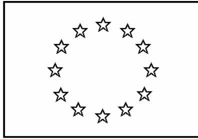

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DIRECTORATE GENERAL
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2003 UPDATE OF THE STABILITY PROGRAMME OF LUXEMBOURG 2002-2006

AN ASSESSMENT

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SUMMARY AND CONCLUSIONS[1]

Luxembourg submitted its fifth and most recent update of the stability programme, covering the period 2002-2006, on 28 November 2003. The 2003 update of the stability programme of Luxembourg incorporates the 2004 budget law that was approved by Parliament on 16 December 2003. The update complies with the Code of Conduct on the content and format of the programmes. However, a few non-compulsory variables which are valuable inputs to compute cyclically adjusted balances using the common production function method were not included.

Real GDP growth in 2002 remained very weak by historical standards, at slightly above 1%, like in the year before. Real GDP growth is expected to have remained weak as well in 2003, at 1.2%. According to the central macroeconomic scenario underlying the update, which appears plausible and is quite close to the Commission Autumn 2003 forecast, economic growth is expected to pick up gradually to 2% in 2004. A further pick-up is forecast in the next two years and real GDP growth would be close to 4% in 2006. This is still below the estimated rate of potential growth on the basis of the common production function method. However, in the case of Luxembourg estimates of potential growth and the output gap should be treated with due caution, because of difficulties in extrapolating past productivity trends and in estimating the impact of cross-border employment. Employment growth is expected to slow down significantly compared to 2002 and the years before, following movements in activity with a lag, while HICP inflation is expected to moderate gradually from 2.5% in 2003 to 1.2% by 2006 in response to weak activity and muted import prices.

According to the update the general government budget balance deteriorated markedly in 2003, by no less than 3 percentage point of GDP to a deficit of 0.6% of GDP. This sharp deterioration mainly reflects the effects of the tax reform coinciding with a sharp economic slowdown, coupled with continued substantial growth in public expenditure and a deceleration in the collection of back taxes that had boosted revenue in 2002. The deficit is expected to worsen further to 1.8 and 2.3% of GDP in 2004 and 2005 respectively, as the expected economic recovery would be rather gradual, while the full impact of the earlier economic slowdown on revenue would be felt only with a substantial lag. The deficit would improve somewhat in 2006, to 1.5% of GDP, in response to the expected economic upturn and a deceleration in expenditure. The cyclically-adjusted budget balance, computed using the common production function method, is expected to remain positive over the horizon covered by the update, even though this assumes a potential growth rate that may be on the high end of plausible outcomes. The debt ratio would remain very low and decline from 5.7% of GDP in 2002 to 4.4% of GDP in 2006.

The deterioration of the general government balance is for the largest part accounted for by central government. In the period 2004-2006, the deficit of central government is expected to widen to above 3% of GDP. The balance of local government is projected to have a slight deficit, largely due to the importance of lacklustre municipal corporate tax receipts as a source of revenue. By contrast, social security would offset part of the

[1] This assessment has been carried out on the basis of information available as of 22.01.2004.

projected deficit in the other two sub-sectors of general government. However, surpluses in social security would be considerably smaller than in the past, largely reflecting expected weaker employment growth.

Risks to the outlook for public finances appear skewed to the downside. If such risks materialise, it cannot be entirely ruled out that the deficit could rise to above 3% of GDP at some point in the period covered by the update. While recognising the sound starting position of public finances in Luxembourg, the March 2003 Council opinion on the previous stability programme update[2] highlighted the necessity to monitor closely fast growing current expenditure, in particular of central government. The update expects the growth rate of general government nominal expenditure to moderate substantially in the period 2004-2006, to around 4½% on average, down from around 8% in the previous decade. However, apart from an assumed decrease in the public investment ratio, the stability programme is not very explicit on how this deceleration of current expenditure would be achieved, other than by an expected decrease of public investment in the period 2004-2006. Should economic growth and thus tax revenue fall to rates below what is currently envisaged, additional measures might be needed to adjust expenditure levels. This may be necessary to prevent the nominal deficit from breaching the 3% of GDP threshold and to ensure that a budgetary position close to balance or in surplus would be maintained in the medium to long run.

Luxembourg is in a good position to meet the budgetary consequences of the ageing population. There are no risks of unsustainable public finances in the long term. The debt to GDP ratio will remain very low and is expected to decrease to below 5% of GDP over the projection period. Moreover, substantial additional financial assets have been accumulated that could help bridge a spell of weak economic growth. Some uncertainties remain on long term trends in Luxembourg due to the lack of complete information on age-related expenditures and the key role that cross-borders workers play in the national labour market.

The update is broadly consistent with the 2003 Broad Economic Policy Guidelines, in particular those with budgetary implications.

[2] OJ C64 18.3.02

1. INTRODUCTION

The 2003 update of the Luxembourg stability programme was presented on 28 November 2003. It covers the period from 2002 to 2006, which is an extension of the period up to 2005 covered in the 2002 update[3]. The present stability programme update incorporates the amended 2004 draft budget, which was subsequently approved by Parliament on 16 December 2003. The 2003 stability programme update (the update henceforth) has as its basis a multi-annual budgetary strategy aimed at balanced public finances, in order to achieve that government spending in the medium term does not exceed a level compatible with the rate of economic growth.

Rich in information, the 2003 updated stability programme complies with the guidelines set in the Code of Conduct on the format and content of programmes. That said, a few non-compulsory variables which are valuable inputs to compute cyclically adjusted balances using the common production function method were not given. This concerns in particular data on the harmonised unemployment rate and compensation of employees. The update provides, for the first time, highly interesting and relevant information on net assets and on the operations of so-called special funds.

2. MACROECONOMIC ASSESSMENT

2.1 External economic assumptions

The external macroeconomic assumptions used in the update are generally quite close to the common assumptions in the Commission Autumn forecast. Nevertheless, slight differences exist with respect to economic growth in the EU (which is assumed to be a bit weaker in 2003 in the update), the price of crude oil (which is assumed to be higher in 2005 in the update), and the euro/dollar exchange rate (slightly lower in the update for 2004 and 2005). The impact of only these small differences in external assumptions on the projections for economic growth should not and did not result in large discrepancies with the Commission Autumn forecast.

2.2 Macroeconomic developments

The macroeconomic projections of the stability programme

The stability programme uses a relatively cautious central scenario derived from the most recent official macroeconomic forecasts by the Service Central de la Statistique et des Études Économiques (STATEC), published in October 2003. A key assumption in the baseline scenario concerns output in financial services. Activity in the financial sector is assumed to pick up slowly in 2004 from quasi-stagnation in 2003, recovering slowly from the uncertainty in financial markets to which the economy of Luxembourg was heavily exposed. Still, the update assumes that growth rates of real activity in the financial sector will not return to the very high rates observed in the late 1990s. In

[3] The initial stability programme covered the period 1998-2002 and was approved by the Council on 15 March 1999. The 1999 update extended the period covered to 2003 and was approved by the Council on 13 March 2000. The 2000 update, covered the same period up to 2003 and was approved by the Council on 12 March 2001. The 2001 update covered the period 2000-2004 and was examined by the Council on 15 January 2002. The 2002 update covered the period 2001-2005 and was examined by the Council on 7 March 2003 (OJ.2003/C/64 18.3.2003).

addition, from 2004 onwards public consumption is assumed to grow less buoyantly than in previous years. Nevertheless, real government consumption would still grow at relatively high rates of between 2 and 3%.

Table 1 summarises key figures from the sequence of recent projections. The macro-economic and fiscal projections from the fall of 2003 show major downward revisions compared to the forecasts made in spring.

Table 1 – Real GDP growth and general government balance
Sequence of recent projections

	Real GDP growth (annual % change)			**Government balance (% of GDP)**		
	2003	**2004**	**2005**	**2003**	**2004**	**2005**
Commission Spring forecast (2003)	1.1	2.7	-	-0.2	-1.2	-
STATEC Spring 2003 forecast (30 June 2003)	1.5	2.8	3.4	-	-	-
Commission Autumn forecast (29 Oct. 2003)	1.2	1.9	2.8	-0.6	-2.1	-2.5
STATEC Autumn 2003 forecast (15 Oct. 2003)	1.2	2.0	-	-	-	-
2003 Update to the Stability Programme (28 November 2003)	1.2	2.0	3.0	-0.6	-1.8	-2.3

Source : STATEC, Commission services, 2003 update of the Stability Programme

Evaluation by the Commission

The macro-economic scenario underlying the projections in the update appears broadly plausible. The use of a relatively cautious scenario is judged to be a sound basis for prudent fiscal projections, in particular as it attempts to take into account the uncertainty on the medium-term growth prospects for the Luxembourg economy. Overall, the macro-economic projections used in the update appear to be credible on account of available economic indicators and alternative forecasts. In particular, for 2004 and 2005 the real GDP forecasts are quite close to the Commission's Autumn 2003 forecast. That said, the assumed strength of private consumption growth in 2005 and 2006, despite a rather weak recovery in the labour market, may be on the high side. In addition the projected pick-up in real GDP growth to close to 4% in 2006 hinges on relatively optimistic assumptions concerning external demand and investment in particular. Thus, the estimate for real GDP growth in 2006 may be on the high side as well. There is no full breakdown of sectoral accounts in the national accounts of Luxembourg. Hence, forecasts of changes in sectoral balances are not available either, and this precludes the use of projected such balances as a plausibility check on the projections.

Table 2 compares the projections in the update and the Commission Autumn 2003 forecast for key variables. In the period 2003-2005, the two forecasts are quite close, except that the update is somewhat more optimistic on employment growth. Risks to expected economic growth in 2004 in the stability programme appear slightly skewed to the downside, judging from recent indicators on economic activity. Recent lacklustre economic growth reflects for a large part the drag of the international environment, financial services in particular. The lagged negative impact on the labour market and on

other sectors of the economy, which are to a large extent dependent on these highly exposed sectors, would limit the speed of a recovery in the near term.

Table 2 – Comparison of stability programme and Commission macro-economic forecasts

	2003	2004	2005	2006
Stability programme 2003 update				
Real GDP growth (%)	1.2	2.0	3.0	3.8
GDP deflator (%)	1.7	2.7	2.8	1.9
Employment growth (%)	1.7	1.1	1.8	2.2
Commission Autumn forecast				
Real GDP growth (%)	1.2	1.9	2.8	-
GPD deflator (%)	1.9	2.7	2.6	-
Employment growth (%)	1.7	0.9	1.2	-

The analysis of potential growth provides an additional argument to consider a relatively cautious growth scenario as an appropriate and prudent reference to assess medium term fiscal prospects. Table 3 shows the results of estimates of potential growth and of the output gap according to the common production function method agreed by the Ecofin Council on 12 July 2002. Table 3 also reports the alternative calculations reported in the update. These use a slightly different specification of a production function method developed by STATEC. While the numbers differ, with the common method yielding a sharper slowdown in potential growth, the broad pattern is similar. The table suggests that according to both variants of the production function method, potential growth for Luxembourg would slow down in 2003 but would remain high compared to other EU countries. Because in this exercise actual real GDP growth would not reach estimated potential, a significant negative output gap would open up over the time horizon covered by the update. This suggests ample opportunity for a healthy rebound in economic growth on the back of a global cyclical recovery.

However, the results of this exercise should be interpreted with due caution because of uncertainties concerning the extrapolation of past productivity trends in key sectors of the Luxembourg economy, such as financial services and because of difficulties in accounting for the impact of the very high cross-border employment flows. Hence, the estimates of potential real GDP growth reported in table 3 may be on the high end of plausible outcomes. In general it seems unlikely that the Grand Duchy would experience the same very high rates of economic growth as achieved in the late 1990s. This could justify the use of a more cautious macro-economic scenario in the medium to longer term[4].

4 In the case of Luxembourg, the production function estimates are particularly sensitive to the extrapolation of productivity trends and to the impact of large cross-border employment flows on the estimated equilibrium unemployment rate (NAIRU) and may overestimate potential growth. However, alternative methods also have drawbacks. A main drawback of the so-called HP filter is that estimated potential (or rather: trend) real GDP growth follows actual real activity with a lag, and the resulting estimate of potential growth is likely to be rather low.

Table 3 – Real GDP growth, potential real GDP growth and output gap according to the common production function method					
	2002	**2003**	**2004**	**2005**	**2006**
Real GDP growth (%)	1.3	1.2	2.0	3.0	3.8
Potential real GDP growth (%)	6.5	3.7	3.9	4.1	4.5
Output gap (% of GDP)	-0.3	-2.8	-4.5	-5.5	-6.2
p.m. potential real GDP growth using method in the update [1]	*5.2*	*4.7*	*4.6*	*4.7*	*4.2*

[1] Estimated using alternative specification of a production function approach

Source: Commission services estimates on the basis of 2003 Stability programme update

3. BUDGETARY TARGETS AND MEDIUM-TERM PATH OF PUBLIC FINANCES

3.1 Programme overview

Table 4 presents a summary of the public finance projections in the central scenario of the update. After a substantial surplus in 2002 (2.4% of GDP) the general government balance would deteriorate markedly in 2003 and show a deficit 0.6% of GDP. The deterioration would continue in 2004 and 2005 with expected deficits of 1.8% and 2.3% of GDP respectively. Thereafter, the nominal deficit would be lower in 2006, at 1.5% of GDP, on the back of the expected economic recovery. By contrast, the cyclically adjusted balance computed according to the common production function method would remain close to balance or in surplus in 2003 and 2004 and even improve markedly in the two subsequent years.

As regards the sub-sectors of general government, changes in the central government balance account for by far the largest part of changes in the overall balance. From a position close to balance in 2002, the central government balance is forecast to deteriorate markedly, to a deficit of 3.6% of GDP in 2005, before improving somewhat in 2006. Local governments are also expected to face a deficit in 2002-2006. By contrast, social security funds are expected to maintain surpluses over the horizon covered by the programme, even though the size of these surpluses would be smaller than before.

The debt ratio is expected to decline somewhat during the period covered, from the already low level of 4.9% of GDP in 2003 to 4.4% of GDP by 2006.

Table 4 – Development of public finances					
In % of GDP	**2002**	**2003**	**2004**	**2005**	**2006**
General government balance	2.4	-0.6	-1.8	-2.3	-1.5
Central government	*-0.2*	*-2.5*	*-3.2*	*-3.6*	*-3.1*
Local government	*0.2*	*0.1*	*-0.2*	*-0.2*	*-0.1*
Social security	*2.4*	*1.8*	*1.6*	*1.5*	*1.7*
Comm. Autumn 2003 forecast gen. gov.bal.	2.4	-0.6	-2.1	-2.5	-
Cyclically adjusted general governm. balance[1]	2.6	1.1	0.9	1.0	2.2
General government debt	5.7	4.9	5.2	5.0	4.4

[1] Commission calculations using common production method

Source: 2003 Stability programme update and Commission autumn 2003 forecast

3.2 Implementation of the previous update

Forecasts of real GDP growth have been revised downwards substantially since the 2002 updated stability programme, in response to the severity of the economic slowdown and the turmoil on financial markets that hit hard the exposed sectors – the financial sector in particular. However, the downward revisions in real GDP growth since the 2002 update have been quite limited (table 5). By contrast, revisions to the deficit projections were substantial. In fact, 2002 yielded a high surplus, contrary to what was expected in the previous update. On the other hand, the current update envisages a very marked deterioration in the nominal budget balance in 2003 to 2005, with the deficit rising to above 2% of GDP in the latter year, whereas the previous update gave a much more stable projection. The higher forecast deficits and some new debt contracted for urban development projects entities also led to some upward adjustments to the debt projections (table 5).

As far as the general government balance is concerned, part of the difference between the 2002 update and the 2003 update is accounted for by revised estimates of the (partly lagged) impact of cyclical factors and past tax reforms on revenue and thus on the deficit. These are very difficult to forecast, given the high cyclical sensitivity of public finances in Luxembourg and the complex lags involved. Nevertheless, the current update attempts to take on the lagged adverse effect of the negative shock to the financial sector better into account. The full impact on revenue will only be felt with a lag of 2 to 3 years, and this is one major reason behind the upward adjustment of the deficit forecasts for 2004 and 2005. Upward adjustments in the expenditure-to-GDP ratios for 2004 and 2005 also partly account for the difference with the previous update. The absence of a detailed breakdown of expenditure and revenue in the previous update prevents a more detailed analysis by sub-category of revenue and expenditure. Another important factor behind the discrepancies is that in 2002 expenditure increased less than forecast previously. This largely is due to bottlenecks preventing investment funds from realising planned expenditure. A final aspect highly relevant to explain the revisions concerns the efforts to speed up the collection of back taxes (especially corporate taxes for years prior to 2002) toward the end of 2002. This effort yielded substantial revenue which was not recorded in time to be incorporated in the projections of the previous update. Hence, the budget

balance in 2002 was much better than expected. But since the collection of these back taxes yielded non-recurring revenues it leads to a base effect on the deficit estimates for 2003. Thus, the sharp deterioration in the general government balance previously expected in 2002 is now forecast to take place mainly in 2003 and 2004. Overall, the current update expects a less favourable development of public finances in the period 2003-2005 than in the previous version.

As regards debt, for 2002 and 2003 most of the difference with the previous update concern the contracting of new debt for urban development by two semi-autonomous entities (that belong to central government according ESA95 definitions), namely called "Fonds d'urbanisation et d'aménagement du Kirchberg" and "Fonds de renovation de la Vieille Ville". The operations took place in 2002 and 2003 and are equivalent to 0.5% of GDP.[5]

Table 5 – Divergence from the 2002 update

	2002	2003	2004	2005
Real GDP growth (% change)				
2002 update	0.5	1.2	2.4	3.1
2003 update	1.3	1.2	2.0	3.0
Difference with 2002 update	0.8	0.0	-0.4	-0.1
General government balance (% of GDP)				
2002 update	-0.3	-0.3	-0.7	-0.1
2003 update	2.4	-0.6	-1.8	-2.3
Difference with 2002 update	2.7	-0.3	-1.1	-2.2
General government debt (% of GDP)				
2002 update	5.1	4.1	3.8	2.9
2003 update	5.7	4.9	5.2	5.0
Difference with 2002 update	0.6	0.8	1.4	2.1

3.3 Adjustment in 2004

The projections for public finance in 2004 incorporate the amended 2004 draft budget, adopted by Parliament on 16 December 2003. The general government balance is expected to register a deficit of 0.6% of GDP. This is a marked deterioration from the slight deficit of 0.6% of GDP estimated for 2002. It reflects the net impact of a substantial decrease of the total revenue to GDP ratio from 47.1% of GDP in 2003 to 45.7% of GDP in 2004, along with a slight decrease in the total expenditure ratio from 47.7 to 47.5% of GDP. Part of the decrease in the revenue ratio is due to the tax reform, implemented in two stages in 2001 and 2002. In the first stage, implemented in 2001, taxes on households were lowered by an estimated 1.1% of GDP. In 2002, a further tranche of tax reductions for households (0.8% of GDP) and a lowering of business and subscription taxes (in total some 1.7% of GDP) were introduced. The total estimated mechanical impact of this second stage of the tax reform is 2.5% of GDP, but the distribution of the effect over time is difficult to estimate. This is because of the

[5] Note though they are called "Fonds" they do not belong to the special funds.

substantial lags in the collection of corporate taxes, and because of the dynamic effects on economic activity and tax receipts. It is likely that the tax reform also accounts for part of the expected weakening of the revenue ratio in 2003 and perhaps even later. Estimates of the time profile of the impact of the tax reform are further complicated by the more rapid collection of back taxes, which boosted tax revenue in 2002 and possibly 2003 as well.

Using the presentation of the 2004 voted budget, the central government budget would have a small deficit of only €84.2 million (0.4% of GDP). This is the representation in keeping with the framework of fiscal policy adopted by the Luxembourg government. However, if one takes into account operations of special funds and examines the consolidated central government balance according to ESA95 definitions, central government is expected to register a much larger deficit of 3.2% of GDP, compared to 2.5% in 2002.

In 2004, the cyclically adjusted balance (as estimated by Commission services using the common production function method on the basis of data given in the update [6]) is estimated to remain quite stable compared to 2003, at around a surplus of 1% of GDP. For all years covered by the update the estimates of the cyclically adjusted balance using the common production function method agreed by the Ecofin Council differs substantially from the ones given in table 4 of the update. The latter were derived using an alternative methodology. The approach used by the Luxembourg authorities uses a different specification of production function method to compute output gaps. The cyclical budgetary component is derived separately, using a disaggregated approach, which distinguishes main sources of revenue and expenditure. In the case of Luxembourg, such a disaggregated approach has some merits in principle, for instance as regards the long and complicated lags involved in the estimation of corporate tax receipts. However, the update gives insufficient details of the method used to be able to reproduce and analyse the results. Moreover, the results are difficult to interpret. According to the update the cyclical budgetary component would remain broadly stable over the full horizon covered, despite an estimated output gap turning from positive in 2002 to increasingly negative in subsequent years. This would mean that the implied aggregate elasticities vary considerably from one year to the other, which makes them difficult to interpret. Hence, because of insufficient insight in the details of the calculation of the cyclically adjusted balances as presented in table 4 of the update, this assessment limits itself to a discussion of the estimates produced by the Commission services on the basis of the input variables provided in the programme.

The relative stability of the cyclically adjusted balance at first sight suggests that the deterioration in the nominal balance is mainly due to cyclical factors. However, these figures should be treated with some caution (as remarked above) in view of the large margins of error surrounding estimates of potential growth and the output gap in the case of Luxembourg. Certainly the cyclical impact is important. On the revenue side, the deficit reflects weaker tax receipts (primarily corporate taxes), due to the lagged response to the sharp economic slowdown and the tax reform implemented in 2001 and 2002. In 2003, the balance of local government would deteriorate by 0.3% of GDP, to a deficit of 0.2% of GDP. This development mainly reflects expected shortfalls in municipal business taxes (directly linked to the corporate taxes paid to the central government). By contrast,

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[6] In a few cases it was necessary to obtain certain variables (such as unemployment and compensation of employees) from the same detailed STATEC projections that were used to produce the macro-economic scenario of the update.

social security funds are expected to retain a positive balance of 1.6% of GDP. Nevertheless, the slowdown in the labour market led to substantially lower surpluses in social security than in 2002 and earlier years. On closer inspection, it seems that the sharp deterioration of the general government balance not only reflects the cyclical slowdown. The effects of the tax reform on revenue, as well as increases in expenditure in certain areas (some of them discretionary and some of them increases in social security expenditure agreed at the so-called *Rentendësch)* also play a role.

With respect to expenditure, the update foresees a marked decrease in general government nominal expenditure growth, from an average of 8% between 1991 and 2003 to 4.3% in 2004[7]. While it is the stated intention of the government to maintain a high level of public investment (partly financed out of special investment funds), this deceleration is partly accounted for by a substantial decrease of public investment spending by 12%. It should be noted, however, that while the public investment ratio is expected to decline by 0.4 percentage point in 2004, 0.3 percentage point of this decline is accounted for by sales of real estate. In the ESA95 definitions this is recorded as negative investment. Even so, total new public investment outlays would still be lower, after years of buoyant growth. On the other hand, at more than 4% of GDP the public investment ratio in the Grand Duchy would remain high and well above the EU average.

Despite more subdued public investment, several expenditure categories would still grow buoyantly. Public sector real wages are expected to rise by no less than 3% in 2004. Moreover, the agreements concluded in July 2001 between social partners and the government (*Rentendësch*) resulted in substantial increases in family allowances and pensions to take effect from March 2002 onward. In addition, adverse developments in the labour market should lead to higher outlays on unemployment benefits. All this seems to imply that other categories of expenditure would have to decelerate substantially, in order to achieve the forecast more moderate growth rate of total general government expenditure in 2004.

For 2004, the public finance projections in the update are quite close to the Commission Autumn 2003 forecast, based on a very similar macroeconomic scenario. Still, in the Autumn forecast, the general government balance is expected to deteriorate somewhat more than in the stability programme projections, to a deficit of 2.1% of GDP. This is mainly due to somewhat higher projected growth in expenditure in the Autumn forecast, notably as regards public investment.

Risks to the projected general government balance in 2004 in the update appear skewed to the downside. As regards revenue, the projections in the update appear credible and are broadly in line with the Commission Autumn forecast. That said, some specific downside risks attach to the projections for indirect tax receipts. These concern in particular the durability of VAT collections on internet sales from a few multinational companies which settled in Luxembourg in the course of 2003 and which account for additional VAT receipts estimated at around 0.6% of GDP in 2004. Further, net VAT receipts may be lower than anticipated, because of reimbursements in respect of final settlement of VAT tax arrears. More generally, large uncertainties exist concerning corporate taxes, which respond to economic activity with a lag. The current evidence on continued weak

[7] Estimated growth of total general government nominal expenditure according to ESA95 definitions, on the basis of data provided in the stability programme. According to the 2003 budget law, where expenditure data are not fully compatible with ESA95 guidelines, the growth rate of total expenditure will be only 2.0% in 2004.

economic activity in 2003 does not bode well in this respect. On the expenditure side, downside risks attach to the projected deceleration in 2004. This concerns notably expenditure control in areas such as health care, where it has been growing at high rates in past years.

3.4 Adjustment in 2005 and 2006

The update expects the general government balance to deteriorate further in 2005, to a deficit of 2.3% of GDP. In 2006, the general government balance is expected to improve again, reacting with a lag to the forecast economic recovery. Nevertheless, central government would still register a sizeable deficit of 3.1% of GDP in 2006. This reflects a lower tax base as a result of the 2001-2002 tax reform, coupled with rates of economic growth in the period 2001-2006 that would be well below the average of the 1990s.

The update expects the total revenue to GDP ratio to decline somewhat further in 2005 and 2006, to just below 45% of GDP in both years. This lacklustre revenue development, despite the projected cyclical upturn, to a large extent reflects the substantial lagged impact of the economic slowdown on tax receipts. Weak corporate tax receipts mainly account for this pattern. It testifies to the large impact of the adverse exogenous shock that the economy of the Grand Duchy on profits in the financial sector in particular.

As was the case for 2004, the Commission Autumn forecast expects a slightly higher deficit in 2005 than the central scenario of the update (2.5% of GDP). While the real GDP projections are quite similar, one key difference concerns weaker employment growth according to the Commission Autumn forecast in 2005. This would lead to lower social contributions and hence a lower surplus in social security.

The cyclically adjusted balance would remain in surplus in 2005 and 2006. This reflects the extent of the economic slowdown, leading to a negative output gap. As argued in section 3.2 in the case of Luxembourg, estimates of the output gap and the cyclically adjusted budget balances should be interpreted with due caution. Thus, as mentioned, the resulting estimate of potential growth that is on the high end of plausible outcomes.

Risks to the outlook appear skewed to the downside. Following broadly the same line of reasoning as in the previous section, some downside risks attach to the forecasts for tax revenues (corporate taxes in particular) and their lagged response to economic activity. As remarked in section 3.2, the real GDP growth forecast for 2006 (and the resulting revenue estimate) may be on the high side. Because of the high reliance of local authorities on municipal business taxes as a source of revenue (which are directly linked to the corporate taxes collected by the central government), this could affect the balance of local government. Weaker-than-expected employment growth would lead to a less favourable balance in the sub-sector of social security. In addition, it should be noted that the growth rate of total general government expenditure is projected to first increase to 5.6% in 2005 and then to slow down again markedly to 3.7% in 2006. This assumption of a slowdown in expenditure is driving the expected improvement in the deficit in 2006. However, apart from an assumed continuing negative public investment growth (-6% in 2006 and -5% on 2006), the update gives no details on the actual measures that should lead to the expected slowdown in expenditure growth (forecast to be mainly concentrated in collective consumption and social transfers).

Overall, the government's intention seems to be to maintain a high level of public expenditure over the horizon of the stability programme update, as the expected

economic recovery would take hold gradually. Even though the economic slowdown weighs on general government revenues (with some important lags), the size of accumulated assets in special funds would in principle allow a continuation of rapid public expenditure increases (in particular public investment) for some time. However, in the medium term spending levels need to remain compatible with the revenue base.

Thus, some expenditure restraint seems warranted, given the presence of a substantial deficit (exceeding 2% of GDP over part of the time horizon covered by the programme) and uncertainties on the strength and timing of the expected economic recovery. In the medium term expenditure ratios would have to adjust to the sustainable path of potential output. Also, in the case of Luxembourg, potential output growth in the medium term is difficult to assess at this juncture, given the possibility of structural changes in certain key sectors of the economy (notably financial services) that could impact on long-term productivity trends. In view of these uncertainties, prudent fiscal projections should be based on cautious macro-economic assumptions, while expenditure ceilings derived from these cautious assumptions could be a valuable tool to ensure the stability of public finances in the medium term.

3.5 Sensitivity analysis

A sensitivity analysis as required in the Code of conduct has been included in the update. This element is important in view of the sensitivity to external shocks, the high cyclical sensitivity of public finances, and the large degree of uncertainty concerning the medium-term growth potential of the Luxembourg economy. The sensitivity analysis suggests that weaker real GDP growth by 0.5 percentage points in both 2004 and 2005 would lead to an increase in the deficit to 2.5% of GDP in 2005. This is an increase in the deficit of 0.2 percentage point compared to the central scenario in 2005, smaller in fact than the estimated deterioration by 0.4 percentage point in 2004. This alternative scenario uses a low semi-elasticity of the deficit with respect to real GDP and therefore seems to present too optimistic a picture. A higher semi-elasticity seems warranted on account of the high cyclical sensitivity of public finances found in earlier studies for Luxembourg, a factor also stressed elsewhere in the text of the update. Under the assumption of real GDP growth lower by a cumulative one percentage point in 2004 and 2005, and using the semi-elasticity of 0.6 used also for computing the cyclically-adjusted balance with the common production function method, a less favourable budgetary outcome in the 'weaker growth' scenario would result. In that case, the deficit would rise to 2.9% of GDP by 2005.[8] Furthermore, the alternative paths in the sensitivity analysis seem to be rather close to the central scenario in view of the large uncertainties surrounding growth and budgetary forecasts for Luxembourg. All in all, this suggests that the risk cannot be entirely excluded that the deficit might rise to above 3% at some point over the time horizon covered by the update, should downside risks materialise. In that case, the Luxembourg authorities should stand ready to take timely additional savings measures.

[8] Such rough estimates should be interpreted with some caution, especially in the case of Luxembourg. This is because of the large lagged impact of the cycle on the deficit, to a large extent in response to the timing of collection of corporate taxes. In other words, part of the foreseen deterioration in 2005 would reflect weak activity in earlier years and would not be very closely related to economic activity in that year.

3.6 Debt path

The general government debt in Luxembourg has for many years been the lowest in the whole EU. It declined from a little less than 20% of GDP in the early 1970s to an estimated 4.9% of GDP in 2003. The total net asset position is even more favourable as substantial financial assets have been built up in many previous years with healthy surpluses (compare section 3.7 on the net asset position and operations of special funds). The debt ratio is expected to increase slightly in 2004 and to fall slightly over the remainder of the programme horizon, to 4.4% of GDP in 2005. This mainly reflects a small increase and subsequent decline in the debt of central government. Table 6 gives a decomposition of changes in the government debt ratio.

The contribution of nominal GDP growth to the decline in the debt ratio is small due to the low debt level. The projected decrease in the debt ratio is largely accounted for by relatively sizeable negative stock flow adjustments of up to around 2% of GDP in 2005 and 2006. The stock flow adjustments would more than offset the upward impact on the debt of primary deficits in the period 2003-2006. Thus, according to the update holdings of financial assets will be reduced appreciably to cover deficits in conjunction with a further decline in the debt ratio. The new debt contracted in 2004-2006 will be entirely used to finance investment from special funds, mainly for rail and road construction.

Table 6 – Decomposition of changes in the government debt ratio

In % of GDP	**2002**	**2003**	**2004**	**2005**	**2006**
Change in government debt ratio	**0.4**	**-0.8**	**0.3**	**-0.2**	**-0.6**
Primary balance	-2.7	0.4	1.6	2.1	1.5
Interest payments	0.2	0.2	0.2	0.2	0.2
Nominal GDP growth	-0.1	-0.2	-0.2	-0.3	-0.3
Stock flow adjustment	3.0	-1.3	-1.3	-2.2	-2.0
Level of government debt	**5.7**	**4.9**	**5.2**	**5.0**	**4.4**

Note: figures may not add up due to rounding

Source: Commission services estimates on the basis of 2003 stability programme

3.7 Asset position

In order to assess the current position of public finances in Luxembourg in a comprehensive manner, it is important not only to consider the figures on public debt, but also the broader net asset position. The update gives some highly welcome details on the operations of so-called special funds and the accumulation of financial assets in some other parts of the public accounts.

The most important special funds are the so-called investment funds, which have been set up to finance a substantial part of public investment. The assets of these funds would be lowered accordingly. The special funds are not part of central government in the narrow definition used in the national budget representation, but in the consolidated ESA accounts they are part of central government. Hence, in the consolidated accounts of general government any expenditure from special funds in excess of the dotations would lead to an increase in the general government deficit according to ESA95 definitions. In previous years the substantial surpluses of the Grand Duchy were used in some part to

increase assets in the special funds. At the end of fiscal year 2002, total assets in the budget reserve (accumulated assets from past surpluses not reserved for any specific use) and in special funds totalled €3.1 billion (14% of GDP). The update expects the assets in special funds to be partly spent over the time horizon covered by the update. This would cover planned expenditure for which coverage from current resources would no longer be possible due to weaker revenue.
Significant additional assets are accumulated in other parts of the public accounts. This is, for instance, the case for public pension funds, which registered substantial surpluses in recent years. Accumulated pension assets were equivalent to around 23% of GDP at the end of 2002. The update does not give a comprehensive overview of the consolidated net asset position of total general government. However, net holdings of assets elsewhere in the general government sector are likely to be relatively small. For instance, at the end of the fiscal year 2002, net assets in the health system were estimated to be less than 1% of GDP. It is important to note that the accumulated pension assets are needed to cover long-term liabilities and that they cannot be spent freely. Assets accumulated relate for a significant part to future pension claims of which a significant part relates to cross-border workers. Buffers are needed to cover a long time horizon to the extent that a significant part of the future claims relate to people at present still in the early stages of their careers or even to future generations. Whether assets will suffice to cover all liabilities depends on the projected rate of premium receipts (linked to employment and economic activity) and on the returns to be expected in the long run.

4. THE QUALITY OF PUBLIC FINANCES

The most important measures with significant budgetary impact concern the lagged effects of the 2001-2002 tax reform. The tax reform resulted in a lowering of the tax burden for households and corporations, and a consequent narrowing of the revenue base. According to the latest estimates available, in 2002 the total cost of tax reductions to the benefit of households and corporations amounted to €511 million (around 2½% of GDP). To the extent that the tax reform helps to promote investment and labour force participation, for instance by lowering the wedge, the expected positive supply side effects should boost tax revenues in the longer run and thus should be judged to have a positive impact on public finances. However, it may be necessary to limit expenditure growth further to offset any revenue shortfalls.

In addition, measures were taken in 2002 to reduce the inflow in disability pension schemes by tightening eligibility. To the extent that these measures are effective, they should have a positive effect on expenditure in the medium term. At the current juncture, the time elapsed has been too short to assess the quantitative impact.

5. THE SUSTAINABILITY OF PUBLIC FINANCES

5.1 Quantitative indicators

The assessment of the sustainability of Luxembourg's public finances is based on both quantitative and qualitative indicators. The quantitative indicators are run on the basis of

a commonly agreed methodology by the Economic Policy Committee[9]. The purpose of the indicators is to signal possible unbalances on the basis of current policies and projected age-related expenditure trends. However, the limitations of this exercise are clear and results of these quantitative indicators need to be interpreted with caution. Being a mechanical, partial equilibrium analysis, projections are in some cases bound to show highly accentuated profiles. As a consequence, the projected evolution of debt levels is not a forecast of possible or even likely outcomes and should not be taken at face value. Instead, the indicators are a tool to facilitate policy debate and at best provide an indication of the timing and scale of emerging budgetary challenges that could occur on the basis of "no policy change".

The quantitative indicators project debt and budget balance development according to two different scenarios, to take into account uncertainties over the medium term. The "programme" scenario is calculated on the following basis:

- Macroeconomic assumptions on GDP growth from 2007 onwards, interest rates and inflation are based on the agreed assumptions used in the EPC;
- The projections for age-related expenditures come from last year stability programme, complemented with the Economic Policy Committee harmonised projections. Luxembourg did not present updated figures in the updated programme despite the fact that a new legislation aimed at reducing disability pensions started producing effects from 2003 onwards. The available projections only cover pension expenditures but not health care and long term care which in most countries are projected to increase by some 2 percentage points of GDP during the next 50 years. They also do not cover education expenditures.
- The projections for government revenues come from the programme. They are kept constant at the (cyclically adjusted) level in 2006.
- The starting point for gross debt and the primary balance are the 2006 levels reported in the programme.

A "2003 position" scenario is based on the budgetary data for 2003 in the programme. Debt levels are extrapolated from 2007 to 2050 assuming that no budgetary consolidation is achieved, i.e. the cyclically adjusted primary balance in 2006 remains the same as the 2003 level and no stock-flows operations take place.

The table below presents the debt and the budget balance development according to the two different scenarios. Projections are based on national projections on pensions presented last year, while unemployment benefits projections rely on the EPC common exercise. Overall, age-related expenditure is foreseen to increase by 1.8% of GDP between 2007 and 2050.

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[9] See the Report "The impact of ageing populations on public finances: overview of analysis carried out at EU level and proposals for a future work programme" (October 2003), available at http://europa.eu.int/comm/economy_finance/epc/documents/2003/pensionmaster_en.pdf

Long term sustainability: summary results

Luxembourg

Main assumptions - baseline scenario (as % GDP)	2007	2010	2020	2030	2040	2050	changes
Total age-related spending	7.8	7.9	8.6	9.5	9.8	9.5	1.8
Pensions	7.4	7.5	8.2	9.2	9.5	9.3	1.9
Health care	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Education	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Unemployment benefits*	0.3	0.4	0.4	0.3	0.3	0.2	-0.1
*Total primary non age-related spending***	38.9						
*Total revenues***	48.0						

* EPC projection

** constant

Results (as % GDP)	2007	2010	2020	2030	2040	2050	changes
Programme scenario							
Gross debt	3.0	-0.9	-9.3	-9.4	-4.0	1.2	-1.9
Net borrowing	1.2	1.2	1.0	0.1	-0.4	-0.4	-1.6
2003 scenario							
Gross debt	3.6	-3.9	-24.1	-35.7	-41.6	-47.8	-51.4
Net borrowing	2.3	2.5	3.0	2.7	2.8	3.4	1.1

Sustainability gap	S1*	S2**
Programme scenario	0.0	-0.1
2003 scenario	-1.2	-1.1

* S1 measures the difference between the current tax ratio and the tax ratio that would ensure a debt level in 2050 as resulting from a balance budget position over the projection period. A positive sustainability gap indicates that there is a financing gap to reach this debt level in 2050. P.m. debt to GDP ratio at the end of the period: 0.3%

** S2 indicates the change needed in tax revenues as a share of GDP that guarantees the respect of the interteporal budget constraint of the government, i.e., that equates the actualized flow of revenues and expenses over an infinite horizon.

It is possible to verify whether the projected level of debt respects the requirement to stay below 60% of GDP reference value for public debt at all times. Failure to do so would *a priori* indicate that there may be a risk of budgetary imbalances emerging in light of ageing population and that measures may be required to place public finances on a more sustainable footing.

According to the quantitative indicators, there are no risks of budgetary imbalances in the future. In the "programme" scenario debt to GDP ratio is projected to remain close to zero over the projection period. However, the result is strongly affected by the

assumption that the output gap is negative from the first year of projection. According to figures presented by the authorities of Luxembourg, a gap of -6.6 is instead foreseen for the year 2006. Therefore, no sustainability gap arises. The current policies allow the Stability and Growth Pact requirements in to be respected at all times.

5.2 Additional qualitative features

As underlined in the EPC report on "The impact of ageing populations on public finances: overview of analysis carried out at EU level and proposals for a future work programme"[10] (October 2003), several qualitative factors should be taken on board to avoid a mechanistic interpretation of the quantitative indicators. On the positive side, Luxembourg authorities already passed a law to correct one of the main sources of risk, notably the trend of disability pensions. Also, Luxembourg is accumulating assets to cope with future pension liabilities (see section 3.7 above) and this will consistently reduce the risk of financial unsustainability of the pension system.
However, projected results warrant attention. First, the assessment of the sustainability of public finances is rather uncertain since it is driven to a large extent by assumptions on future trends regards cross-border workers. Second, no information is available on the trends of other age-related expenditures as health care or education. A more comprehensive projection of age-related expenditures should be envisaged.

5.3 Overall assessment

On the basis of the current policies, Luxembourg presents no risks of unsustainable public finances in the long term. However, relevant uncertainties remain on long term trends in Luxembourg due to the lack of complete information on age-related expenditures and the key role that cross-borders workers play in the national labour market.

[10] Available at http://europa.eu.int/comm/economy_finance/epc/documents/2003/pensionmaster_en.pdf