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COMMUNICATION FROM THE COMMISSION

Structural indicators

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EXECUTIVE SUMMARY

This Communication presents the Commission's proposal for the list of indicators to be used in the Spring Report 2003.

This Communication presents the Commission's proposal for the list of indicators whose main purpose is to support the key messages of the Spring Report 2003. The Communication also describes the progress the Commission services have made over the last year in developing new indicators, improving the quality of last year's list of structural indicators and integrating the candidate countries into the structural indicators process.

The new list comprises a high degree of stability and allows for some flexibility.

This is the third year in which the Commission has chosen a set of structural indicators. There have been limited changes to the list to ensure a high degree of **stability**. This is important for assessing progress in the achievement of objectives from one year to the next, and it allows the reliability and the quality of the indicators to continue to be improved. However there has also been some **flexibility** in the list to incorporate indicators reflecting new political priorities or when better indicators have become available.

The list remains short and balanced between the domains.

The list of indicators has also been kept **short** with no increase in the number from the 42 indicators used in last year's Spring Report. A shorter list allows one to better focus the policy messages drawn from the indicators. The **balance** between the domains has been retained with seven indicators for each of the domains.

The main change is the inclusion of the candidate countries.

In response to the request from the Gothenburg European Council all 13 candidate countries will be integrated into the structural indicators this year so that they can be assessed in the Commission's Spring Report. The Communication presents the expected availability of data for the candidate countries at the time of the next Spring Report.

Much progress has been made on developing and improving indicators.

The Commission services have made good progress on developing new indicators and improving the quality and presentation of the existing indicators. Progress has been made in developing indicators in several areas: composite indicators, potential output, marginal (and average) effective tax rate, childcare facilities, e-commerce, e-government, business demography, company registration, financial integration, recycling rate of selected materials and hazardous waste. From this work two new indicators have been added to the list. The Commission services will continue to develop indicators across a wide range of areas over the next year. Two composite indicators on the knowledge-based economy have been developed and will be used in relevant policy discussions and

Communications. The Commission continues to reflect on the use of composite indicators within the framework of the structural indicators.

STRUCTURAL INDICATORS

I. BACKGROUND

1. The Lisbon European Council conclusions (paragraph 36) asked for an agreed set of structural indicators to be used to underpin the analysis in the Commission's annual Spring Report to the Spring European Council. The role of the structural indicators is to allow for an objective assessment of the progress made towards the Lisbon European Council objectives, expanded at Gothenburg and refined at Stockholm and Barcelona.
2. In each of the last two years the Commission prepared a list of structural indicators and agreed it with the Council. These indicators cover six areas: general economic background, employment, innovation and research, economic reform, social cohesion and the environment. The indicators proved useful in the Spring Report for illustrating areas where more policy action was needed and for measuring the progress made towards the Lisbon goals.
3. This Communication presents the Commission's recommendation for the list of structural indicators which are a key element of the Spring Report 2003. The final list of structural indicators, agreed with the Council, will be adopted at the Copenhagen European Council in December 2002.

II. WORK IN PROGRESS

4. The Commission services' work on structural indicators since last year's Communication has been directed to four areas:
 - (i) to continue to improve the quality of the indicators in the list used for the Spring Report 2002;
 - (ii) to integrate the candidate countries into the structural indicators, following the request of the Gothenburg European Council;
 - (iii) to produce precise definitions and data for the agreed list of indicators to be developed; and
 - (iv) to assess whether there is a need to modify the list of indicators taking into account the progress made on the indicators to be developed and the policy priorities identified at recent European Councils.
5. Eurostat has been working with the other Commission services and with Member States' national statistical institutes to improve the quality of the structural indicators. Over the last year Eurostat has improved the country coverage, time series and quality of the data for many of the existing structural indicators. In particular, considerable progress has been made with regard to providing official data for structural indicators which have previously been based on unofficial sources.

Moreover, Eurostat has continued to improve its publicly accessible internet site¹ which now contains detailed methodological information as well as the data for all the structural indicators. Improving the quality of the indicators improves the robustness of the policy conclusions drawn in the Spring Report.

6. This Communication represents the main outcome of the Commission's work on structural indicators over the last year. Section III sets out the main principles for the new list of indicators. Section IV presents the new list of structural indicators and explains why new indicators have been included in this year's list and why certain indicators have had to be dropped. Section V sets out how the candidate countries are being integrated into the structural indicators this year. Finally section VI describes the progress made by the Commission services in developing new indicators since last year, with more details and the new list of indicators to be developed presented in annex 1.

III. PRINCIPLES FOR THE NEW LIST OF INDICATORS

7. This is the third year in which the Commission has chosen a set of structural indicators whose main purpose is to support the key messages of the Spring Report 2003. There is a high degree of **stability** in the list of indicators in order to allow for the measurement of progress over time as requested by the Council. This stability is also appropriate as most structural problems usually show considerable persistence. At the same time this allows for a process of continuous improvement of the indicators in terms of reliability and quality. Changing the indicators from year to year would render this task much more difficult for both Eurostat and national statistical institutes.
8. There has also been **flexibility** in the list of indicators as new priorities have been identified and improved indicators have become available. However, this has been balanced by the need for a sufficient degree of stability to ensure that a consistent and well founded assessment of the progress towards the Lisbon and subsequent European Councils' objectives can be made in each year's Spring Report.
9. The list of indicators should be kept **short** in order to send clear, simple and focussed policy messages but it should also be **balanced** to reflect the equal importance that Lisbon and Gothenburg placed on the domains of (1) employment, (2) innovation and research, (3) economic reform, (4) social cohesion and (5) the environment. In addition, some general economic background indicators are included to illustrate the economic context in which the structural reforms are taking place. To that end, this Communication presents 42 indicators, a number which is unchanged from the Spring Report 2002. There are 7 indicators in each domain to ensure that each policy domain can be covered in equal depth.
10. In principle any new indicators should be taken from the set of indicators which the Commission services have been developing since last year's Communication, or should be justified in the light of a new major objective set by the European Council. In addition, these new indicators should be drawn from the different indicator and benchmarking processes going on at the sectoral level where they have already been

¹ www.europa.eu.int/comm/eurostat/structuralindicators

tested. It is important to ensure the consistency between these sectoral processes and the overarching structural indicators.

11. Any new indicators should also meet the criteria used for the original choice of indicators. The indicators should be: (1) easy to read and understand; (2) policy relevant; (3) mutually consistent; (4) available in a timely fashion; (5) comparable across Member States, the candidate countries and as far as possible with other countries; (6) selected from reliable sources; and (7) should not impose too large a burden on Member States and respondents.
12. The main change to the structural indicators this year is that their coverage will be expanded to all 13 **candidate countries**, as requested by the Gothenburg European Council. This will allow the candidate countries to be included step by step into the Lisbon strategy starting with the Spring Report 2003. Eurostat has been working in conjunction with the statistical institutes in the candidate countries to improve the availability and quality of the structural indicators for these countries. More details are given in section V.

IV. THE NEW LIST OF INDICATORS

13. The new list of indicators has been drawn up in accordance with the principles set out above. In total 3 indicators have been added to the list and 3 indicators dropped out of the 42 indicators.
14. The list includes new indicators where there has been sufficient progress on developing the data such as the “effective average exit age”, “company registration” and “financial integration”. New political priorities are also reflected in the list. For example “R&D expenditure” is now disaggregated by “R&D financed by industry” rather than by “Business R&D expenditure” to reflect the objective set by the Barcelona European Council. The inclusion of the “effective average exit age” also reflects the importance attached to this issue at the Barcelona European Council. Whenever new indicators have been added to the list they have had to fulfil the quality criteria set out in section III above.
15. With the inclusion of new indicators it has been necessary to drop some indicators from last year’s list. This is an increasingly difficult process as more and better indicators become available. New indicators were included when they were more politically relevant compared to the previous indicator, when the quality of the data for the new indicators was better and when the previous indicator duplicated to some extent another indicator in the list.
16. The **disaggregation by gender** is a general principle of the structural indicators. This disaggregation has been extended this year, where good quality data are available and where a gender disaggregation is meaningful. It is expected that data by gender will be available for “effective average exit age”, “life-long learning”, “accidents at work” (serious, but not fatal accidents)”, “risk-of-poverty rate”, “persistent-risk-of-poverty rate”, “dispersion of regional employment rates”, “long-term unemployment”, “science and technology graduates” and “early school leavers” by the Spring Report 2003.

General Economic Background

17. The general economic background indicators illustrate the overall economic context in which the structural reforms are taking place. No changes have been made to the indicators in this domain. A new indicator has been developed to measure increases in potential output, which is the ultimate objective of structural reform. However, it has been decided not to include potential output growth in the list this year to allow time to resolve any issues which may arise from the indicator's use.

Employment

18. The employment indicators address several of the key aims of the Lisbon European Council namely: to strengthen employment in the Union; the importance of equal employment opportunities for men and women; and the importance of an "Active Employment policy" such as focussing on life-long learning. It is important to note that the Barcelona European Council refined the Lisbon objectives concerning employment and social cohesion.
19. An indicator on the **average effective exit age** has been included in the list of structural indicators to monitor the Barcelona European Council's objective of a progressive increase of about 5 years in the effective average age at which people stop working in the European Union by 2010. This indicator replaces the **employment rate of older workers** which will now be included as part of the employment rate indicator.

Innovation and Research

20. The innovation and research indicators measure Lisbon's emphasis on the transition to a knowledge-based economy through better policies for R&D, education and the information society. No changes are being proposed to the indicators in this domain. However the indicator **R&D expenditure** will now be disaggregated by source of finance rather than the sector carrying out the R&D expenditure. This reflects the objective set at the Barcelona European Council to raise overall spending in the Union on R&D with the aim of approaching 3% of GDP by 2010 and increase efficiency of R&D. Two-thirds of this investment should come from the private sector. The composite indicators developed in this area will be used in the first stage in the sectoral policy processes.

Economic Reform

21. The indicators on economic reform respond to the Lisbon European Council's emphasis on product and capital market reform. They look at market integration, progress in liberalising the network industries and possible distortions in the functioning of product markets caused by public intervention.
22. The indicator **convergence of interest rates** has been included in the list of structural indicators to replace **capital raised on stockmarkets**. The new indicator allows to better measure progress in financial market integration. Compared to capital raised on stockmarkets, convergence of interest rates is less narrowly focussed as it covers several financial markets and it is not distorted by privatisation programmes or cyclical fluctuations in stock markets. In addition, data are available with a short time lag and convergence of interest rates is a well established and easy to interpret indicator.

23. An indicator on **company registration** has been added to the list of structural indicators reflecting the Lisbon European Council's request that the time and cost involved in setting up a company be monitored. The total number of procedures required for registering a new company and the average period of time needed for going through this process are good indicators of progress made in economic reform. This indicator replaces **business investment** which is a less precise measure of progress in economic reform.

Social Cohesion

24. The social cohesion indicators provide measures of the degree and the persistence of the risk of poverty, income dispersion and the associated risk of social exclusion in accordance with the Lisbon European Council's high priority on social cohesion. The open method of co-ordination in the field of social inclusion was endorsed at the Laeken European Council. Seven of the ten primary indicators agreed in Laeken for this process have been included in the list. Others, such as "life expectancy" at birth are used in the sectoral processes.
25. In the social cohesion domain some changes have been made to the definitions of **inequality of income distribution, risk-of-poverty rate, persistent-risk-of-poverty rate, and population living in jobless households**. The definition of **regional cohesion** has been changed from the variation in regional unemployment rates to the variation in regional employment rates and the name has been changed to **dispersion of regional employment rates**.

Environment

26. The environment indicators reflect the Gothenburg European Council's integration of sustainable development issues into the Lisbon process. The indicators cover the four main areas identified by the Gothenburg European Council: climate change, sustainable transport, threats to public health and managing natural resources.
27. No changes are proposed to the environment indicators this year. However the indicator **greenhouse gases emissions** has been modified by including the policy targets set by the Kyoto protocol and the EU Burden Sharing Agreement. These targets require certain Member States to reduce their emission while others are permitted to increase their emissions in comparison to 1990 levels. Comparing the difference between present emissions and the individual target values for each Member State is an effective way of assessing the effects of climate change policies.

V. INCLUSION OF THE CANDIDATE COUNTRIES IN THE STRUCTURAL INDICATORS

28. As requested by the Gothenburg European Council the 13 candidate countries (Bulgaria, Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Romania, Slovenia, Slovakia and Turkey) will be included in the structural indicators exercise step by step starting this year. Preference will be given to a wide country-coverage of a sub-set of the structural indicators which will permit an appropriate comparison with and between the candidate countries. Any proposals for new structural indicators should take into account the need for data on the candidate countries.

- 29 Eurostat has been working in conjunction with the statistical institutes in the candidate countries to improve the availability and quality of the structural indicators for these countries. Considerable progress has been made in this work. Eurostat has based its work on the deadline of the Spring Report and at present most data for the structural indicators for the candidate countries are still being collected and quality-assessed. Data for the candidate countries are therefore not included in the statistical annex of graphs attached to this Communication.
30. The expected availability of data for the candidate countries is set out in table 1 below. At this stage it is difficult to provide precise details on which countries and which years will be available for the Spring Report 2003 because Eurostat and the candidate countries' national statistical institutes are working hard to ensure as wide a coverage as possible, taking into the account the need for good quality data while respecting the foreseen development plans of the statistical system of the country concerned. Inclusion of the candidate countries in the structural indicators exercise should not result in placing a heavy burden on them.

Table 1: Expected data coverage of the candidate countries for the Spring Report 2003			
Indicator	Coverage	Indicator	Coverage
General economic background		III. Economic Reform	
a. GDP per capita and GDP growth	Yes	1. Relative price levels	Yes
b. Labour productivity (per person only)	Yes	2. Prices in the network industries	No
c. Employment growth	Yes	3. Market structure in the network industries (electricity)	*
d. Inflation rate	Yes	4. Public procurement	No
e. Unit labour cost growth	Yes	5. Sectoral and ad hoc State aid	*
f. Public balance	Yes	6. Convergence of interest rates	Yes
g. General government debt	Yes	7. Company registration	No
I. Employment		IV. Social Cohesion	
1. Employment rate	Yes	1. Inequality of income distribution	Yes
2. Effective average exit age	Yes	2. Risk-of-poverty rate	Yes
3. Gender pay gap	No	3. Persistent-risk-of-poverty rate	No
4. Tax rate on low-wage earners	Yes	4. Dispersion of regional employment rates	Yes
5. Life-long learning	Yes	5. Early school-leavers	Yes
6. Accidents at work	Yes	6. Long-term unemployment	Yes
7. Unemployment rate	Yes	7. Population living in jobless households	Yes
II. Innovation and research		V. Environment	
1. Spending on human resources	Yes	1. Greenhouse gases emissions including targets (CO ₂ only)	Yes
2. R&D expenditure	Yes	2. Energy intensity of the economy	Yes
3. Level of Internet access (households only)	Yes	3. Volume of transport (freight only)	Yes
4. S&T graduates	Yes	4. Modal split of transport (freight only)	Yes
5. Patents (EPO only)	Yes	5. Urban air quality	No
6. Venture capital	No	6. Municipal waste	Yes
7. ICT expenditure	Yes	7. Share of renewables	Yes

Key: Yes = Data available for all or a high proportion of candidate countries.
No = Data available for none or very few candidate countries

* = Pending. Decision to be taken during the autumn on basis of data coverage and quality.

31. The table shows that, in general, some information on most of the indicators is expected to be available in time for the Spring Report 2003 at least for a majority of candidate countries, although data coverage is poorest for the economic reform domain. In some cases, when data are available they will need to be interpreted with care given the recent collection of the data and the specific characteristics of the candidate countries. For some of the structural indicators covering the candidate countries more fully is likely to be a lengthy process but one which has a high priority.
32. It should also be noted that the **EEA / EFTA countries** (Iceland, Liechtenstein and Norway) will be included in the statistical annex of the Spring Report 2003, where data are available.

VI. INDICATORS UNDER DEVELOPMENT

33. Twenty-one indicators to be developed were presented in last year's Commission Communication on structural indicators. Since the last Communication was published in October 2001 the Commission services have made a lot of progress in developing indicators. In particular progress has been made with regard to the following indicators: potential output, marginal (and average) effective tax rate, childcare facilities, e-commerce, e-government, business demography, company registration, financial integration, consumption of toxic chemicals, resource productivity, recycling rate of selected materials and hazardous waste. A summary of the progress made in each of the areas is provided in annex 1.
34. The Commission services have made considerable progress in developing composite indicators, particularly in areas such as the knowledge-based economy, entrepreneurship and the Internal Market. Composite indicators are calculated by weighting together a set of well chosen sub-indicators to provide a summary of each Member State's progress in a particular policy area. Composite indicators would have the advantage of providing a broader coverage of information than can be included in the current list of structural indicators and they would also allow for a reduction in the number of indicators presented in the list. However, because composite indicators invite strong policy messages to be concluded they need to be robust and based on a sound methodology.
35. The Commission has therefore worked on the basis that composite indicators should be assessed on a case by case basis and should meet the following quality criteria. The composite indicators should: add value compared to the use of simpler indicators; include only sub-indicators which are relevant to the phenomenon to be measured; be based on high quality data for all the sub-indicators; the inter-correlation between the sub-indicators should be investigated; the method for weighting the sub-indicators should be transparent, simple and statistically sound; and the composite indicators should be tested for robustness and sensitivity.
36. Over the last year two composite indicators on "investment in the knowledge-based economy" and "performance in the transition towards the knowledge-based economy" have been developed. These composite indicators have been assessed by

external experts and have undergone a detailed review and sensitivity analysis². The Commission now proposes to use these composite indicators in the relevant policy discussions and Communications. This will also be the case for other composite indicators being developed by the Commission services. For example, an indicator to measure the e-business readiness of European enterprises is under development while composite indicators are already used to measure progress made in the area of the Internal Market and innovation. In order to improve the quality of the synthesis brought forward, the Commission could consider the inclusion of composite indicators within the framework of the structural indicators on the basis of the assessment of their use in the sectoral processes.

² State-of-the-art Report on Current Methodologies and Practices for Composite Indicator Development, Joint Research Centre – Applied Statistics Group, Ispra, June 2002 (www.jrc.cec.eu.int/uasa/prj-comp-ind.asp)

Table 2: The 42 structural indicators proposed for the Spring Report 2003
General economic background a. GDP per capita (in PPS) and real GDP growth rate b. Labour productivity c. Employment growth* d. Inflation rate e. Unit labour cost growth f. Public balance g. General government debt
I. Employment 1. Employment rate* 2. Effective average exit age* 3. Gender pay gap 4. Tax rate on low-wage earners 5. Life-long learning 6. Accidents at work* 7. Unemployment rate*
II. Innovation and research 1. Spending on human resources (public expenditure on education) 2. R&D expenditure (by source of finance) 3. Level of Internet access 4. Science and technology graduates* 5. Patents 6. Venture capital 7. ICT expenditure
III. Economic Reform 1. Relative price levels and price convergence 2. Prices in the network industries 3. Market structure in the network industries 4. Public procurement 5. Sectoral and ad hoc State aid 6. Convergence of interest rates 7. Company registration
IV. Social Cohesion 1. Inequality of income distribution 2. Risk-of-poverty rate* 3. Persistent-risk-of-poverty rate* 4. Dispersion of regional employment rates* 5. Early school-leavers not in further education or training* 6. Long term unemployment* 7. Population living in jobless households
V. Environment 1. Greenhouse gases emissions (including targets) 2. Energy intensity of the economy 3. Volume of transport (tonne- and passenger-km) relative to GDP 4. Modal split of transport 5. Urban air quality 6. Municipal waste 7. Share of renewables

Changes are marked in bold. * Denotes indicators which are disaggregated by gender.

Table 3: Changes to the list of structural indicators*
General Economic Background No change.
I. Employment “Effective average exit age” has replaced “employment rate of older workers”. The latter is now included as a part of the “employment rate” indicator.
II. Innovation and Research “R&D expenditure” is now disaggregated by source of finance rather than by the sector carrying out the R&D.
III. Economic Reform “Convergence of interest rates” has replaced “Capital raised on stockmarkets”. “Company registration” has replaced “Business investment”.
IV. Social Cohesion “Regional cohesion” is now defined as the variation in regional employment rates, rather than unemployment rates and has been renamed “Dispersion of regional employment rates”. Changes have been made to the definitions of “inequality of income distribution” and “population living in jobless households”
V. Environment “Greenhouse gases emissions” now includes the agreed policy targets.

* In comparison with the list adopted by the Laeken European Council

ANNEX 1 – INDICATORS UNDER DEVELOPMENT

1. Since last year's Communication on structural indicators was published in October 2001 the Commission services have made considerable progress in developing indicators. This annex describes where progress has been made. It also presents the new list of indicators to be developed.

Composite indicators

2. The Commission services have made considerable progress in the development of composite indicators since last year, as explained above³. In particular, two composite indicators: "investment in the knowledge-based economy" and "performance in the transition towards the knowledge-based economy" have been developed. The Commission now proposes to use these composite indicators in relevant policy discussions and Communications. This will allow further progress in capturing the various dimensions of the knowledge-based economy.
3. The composite indicator "investment in the knowledge-based economy" captures the two main aspects of knowledge investment: creation and diffusion. The composite indicator is constructed from sub-indicators on R&D expenditure, science and technology doctorates, researchers, gross fixed capital formation, e-government, education spending and life-long learning.
4. The composite indicator "performance in the transition to the knowledge-based economy" captures four important elements of performance: labour productivity, scientific and technological performance, use of the information infrastructure and the effectiveness of the education system. The composite indicator is constructed from sub-indicators on labour productivity, patents, publications, e-commerce and the schooling success rate.

General Economic Background

5. The Commission services in co-operation with the Council have now produced an indicator of **potential output** using a production function approach. As stated above it has been decided not to include this indicator in the list this year to allow time to resolve any issues which may arise from the indicator's use.

Employment

6. The Commission services are analysing the main factors contributing to the **gender pay gap** with a view to obtaining further information for analysing pay differentials between men and women. A Commission policy paper is under preparation.
7. Development of indicators on the **marginal effective tax rate** and the average effective tax rate has continued with the OECD. These indicators provide a measure of poverty and unemployment traps respectively. However, the data are not expected to be delivered in time for the Spring Report 2003.
8. The Barcelona European Council established targets for **childcare facilities**. Some data are now available from Member States' National Action Plans on employment.

³ These composite indicators will be assessed through their use in the sectoral processes.

At present data are available from 11 Member States but not in full compliance with the agreed definition. The Commission services are working with Eurostat and the Member States to improve the coverage of the data. Given the political importance attached to this indicator Member States should redouble their efforts to provide data on childcare facilities.

Innovation and Research

9. Eurostat carried out a pilot survey for **e-commerce** in 2001 and 2002. At present the survey does not cover all 15 Member States. In the meantime, the Commission services have collected data via a Eurobarometer survey on the percentage of companies selling on-line and the percentage of companies buying on-line. Data from the 2001 survey are already available and data from the 2002 survey are expected in November 2002. From 2003 onwards data on e-commerce will be provided from the Eurostat survey. As the Eurostat data do not yet cover all the Member States this indicator remains under development.
10. The indicator **e-government** is defined as the average percentage use of 20 basic public services available online. The first results for this indicator became available in 2001 and they have been used successfully in the e-Europe benchmarking process. Whilst the data are available the Commission has decided not to include e-government in the structural indicators due to the constraint of keeping the list short. E-government is retained in the list of indicators to be developed as it may be considered for future inclusion in the list of structural indicators.

Economic Reform

11. Progress has continued in collecting data on **business demography**. Harmonised data on “enterprise births”, “survival rates of newly-born enterprises” and “enterprise deaths” covering most Member States should be available by late 2002, with the aim of covering all Member States by 2003.
12. Indicators on **company registration** have now been published as part of the Best procedure under the Multi-annual Programme for Enterprise and Entrepreneurship. Data on “the time required to register a private limited company” and “the cost of registering a private limited company” have therefore been included in the structural indicators (as explained above).
13. The Commission services have developed three indicators on **financial integration** following a request from the Ecofin Council in July 2000. One of these indicators, convergence of interest rates, has therefore been included in the list of structural indicators (as explained above). Work is continuing on other indicators of financial integration such as the degree of bias towards domestic assets in banks’ or pension funds’ portfolio allocations.

Social Cohesion

14. The Employment and Social Affairs Council adopted the Social Protection Committee’s “Report on Indicators in the field of poverty and social exclusion” on 3 December 2001. Following from this work, indicators are being developed on, for instance, health and socio-economic status, housing and living conditions. For the Spring Report 2003 data for most of the social cohesion indicators are expected to be

available from the European Community Household Panel. In the future, such indicators will be based on the new “Statistics on Income and Living Conditions” (EU-SILC) which is expected to provide data with a shorter (two year) lag. In addition, Eurostat will reflect on the development of regional GDP per capita data based on regional price level data.

Environment

15. Six indicators to be developed on the environment were included in last year’s Communication. More detailed information on these indicators, and other environment indicators under development, are included in Eurostat’s forthcoming report to the Environment Council.
16. As regards **consumption of toxic chemicals** considerable methodological and development work is still required. Eurostat has launched a project to develop a set of indicators that takes account of the most common toxicological effects on human and the effects on the ecosystem.
17. Data on **resource productivity** for electricity generation are already available, but data for apparent consumption of mineral ores still need improvement to fill gaps and to improve the quality and the timeliness of the data.
18. As regards both **the recycling rate of selected materials** and **generation of hazardous waste** the forthcoming European Regulation on Waste Statistics is expected to provide harmonised statistics with improved country coverage, timeliness and quality.

New list of indicators to be developed

19. The new list of indicators to be developed includes indicators retained from last year’s list which have not yet been fully developed or which would still benefit from use in sectoral policy processes. This is the case for composite indicators, potential output, marginal (and average) effective tax rate, childcare facilities, e-commerce, e-government, business demography, recycling rate of selected materials and hazardous waste. Other indicators have been retained because little progress was made, due to the fact that the Commission services had to restrict their attention to developing a manageable number of indicators. In the same context, further reflection should be given to the relationship between the indicator to be developed “healthy life years” and the indicator “life expectancy at birth”.
20. GDP per capita at regional level has been added to the list of indicators to be developed. This indicator, which plays a central role in the definition of economic and social cohesion policy, had been proposed by the Commission in previous years for the list of structural indicators but it had not been retained by the Council. As a result, the Commission services will continue their efforts to develop this indicator and in particular to express this indicator using purchasing power parities measured at regional level.
21. No other new indicators have been added this year to the list of indicators to be developed. Developing indicators is a long process and therefore the Commission has decided to focus its attention on those indicators already earmarked for

development. The only other change from last year's list is that company registration has been removed because it is now included in the structural indicators.

Table 4: List of indicators to be developed
Composite indicators
General economic background 1. <i>Potential output</i> 2. Total factor productivity
I. Employment 3. Vacancies 4. <i>Quality of work</i> 5. <i>Marginal (and average) effective tax rate</i> 6. <i>Childcare facilities</i>
II. Innovation and research 7. <i>Composite indicators on the knowledge-based economy</i> 8. Public and private expenditure on human capital 9. <i>E-commerce</i> 10. <i>E-government</i> 11. ICT investment
III. Economic Reform 12. <i>Business demography</i> 13. Cost of capital 14. <i>Financial integration</i>
IV. Social Cohesion 15. Regional GDP per capita in PPS Indicators will continue to be developed by the Social Protection Committee and the Commission services.
V. Environment 16. <i>Consumption of toxic chemicals</i> 17. Healthy life years 18. Biodiversity 19. <i>Resource productivity</i> 20. <i>Recycling rate of selected materials</i> 21. <i>Generation of hazardous waste</i>

Indicators where progress has already been made are marked in italics.

ANNEX 2 – Definition, Source, Availability and Policy Objective behind the Selected Indicators

GENERAL ECONOMIC BACKGROUND INDICATORS

Indicator	Definition	Source	Availability*	Overall policy objective
a. GDP per capita in PPS and real GDP growth rate	GDP per capita in Purchasing Power Standards (PPS) Growth rate of GDP at constant prices (base year 1995)	Eurostat; National Accounts.	<i>Coverage:</i> all MS, US and Japan <i>Time series:</i> 1991-2001.	Growth performance, standard of living.
b. Labour productivity	GDP per person employed GDP per hour worked relative to the EU15 (EU15=100)	Eurostat; National Accounts and OECD.	<i>Coverage:</i> all MS, US and Japan. <i>Time series:</i> 1991-2001.	Overall efficiency of the economy.
c. Employment growth	Annual percentage change in total employed population. (Total and by gender).	Eurostat; National Accounts and OECD.	<i>Coverage:</i> all MS, US and Japan. <i>Time series:</i> 1991-2001.	Progress towards full employment.
d. Inflation rate	Harmonised indices of consumer prices (HICPs). Annual average rate of change.	Eurostat; Price statistics.	<i>Coverage:</i> HICP for all MS. US and Japan data are not strictly comparable. <i>Time series:</i> 1991-2001.	Sound macroeconomic environment.
e. Unit labour cost growth	Growth rate of the ratio: compensation per employee in current prices divided by GDP in current prices per total employment.	Eurostat; National Accounts.	<i>Coverage:</i> all MS, US and Japan. <i>Time series:</i> 1991-2001.	Sound macroeconomic environment.
f. Public balance	Net borrowing / lending of consolidated general government sector as a percentage of GDP.	Eurostat, OECD.	<i>Coverage:</i> all MS, US and Japan. <i>Time series:</i> 1991-2001.	Sound macroeconomic environment.
g. General government debt	General government consolidated gross debt, as a percentage of GDP.	Eurostat, OECD.	<i>Coverage:</i> all MS, US and Japan. <i>Time series:</i> 1991-2001.	Sound macroeconomic environment.

* "Time series" describes those years for which data are available in most of the Member States.

(I) EMPLOYMENT

Indicator	Definition	Source	Availability	Overall policy objective
1. Employment rate	Employed persons aged 15-64 as a share of the total population aged 15-64. Also employed persons aged 55-64 as a share of total population aged 55-64. (Total and by gender for both age groups.)	Eurostat; Labour Force Survey.	<i>Coverage:</i> All MS. Comparable data not available for the US and Japan. <i>Time series:</i> 1991 – 2001.	Full employment.
2. Effective average exit age	Average exit age, weighted by the probability of withdrawal from the labour market. (Total and by gender).	Eurostat; Labour Force Survey.	<i>Coverage:</i> All MS. Comparable data not available for the US and Japan. <i>Time series:</i> 2001.	Full employment. Combating social exclusion.
3. Gender pay gap	Average gross hourly earnings of females as a percentage of average gross hourly earnings of males.	Eurostat; European Community Household Panel (ECHP).	<i>Coverage:</i> All MS except L, FIN and UK. No data for US or Japan. <i>Time series:</i> 1995 – 1998.	Combating gender discrimination.
4. Tax rate on low-wage earners	Income tax plus employee and employer contributions less cash benefits as a percentage of labour costs for a low-wage earner (single person without children with a wage of 67% of the average production worker's wage).	OECD; Fiscal Affairs Statistics (for the APW work)	<i>Coverage:</i> All MS, US and Japan. <i>Time series:</i> 1996-2000, estimates for 2001.	To measure the tax pressure on labour, especially the low-paid and the relatively unskilled.
5. Lifelong learning	Percentage of population aged 25-64, participating in education and training in the 4 weeks prior to the survey. (Total and by gender.)	Eurostat; Labour Force Survey.	<i>Coverage:</i> All MS. Comparable data not available for the US and Japan. F uses non-harmonised methodology. <i>Time series:</i> 1992 – 2001.	Full employment. More and better jobs.
6. Accidents at work (Quality of work)	Index of the number of accidents at work (serious and fatal) per 100 thousand persons in employment (1998=100). (Total, and by gender for serious accidents but not fatal accidents)	Eurostat; European Statistics on Accidents at Work (ESAW).	<i>Coverage:</i> All MS, US but not Japan. <i>Time series:</i> 1994-2000.	Quality of work.
7. Unemployment rate	Total unemployed individuals as a share of the total active population. Harmonised series. (Total and by gender.)	Eurostat; Unemployment Statistics.	<i>Coverage:</i> All MS, US and Japan. <i>Time series:</i> 1991 – 2001.	Full employment. Combating social exclusion.

(II) INNOVATION AND RESEARCH

Indicator	Definition	Source	Availability	Overall policy objective
1. Spending on human resources (Public expenditure on education)	Total public expenditure on education as a percentage of GDP.	Joint Unesco / OECD / Eurostat questionnaire.	<i>Coverage:</i> all MS, US and Japan. <i>Time series:</i> 1995-99 (2000 and 2001 data available for some Member States, time series start in 1992 for several MS).	Quality of human resources.
2. R&D expenditure (by source of finance)	Total R&D expenditure, broken down by source of finance (industry, public or abroad).	Eurostat, OECD.	<i>Coverage:</i> all MS (except Luxembourg), US and Japan. <i>Time Series:</i> 1991-99 (2000 for some MS).	R&D effort.
3. Level of Internet access	Percentage of households who have Internet access at home. Percentage of enterprises who have access to the Internet (web).	Eurobarometer Survey and Eurostat (households) Eurostat (enterprises)	<i>Coverage:</i> All MS, US and Japan. No US data for enterprises. <i>Time Series:</i> 1998-2002 for households. 2000-01 for enterprises.	Information society.
4. Science and technology graduates	Tertiary graduates in science and technology per 1000 of population aged 20-29 years. (Total and by gender.)	Joint Unesco / OECD / Eurostat questionnaire.	<i>Coverage:</i> All MS (except EL), US and Japan. <i>Time Series:</i> 1993-2000.	Quality of human resources.
5. Patents	Number of European and US patents per million inhabitants (EPO and USPTO patents).	European Patent Office (EPO) and US Patent Office (USPTO).	<i>Coverage:</i> All MS, US and Japan. <i>Time Series:</i> 1991-99 (provisional data for 2000).	Innovation capacity.
6. Venture Capital	Venture capital investments relative to GDP. Breakdown by investment stages (early stage and expansion).	European Venture Capital Association (for EU), Price Waterhouse Coopers (for US).	<i>Coverage:</i> All MS (except Luxembourg), US but not Japan. <i>Time series:</i> 1991-2001	Access to finance, in particular for start-ups.
7. ICT expenditure	ICT expenditure as a percentage of GDP. Disaggregated into IT and telecommunications expenditure.	European Information Technology Observatory (EITO)	<i>Coverage:</i> All MS, US and Japan. <i>Time Series:</i> 1991-2000.	Diffusion of ICT.

(III) ECONOMIC REFORM

Indicator	Definition	Source	Availability	Overall policy objective
1. Relative price levels and price convergence.	Relative price levels of private final consumption including indirect taxes (EU=100) and their coefficient of variation.	Eurostat / OECD (price statistics: PPP indicators)	<i>Coverage:</i> all MS, US and Japan. <i>Times series:</i> 1991-99 for MS. Estimates for 2000. 1993 and 1996 for US and Japan plus estimates for other years.	Product market integration. Market efficiency.
2. Prices in the network industries	Price level and evolution in the telecommunications, electricity and gas markets.	Eurostat; Energy statistics. DG INFSO for telecommunications data.	<i>Coverage:</i> all MS. US and Japan data for telecommunications. <i>Time series:</i> 1992-2002 for electricity and gas. 1997-2001 for telecommunications.	Market efficiency
3. Market structure in the network industries	Market share of the incumbent in the fixed and mobile telecommunications markets. Market share of the largest generator in the electricity market.	DG INFSO for telecommunications data. Eurostat for electricity data.	<i>Coverage:</i> all MS, except Lux for electricity. No US or Japan data. <i>Time series:</i> 1999-2000 for fixed telecoms. 2001 for mobile telecoms. 1999 -2000 for electricity.	Market efficiency
4. Public procurement	Value of public procurement which is openly advertised as a percentage of GDP.	DG MARKT; Eurostat	<i>Coverage:</i> all MS. No US or Japan data. <i>Time series:</i> 1993-2000	Product market integration
5. Sectoral and ad hoc State aid	State aid (sectoral and ad hoc) as a percentage of GDP.	DG COMP	<i>Coverage:</i> all MS. No US or Japan data. <i>Time series:</i> 3-year averages from 1990-92 to 1998-2000.	Distortions in the Single Market
6. Convergence of interest rates	Convergence of annual percentage interest rates. Calculated for interest rates charged on mortgages, short-term corporate debt and medium- to long-term corporate debt.	DG MARKT based on European Central Bank data.	<i>Coverage:</i> all MS for mortgage rates. 12/13 MS for corporate loan rates. <i>Time series:</i> 1995-2002.	Financial market integration.
7. Company registration	The average time and financial cost for complying with the mandatory procedures required for company registration.	Study conducted for DG ENTR.	<i>Coverage:</i> all MS. No US or Japan data. <i>Time series:</i> 2001.	Promoting entrepreneurship.

(IV) SOCIAL COHESION

Indicator	Definition	Source	Availability	Overall policy objective
1. Inequality of income distribution	Ratio of total income received by the 20% of the country's population with the highest income (top quintile) to that received by the 20% of the country's population with the lowest income (lowest quintile). Income should be understood as equivalised disposable income.	Eurostat; European Community Household Panel (ECHP).	<i>Coverage:</i> All MS except L, FIN and UK. No data on US or Japan. <i>Time series:</i> 1995-98.	Combating poverty and social exclusion
2. Risk-of-poverty rate	Share of persons with an equivalised disposable income below the risk-of-poverty threshold before and after social transfers. The threshold is set at 60% of the national median equivalised disposable income (after social transfers). (Total and by gender.)	Eurostat; European Community Household Panel (ECHP).	<i>Coverage:</i> All MS except L, FIN and UK. No data on US or Japan. <i>Time series:</i> 1995-98.	Combating poverty and social exclusion.
3. Persistent-risk-of-poverty rate	Share of persons with an equivalised disposable income below the risk-of-poverty threshold in the current year and in at least two of the preceding three years. The threshold is set at 60% of the national median equivalised disposable income (after social transfers). (Total and by gender.)	Eurostat; European Community Household Panel (ECHP).	<i>Coverage:</i> All MS except L, FIN,S and UK. No data for US or Japan. <i>Time series:</i> 1997-98	Combating poverty and social exclusion.
4. Dispersion of regional employment rates	Coefficient of variation of employment rates across regions (NUTS 2 level) within countries. (Total and by gender).	Eurostat; Regional Statistics.	<i>Coverage:</i> All MS except DK, IRL and L. No data for French DOM. No US or Japan data. <i>Time series:</i> 1991-2000.	Cohesion.
5. Early school-leavers not in further education or training	Share of the population aged 18-24 with only lower secondary education and not in education or training. (Total and by gender.)	Eurostat; Labour Force Survey.	<i>Coverage:</i> All MS except UK. Comparable data not available for the US and Japan. <i>Time series:</i> 1992-2001.	Investing in people. Combating social exclusion.
6. Long-term unemployment rate	Total long-term unemployed (over 12 months) as a percentage of total active population – harmonised series. (Total and by gender.)	Eurostat; based on Labour Force Survey.	<i>Coverage:</i> All MS except EL. Comparable data not available for the US and Japan. <i>Time series:</i> 1991-2001.	Full employment. Combating social exclusion.

7. Population living in jobless households	Persons aged 0-65 (and additionally 0-60) living in households with no member in employment as a percentage of all persons living in eligible households. Eligible households are all except those where everyone falls into any one of these categories: (1) aged less than 18; (2) aged 18-24 in education and inactive; (3) aged 65 (60) and over and not working. (Total and by gender.)	Eurostat; Labour Force Survey.	<i>Coverage:</i> All MS except DK, FIN and S. Comparable data not available for the US and Japan. <i>Time series:</i> 1991-2001.	Combating poverty and social exclusion.
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(V) ENVIRONMENT

Indicator	Definition	Source	Availability	Overall policy objective
1. Greenhouse gases emissions (including targets)	Progress in emissions control relative to targets. Aggregated emissions of 6 main greenhouse gases (CO ₂ , CH ₄ , N ₂ O, HFCs, PFCs and SF ₆) expressed in CO ₂ -equivalents.	European Environment Agency	<i>Coverage:</i> all MS, US and Japan. <i>Time series:</i> 1991-99	Limit the climate change and implement the Kyoto Protocol.
2. Energy intensity of the economy	Gross inland consumption of energy divided by GDP	Eurostat; Energy Statistics.	<i>Coverage:</i> all MS, US and Japan. <i>Time series:</i> 1991-99.	Use energy more efficiently.
3. Volume of transport relative to GDP (tonne- and passenger-km)	Index of (freight and passenger) transport volume relative to GDP . Measured in tonne-km / GDP and passenger-km / GDP and indexed on 1995.	Eurostat / DG TREN / US Bureau of Transportation Statistics.	<i>Coverage:</i> all MS, US and Japan. <i>Time series:</i> Freight 1991-96; Passenger 1991-99	Decouple transport growth from economic growth.
4. Modal split of transport	Modal split of freight transport (percentage share of road in total inland freight transport) and passenger transport (percentage share of car transport in total inland passenger transport).	Eurostat / DG TREN / US Bureau of Transportation Statistics.	<i>Coverage:</i> all MS, US and Japan. <i>Time series:</i> Freight 1991-96; Passenger 1991-99	Progress towards more environmentally-friendly transport modes.
5. Urban air quality	Indicators based on the concentrations of ozone and particulates in urban areas (number of days of pollution exceeding standards for each of the two selected air pollutants).	European Topic Centre / Air Quality	<i>Coverage:</i> all MS, except Lux and S for ozone; except DK, EL, F, Lux, A and S for particulates. No data for US or Japan. <i>Time series:</i> 1991-99 (gaps are present)	Improve urban air quality.
6. Municipal waste	Municipal waste (collected, landfilled and incinerated). Measured in kg per person per year	Eurostat; Environment Statistics.	<i>Coverage:</i> all MS except A for collected; except EL and IRL for incinerated. No data for US or Japan. Data for all MS expected by end of 2001. <i>Time series:</i> 1991-99 (gaps are present)	Decrease waste generation and harmful disposal.
7. Share of renewables	Contribution of electricity from renewables to total electricity consumption	Eurostat; Energy Statistics.	<i>Coverage:</i> all MS. No data for US or Japan. <i>Time series:</i> 1991-99.	Sustainable production of energy.

