Actuarial Report

(19th)

supplementing the Actuarial Report on the

CANADA PENSION PLAN

As at 31 December 2000

Office of the Superintendent
of Financial Institutions

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14 June 2002

The Honourable John Manley, P.C., M.P.
Minister of Finance
House of Commons
Ottawa, Canada
K1A 0G5

Dear Minister:

In accordance with section 115(2) of the *Canada Pension Plan*, which provides that an actuarial report shall be prepared whenever a Bill is introduced in the House of Commons to amend the Canada Pension Plan, I am pleased to submit the 19th Actuarial Report on the Canada Pension Plan.

Yours sincerely,

Jean-Claude Ménard

Jean-Claude Ménard, F.S.A., F.C.I.A.
Chief Actuary

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I. Executive Summary

This is the 19th Actuarial Report since the inception of the Canada Pension Plan (CPP) in 1966. It has been prepared in compliance with subsection 115(2) of the *Canada Pension Plan*, which provides that,

> "… the Chief Actuary shall, whenever any Bill is introduced in or presented to the House of Commons to amend this Act in a manner that would in the opinion of the Chief Actuary materially affect any of the estimates contained in the most recent report under this section made by the Chief Actuary, prepare, using the same actuarial assumptions and basis as were used in that report, a report setting forth the extent to which such Bill would, if enacted by Parliament, materially affect any of the estimates contained in that report."

The most recent report made pursuant to section 115 was the 18th Actuarial Report, which was tabled in the House of Commons on 10 December 2001. Therefore, this 19th Actuarial Report has been prepared on the basis of the 18th Actuarial Report to show the effect of Bill C-58 on the long-term financial status of the CPP.

The amending Bill C-58 gives the entire responsibility of cash management to the Canada Pension Plan Investment Board (Investment Board) by repealing the requirement to maintain a three-month operating balance in the CPP Account and by transferring the CPP Fund, which consists of 20-year loans to the provinces, to the CPP Investment Board over a three-year period, while retaining the current terms and conditions on the provincial bonds (non-marketable, non-assignable and non-transferable) held in the Fund. As well, the provinces retain their rights to rollover pre-January 1998 bonds as they mature and to redeem their bonds prior to maturity.

Main Findings

The results of the actuarial projections contained in this report confirm the long-term viability and financial sustainability of the Canada Pension Plan.

- The legislated contribution rates (9.4% in 2002 and 9.9% in 2003 and thereafter) are sufficient to pay for future expenditures and to accumulate assets of $142 billion by 2010. In 2050, the assets are projected to be $1,578 billion or 5.9 times the annual expenditures.
- Under the current schedule of contribution rates, the funding level is expected to increase significantly over the next 20 years, with the ratio of assets to the following year's expenditures growing from 2.4 in 2002 to 5.3 in 2020.
- The steady-state contribution rate, which is the lowest rate sufficient to sustain the Plan without further increase, is 9.8% of contributory earnings applicable for 2003 and thereafter. It is the same as presented in the previous actuarial report and 0.1% lower than the 9.9% contribution rate currently scheduled.
- The proposed changes increase the CPP assets by exponentially growing amounts in future years, the increase being approximately $1.4 billion by 2010 and $72 billion by 2050.

II. Description of Bill C-58

This is the 19th Actuarial Report since the inception of the Canada Pension Plan (CPP) in 1966. It has been prepared in compliance with subsection 115(2) of the *Canada Pension Plan*, which provides that,

> "… the Chief Actuary shall, whenever any Bill is introduced in or presented to the House of Commons to amend this Act in a manner that would in the opinion of the Chief Actuary materially affect any of the estimates contained in the most recent report under this section made by the Chief Actuary, prepare, using the same actuarial assumptions and basis as were used in that report, a report setting forth the extent to which such Bill would, if enacted by Parliament, materially affect any of the estimates contained in that report."

The most recent report made pursuant to section 115 was the 18th Actuarial Report, which was tabled in the House of Commons on 10 December 2001. Therefore, this 19th Actuarial Report has been prepared on the basis of the 18th Actuarial Report to show the effect of the amending Bill C-58 on the long-term financial status of the CPP.

Bill C-58 amends the *Canada Pension Plan* and the *Canada Pension Plan Investment Board Act* to:

- permit all amounts held to the credit of the CPP Account to be transferred to the Canada Pension Plan Investment Board (Investment Board), by repealing the requirement to maintain a three-month operating balance in the Account;

- establish a means by which the Investment Board may be required to transfer funds to the government, to the credit of the CPP Account, so that the immediate obligations of the Account can be met;

- transfer to the Investment Board, over a three-year period, the right, title or interest in each security held in the CPP Fund, and establish the conditions on which the securities may be redeemed or replaced; and

- provide that the foreign property limit in the *Income Tax Act* applies to the Investment Board and its subsidiaries on a consolidated basis and to provide that the Investment Board will be considered to hold the property of its subsidiaries for the purpose of applying the foreign property limit.

III. Assumptions and Methods

Actuarial assumptions and methods used for the financial estimates relating to the existing plan are described in Appendix B of the 18th Actuarial Report on the CPP as at 31 December 2000. As required by the *Canada Pension Plan*, the same actuarial assumptions and basis were used in this report for the financial estimates relating to the plan as modified in accordance with Bill C-58.

A. Effective Date of Changes

In accordance with subsection 114(4) of the *Canada Pension Plan*, the provisions of Bill C-58 shall come into force ".. only on a day to be fixed by order of the Governor in Council, which order may not be made and shall not in any case have any force or effect unless the lieutenant governor in council of each of at least two-thirds of the included provinces, having in the aggregate not less than two-thirds of the population of all the included provinces, has signified the consent of that province to the enactment." For purposes of the financial estimates in this report, the deemed effective date of the amending Bill C-58 is 1 January 2003.

B. Investment Earnings

This subsection outlines the methods and assumptions used to derive the investment earnings shown in the 18th and 19th Actuarial Report.

The assets of the Canada Pension Plan consist of three components, as follows:

- the Account, which corresponds to a three-month operating balance;
- the Fund, which consists of federal bonds and 20-year loans to the provinces; and
- the assets invested by the Investment Board.

In general, investment earnings are the product of the value of a specific component and the projected nominal rate of return (obtained by adding the applicable projected real rate of return to the projected inflation rate) of that component.

Real rates of return are required for the projection of investment earnings. They are assumed for each year in the projection period and for each of the main asset components, namely the CPP Account (the Operating Balance), the CPP Fund (loans to the provinces), and the assets under management of the Investment Board.

Table 1 shows the 18th Actuarial Report assumption regarding the real rate of return by type of asset together with the real rate of return on the short-term assets to be invested by the Investment Board due to the cash management transfer of responsibilities.

Table 1 Real Rate of Return by Type of Asset

			CPP Investment Board			
Year	**CPP Account**	**CPP Fund Rollovers**	**Canadian Equities**	**U.S. and Foreign Equities**	**Bonds**	**Short-term**
	(%)	(%)	(%)	(%)	(%)	(%)
2002	2.00	3.15	4.50	5.00	-	-
2003	2.00	3.18	4.50	5.00	-	2.13
2004	2.00	3.21	4.50	5.00	3.80	2.13
2005	2.00	3.23	4.50	5.00	3.80	2.13
2010	2.00	3.38	4.50	5.00	3.80	2.13
2015	2.00	-	4.50	5.00	3.80	2.13
2020	2.00	-	4.50	5.00	3.80	2.13
2025	2.00	-	4.50	5.00	3.80	2.13
2050	2.00	-	4.50	5.00	3.80	2.13
2075	2.00	-	4.50	5.00	3.80	2.13

The investment earnings of the CPP Account were based on a real rate of return of 2.0%, which corresponds to the projected real rate of return on three-month Treasury Bills less one-eighth of one percent.

The investment earnings of the CPP Fund consist of semi-annual coupons at the rate specified at issue of the bonds. The real rate of return assumed on the post-1997 bond rollovers corresponds to the expected real rate of return on long-term provincial bonds, which takes into account the actual experience since 1998. Since the last issue of the pre-1997 bonds was made in 1993, this means that the last possible renewal may occur in 2013 for another 20 years. It follows that the CPP Fund component will be completely depleted by 2033 at the latest.

All Investment Board assets are currently invested in equities, specifically in Canadian, U.S. and foreign stock indexed funds and private equity investments. Canadian equities are projected to achieve a real rate of return of 4.5% from 2002 onward. As for U.S and foreign (i.e. other than U.S.) equities, they are projected to achieve a real rate of return of 5.0% for 2002 and after.

The Investment Board currently has no investments in fixed income assets because of the dominance of this type of investment in the CPP Fund and because of the existence of the CPP Account (Operating Balance). It is expected that fixed income assets will represent an important portion of the Investment Board investments given the assumed ultimate asset mix of 50% in equities and 50% fixed income (bonds plus Operating Balance) for the CPP as a whole and that the CPP Fund will be gradually transferred as its components come to maturity over the next 30 years. For the fixed income Investment Board investments (i.e. federal, provincial and corporate bonds), a real rate of return of 3.8% was assumed throughout the projection period.

In accordance with Bill C-58, the Investment Board may be required to transfer funds to the government for the immediate obligations of the CPP Account. Therefore a new short-term asset type is created and is assumed to earn a real rate of return of 2.13%, based on three-month Treasury Bills.

C. Asset Mix

The CPP assets are currently invested in three major components as described above. Short-term assets are invested in the Account, loans to the provinces correspond to 20-year bonds and are invested in the CPP Fund while a mix of other assets are invested through the Investment Board.

The Investment Board invests monies in accordance with its own investment policies, which take into account the needs of the contributors as well as financial market constraints. Since the Investment Board has not established a long-term investment policy, the ultimate asset mix assumed in the previous report consisted of 50% fixed income securities (Account, Fund, bonds and short-term) and 50% variable income securities (Canadian, U.S. and foreign equities).

As in the previous report, it is assumed that the Investment Board will observe a 25% foreign investment content (reflected as an equal split between U.S. and foreign equities), which is less than the 30% statutory limit.

Table 2 shows the projected asset mix of the 18th Actuarial Report on the CPP.

Table 2 Asset Mix

Year			CPP Investment Board				
31 Dec	**Account**	**Fund**	**US**	**Can**	**Foreign**	**Bonds**	**Total**
	(%)	(%)	(%)	(%)	(%)	(%)	(%)
2002	10.19	53.04	4.60	27.57	4.60	-	100.00
2003	9.19	44.44	5.80	34.78	5.80	-	100.00
2004	8.39	37.62	6.75	36.50	6.75	3.99	100.00
2005	7.74	32.14	7.52	34.97	7.52	10.12	100.00
2010	5.87	14.40	9.97	30.07	9.97	29.72	100.00
2015	5.06	8.62	10.79	28.42	10.79	36.32	100.00
2020	4.70	5.07	11.28	27.44	11.28	40.23	100.00
2025	4.64	1.89	11.68	26.63	11.68	43.47	100.00
2050	4.40	-	11.95	26.10	11.95	45.60	100.00
2075	4.11	-	11.99	26.03	11.99	45.89	100.00

The methodology used to project the 18th Actuarial Report asset mix was as follows. First, the ultimate asset mix in fixed income securities (bonds plus CPP Account) was applied for the CPP as a whole. For example, the CPP Account, which represents 4.11% of the total CPP assets in 2075, was deducted from the 50% fixed income target, leaving 45.89% invested in bonds with the Investment Board.

Secondly, the U.S. and foreign equities were determined using the assumed 25% foreign content assumptions applicable only to Investment Board assets, which represent 95.89% of the total CPP assets (100% - 4.11%) in 2075. Therefore, 25% (foreign limit) of the Investment Board assets (95.89% of all CPP assets) may be invested abroad, which is 23.98% of all CPP assets evenly distributed between U.S. and foreign equities (11.99% each). The remaining assets are all invested in Canadian equities (50% - 23.98%).

For the purposes of this report, the calculation of the CPP asset mix, for the period up to 2006, was done considering the asset mix policy of other major Canadian pension plans. During that period, it is assumed that:

a) the Account monies transferred to the Investment Board is invested into equities while maintaining a 2% short-term cash reserve;
b) the investment in equities may exceed the long-term asset mix proportion for variable income securities; and
c) the asset mix reverts to the ultimate asset mix assumptions in 2006.

IV. Results

The purpose of this section is to show the projected asset mix and the financial status of the CPP after the implementation of Bill C-58.

A. Transfer of CPP Account to CPP Investment Board

The entire responsibility for cash management is transferred to the Investment Board as at 1 January 2003. An appropriate short-term investment policy must be introduced by the Investment Board in order to manage the cash flow requirements of the CPP.

It is assumed that a 2% short-term asset category will be maintained by the Investment Board to meet its liquidity needs for investment and benefit payments. In comparison, other public sector pension funds with similar liquidity needs keep a cash reserve of 1% to 3% of total assets.

Table 3 shows the projected asset mix assuming the transfer of the CPP Account at 1 January 2003.

Table 3 Asset Mix - Transfer of Account Only

Year			CPP Investment Board						
31 Dec	Account	Fund	US	Can	Foreign	Bonds	Fund	Short-term	Total
	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
2002	10.19	53.04	4.60	27.57	4.60	-	-	-	100.00
2003	-	44.35	6.96	39.74	6.96	-	-	2.00	100.00
2004	-	37.48	7.81	40.90	7.81	3.99	-	2.00	100.00
2005	-	31.98	8.50	38.89	8.50	10.12	-	2.00	100.00
2010	-	14.28	10.71	28.57	10.71	33.72	-	2.00	100.00
2015	-	8.53	11.43	27.13	11.43	39.47	-	2.00	100.00
2020	-	5.01	11.87	26.25	11.87	42.99	-	2.00	100.00
2025	-	1.86	12.27	25.47	12.27	46.14	-	2.00	100.00
2050	-	-	12.50	25.00	12.50	48.00	-	2.00	100.00
2075	-	-	12.50	25.00	12.50	48.00	-	2.00	100.00

With the exception of a 2% cash reserve, the Account monies transferred to the Investment Board would be invested in a balanced portfolio with a higher expected yield.

With the transfer, the Investment Board is able to invest for a longer period of time more of its assets in higher-yielding bonds and equities. The 25% foreign content assumption is now applied to a larger asset base.

The financial impact of maintaining fewer short-term investments is shown in Table 4. It indicates that CPP assets will have increased by approximately $1.2 billion (0.8% of assets) in 2010 and by $65 billion (4.3% of assets) in 2050.

Table 4 Financial Status - Transfer of Account Only ($ million)

	18th Report			Variation			19th Report		
Year 31 Dec	**Investment Earnings**	**Assets at 31 Dec.***	**Asset / Expenditure Ratio**	**Investment Earnings**	**Assets at 31 Dec.***	**Asset / Expenditure Ratio**	**Investment Earnings**	**Assets at 31 Dec.***	**Asset / Expenditure Ratio**
2002	4,140	54,688	2.41	-	-	-	4,140	54,688	2.41
2003	4,475	63,351	2.68	123	123	-	4,598	63,474	2.68
2004	4,824	72,526	2.93	133	257	0.01	4,957	72,783	2.94
2005	5,258	82,285	3.18	144	401	0.01	5,402	82,686	3.19
2010	8,638	140,831	4.17	174	1,168	0.03	8,812	141,999	4.20
2015	14,363	220,342	4.83	279	2,328	0.05	14,642	222,670	4.88
2020	21,277	322,640	5.20	438	4,171	0.07	21,715	326,811	5.27
2025	29,429	440,709	5.28	682	7,050	0.08	30,111	447,759	5.36
2050	101,328	1,505,607	5.59	5,000	64,644	0.24	106,328	1,570,251	5.83
2075	327,576	4,861,435	5.99	31,431	439,746	0.54	359,007	5,301,181	6.53

* The Account and Fund components are valued at cost and the Investment Board component is valued at market.

B. Transfer of CPP Fund to CPP Investment Board

As at 1 January 2003, 1/36th of the CPP bond portfolio as at 31 December 2002 is transferred to the Investment Board. On the first of every month for the next 35 months, the same amount is transferred to the Investment Board. As at 1 December 2005, the remainder of the CPP bond portfolio is transferred to the Investment Board.

The projected asset mix taking into account only the transfer of the CPP Fund is presented in Table 5. At year-end 2005, the complete CPP Fund bond portfolio will have been transferred to the Investment Board. Under the Investment Board, the bond portfolio is assumed to have the same rate of return as it would have had in the CPP Fund. No assumptions were made on the use of derivatives.

Table 5 Projected Asset Mix - Transfer of Fund Only

Year 31 Dec	Account	Fund	CPP Investment Board US	Can	Foreign	Bonds	Fund	Short-term	Total
	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
2002	10.19	53.04	4.60	27.57	4.60	-	-	-	100.00
2003	9.19	29.62	7.65	31.08	7.65	-	14.81	-	100.00
2004	8.39	12.53	9.88	30.25	9.88	3.99	25.07	-	100.00
2005	7.73	-	11.53	26.97	11.53	10.12	32.11	-	100.00
2010	5.86	-	11.77	26.47	11.77	29.76	14.38	-	100.00
2015	5.04	-	11.87	26.26	11.87	36.36	8.60	-	100.00
2020	4.69	-	11.91	26.17	11.91	40.25	5.06	-	100.00
2025	4.62	-	11.92	26.16	11.92	43.49	1.89	-	100.00
2050	4.38	-	11.95	26.09	11.95	45.62	-	-	100.00
2075	4.07	-	11.99	26.02	11.99	45.93	-	-	100.00

The impact on the financial status of the CPP of transferring only the CPP bond portfolio to the Investment Board is presented in Table 6.

Table 6 Financial Status - Transfer of Fund Only ($ million)

	18th Report			Variation			19th Report		
Year 31 Dec	Investment Earnings	Assets at 31 Dec.*	Asset / Expenditure Ratio	Investment Earnings	Assets at 31 Dec.*	Asset / Expenditure Ratio	Investment Earnings	Assets at 31 Dec.*	Asset / Expenditure Ratio
2002	4,140	54,688	2.41	-	-	-	4,140	54,688	2.41
2003	4,475	63,351	2.68	7	7	-	4,482	63,358	2.68
2004	4,824	72,526	2.93	20	27	-	4,844	72,553	2.93
2005	5,258	82,285	3.18	32	59	-	5,290	82,344	3.18
2010	8,638	140,831	4.17	42	255	0.01	8,680	141,086	4.18
2015	14,363	220,342	4.83	56	500	0.01	14,419	220,842	4.84
2020	21,277	322,640	5.20	99	874	0.01	21,376	323,514	5.21
2025	29,429	440,709	5.28	96	1,381	0.01	29,525	442,090	5.29
2050	101,328	1,505,607	5.59	519	7,695	0.03	101,847	1,513,302	5.62
2075	327,576	4,861,435	5.99	2,976	44,109	0.05	330,552	4,905,544	6.04

* The Account and Fund components are valued at cost and the Investment Board component is valued at market.

The transfer enables the Investment Board to invest more heavily in higher-yielding bonds and equities. The foreign property assumption of 25% can now be applied to a larger portion of the CPP assets. The CPP assets will have increased by approximately $0.3 billion (0.2% of assets) in 2010 and by $7.7 billion (0.5% of assets) in 2050.

C. Management of All Plan Assets by CPP Investment Board

The projected asset mix with the transfer of both the CPP Account and the CPP Fund is presented in Table 7. At year-end 2005, all the assets are invested through the Investment Board.

Table 7 Asset Mix - Transfer of Both CPP Account and CPP Fund

Year			CPP Investment Board						
31 Dec	Account	Fund	US	Can	Foreign	Bonds	Fund	Short-term	Total
	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
2002	10.19	53.04	4.60	27.57	4.60	-	-	-	100.00
2003	-	29.56	8.80	36.05	8.80	-	14.78	2.00	100.00
2004	-	12.49	10.94	34.66	10.94	3.99	24.98	2.00	100.00
2005	-	-	12.50	30.92	12.50	10.12	31.96	2.00	100.00
2010	-	-	12.50	25.00	12.50	33.74	14.26	2.00	100.00
2015	-	-	12.50	25.00	12.50	39.49	8.51	2.00	100.00
2020	-	-	12.50	25.00	12.50	43.00	5.00	2.00	100.00
2025	-	-	12.50	25.00	12.50	46.14	1.86	2.00	100.00
2050	-	-	12.50	25.00	12.50	48.00	-	2.00	100.00
2075	-	-	12.50	25.00	12.50	48.00	-	2.00	100.00

Table 8 presents the financial status per the 18th Actuarial Report while Table 9 shows the financial status if Bill C-58 amendments are implemented.

Table 8 Financial Status Before Amendments
($ million)

Year	Contribution Rate (%)	Contributions	Expenditures	Net Cash Flow	Investment Earnings	Assets at 31 Dec.*	Asset/ Expenditure Ratio
2001	8.60	21,808	20,637	1,171	2,823	47,709	2.20
2002	9.40	24,529	21,690	2,839	4,140	54,688	2.41
2003	9.90	26,849	22,661	4,188	4,475	63,351	2.68
2004	9.90	28,024	23,672	4,352	4,824	72,526	2.93
2005	9.90	29,247	24,747	4,500	5,258	82,285	3.18
2010	9.90	36,414	31,945	4,469	8,638	140,831	4.17
2015	9.90	46,463	42,856	3,607	14,363	220,342	4.83
2020	9.90	59,016	58,350	666	21,277	322,640	5.20
2025	9.90	74,064	78,865	-4,801	29,429	440,709	5.28
2050	9.90	226,764	257,440	-30,676	101,328	1,505,607	5.59
2075	9.90	671,742	776,846	-105,104	327,576	4,861,435	5.99

Table 9 Financial Status of Amended Plan
($ million)

Year	Contribution Rate (%)	Contributions	Expenditures	Net Cash Flow	Investment Earnings	Assets at 31 Dec.*	Asset/ Expenditure Ratio
2001	8.60	21,808	20,637	1,171	2,823	47,709	2.20
2002	9.40	24,529	21,690	2,839	4,140	54,688	2.41
2003	9.90	26,849	22,661	4,188	4,606	63,481	2.68
2004	9.90	28,024	23,672	4,352	4,977	72,810	2.94
2005	9.90	29,247	24,747	4,500	5,434	82,745	3.19
2010	9.90	36,414	31,945	4,469	8,853	142,253	4.21
2015	9.90	46,463	42,856	3,607	14,698	223,170	4.90
2020	9.90	59,016	58,350	666	21,813	327,682	5.28
2025	9.90	74,064	78,865	-4,801	30,206	449,134	5.38
2050	9.90	226,764	257,440	-30,676	106,839	1,577,853	5.86
2075	9.90	671,742	776,846	-105,104	361,912	5,344,429	6.58

* The Account and Fund components are valued at cost and the Investment Board component is valued at market.

Table 10 shows the impact of the proposed Bill C-58 amendments. These amendments do not affect contributions or expenditures, but increase the investment returns on the CPP assets because the transfer enables the Investment Board to invest more heavily in higher-yielding bonds and equities. The CPP assets will have increased by approximately $1.4 billion (1.0% of assets) in 2010 and by $72 billion (4.8% of assets) in 2050.

Table 10 Impact of Amendments on Financial Status
($ million)

Year	Contributions	Expenditures	Net Cash Flow	Investment Earnings	Assets at 31 Dec.*	Asset / Expenditure Ratio
2001	-	-	-	-	-	-
2002	-	-	-	-	-	-
2003	-	-	-	131	131	-
2004	-	-	-	153	284	0.01
2005	-	-	-	176	460	0.01
2010	-	-	-	215	1,422	0.04
2015	-	-	-	335	2,828	0.07
2020	-	-	-	536	5,042	0.08
2025	-	-	-	777	8,425	0.10
2050	-	-	-	5,511	72,246	0.27
2075	-	-	-	34,336	482,994	0.59

* The Account and Fund components are valued at cost and the Investment Board component is valued at market.

Steady-State Contribution Rate

Section 113.1 of the *Canada Pension Plan* describes a financing objective of having a contribution rate in 2003 and thereafter that is no lower than the lowest rate that will result in the ratio of the assets to the following year's expenditures remaining generally constant over the foreseeable future. The lowest contribution rate that will meet this objective is referred to as the steady-state contribution rate.

The resulting steady-state contribution rate for this report is 9.76%, lower than the 9.80% steady-state shown in the previous report.

The results presented in Table 11 are based on the rounded steady-state contribution rate of 9.8% as opposed to the currently scheduled contribution rate of 9.9% for years 2003 and thereafter.

Table 11 Financial Status of Amended Plan
(With 9.8% Steady-State Contribution Rate)
($ million)

Year	Rate	Contributions	Expenditures	Net Cash Flow	Investment Earnings	Assets at 31 Dec.*	Asset / Expenditure Ratio
	(%)						
2001	8.60	21,808	20,637	1,171	2,823	47,709	2.20
2002	9.40	24,529	21,690	2,839	4,140	54,688	2.41
2003	9.80	26,578	22,661	3,917	4,593	63,197	2.67
2004	9.80	27,740	23,672	4,068	4,946	72,212	2.92
2005	9.80	28,952	24,747	4,205	5,383	81,800	3.16
2010	9.80	36,046	31,945	4,101	8,656	138,967	4.11
2015	9.80	45,994	42,856	3,138	14,231	216,021	4.74
2020	9.80	58,420	58,350	70	20,932	314,310	5.07
2025	9.80	73,316	78,865	-5,549	28,679	426,108	5.10
2050	9.80	224,474	257,440	-32,966	92,585	1,364,743	5.07
2075	9.80	664,957	776,846	-111,889	264,123	3,885,997	4.79

* The Account and Fund components are valued at cost and the Investment Board component is valued at market.

V. Sensitivity Scenario

A sensitivity test is developed on the foreign investment content to show the impact on the financial status of the CPP of increasing the use of foreign investment to the statutory limit of 30%. Presently, most major Canadian pension funds are at the 30% statutory limit for foreign investment. Starting in 2003, it is assumed that the Investment Board will maintain the foreign investment content at the statutory limit of 30% for all the projection period.

The projected asset mix with the transfer of both the CPP Account and the CPP Fund is presented in Table 12 with a foreign investment content of 30%.

Table 12 Asset Mix - Sensitivity Scenario - 30% Foreign Content

Year			CPP Investment Board						
31 Dec	**Account**	**Fund**	**US**	**Can**	**Foreign**	**Bonds**	**Fund**	**Short-term**	**Total**
	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
2002	10.19	53.04	4.60	27.57	4.60	-	-	-	100.00
2003	-	29.56	10.57	32.53	10.57	-	14.78	2.00	100.00
2004	-	12.49	13.13	30.30	13.13	3.99	24.97	2.00	100.00
2005	-	-	15.00	25.94	15.00	10.12	31.94	2.00	100.00
2010	-	-	15.00	20.00	15.00	33.76	14.24	2.00	100.00
2015	-	-	15.00	20.00	15.00	39.51	8.49	2.00	100.00
2020	-	-	15.00	20.00	15.00	43.02	4.98	2.00	100.00
2025	-	-	15.00	20.00	15.00	46.15	1.85	2.00	100.00
2050	-	-	15.00	20.00	15.00	48.00	-	2.00	100.00
2075	-	-	15.00	20.00	15.00	48.00	-	2.00	100.00

Table 13 shows the financial status if Bill C-58 amendments are implemented with an assumed foreign content of 30%. Under this scenario, the steady-state contribution rate decreases from 9.76% of this report to 9.75%. Table 14 shows the impact of the proposed sensitivity scenario. The CPP assets increase by approximately $1.6 billion (1.2% of assets) in 2010 and by $97 billion (6.4% of assets) in 2050.

Table 13 Financial Status of Amended Plan - Sensitivity Scenario
($ million)

Year	Contribution Rate	Contributions	Expenditures	Net Cash Flow	Investment Earnings	Assets at 31 Dec.*	Asset/ Expenditure Ratio
	(%)						
2001	8.60	21,808	20,637	1,171	2,823	47,709	2.20
2002	9.40	24,529	21,690	2,839	4,140	54,688	2.41
2003	9.90	26,849	22,661	4,188	4,614	63,490	2.68
2004	9.90	28,024	23,672	4,352	4,991	72,832	2.94
2005	9.90	29,247	24,747	4,500	5,454	82,786	3.20
2010	9.90	36,414	31,945	4,469	8,897	142,462	4.22
2015	9.90	46,463	42,856	3,607	14,783	223,711	4.91
2020	9.90	59,016	58,350	666	21,962	328,828	5.30
2025	9.90	74,064	78,865	-4,801	30,449	451,293	5.40
2050	9.90	226,764	257,440	-30,676	108,822	1,602,142	5.95
2075	9.90	671,742	776,846	-105,104	375,201	5,524,215	6.80

Table 14 Impact on the Financial Status - Sensitivity Scenario
($ million)

Year	Contributions	Expenditures	Net Cash Flow	Investment Earnings	Assets at 31 Dec.*	Asset / Expenditure Ratio
2001	-	-	-	-	-	-
2002	-	-	-	-	-	-
2003	-	-	-	139	139	-
2004	-	-	-	167	306	0.01
2005	-	-	-	196	501	0.02
2010	-	-	-	259	1,631	0.05
2015	-	-	-	420	3,369	0.08
2020	-	-	-	685	6,188	0.10
2025	-	-	-	1,020	10,584	0.12
2050	-	-	-	7,494	96,535	0.36
2075	-	-	-	47,625	662,780	0.81

***** The Account and Fund components are valued at cost and the Investment Board component is valued at market.

VI. Conclusion

The actuarial projections of the financial status of the Canada Pension Plan presented in this report are consistent with the trends revealed in the previous actuarial report.

This report also confirms that the legislated contribution rates (9.4% in 2002 and 9.9% in 2003 and thereafter) are sufficient to pay for future expenditures and to accumulate assets of $142 billion (4.2 times the annual expenditures) by 2010. By 2050 the assets are projected to be $1,578 billion or 5.9 times the annual expenditures.

The steady-state contribution rate, which is the lowest rate sufficient to sustain the Plan without further increase, is 9.8% of contributory earnings. This is applicable for 2003 and thereafter and is the same as presented in the previous actuarial report and 0.1% lower than the 9.9% contribution rate currently scheduled.

The transfer of the CPP Account and the CPP Fund bond portfolio to the CPP Investment Board raises the proportion of the total assets under the management of the CPP Investment Board compared with the previous report and enables it to invest for a longer period of time in higher-yielding bonds and equities. As a result, the CPP assets will have increased by approximately $1.4 billion in 2010 and by $72 billion in 2050 ($85 billion over the next 50 years).

Under the current schedule of contribution rates, the funding level increases slightly compared to the previous report. The ratio of assets to the following year's expenditures grows to 5.9 in 2050 compared to 5.6 in the previous report.

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VIII. Actuarial Opinion

In our opinion, considering that this 19th Actuarial Report was prepared pursuant to the *Canada Pension Plan*:

- the methodology employed is appropriate and consistent with sound actuarial principles;
- the data on which this report is based are sufficient and reliable; and
- the assumptions used, are in aggregate, reasonable and appropriate.

This report has been prepared, and our opinions given, in accordance with accepted actuarial practice.

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Ottawa, Canada
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