP was able to continue to be relevant and ever changing times. This ongoing commitment by all partners is a testament to the genuine value of the relationship, the strong synergies it continues to create, and the world class research and development that all three partners have been able to initiate, develop, and implement as a result of the Forestry Research Partnership.



7.0 References

The following documents were referred to, and/or copied directly with or without modifications, in the writing of this annual report:

- Forestry Research Partnership Annual Report 2008/2009
- Forestry Research Partnership 5 Year Report (2000-2005). December 2005.
- Forestry Research Partnership Quarterly Reports (March, June, October, and January).
- Forestry Research Partnership Strategic Plan. April 2000.
- FRP status reports and/or proposals; assorted projects.
- FRP Annual Plan 2009/2010.
- FRP Strategic Plan 2006-2010