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Grand-Duché de Luxembourg
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"GDP Well-being" Project

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Technical Report

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Technical Group

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Working method

The Economic and Social Council (ESC) and the Higher Council for Sustainable Development (HCSD) set up a joint group to monitor and steer the project and to produce an initial report on what the ESC and the HCSD should discuss. The composition of the joint group is as follows:

For the ESC

Dr. Serge Allegrezza
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For the Competitiveness Observatory

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For STATEC

Guy Schuller
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The joint group also set up a technical group in charge of preparing the seminars and workshops, as well as this technical report. The technical group comprises the following persons:

Marianne Nati-Stoffel
Martina Menei
Daniel Byk
Marguy Kohnen
Eric De Brabanter
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Martine Hildgen
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General introduction to the technical report

This report is a technical contribution to the debates and discussions that the ESC and the HCSD will need to have. Each of those Councils will examine this report, formulate comments and issue an opinion. The two bodies will then work together to produce a joint report. That joint report will be submitted to the Government as the response to the referral that gave birth to the "GDP Well-being" project.

Government referral

In a letter dated 23rd April 2010, the Prime Minister, acting pursuant to article 2 of the law of 21st March 1966 establishing the Economic and Social Council (ESC), as amended, and referring to his meeting with the ESC office on 11th January 2010, as well as to the governmental declaration of 29th July 2009, announced that:

"The Government has decided to mandate the Economic and Social Council and the Higher Council for Sustainable Development with producing and proposing a system of well-being indicators to measure society's progress from a long-term perspective, going beyond the traditional indicators such as GDP per capita.

The Economic and Social Council and the Higher Council for Sustainable Development are asked to produce a joint report. To this end, they may have recourse to the expertise of the Competitiveness Observatory and to STATEC's databases."

The workshops held and the discussions that took place within the ESC-HCSD working group have revealed two areas between which there are significant relationships and interactions.

On the one hand, there is the government's referral related to the production of a set of indicators and/or the construction of a synthetic indicator to measure well-being in Luxembourg (to "*propose a system of well-being indicators to measure society's progress from a long-term perspective*"). On the other hand, there is the need to refer to goals, values and visions of what well-being means and represents. This second approach leads one to consider, question or propose values, goals and principles that can serve as benchmarks for analysing well-being in Luxembourg.

These questions of goals, values and principles were addressed and debated throughout the three workshops at least as much as those concerning the choice of indicators. This technical report seeks to propose indicators, themes and means of measurement that make it possible to satisfy the various expectations expressed. It does not, however, deal with the second area, which is more political in nature (in the most general sense of the term)[1].

[1] C.f. the experience of the French Economic Environmental and Social Council (CESE) in determining indicators at the national conference on sustainable development indicators and the presentation by Mr Le Clézio on 1st March 2010 at the seminar "Towards other measures of wealth and well-being in Luxembourg"

Nevertheless, the exchanges on those subjects made it possible to identify or validate the themes which must be measured and, therefore, for which indicators must exist. It will be for the ESC and the HCSD to decide whether they wish to include those issues in the opinion that they submit to the Government.

This report summarises and presents the main conclusions of each of the three workshops. It also places them in the context of the most recent scientific contributions and data available. This work, moreover, contains a benchmarking of the indicators used in the different countries that have already examined the issue. It also includes in the conclusion a list of questions and topics that should/could be addressed by the ESC and the HCSD. Finally, and to assist in answering the question as to the choice of indicators raised in the government's referral, it includes a structured grid of proposed indicators.

The objective of the report is to define and specify the structure and content of an information system, based largely on existing data, that would make it possible to obtain a general, overall view of Luxembourg's situation that goes beyond simply observing the three headline indicators of public statistics (GDP, the unemployment rate and the inflation rate). If implemented, it should provide a statistical tool that would be capable of satisfying all stakeholders in the public debate. That tool, which will help to reduce the degree to which public attention focuses on the three indicators mentioned above, will necessarily need to change over time to adapt to the new goals that society adopts.

To avoid this work being limited to the periodic production of tables of figures, the ESC and the HCSD could also address the issue of knowing how best to use the information, how to ensure that there is a debate on the evolution of these new indicators in Luxembourg society. The report also addresses this aspect by describing existing best practice and describing several possible methods of organisation for Luxembourg.

Finally, we note that this work forms part of the continuation and adaptation at national level of the work of the Stiglitz-Sen-Fitoussi[2] Commission and of a series of works currently being carried out across the world, both by the economic and social councils (for example, in Italy or within the International Association of Economic and Social Councils (AICESIS)[3]), and by governments (for example, in the United Kingdom) or parliaments (for example, in Germany).

[2] This can be seen, for example, in the way that the workshops were organised according to the three chapters of that Commission's report

[3] www.aicesis.org

For information, the ECS and the HCSD organised two seminars and three workshops. The speakers at those sessions are listed below:

■ *Seminar "Towards other measures of wealth and well-being", 1st March 2010*

- M. Philippe Le Clézio, Chair of the Consultative Committee on Sustainable Development Indicators (*Commission de concertation sur les indicateurs de développement durable*) and Rapporteur for several opinions to the French Economic, Social and Environmental Council

■ *Workshop no.1 "Towards reform of the System of National Accounts and of GDP", 19th May 2010*

- Jean Philippe Cotis, Director General of the French National Statistics and Economic Research Institute (INSEE) and member of the Stiglitz-Sen-Fitoussi Commission
- André Hoffman, Member of Parliament of the Left party
- Nicolas Schmit, Minister of Labour, Employment and Immigration
- Jean-Louis Schlesser, journalist on "*Jeudi*", communications consultant
- Inna Steinbuka, Director of Social Statistics at Eurostat
- Carlo Thelen, Chief Economist at the Chamber of Commerce
- Lucien Thiel, Member of Parliament of the Christian Social People's party, Rapporteur for the draft 2010 State budget law, former Chair of the ESC
- Marco Wagener, Economic Adviser to the Chamber of Employees (*Chambre des Salariés*)

■ *Seminar "Have more or live better. Or how to measure happiness?" 2nd June 2010*

- Patrick Viveret, Philosopher, Counsellor at the French Audit Court (*Cour des comptes*), author of the report "Reconsidering Wealth"

■ *Workshop no. 2 "Towards Sustainable Development in Luxembourg", 29th October 2010*

- Didier Blanchet, Head of the Department of General Economic Research at the French National Statistics and Economic Research Institute (INSEE) and member of the Stiglitz-Sen-Fitoussi Commission
- Eric De Brabanter, employee at the Ministry for Sustainable Development and Infrastructures, responsible for environmental statistics and sustainable development indicators
- Pascal Deisges, Chair of the Luxembourg Society for Evaluation and Foresight (SoLEP)
- Philippe Durance, Professor at the CNAM (*Conservatoire National des Arts et Métiers*), responsible for the Higher Regional Studies (*Hautes études régionales*) training cycle at the Lille Institute of Political Studies, member of the

steering committee at the College of Higher Environmental Studies and Sustainable Development at the Ecole Centrale Paris, member of the Regional Foresight College of the Nord-Pas-de-Calais Regional Council.

- Charles Goerens, MEP, former Minister for the Environment and former Minister for Development Cooperation, Humanitarian Affairs and Defence
- André Hoffman, Member of Parliament for the Left party
- Jeannot Krecké, Minister of the Economy and Foreign Trade
- Claude Origer, Administrative Consul at the Ministry for Sustainable Development and Infrastructures and Chair of the Interdepartmental Sustainable Development Commission, responsible for preparing the 2nd National Sustainable Development Plan
- Jean-Claude Reding, Chair of the Luxembourg Independent Confederation of Trade Unions, member of the ESC and former member of the HCSD
- Claude Wiseler, Minister for Sustainable Development and Infrastructure

■ *Workshop no.3 "Towards a better accounting of quality of life", 11th November 2010*

- Monique Borsenberger, Researcher at the CEPS (Centre for Population, Poverty and Socio-Economic Research)/Instead, responsible for the VALCOS (Values and Social Cohesion) and EVS (European Values Study) projects
- Andrew Clark, Research Professor at the National Scientific Research Centre (CNRS) at the Paris School of Economics (DELTA/PSE) and member of the United Nations Well-being Group
- Erny Gillen, Chair of Caritas Luxembourg
- Gary Kneip, Vice-chair of the Luxembourg Confederation of Commerce, member of the ESC and of the HCSD
- Fernand Speltz, Honorary Adviser to the Chamber of Employees (*Chambre des Salariés*), member of the ESC and of the HCSD
- Raul Suarez de Miguel, Senior Adviser, OECD Project on Measuring Well-Being and the Progress of Societies
- Blanche Weber, Chair of the Ecological Movement; Member of the HCSD
- Paul Zahlen, Senior Social Statistics Researcher at STATEC

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The ESC and the HCSD would like to express their thanks to everyone who contributed to this technical report through their work, by providing information or by taking part in interviews.

This document is a working document. It is in no way binding on the ESC and the HCSD with regard to their discussions and conclusions. It is a contribution to their work and expresses only the views and opinions of its authors.

The technical report consists of three main parts that reflect the discussions of each of the three workshops organised within the framework of this project and the powerful ideas that emerged from them. It deals with the changes that need to be made to the System of National Accounts and GDP, sustainable development and how better to account for quality of life.

All the information about the workshops, seminars and the “GDP Well-being” project are available on the ESC website:

www.ces.public.lu

Proposed definitions of well-being, sustainable development and quality of life

■ A proposed definition of well-being, based on analysis of a large number of definitions and taxonomies on the subject, could be:

"Well-being can be defined as a state that ensures that present and future generations have sufficient autonomy to satisfy their basic needs, as well as the quality of life, resulting from the natural, social and cultural environment, necessary for individuality to develop harmoniously."

The discussions that accompanied the selection of this definition made it possible to identify different ways of "modelling" the relationships between the different components. The whole can be summarised/represented as follows:

Well-being = f (Sustainable Development; Quality of Life)

However, different individuals can understand well-being in different ways:

Well-being = sustainable development + quality of life

Well-being = sustainable development x quality of life

Well-being = quality of life = f (sustainable development)

Well-being = economic resources + quality of life
subject to there being sustainable development

…

It should also be noted that the well-being of a nation rests, among other things, on the different pillars, these being the economy, the social pillar, the environment, culture, governance, global partnership, etc.

■ According to the definition proposed in 1987 by the World Commission on Environment and Development, in the Brundtland Report, sustainable development is:

> "a development that meets the needs of the present without compromising the ability of future generations to meet their own needs. It contains within it two key concepts: the concept of 'needs', in particular the essential needs of the world's poor, to which overriding priority should be given, and the idea of limitations imposed by the state of technology and social organization on the environment's ability to meet present and future needs."

■ By way of information, for the ESC, in its opinion on the role of the State dated 31st October 2001, the notion of quality of life includes, among other thing:

> "_ material well-being, recorded as net income after tax, social transfers, as well as the situation and rules concerning transfer of wealth;
>
> _ health, which is: "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity (WHO definition)";

_ basic rights: through the Charter of Fundamental Rights, signed on 7th December 2000 at the Nice Summit[4], the fifteen countries of the European Union provided themselves with a model of society that they wished to build together: that of a political community which can be recognised not only by reference to human rights and free enterprise, but also by a common ethical, social and democratic way of functioning;

_ social cohesion: this is the expression of how the resident population, both active and inactive, live together harmoniously, regardless of nationality, employment status, political affiliation or political and religious convictions;

_the physical security of individuals, which is a primary need of the population;

_ consensual planning of the quality of life in the long term: this aspect includes the notion of sustainable development in the broad sense. It requires the State to implement a forward-looking town and country planning policy, to commit to protecting the natural environment and to balance the public finances, including the social security accounts."

The need to include cross-border workers and/or the Greater Region

Including the cross-border workers and or the Greater Region would have made it possible to explore a large number of issues, such as employment, housing, tertiary education, etc., and represents a major challenge for the future development of Luxembourg's statistics.

However, the statistical information is available only at national level and the cross-border worker population fluctuates greatly (in that the individuals who make up that population may move in and out of it very quickly). Therefore, the population studied is, *de facto*, currently limited to the resident population.

This conclusion is reinforced by the fact that certain proposals, such as the proposal that GNI per capita or household consumption should be prioritised, also restrict the scope of study to the resident population alone.

Extension of the "GDP Well-being" indicators and analysis to cross-border workers and/or the Greater Region could be considered/implemented at a later date. It would require a significant amount of cross-border development work on the statistics system.

[4] And subsequently adapted by the Lisbon Treaty

Chapter One

GDP and the System of National Accounts: the required changes

CHALLENGES

○ **To reaffirm that GDP is not and was not designed to be a measure of well-being. It is only a measure of the output of goods and services.**

○ **To measure households' standard of living: to prioritise GNI per capita, (adjusted) disposable income or actual final consumption and limit the use of GDP to those areas/cases for which that indicator is relevant.**

○ **To measure inequalities and poverty better in order better to understand the distribution of income.**

○ **To develop the accounting of non-market output and wealth accounts.**

○ **To clarify the components of well-being that it is desirable to measure.**

I. GDP and the System of National Accounts: the required changes

Gross domestic product, or GDP, has long been used, and is still used, to measure the well-being and development of nations, even though it was not designed for that purpose. However, an increasing body of work[5] is questioning GDP's suitability for this role, reflecting the shared desire on the part of economists, public decision-makers and social science specialists to measure the progress of societies in a different way.

GDP, the indicator that is produced by the national accounts, in fact measures only the output of an economy by summing the added value[6] produced within that country; indeed, it was designed to do just that. So it is not surprising that its use to measure well-being has long been criticised. Those criticisms have come from people as well-known as Simon Kuznets, the winner of the Nobel Prize for Economics and one of the founders of national accounting in the 1950s, Claude Gruson[7] [8], former Director General of the French National Statistics and Economic Research Institute (INSEE), or Robert F Kennedy[9] in the visionary speech he gave on 18th March 1968.

[5] Such as the high profile work commissioned by French President Nicolas Sarkozy from the two economists and Nobel Prize winners Joseph Stiglitz and Amartya Sen, not to mention the European Union's communication "Beyond GDP" or the OECD's "Global Project".

In Luxembourg, the Chamber of Private-Sector Employees (*Chambre des Employés privés*) and the Competitiveness Observatory (*Observatoire de la Compétitivité*) organised the seminar "Towards New Indicators of Wealth" in July 2006 (http://www.odc.public.lu/actualites/2006/07/12_ind_rich/index.html). The Chamber of Deputies addressed the issue in its draft 2010 State budget law no. 6100[4], chapter 7, pages 61 to 64 inclusive, as did STATEC in its *Regards* publication in July 2010 (A look at the perception of well-being in Luxembourg – *Regards sur la perception du bien-être au Luxembourg*) by Guy Schuller and Paul Zahlen) and in the Labour and Social Cohesion Report (*Labour and Social Cohesion*) in STATEC's economic journal (*cahier économique*) no. 109.

Nor must we forget the numerous works published by the CEPS (Centre for Population, Poverty and Economic Policy Research)/Instead) on the basis of the results of the European Values Study.

[6] Gross for the different institutional sectors before tax and subsidies

[7] Director General of the French National Statistics and Economic Research Institute (INSEE) from 1961 to 1967.

[8] Who said, at the time the French System of National Accounts was put in place, that "GDP and growth are inappropriate for measuring improvements in well-being".

[9] US Attorney General from 1961 to 1963, adviser and brother of the US President John F. Kennedy, then Democratic Senator for New York, before being assassinated during the presidential primaries in 1968.

Inset n°1: Speech of Robert F. Kennedy

"Too much and for too long, we seemed to have surrendered personal excellence and community values in the mere accumulation of material things. Our Gross National Product, now, is over $800 billion dollars a year, but that Gross National Product – if we judge the United States of America by that – that Gross National Product counts *air* pollution and cigarette advertising, and ambulances to clear our highways of carnage. It counts special locks for our doors and the jails for the people who break them. It counts the destruction of the redwood and the loss of our natural wonder in chaotic sprawl. It counts napalm and counts nuclear warheads and armored cars for the police to fight the riots in our cities. It counts Whitman's rifle and Speck's knife, and the television programs which glorify violence in order to sell toys to our children. Yet the gross national product does not allow for the health of our children, the quality of their education or the joy of their play. It does not include the beauty of our poetry or the strength of our marriages, the intelligence of our public debate or the integrity of our public officials. It measures neither our wit nor our courage, neither our wisdom nor our learning, neither our compassion nor our devotion to our country, it measures everything in short, except that which makes life worthwhile. And it can tell us everything about America except why we are proud that we are Americans."

Today, there are two requirements:

- the need to take account of social aspirations in an economic context that is less favourable than in the past;

- environmental awareness of the fragility of a planet where resources are running out and where the effects of pollution are increasingly visible.

These two requirements are encouraging political decision-makers and the different institutions to take new factors into consideration. The aim is to enable them to manage the evolution/transformation of their economic and social model, by bringing together the three major components of sustainable development. These are the economic, social and environmental pillars. Citizens need to be able to evaluate these pillars through measurement tools, reading tools and information tools such as synthetic indicators and dashboards.

Thus it is not a question of abandoning GDP or its growth, but of placing those measures in a wider process that supplements them. This is all the more necessary in Luxembourg, where the ratio of GDP/inhabitant is particularly ill-adjusted.

1. GDP, a measure of output and not of well-being

The methodological basis for calculating GDP is the product of a long process of international harmonisation in which economists, statisticians and politicians have sought to develop a measure of the output of economies that is harmonised and therefore provides a basis for comparisons. That process began in 1947 and has continued ever since, in order to take account of changes in societies and their economies. European statisticians are currently working to introduce the European System of Accounts 2010 (ESA 2010)[10].

The fact remains that GDP was not designed to measure the well-being of societies. That failing has less to do with difficulties of methodology than with problems of interpretation. GDP cannot in any way be described as a means of measuring well-being or even the quality of life, merely as the monetary expression of the output produced within a country. It is calculated for that purpose from different aggregates in the national accounts (consumption, investment, government output, etc.)

Inset n° 2: The three possible approaches to GDP

GDP can be calculated in three different ways:

1) The output approach

GDP is equal to the sum of all the value added produced in Luxembourg.
Thus: GDP = Σ Value added

2) The expenditure approach

This approach shows the distribution of the value added. Thus, the sum of all the value added (i.e. GDP) is equal to consumption by households and companies (C), investment by households and companies (I) and government spending (G). In an open economy, exports (X) should be added and imports (M) taken away.
Thus: GDP = Σ VA = C + I + G + X – M

3) The income approach

GDP is equal to the sum of gross incomes. Those incomes comprise the income of employees (R), the profits of companies (π) and taxes on production from which State subsidies (T) must be deducted. In an open economy, the net balance of imported and exported income (Rx) must be added or subtracted.
Thus: GDP = R + π + T ± Rx

Thus, finally: GDP = Σ VA = C + I + G + X – M = R + π + T ± Rx

These three approaches must, moreover, be mutually consistent.

[10] This is the European transposition, in the form of a regulation of the European Parliament and of the Council, of the revised worldwide system of national accounts (SNA 2008) established under the aegis of the United Nations. This new system introduces the revision of 44 methodological points to the ESC95 total.

As mentioned above, the development of GDP dates back to the years after the Second World War. In that period of reconstruction and scarcity of goods and services, economic growth was synonymous with social progress. Also, environmental concerns were limited or virtually non-existent and economic questions took priority over social issues. So GDP could easily be treated as a barometer of well-being.

However, with the ending of the Thirty Glorious Years, western societies and economies entered a period of profound change, one of the main aspects of which is globalisation. Since the 80s, most countries have seen pressure on income growth, deepening inequalities and a failure to eliminate poverty. This period has also seen awareness develop of the human impact on the environment and on biocapacity[11].

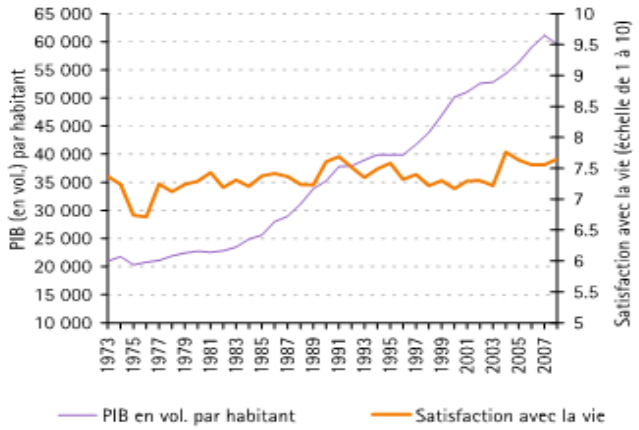
These changes led to the concept of well-being being increasingly called into question, but did not immediately lead to questions about the use of GDP to measure it. Although the limitations of GDP as a measure of well-being were already known, the productivist logic of modern economies tended to focus attention almost entirely on GDP, along with the unemployment rate and the inflation rate.

Since then, the gap between the economic results achieved by the industrialised nations and the general sentiments of their peoples has continued to widen, in particular in the light of the recent financial, economic and environmental crises.

[11] Biocapacity refers to the capacity of a given biologically productive area to generate an on-going supply of renewable resources and to absorb its spillover wastes. (Source: GreenFacts)

Inset n° 3: The Easterlin Paradox [12] in Luxembourg

GDP per inhabitant and life satisfaction in Luxembourg, 1973–2008



Sources: AMECO (for GDP per inhabitant) and the "World database on happiness" for life satisfaction (hhtp://worldatabaseofhappiness.eur.nl/).
N.B.: The data on life satisfaction were taken from the Eurobarometer surveys.

This graph shows that over the last 35 years, life satisfaction remained relatively stable in Luxembourg, while GDP/inhabitant trebled. Therefore, the Easterlin Paradox also exists in Luxembourg and confirms the statement above the box. However, that analysis may be placed in perspective by the fact that an indicator with a scale that has no upward limit is being compared to an indicator with a limited scale and that, for constant GDP, subjective well-being is very strongly correlated to income.

Of all the existing approaches to supplementing a GDP-centred approach, "Beyond GDP" from the European Commission[13], the OECD's "Global Project"[14], etc., it is the report of the Stiglitz-Sen-Fitoussi[15] Commission that has had the greatest impact.

That report has had the effect of drawing attention to a large number of economic measurement tools. However, the Commission emphasised that **GDP is not wrong as such, but too often wrongly used**, which clearly indicates that the measure that is the subject of so much criticism as a measure of well-being cannot and must not disappear.

[12] The Easterlin Paradox takes its name from the economist who demonstrated in 1974 that an increase in GDP does not necessarily bring about an increase in the level of well-being experienced by individuals. The explanations put forward make reference, in particular, to the paradox of abundance. The Easterlin Paradox is part of the thinking on which the economy of well-being is based.

[13] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2009:0433:FIN:fr:PDF

[14] http://www.oecd.org/pages/0,3417,fr_40033426_40033828_1_1_1_1_1,00.html

[15] http://www.stiglitz-sen-fitoussi.fr/documents/rapport_francais.pdf

GDP should be used for what it was originally intended, a measure of market output. GDP is no longer seen as a measure of well-being, but as one of the components of such a measure[16].

2. GDP per capita and measures of the standard of living

GDP is used as the calculation basis in the European Union's regulatory frameworks (including the stability and growth pact ratios, the 2020 greenhouse gas reduction targets, etc.) and is also used as the criterion for determining a country's situation by the main international bodies, such as the IMF or the World Bank. The central role it has played for many years and the fact that it is so widely known by economists and politicians and even the general public have led to it being used in a number of international regulatory contexts.

With regard more specifically to Luxembourg, the need to replace GDP per capita with GNI[17] per capita emerged from the discussions at the first workshop. GDP per capita overstates per capita wealth in Luxembourg by failing to take account, for example, of the weight of cross-border workers in the denominator of that ratio[18]. However, GNI has only a minor international role (European budgetary contribution, official development aid, etc.).

[16] The production of wealth and its distribution are important factors of well-being. The study "Beyond GDP and back: What is the value-added by additional components of welfare measurement?" by Sonja C. Kassenboehmer and Christoph M. Schmidt shows that the correlation between the traditional indicators of well-being and the new indicators of well-being is high although not perfect. In particular, certain new indicators have a lower correlation with GDP than others and are therefore more useful (in the sense that they contain information about well-being that is not already contained in GDP). The authors find that the two "traditional" indicators, GDP and the unemployment rate, cover most of well-being. The chapter "alternative measures of well-being" of the OECD's "Economic Policy Reforms: Going for Growth" (2006) comes to a similar conclusion.

[17] Gross National Income is equal to GDP, less primary income paid to non-resident units, plus primary income received from non-resident units (definition of the INSEE, the French National Statistics and Economic Research Institute)

[18] This comment is also mentioned in the Labour and Social Cohesion Report (*Travail et Cohésion sociale*) (Statec's Economic Journal (*Cahier Economique*) no. 109).

Inset n° 4: GDP per capita and GNI in Luxembourg

Luxembourg is ranked as the wealthiest country in the world, with GDP per capita of 75,100 Euros in 2008. This is partly due to the fact that Luxembourg makes enormous use of foreign factors of production. The Luxembourg economy is very open, not only to exchanges of goods and services (exports and imports), but also to capital and labour. These last two factors – the factors of production – have a significant effect, resulting in a substantial difference between GDP and GNI.

The cross-border workers and the foreign capital invested in Luxembourg make a significant contribution to the country's GDP. However, the workers and investors are remunerated for their contribution:

- in the form of wages for the cross-border workers;
- in the form of investment income (dividends) for the capital invested.

These two types of remuneration are paid abroad and are taken into account when moving from GDP to GNI.

GDP and GNI in Luxembourg

Units: Billions of EUR

	2007	**2008**	**2009**
GDP	37.5	39.6	38.0
GNI	30.2	29.7	26.8
Difference (GDP-GNI)	7.3	9.9	11.2
Difference as % of GDP	19.5	25.0	29.5
GNI as % of GDP	80.5	75.0	70.5

The net impact at the level of income from employment is more than 6 billion Euros in recent years. The amount of salaries and wages[19] paid to cross-border workers has reached almost 7.5 billion Euros. Salaries and wages paid to employees resident in Luxembourg who work for international organisations (especially European organisations) established in Luxembourg are recorded as revenue. Because of their status they are by convention deemed to be extra-territorial and therefore the salaries and wages are recorded as coming from abroad. In recent years the total of this flow has slightly exceeded 1 billion Euros.

Net outward flows of income from capital (the net balance of dividends and reinvested profits[20]) have fluctuated between 2 and 6 billion over recent years.

[19] These are gross salaries and wages. The net impact on the national accounts is lower because of the money that cross-border workers spend in the economy (estimated at more than 20% of their pay) and the current positive contribution from transfers (the taxes and social security contributions paid are higher than the welfare benefits).

[20] Some details about the concept of reinvested profits: the part of the profit made by a company that is the subject of a direct investment which is not distributed (for example, in the form of dividends) is allocated to the direct investor *pro rata* to that investor's holding. That is to say, the investor's proportional share in the profit from ordinary activities is allocated in full to that investor in the form of an investment income: the distributed part as "dividends and profits distributed", the

If we compare GNI to GDP, we observe that GNI is lower by almost 24.5% in 2009 and shows significantly lower annual growth.

Nevertheless, even if we look at Gross National Income per capita in Purchasing Power Parity (PPP), estimated at 55,569 Euros in 2008 by the IMF, we see that Luxembourg still ranks as the second wealthiest nation in the world, just behind Qatar.

Therefore, another measure of household income or consumption, other than GDP, must be envisaged. The reasons raised during the 1st workshop, and also in other works, are:

- ✓ to give greater visibility to indicators with which the public is not familiar and which therefore receive little coverage in the press (although in Luxembourg, because the problem is known, STATEC seeks to use GNI, as does the ESC, which analysed the GNI figures in its opinions on the Broad Economic Policy Guidelines for 2003 and 2004 and mentioned the importance of GNI in its 2005 opinion on economic, social and financial changes);
- ✓ to show definitively that GDP is not a measure of well-being and thus to avoid any future ambiguity between GDP and well-being;
- ✓ in the first instance, to use the dashboard produced as a result of the work of the "GDP Well-being" project for domestic purposes, to avoid continuing to come up against the argument that GDP is the international benchmark;
- ✓ not to exclude GDP totally from that dashboard as it measures a part of material well-being and will enable the dashboard to be anchored within international reference frameworks.

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undistributed part in the form of "reinvested profits" (the accounting counterpart entry of which is found in the financial transactions account).

Reinvested profits are, in effect, recorded twice:
- in the current account, more specifically as income from direct investments where the reinvested profit represents the part of the profit from ordinary activities not withdrawn by the investor;
- in the financial transactions account, where the reinvested profit forms part of the direct investment flows representing a contribution of capital that increases the stocks.

Therefore, for the overall balance there is a double entry, for the same amount but in opposite directions. In addition to the double entry at the level of flows (BOP), the reinvested profits are also included in the statement of the stock of foreign financial assets and liabilities, i.e. in the international investment position. Finally, it must be specified that the direct investor's share in a company's losses from ordinary activities is recorded as a negative income.

Other measures can also be envisaged and were presented in the Stiglitz-Sen-Fitoussi Commission's report:

- ✓ calculating household disposable income[21] (not available in Luxembourg as an aggregate in the national accounts);
- ✓ calculating household adjusted disposable income[21] (not available);
- ✓ measuring actual final household consumption/inhabitant;[22] [23]
- ✓ using more systematically median averages instead of mean averages, in order to establish as accurately as possible the situation of households.

The public statistics "household approach" (measures of income, consumption, household production, leisure, etc.) should be developed alongside the "output approach". That would make it possible to improve the measurement of and the tools for measuring income and consumption.

3. The need to better measure inequalities

The lack of a more detailed view of income in Luxembourg constitutes another obstacle. This is an even more sensitive issue in times of economic crisis and within a nation committed to maintaining its social security system. These views were clearly expressed during the 1st workshop (regardless of political persuasion, and by both employers' representatives and trade unions). There is quite a unanimous view on the proposals contained in the "Stiglitz-Sen-Fitoussi" report relating to the income distribution analysis (Gini coefficients[24], inter-quartile[25] or inter-decile ratios[26]...) Moreover, inequalities have a psychological effect, which affect the well being of individuals and knowledge of the GDP/capita provides no information about inequalities, or indeed the extent or development of such.

[21] Household disposable income, pursuant to the national accounting system, includes all income. It is the sum of income from employment, property income and transfer incomes of all households. It may be gross or adjusted by taking into account, or not, collective services provided to individuals and benefits in kind (INSEE's definition).

[22] Consumption expenditure of resident households whether spent in Luxembourg or abroad.

[23] As recommended by the Labour and Social Cohesion Report (*Travail et Cohésion sociale*) (Statec's Economic Journal (*Cahier Economique* no. 109). Changes in actual household consumption are a proxy for changes in household disposable income.

[24] The Gini index is a coefficient that measures the dispersion of a given statistical series. It is calculated on the basis of the Lorenz curve of a defined variable for a population and ranges from 0 to 1, where 0 means perfect equality (where everyone's income is of the same amount) and 1 shows total inequality (where only one person has all of the income and everyone other than him has nothing).

[25] The income ratio of the wealthiest 25% of the population against 25% of the less well-off

[26] The income ratio of the wealthiest 10% of the population against 10% of the less well-off

Inset n°5: The psychological aspects of inequalities

Going beyond personal wealth, knowing that our relatives and neighbours are in a difficult financial situation has a negative impact on the well-being of individuals. Conversely, too much homogeneity in salaries can also be a source of frustration for individuals. These conclusions relating to the position and scope of the middle class highlight the importance of this phenomenon which goes beyond the single issue of social justice. The latter is of interest to a significant proportion of the population and illustrates the impact that inequalities can have on well-being.

Inset n°6: The Kuznets curve

In his work "Economic Growth and Income Inequality" (1955), Simon Kuznets, one of the founders of the national accounting and GDP system, claimed the existence of an "inversed U-shaped" relationship between GDP/inhabitant and the level of inequality of GDP distribution.

Based on the principle that the economy has experienced economic growth at a constant rate over time, among other things it explains that:

- Firstly, growth is achieved mainly by large-scale investments and therefore the inequalities are due to the sharing of resources in favour of those who save and invest the most.
- Secondly, in a well-advanced state of economy, an increase in human capital will substitute an increase in physical capital as a source of growth. This causes a reduction in inequalities, in respect of the reallocation of labour from low-productivity sectors to high-productivity sectors.

However, a reversal of the Kuznets curve was observed in the early Eighties in western economies (and particularly in Luxembourg). As a result, in 2005, the French economist and expert on inequality, Thomas Piketty, questioned the strict causality assumed by the Kuznets curve between the average level of wealth per inhabitant and income inequalities. He demonstrated in particular, using both French and American data, that the reduction (and respectively the increase) of inequalities is not mechanically associated with the growth (and respectively the drop) in GDP/inhabitant.

Similarly, given the country's level of development and wealth and the existence of very high incomes, it may be more beneficial to measure the proportion of the population that is struggling "to make ends meet" [27] or in a vulnerable situation (measurement of relative poverty[28], measurement of poverty risk[29]…) instead of

[27] Living in Luxembourg N° 36 May 2007 – PSELL-3/2005 Survey series – "Struggling to make ends meet. The satisfaction of Luxembourg households with regards to their financial situation"

[28] "This not only takes into account the subsistence minimum but also the indispensable needs for living a "normal" life, in relation to a given society (consistent with its level of development and the period in question): There are therefore several levels of poverty. This approach has the benefit of considering that the subsistence minimum is not limited solely to meeting dietary needs but incorporates other manifestations of poverty." by O. Mazel, Exclusion *Le Monde*, Marabout. 1997.

[29] The risk-of-poverty rate after transfers is the percentage of individuals living in households whose income is below 60% of the equivalent national median income adjusted to household size. For each family, the adjusted size is determined according to the following equivalence

calculating links between the incomes of the most affluent and the most disadvantaged.

Inset n°7: Some measurements of inequality in Luxembourg

In 2009, the Gini index[15] in Luxembourg was 0.29, while the European Union average was 0.3. This therefore means that Luxembourg levels are fairly close to the European Union country average and that inequality is not too high in terms of income. The reason for these low inequalities is partly due to the relatively high guaranteed minimum salary and to social redistribution policies. However, the regression line of the inter-quintile ratio is growing slightly, which indicates a steady trend towards rising income inequality over the last ten years. In 2008, 20% of the wealthiest members of society had an average income 4.1 times higher than 20% of the poorest members of society, equal to a ratio of 3.6. Also, the GDP/inhabitant, given that it is an indicator of average income and not of dispersion, does not allow for the status, development or distribution of wealth creation to be determined.

4. The measurement of non-market output

Inequalities aside, the correct definition of output is equally important. Also, the definition of output has changed over the centuries: reserved for agricultural activity, then extended to the industrial and service sector, today it applies solely to the commercial sector. It therefore concerns solely the monetary flows that generate value in the eyes of the System of National Accounts. This led Alfred Sauvy to ironically claim that if he married his housekeeper or gardener it would lower the GDP. GDP, as the sole measurement of well-being, therefore drops as a result of the solidarity of individuals. Indeed, the latter is widely seen as a free source of production of goods and services for community members.

In addition, these non-market activities represent the equivalent of between 30 to 40% of the GDP of western countries[30].

The goods and services provided by the family unit and the community etc. generate social cohesion and solidarity; they are elements of well-being and provide a catalyst for social change. However, these are not covered by GDP, whose purpose is not to measure a nation's well-being or progress.

The questionnaire distributed at the end of the 1st workshop moreover led to the identification of the need for social cohesion as one of the three most important elements of well-being (by 57% of respondents, making it the second most cited subject), and in particular as one of three aspects relating to well-being that is

scale: the first adult is represented by 1.0; each additional adult is represented by 0.5 and each child 0.4.

[30] Seminar "Towards other indicators of wealth" 1st March with M. Le Clézio and page 144 of the Stiglitz-Sen-Fitoussi report

most at stake (by 71% of respondents, making it the most cited subject overall) (See appendix n°3). Although unrepresentative in terms of workforce and socio-professional categories, the participants of the 1st workshop did, however, express a point of view that is common in numerous more substantiated reviews.

The measurement of non-market output (volunteer work, domestic output) should therefore be incorporated into the measurement of well-being. The approach could be gradual and may therefore be incorporated on a partial basis initially. It is worth noting that the recognition of domestic output still continues to raise methodological problems, resulting notably from the difficulty in determining the boundary between leisure and domestic output.

However, measuring the economic value of volunteer work is now possible. As a result, an accounting model was developed by Salamon and Sokolowski from John Hopkins University in Baltimore[31] and has already been used by around 37 countries, with the aim of putting a satellite account system in place. Similarly, the above-mentioned university and UN statisticians have developed a reference manual for measuring volunteer work[32]. The European Union strongly advocates this approach, particularly through the European Volunteer Centre (CEV)[33]. Moreover, 2011 was declared "the European Year of Volunteering". However, there do not appear to be any appropriate indicators at present for measuring volunteer work or charity work, outside of the assessment of such non-market output.[34]

The extension of the accounting principles to other non-commercial activities should not raise any other problems, as demonstrated by STATEC's projects/works

- on "Green GDP" and environmental accounts[35]
- on the measurement of the solidarity-based economy[36]
- on the measurement of sporting activity[37]

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[31] (Salamon et alii, 1999, 2004)

[32] Handbook on non-profit institutions in the System of National Accounts (UN, 2006, 2003 for the original version in English)

[33] http://www.cev.be/

[34] Seminar with M. Le Clézio on 1st March 2010 and the last paragraph of the section concerning "the limits of what can be measured" of this technical report

[35] http://www.statistiques.public.lu/fr/actualites/territoire/energie/2010/11/20101116/20101109.pdf

[36] http://www.statistiques.public.lu/catalogue-publications/economie-statistiques/2006/8-2006.pdf

[37] http://www.statistiques.public.lu/fr/actualites/conditions-sociales/loisirs/2006/04/20060406/enquete_sante_sports_jeunes_2006.pdf

particularly for the development of sector accounts and the measurement of a proportion of domestic output. Another interesting possibility would also be to develop the production and use of time use surveys.

A study of wealth accounts would also be useful in order to provide a more detailed overview of household income. Wealth clearly has an impact on the standard of living for people. One way of facilitating our understanding of wealth could be the sharing of information pertaining to the annual fiscal census with STATEC[38].

Lastly, the economic contribution of the black economy or hidden economy, characterised mainly as undeclared work, which is, however, linked to commercial activities, is not taken into account in the calculation of GDP (in Luxembourg, it represents between 925 million and 2 billion Euros and between 15,000 and 42,000 jobs in 2008 according to a study by CEPS (Centre for Population, Poverty and Socio-Economic Research)/Instead[39], in other words between 2.35 and 5.08% of GDP).

It is thus apparent that the flagship indicator of growth and development (GDP) falls short of fully addressing the full range of productive and consumption activities, even commercial, that takes place within the national territory.

5. The limits of what can be measured

Although the statistical offices and the various administrative authorities do not always measure what is important to people, everything that is important is not always measureable.

Beyond the provision of free services between people (non-market domestic output), some elements, such as a smile, the affection that parents give to children and conjugal love are immeasurable, yet they are elements of day-to-day well-being.

The tendency to strive to measure everything and take everything into account is indirectly responsible for a half a century of sanctifying the GDP as the "all measuring indicator". The same error should therefore not be repeated.

[38] cf. the recommendations of the ESC in its 2006 annual notice: "The ESC moreover reiterated its recommendation of 1999 to make use of the results of the annual fiscal census with regards to information on housing in order to have access to more comprehensive, reliable and up-to-date statistics, particularly on the overall existing housing stock as well as on closed housing, vacant housing and the housing needs of individuals with modest or average income levels. Where necessary, the questionnaire will be modified or added to depending on the relevance of the questions for the housing policy."

[39] Undeclared work in Luxembourg, by Roland Maas and Franz Clément. Journal "Governance and Jobs n°1" November 2007

What can be measured is not always relevant, as value judgements would implicitly be made for a number of variables. For example, GDP incorporates outputs as diverse as the building of a hospital (giving rise to positive externalities[40]), the remedy of damage caused by oil slicks (defensive expenditure[41]) and arms production. Similarly, as regards the social fabric, knowledge on the number of associations tells us nothing about their activity or level of activity.

Conclusions

The technical group proposes the following conclusions:

- ✓ **Use GDP as a measurement of market output or material well-being resulting from wealth acquisition and expenditure**
- ✓ **Use a standard of living indicator, which is at the core of the "household perspective" of the Stiglitz-Sen-Fitoussi Commission report** and the indicators proposed to do this are as follows:
  - o GDP/capita for international treaty reference purposes;
  - o GNI/capita for the purpose of taking better account of the specific characteristics of the Luxembourg situation (borders and financial services);
  - o Average/median disposable household income; or
  - o Adjusted average/median disposable household income for tracking the real situation of households more closely and to link it with the measurement of inequality or poverty;
  - o The effective consumption of households per inhabitant.

  The disposable income indicators are, however, unavailable for Luxembourg as a national accounts aggregate[42]. The effective consumption of households may, however, be used as a proxy variable of the latter.

[40] Externality or the external impact describes a situation in which an economic actor's actions inadvertently have consequences for others for which that actor produces an economic cost but does not fully pay that cost (negative externalities) or produces an economic benefit but does not reap the full reward from that benefit (positive externalities).

[41] Situations where the GDP increases as a result of activities, which only involves repairing damage occasioned by other economic activities, i.e. to counter negative externalities. The Stiglitz-Sen-Fitoussi Commission thus recommends considering such as intermediate consumption and non as end products added to the GDP.

[42] Data does exist, although it is somewhat "imperfect", for disposable income from the EU-SILC survey (Survey on Income and Living Conditions)

- ✓ **GDP says nothing about the distribution of wealth and its development. There are two possible complementary approaches:**
  - o **To measure inequalities** using the Gini coefficient, the inter-quartile ratio, the inter-quintile ratio or the inter-decile ratio;
  - o **To measure poverty, poverty risk or the proportion of people in an economically sensitive situation**
  - o To complete the previous measurements, the indicators in the following list[43] could be adopted and developed:
    - Low income cut-off
    - Low income measurement
    - Risk-of-poverty rate before and after transfers
    - Risk-of-poverty rate at a certain point in time
    - Dispersion around the at-risk-of- poverty threshold
    - Market basket measure
    - Sarlo thresholds
    - Gallup-based subjective thresholds
    - Available budget
    - Monetary poverty thresholds
    - Persistent risk of poverty
    - FGT index
    - Low income intensity
    - Low income gap
    - Economic dependence ratio and index in relation to transfers
    - Social assistance rate
    - Population distribution according to income brackets
    - Polarisation coefficient
    - Wolfson Polarisation index
    - Poverty index on living conditions
    - Material deprivation indicator
    - Financial and material difficulties indicator
- ✓ **Develop an accounting system for non-market output by developing a system of satellite accounts, notably for volunteer work, due to its nature of creating social links.**

[43] Each of these indicators is explained in detail in the following link: http://www.cepe.gouv.qc.ca/publications/pdf/CEPE_inventaire-indicateurs.pdf

- ✓ **Develop sector accounts, as well as time use surveys.**
- ✓ **Develop wealth accounts, by allowing STATEC to have access to tax authority micro-data.**
- ✓ **As not all elements of well-being are measurable, it would be appropriate to prevent "an inflation" of the key indicators.**

Chapter two

Towards sustainable development in Luxembourg

CHALLENGES

○ **Individually measuring each capital element** (human**,** social**,** product, financial and natural capital) **of total national wealth is still problematic. The policy monitoring of sustainable development should, for the moment, be prioritised.**

○ **To measure equity in order to understand sustainability.**
(sustainable development is in fact based on equity within and between generations and between nations)

○ **To measure the impact of the consumption of natural resources.**

○ **To analyse the consequences of land and energy resource scarcity.**

○ **To adopt a prospective approach** ("Zukunftsdebatte").

II. Towards sustainable development in Luxembourg

Sustainable development is a concept that has its origins in the Club of Rome[44]. Its most famous definition was that published in the Brundtland report[45] :

"Development that meets the needs of present generations without compromising the ability of future generations to meet their own needs. It contains within it two key concepts: the concept of 'needs', in particular the essential needs of the world's poor, to which overriding priority should be given, and the idea of limitations imposed by the state of technology and social organisation on the environment's ability to meet present and future needs."

Sustainable development is also based on three pillars: the economy, the environment and the social aspect. Other political stakeholders argue for further sustainability areas such as culture[46], global partnership[47] and governance[47]. Sustainable development can also be defined as development that is economically efficient, socially fair and environmentally sustainable[48].

However, this concept is now found within a range of ideologies and works (green growth, the progress of societies, well-being, Europe 2020, etc.) and is at risk of becoming less clear and comprehensible to citizens.

1. Monitoring or capital approach?

There are two sustainable development measurement frameworks:

- The first, monitoring, is the result of policies put in place. The indicators are therefore the monitoring and control instruments directed at citizens.
- The second, proposed by the World Bank and the Stiglitz-Sen-Fitoussi Commission Report, aims to establish a series of capital[49] in order to measure the stock of national wealth.

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[44] A club set up in 1968 bringing together leading figures in their respective countries to allow for a better understanding of the development of the world as a whole and to identity the limits of economic growth.

[45] Published in 1987 by the World Commission on Environment and Development of the United Nations, the Report *For Everyone's Future* was named after the chairman of this Commission, the Norwegian Mme Brundtland. The principle aim of this report was to determine a "sustainable development" policy.

[46] Such as Raymond Weber, Chairman of the Higher Council for Sustainable Development.

[47] An idea taken up by the Inter-ministerial Committee for Sustainable Development through the National Sustainable Development Plan, later known as the NSDP2.

[48] And respectful of the diversity of cultural expressions for Raymond Weber.

[49] This concerns the financial, product, natural, human and social resources that make up the components of total national wealth.

Inset n° 8: The capital approach

The capital approach (human, social, product, financial and natural capital) allows the total wealth of a society to be measured and for its developments to be monitored. The long-term maintenance and the improvement of the well-being of members of society are at the core of this approach. The ideologies also have the benefit of being easy to understand and communicate. Their measurement can be compared within their field of activity with GDP in relation to the production of wealth. In both cases the growth/decrease of the capital stock or wealth created is calculated. However, a stable and growing wealth stock does not necessarily imply sustainable development, contrary to its reciprocity. The capital is in fact expressed in units of currency, which suggests the notion of capital substitution (e.g. replacing natural capital with product capital, without increasing total wealth). However, human, social and natural capital, which are vital to development, cannot be replaced. As a result, these capital elements must be expressed in physical units. In practical terms, the monetary valuation of some capital elements is still not possible and poses numerous problems. As a result, although the price of certain assets is observable, it does not always reflect the actual price, in view of the existence of asset bubbles, as is the case with land in the Grand Duchy of Luxembourg. As a consequence, different units of measurement are still presently used to measure the different capital elements.

For Luxembourg, the approach proposed is the first one, for the following reasons:

- The Luxembourg law of 25 June 2004[50] sets out the need to determine the monitoring indicators for policies undertaken for the implementation of sustainable development;
- The measurement tools required for the capital approach have not been sufficiently developed and continue to pose problems, particularly as regards the assessment of social capital;
- Luxembourg has neither the budget nor the human resources required for the development and completion of such an approach;
- The established weightings and statistical conventions are arbitrary and do not emanate from citizens;
- Lastly, the issue of substituting the various capital elements questions the very notion of sustainable development.

[50] Art.14. Every two years, the Commission (Interdepartmental Commission on Sustainable Development) issues a national report on the implementation of sustainable development.
Within the context of sustainable development, this report comprises:

- (…)
- a description, an analysis and an evaluation of the policy being pursued in the field of sustainable development based on sustainable development indicators.
- (…)
-

In this regard, it is important to ensure consistency between the chosen indicators with those developed for the evaluation of unsustainable trends and the NSDP2 quality objectives[51] (see below), as well as the Europe 2020 Strategy[52] and the Competiveness Index[53]. Lastly, the individual measurement of each of the capital elements would be useful and may be considered in the future.

The 14 unsustainable trends identified by the NSDP2:

1) The excessive use of natural resources
2) The excessive consumption of space
3) Climate change
4) A steady increase in traffic
5) Population marginalisation
6) Risks to social cohesion
7) The development of so-called modern-day illnesses
8) Population ageing
9) Risks of economic crisis
10) Inadequate financial resources
11) Significant differences in income between the north and the south
12) Challenges for the education system
13) Unequal opportunities between men and women
14) Deficits in relation to coherent governance

The 18 quality objectives[51] identified by the NSDP2:

1) The protection of natural resources
2) Sustainable consumption and production
3) Sustainable land management
4) Climate protection
5) The separation of economic growth from an increase in traffic
6) Full employment, employment of senior citizens

[51] In the light of the most recent developments, it appears that the quality objectives would not be subject to measurement, but rather to comments for the NSDP2.

[52] Europe 2020 is the EU strategy for jobs and smart, sustainable and inclusive growth. It is based on five main objectives measured using eight key indicators. (http://epp.eurostat.ec.europa.eu/portal/page/portal/europe_2020_indicators/headline_indicators). Its purpose is to make the European Union a knowledge society that is more respectful of the environment and a creator of green jobs. It offers a pragmatic view of sustainable development.

[53] It should be noted that the definition of competitiveness used by the Competitiveness Observatory and proposed by the ESC is: "A nation's ability to constantly improve its citizens' standard of living and to provide a high level of employment and social cohesion, while preserving the environment." See: http://www.odc.public.lu/indicateurs/tableau_de_bord/index.html

7) Prevention/reduction of marginalisation
8) Effective social protection
9) The integration of residents and borders
10) Ensuring health care for all
11) Ensuring an economy that is competitive and shielded from crises
12) The sustainability of public finances
13) The eradication of world poverty
14) The demand for global sustainable development
15) An increase in the level of education and skills
16) Education for sustainable development
17) Equal opportunities between men and women
18) Coherent governance

2. A fair society for a more sustainable society

One phenomenon highlighted by the participants of the 2nd workshop, regardless of political persuasion, was that of inequality. Sustainable development is in fact based on both equity within and between generations and on equity between developed nations and developing nations. Moreover, although globalisation has caused a decline in inequalities between certain nations (OECD and Asia), for the most part, it has resulted in increasing it within the same nations[54].

Lastly, the economists Wilkinson and Pickett[55] stated that a more equal society is more beneficial for all of its members in all areas of development/progress. This conclusion thus reinforces chapter one relating to the use of a measurement of inequalities and poverty.
Another proposal could be to put in place an overall risk indicator for society[56] or a social trust indicator[57], which expresses equity in the sense in which it is understood by the economist and Nobel Prize winner Amartya Sen[58].

[54] Conclusion of the International Monetary Fund (IMF) reported by Mr Mike Mathias during the 2nd workshop dedicated to sustainable development.

[55] In their working paper of 2009: "The Spirit Level. Why More Equal Societies Almost Always Do Better".

[56] In the same way as there are risk indicators for financial investments, there should be, to allow for choice within a nation, a pair of indicators incorporating the impact of decisions and the risk they involve for sustainable development. This would therefore be an intergenerational equity indicator.

[57] Unlike indicators of trust in institutions or trust among households, this indicator would form part of the trust indicators of the future or in the successful transition towards sustainable development.

[58] Cf. Appendix n°8, Page 158.

3. The issue of general resource scarcity

Consumption illustrates the direct impact of lifestyles on a country's economic development and natural environment. This is the reason behind the HCSD's decision, in collaboration with the Ministry for Sustainable Development and Infrastructures, to develop a Luxembourg ecological footprint measurement[59]. In 2005, this was 7.32hag[60]/inhabitant for residents only (11.82 hag/inhabitant when taking cross-border fuel tourism into account), whereas it should be limited to 2.06 hag/inhabitant.[61] Despite the fact that this is a popular and informative communication tool[62], it struggles to establish itself as an accurate statistical tool[63] and has certain limits[64].

Many prefer the carbon footprint solution, especially as the latter is the major component of the ecological footprint, as well as being the only one to evolve significantly[65]. Indeed in Luxembourg, the carbon footprint does in fact constitute 84% of the ecological footprint.

[59] However, this cannot be compared to another country, but rather to another comparable region in terms of population and economic activity in Luxembourg.
For full details on the Luxembourg ecological footprint: http://www.myfootprint.lu/

[60] Global hectare: the mode of calculation for biocapacity involves multiplying the area used for each land type by an efficiency factor (the national efficiency ratio over the global ratio) and adjusting the result by an equivalence factor (Source: http://www.myfootprint.lu/

[61] The global average ecological footprint threshold

[62] Particularly in the light of its concept: "the number of planets that would be needed if everyone on earth adopted the consumption habits of a given country".

[63] The chosen equivalences are therefore questionable. As a result, the footprint associated with fossil energies corresponds to the forest cover required for the absorption of carbon dioxide emitted from fossil fuel burning. The footprint associated with biomass energy corresponds to the forest cover required for the production of biomass energy. However, there is considerable uncertainty as regards both of these calculations. Indeed, the nuclear energy footprint poses the main problem. It is calculated in the same way as fossil energy. However, it is based on a false premise as there are no direct greenhouse gas emissions for nuclear energy. The rationale behind this mode of calculation is based on the fact that it is difficult to incorporate the issue of nuclear risk (radioactive waste in particular) into the ecological footprint; but the solution adopted remains questionable. Controversy over these equivalency conventions is an even bigger problem when the ecological footprint is 70% carbon footprint dependent. (Source: National Scientific Research Centre (CNRS))

[64] Such as agricultural pollution in the water and the environmental impact of some toxic waste.

[65] cf. Notice of the French Economic, Social and Environmental Council entitled "Sustainable development indicators and the Ecological Footprint"

Inset n° 9: A move from the ecological footprint towards the carbon footprint

● According to the French Economic, Social and Environmental Council, the ecological footprint has several advantages:

- the way in which the result is formulated is educational, easy to understand and intuitively informative
- it can be used at product, individual, company, local authority or country level;
- it allows diverse environmental impacts to be made commensurable with each other;
- it focuses on consumption, allowing clear responsibilities to be established.

It would therefore be inappropriate, from the point of view of raising awareness, to deviate from the data put forward. However, it must achieve a public status. It must be specified that it doesn't take all of the environmental impacts into account and its result must be systematically accompanied by an ecological balance sheet. Lastly, reservations should be resolved as regards the calculation methods (conversion coefficients, weightings) and the sensitivity of the results to hypotheses which may render the interpretation uncertain.

● The French Economic, Environmental and Social Council considers, however, that pending a more in-depth analysis, CO2 emissions (which represent 52% of the French footprint and are the main cause of its rise) through carbon offset projects (including, where necessary, methane, halocarbon and nitrous oxide emissions) may constitute the benchmark indicator for the environmental pillar:

- it is built on robust data;
- it is a non-composite and emblematic indicator;
- it is subject to international monitoring and addresses the major cause of global warming;
- it is a performance indicator for companies and local authorities.

It is possible to present the footprint in the most informative manner possible: either on the day of the year on which the emissions saturate the planet's sequestration capacity or by the number of planets needed to sequester the CO2. Finally, it should be standardised by the Intergovernmental Panel on Climate Change, to facilitate international comparisons.

The graph below shows the global ecological footprint over the past 45 years:

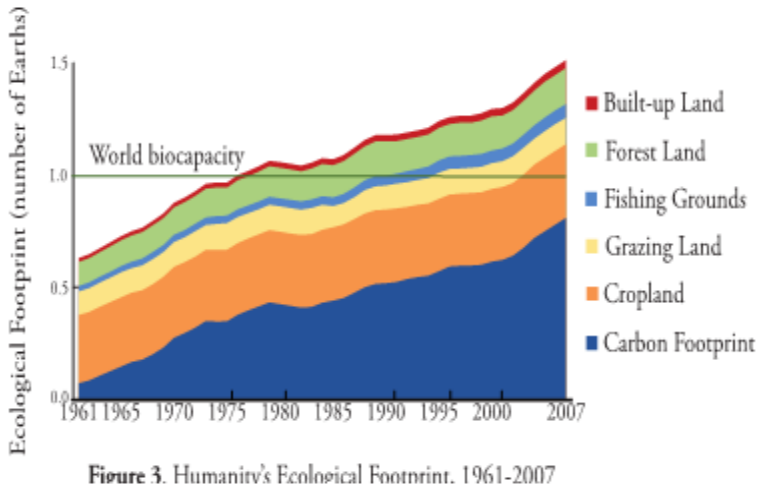
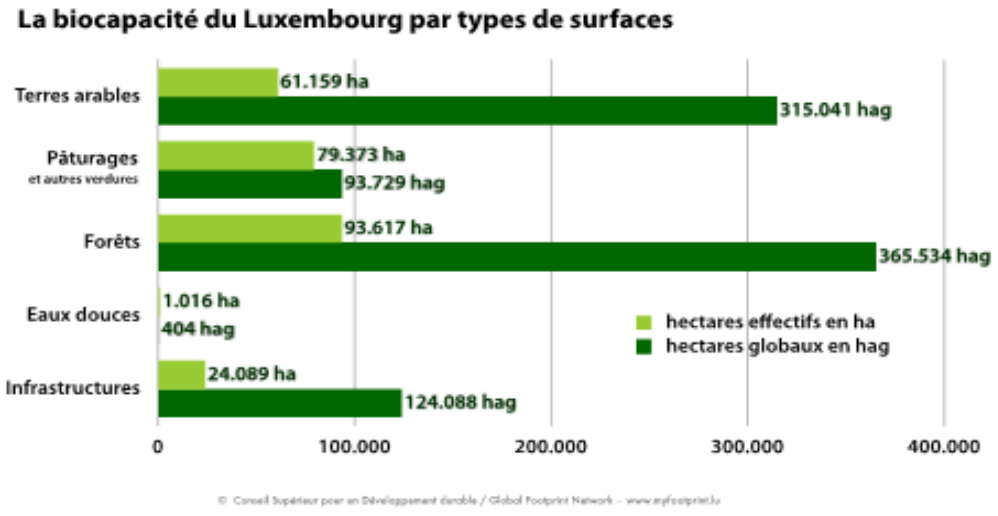


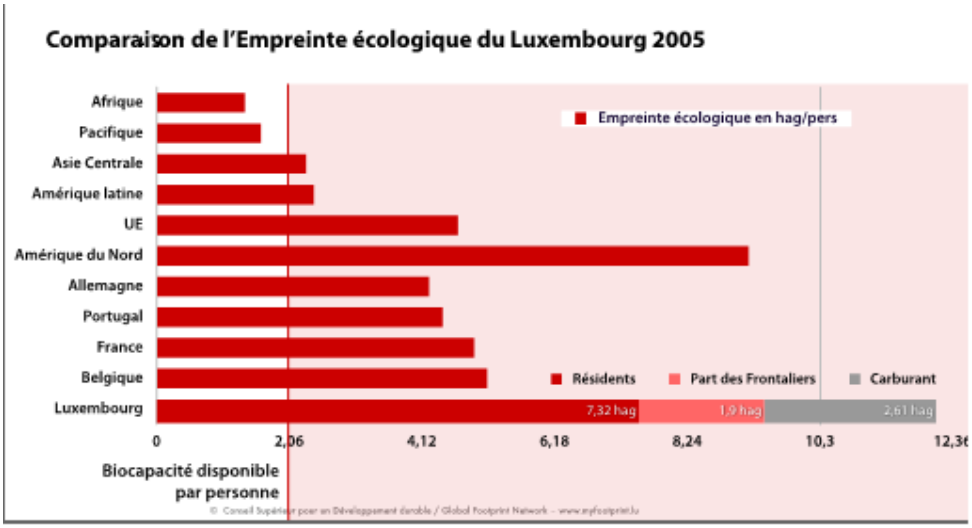
Figure 3. Humanity's Ecological Footprint, 1961-2007

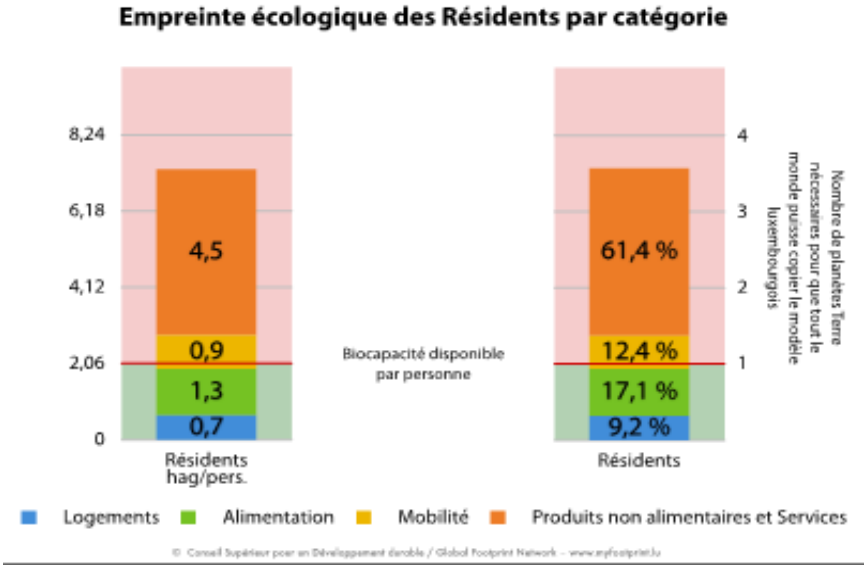
Source: Ecological Footprint Atlas 2010 of the Global Footprint Network

Inset n° 10: The ecological footprint of Luxembourg (from www.myfootprint.lu)



Empreinte écologique nationale du Luxembourg en hag	Logement	Alimentation	Transport routier et mobilité	Produits non alimentaires et Services	Total	Total par habitant
Infrastructures	124.086	-	-	-	118.934	0,27
CO_2 (Surface absorption du carbone)	190.055	214.108	1.936.615	2.359.495	4.700.273	10,02
Terres cultivées	-	392.832	-	-	392.832	0,84
Pâturages	-	82.907	-	-	82.907	0,18
Forêts	-	-	-	220.024	220.024	0,47
Fleuves	-	28.886	-	-	28.886	0,06
Total	314.141	718.733	1.936.615	2.579.519	5.549.008	11,82
Total par habitant	0,67	1,53	4,13	5,50	11,82	





Other possible measures are decoupling indicators[66] and resource productivity indicators[67]. They aim to analyse the pace of change of society towards eco-efficiency and a reduction in the waste of natural resources.

Another proposal, often raised, is "not consuming less, but consuming better". Measurements involving organic/environmentally responsible farming or the proportion of renewable sources of energy in total energy production are the most common examples for the measurement of "more sustainable consumption". The concept of post-growth, growth in quality and not quantity may also be subject to measurements. These measurements are not currently available, but should not present insurmountable methodological and conceptual difficulties. It is a question of introducing environmental quality concepts such as measurements of yields, the quality of seeds, pesticides, GMOs, etc.

4. Two resources to be monitored: energy and land resources

Two significant phenomena have been outlined concerning the dependence of Luxembourg upon resources. Firstly, dependence on fossil fuels was highlighted. With a view to limiting climate change to 2°C by reducing greenhouse effect emissions, thereby limiting the impact on society and the environment, increasing energy efficiency and replacing fossil fuels with renewable energies, the objectives are centred on three aspects: the environment, quality of life and local job creation.

[66] The aim of a decoupling, where possible, of all of the elements of the pollution of economic growth is to constantly reduce emissions or environmental damage without having to slow down economic growth. An analysis of the causes in four different sectors has demonstrated that, in the climate (CO2), nature and landscape sectors as well as material consumption, the growth of economic activity exacerbates pollution significantly, while in the air sector (SO2, NOx, NMVOC, CO), the effect of growth is a less important factor. The environmental policy must be even more effective in the environmental sectors dominated by growth: technological developments and structural changes (including modification of the traffic modal choice) must in fact be such that they may overcompensate for the effect of growth (Source: http://www.ecoglobe.ch/economics/f/entk5d25.htm).

[67] Resource productivity is equal to the GDP measured at constant prices divided by domestic material consumption (in Euros per kilogram). Domestic material consumption aggregates, in tons, fossil fuels, agricultural and mining products, extracted from national land or imported in the form of raw materials or end products, minus exports. It measures the total quantity of materials physically used by the national economy, in order to meet the population's needs (Definition from INSEE)

In Luxembourg, the land issue poses a further significant sustainability problem. High housing prices consequently cause the relocation of the population towards less expensive areas, including across national borders, which leads to transport problems and decreased well-being (reduction of average available time outside of work and sleep). The existence of a form of land rent also poses wealth inequality issues. This phenomenon moreover tends to be exacerbated with the continued growth of the resident population. In this context, the objective is the responsible use of space in order to increase the population's quality of life and reduce journey time between the various "living environments". It is also a question of promoting eco-responsible mobility, high social and environmental housing quality and promoting more participation in culture.

Inset n ° 11: the problem of housing prices in Luxembourg

A study carried out by STATEC concluded that 80% of resident households find the cost of housing worrying (i.e. regarded as a significant or a fairly significant burden) and that a housing investment would require an average of 15.6% of their net disposable income.

The rise in housing prices has resulted from a significant rise in building land prices since the early nineties up to the present day. This key figure allows us to measure the extent of the phenomenon: between 1993 and 2004, the average price per are of construction land increased by 132% (Source: STATEC), while the building cost only increased by 27% over the same period. Demographic change, growing household numbers (particularly as a result of the high level of divorce) and a somewhat unequal geographical distribution has led to a situation of strong demand faced with an insufficient supply of building land. High land prices are the direct consequence of the insufficient availability of building land, which is itself accentuated by two key factors: the use and complexity of municipal or state authorisation procedures. As a result, the 2007 general town planning study revealed that no fewer than 2712 ha of land for development was available, a third of which could be mobilised in the short term.

5. The need for a prospective approach ("Zukunftsdebatte").

The concept of sustainable development does incorporate the requirement of forward-looking reflection, but this has not been sufficiently explored in Luxembourg. The indicators or measurements set out in this report do not fully meet this requirement. They are needed for the diagnostic work and for developing the framework of the prospective approach. This has been undertaken by The Luxembourg Society for Evaluation and Foresight (SoLEP)[68], which presented its objectives and goals during the 2nd workshop.

[68] http://www.solep.lu/

This Luxembourg organisation was established in 2008 at the end of a conference dedicated to foresight and evaluation[69] organised by the Competitiveness Observatory, the Henri Tudor Public Research Centre and STATEC.

The work programme for this prospective study is as follows:

- A training seminar in December 2010
- A day of prospective workshops on 26 April 2011
- The development and discussion of prospective scenarios following these two events

Conclusions

The technical group proposes the following conclusions:

- **"Monitoring" is the only possible approach to sustainable development at this stage. An individual measurement of each of the capital elements should however be carried out subsequently.**
- **To prepare the next stage and as mentioned in chapter one, "Green GDP" and environmental accounts need to be developed.**
- **The selection of sustainable development indicators for the "GDP Well-being" project should take into account work already completed in this area (the major unsustainable trends and the NSDP2 quality objectives[51], the Europe 2020 Strategy and the Competitiveness Index) to ensure consistency of the statistics system.**
- **It is important to measure the equity of society. This can be done through:**
  - A measurement of inequalities and poverty (cf. the conclusion of chapter one)
  - A measurement of Society's overall risk exposure
  - A measurement of social trust
- **Other resource consumption measurements should be taken into account. Among other things, this may include:**
  - The ecological footprint as a warning and communication tool
  - The carbon footprint as a scientifically more accurate alternative to the ecological footprint
  - A decoupling measurement
  - A measurement for the productivity of resources

[69] http://www.odc.public.lu/actualites/2008/01/23_sem_eco/index.html

- A measurement for "better consumption" (organic farming, renewable energies, environmental quality measurements, etc.)

- **Particular attention should be given to two sensitive resources:**
  - **Fossil energies**
  - **Land resources in Luxembourg (wealth accounts may prove useful here, cf. the conclusions of chapter one)**

- **A prospective approach is required in this framework of reflection, a macroeconomic-socio-environmental model, based on the example of the Canadian Peter Victor's model presented in the work "Prosperity without growth" by Tim Jackson, should be developed in order to ensure better future development choices are made.**

Chapter three

Towards a better accounting of quality of life

CHALLENGES

○ **To develop subjective indicators: this requires an innovation in the scientific arena, which undoubtedly presents difficulties, but this development is required for a better understanding of the feelings of citizens**

○ **To make use of subjective indicators already available in Luxembourg and to develop new ones**

○ **To propose suitable measurements for each of the quality of life factors**

III. Towards a better accounting of quality of life

Quality of life is a concept that is difficult to grasp. Based on the definition proposed at the beginning of this report[70], sustainable development and quality of life are two separate, yet interlinked concepts. While sustainable development is grounded widely on objective estimates of development and progress, quality of life encompasses all of the phenomena relating to our personal experience, emotions and perception of existence and may also be subject to both objective and subjective measurements.

During the workshop dedicated to this subject, the question of values, objectives and what quality of life covers were widely discussed by certain participants. This technical report is not the appropriate forum for such a debate. It is the responsibility of the ESC and the HCSD to address these issues and deal with them in their notice.

Lastly, this matter in which the question of available and well-established indicators is posed is of utmost importance. Best practices are, however, being employed in Europe, such as the work being done on these topics by the Dublin Foundation[71]. These shall be taken into account when compiling the list of indicators.

1. Subjective measurements: social comparisons and adaptation

Beyond the objectivity of the well-being of populations (material and environmental conditions in the broader sense[72]), the perception of such should be taken into account.

[70] In summary form: Well-being = f (Sustainable Development; Quality of Life)

[71] The European Foundation for the Improvement of Living and Working Conditions, which conducted a survey in 2011 on quality of life, provided the majority of the quality of life indicators defined by the Stiglitz-Sen-Fitoussi Commission report
http://www.eurofound.europa.eu/areas/qualityoflife/eqls/eqls2007/results.htm

[72] "Contrary to "nature", the '"environment" encompasses human activities. It is thus a much broader concept than the concept of "nature". There are countless definitions relating to the environment (which, in effect, means "setting") that can be described as a set of natural or artificial conditions (physical, chemical and biological) and cultural conditions (sociological) in which living organisms develop (mankind and animal and plant species) Source: Pages 34 and 35 of the ESC notice on changes in the economic, social and financial situation of 2007.

However taking such measurements into account is fraught with pitfalls. Indeed, the work of happiness economists shows that individuals are subject to two phenomena: on the one hand, temporal adaptation and on the other, interpersonal comparisons.

As regards the first element, this means that progress is perceived as such when a given individual has adapted to it.

This phenomenon helps to explain the Easterlin paradox[73]: the material well-being of individuals has improved. But this does not infer a change in the response of individuals to the question on their life satisfaction, as year upon year they become accustomed to new levels of well-being.

As regards the second element, some improvements in well-being are to the benefit of all citizens. Once people perceive "their enhanced well-being" as being less than or below that of other individuals, they experience this negatively. In other words and as illustrated by Professor Clark's[74] example, an individual prefers to have 100 more if others have 120, instead of having 1000 more if others have 3000. This second conclusion highlights the importance of the issue of equity (in keeping with the conclusions of the first two sections of this report, which have already underlined the need to measure inequalities and poverty more precisely).

Inset n°12: Taking stock of the pitfalls of subjective measurements

Below is a table summarising the work of Professor Andrew Clark[74] on the issue:

	Horizontal comparisons (status)	***Intertemporal comparisons (adaptation)***
Income	Yes	Yes
Unemployment	Yes	No
Marriage/Divorce	?	Yes
Health	Maybe?	Partial?
Social activities	Maybe?	No?
Freedoms	?	?
Religion	Maybe?	?

The presence of these pitfalls does not, however, mean that subjective measurements must be abandoned: the information they provide is not a substitute to that provided by objective indicators, but rather a complement.

[73] Cf. inset n° 3, Page 20

[74] Research Director at the CNRS at the Paris School of Economics (DELTA/PSE)

Subjective measurements must be used in particular to measure the most important or sensitive areas of well-being, in other words, areas where dissatisfaction is most marked in order to control the effectiveness of policies that are met with resentment by the population[75]. These new types of measurement may also prove useful for measuring the priorities of populations and thereby make the weightings used in the composite indexes less arbitrary.

2. Subjective data in Luxembourg

A number of composite indicators and subjective data are already available in Luxembourg, particularly through the "European Values Study" (EVS)[76]. Below we have presented 14 subjective composite indicators relating to governance and social capital (developed by CEPS/Instead based on the results of this survey). Although the EVS survey is only conducted every 9 years, it may prove useful to develop indicators similar to these composite elements on a more frequent basis. Similarly, the recent 2009 STATEC "Labour and Social Cohesion Report" also takes into account various subjective data for comparability with objective data (for reasons outlined in the above paragraph). This subjective data is partly based on data taken from the European Social Survey[77] (ESS). Reinstating the funding for this survey would prove useful (its funding ceased in 2004), in order to have access to comparable subjective data/indicators on a European scale.

Field	Formal	Substantial
Political	• Trust in national systems • Trust in national organisations • Trust in authoritative organisations • Satisfaction with the government and democracy	• Legal participation • Illegal participation • Institutional policy actions • Political behaviour in daily life

[75] In accordance with the conclusions of the Stiglitz-Sen-Fitoussi Commission report, which proposes the measurement of satisfaction using dissatisfaction measurements

[76] http://valcos.ceps.lu/

[77] http://www.europeansocialsurvey.org/

Socio-cultural	• Proximal solidarity [78] • Distal solidarity[79] •	• Social associations • Political associations • Cultural organisations • Humanitarian organisations • Youth/sports organisations • Interpersonal relationships

Source: EVS Survey

Un cadre pour des indicateurs objectifs et subjectifs dans le "Rapport Travail et Cohésion sociale 2009" du STATEC	
Dimension du bien-être	
Objectif	**Subjectiif**
Niveau de vie RNB par habitant; Consommation/habitant; Espérance de vie	**Bien-être subjectif** Satisfaction avec la vie; Satisfaction avec la santé
Participation à la vie économique Taux d'emploi; Taux de chômage	
Distribution du revenu monétaire Taux de pauvreté; Distributiondu revenu(Gini)	**Pauvreté subjective** Revenu perçu comme se situant en-dessous d'un revenu permettant de joindre les deux bouts

Dimension politique, civique et institutionnelle	
Objectif/Comportement	**Subjectif/Attitudes**
Participation formelle Participation aux élections; Participation à des associations politiques et civiques, partis politiques, syndicats, organisations professionnelles, humanitaires, environnementales …	**Confiance dans les institutions** Parlement, justice, police, figures politiques, partis politiques, système éducatif, système de santé, gouvernement
Engagement politique et civique informel Participation à des manifestations, boycott de produits, porter un badge, signer une pétition	**Intérêt pour la politique** Basé sur la question « How interested would you say you are in politics … »

Dimension socio-culturelle (capital social)	
Objectif/Comportement	**Subjectf/Attitudes**
Participation à des associations Participation à des associations culturelles, sociales et sportives **Contacts informels** Fréquence de contact avec des amis et collègues Aide bénévole (en dehors de la famille) disponible si besoin	**Confiance interpersonnelle** Indicateur de confiance **Perception de l'immigration** Acceptation de l'immigration; Acceptation de la diversité; Perception de l'importance économique de l'immigration

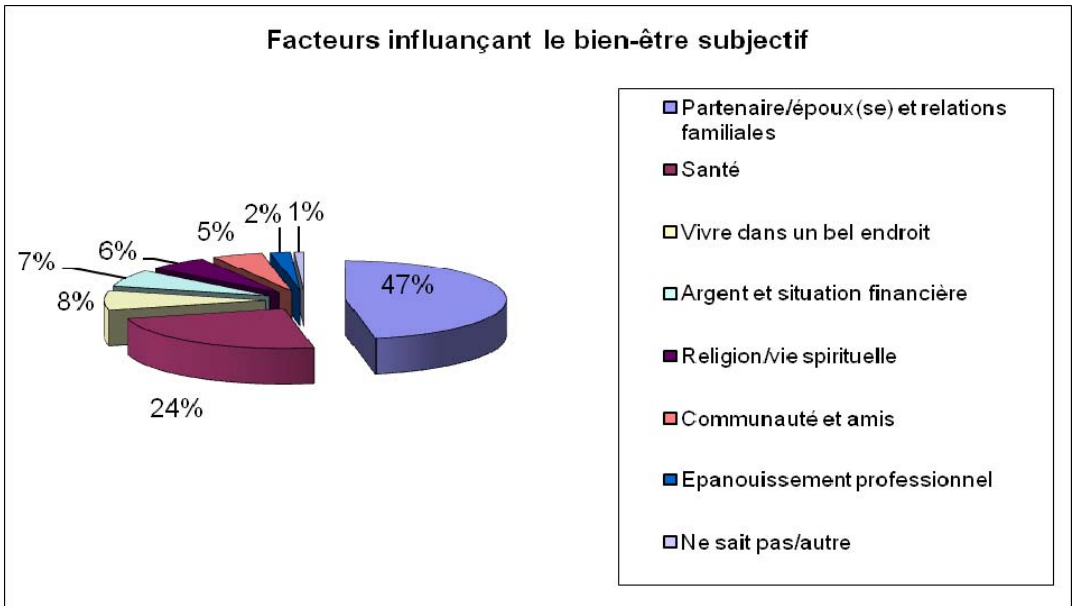
Source: STATEC's Labour and Social Cohesion 2009 Report

[78] With relatives

[79] With vulnerable people

3. Factors influencing well-being

The study below from 2005 and commissioned by the BBC[80] from GfK NOP[81] indicates the main elements of subjective well-being.



Source: Prosperity without growth by Tim Jackson

These elements are also found in the Stiglitz-Sen-Fitoussi Commission report, in which they are listed as follows:

- material standard of living (income, consumption and wealth)
- health
- education
- Personal activities (including work)
- political participation and governance
- social links and relationships
- environment
- economic and physical insecurity

Moreover, these components are still found in one form or another within the various studies relating to quality of life. Also, an important challenge of the "GDP Well-being" project will be to develop the various measurements relating to each of these components.

[80] British Broadcasting Corporation (BBC): British radio and television programme production and broadcasting company.

[81] Gfk National Opinion Polls: private market research agency providing business insight through quantitative and qualitative research

For example in the "family" area, average time spent with family, strength of the social bond between members of the same family, satisfaction as regards family relationships etc. may be useful variables. As regards the "health" area, it may prove useful to measure life expectancy at birth/at 65 years/in good health, satisfaction with state of health and self-reported health conditions etc. It should also be noted that the measurement of these aspects have a broader scope than was initially anticipated. As a result, life expectancy is often taken into account as an *output* variable of well-being. Moreover, self-reported health measurements also provide an insight into the mental well-being of individuals (family, work-related, societal stress).

Another approach may be to solely develop measurements for sensitive areas, i.e. areas where the dissatisfaction level of populations is high (cf. page 50 of this report)

Conclusions

The technical group proposes the following conclusions:

- Despite the criticism that can be directed at the **subjective variables**, they **should be introduced** in complement to the objective measurements **for sensitive areas or key areas.**
- It would be useful to develop the use of already available subjective data for Luxembourg and to observe, on the basis of the results of the EVS, the **most important areas for the measurement of well-being for which dissatisfaction is most marked.**
- It would be useful to use the data published by the Dublin Foundation on quality of life and to fund the European Social Survey (ESS).
- It would be helpful to have a **measurement for each quality of life element.**
    - In this regard, the use of **time-use surveys** may be a good starting point for measuring certain quality of life elements. A survey should be launched.
    - The development of **subjective measurements linked with satisfaction** is vital to provide access to information on the real perception of populations and to compare them with the conventional objective measurements.
    - The **comparison between the subjective and objective** data must be developed, or systematised in statistical practice.

Chapter four

Benchmarking: Progress, Sustainable Development and Well-being Indicators

CHALLENGES

- **To select the relevant indicators for a first level scoreboard**
- **To select more detailed indicators for other level scoreboards**

Benchmarking: progress, sustainable development and well-being indicators

In the context of a well-being indicator selection process, it appears to be desirable to observe the experience already gained abroad, to learn from this and not to adopt an isolated approach at the international level. Such an exercise would also save time, by avoiding having to invent a new approach to measuring well-being and enable the establishing of comparisons between the needs expressed by citizens and the indicators used in other countries.

Methodology used

List of indicator sets used

The list of indicator sets used for this benchmarking is as follows:

- ✓ The four pioneering countries in measuring progress and societal well-being (Australia[82], New Zealand[83]Canada[84], and Ireland[85]): these are the countries that have worked most and made the most progress on the problem we are concerned with. They have, in particular, produced reports on societal progress and determined indicators sets in cooperation with civil society. Nevertheless, their economic and social model belongs to the Anglo-Saxon tradition, which is partly unsuitable in the case of Luxembourg. In the same way, Canada is still working on defining new indicators for other aspects of well-being. Finally, these indicator sets are limited by placing too much emphasis on the economic aspects of progress.
- ✓ The two major European frameworks which are the indicators of the Sustainable Development Strategy (SDS[86]) and the EU Strategy 2020[87]: the aim is to take account of the major progress objectives at the European level.

[82] Measures of Australia's Progress:
http://www.abs.gov.au/ausstats/abs@.nsf/mf/1383.0.55.001 (for 2009)
http://www.abs.gov.au/ausstats/abs@.nsf/Lookup/by%20Subject/1370.0~2010~Main%20Features~Home%20page%20(1) (for 2010, in progress)
[83] The Social Report: http://www.socialreport.msd.govt.nz/
[84] The Canadian Index of Well-being:
http://www.ciw.ca/fr/TheCanadianIndexOfWellbeing/DomainsOfWellbeing.aspx
[85] Measuring Ireland's Progress:
http://www.cso.ie/releasespublications/documents/other_releases/2009/progress2009/measuringirelandprogress2009.pdf
[86] Sustainable Development Strategy:
http://epp.eurostat.ec.europa.eu/portal/page/portal/sdi/context
[87] EU 2020 Strategy:
http://epp.eurostat.ec.europa.eu/portal/page/portal/europe_2020_indicators/headline_indicators

The future scoreboard of the "GDP Well-being" project can then claim that it has taken account of some of the major supranational objectives and frameworks. It may be useful for policy monitoring. In addition, the Greater Region is also developing a sustainable development indicator set. Although the list of indicators is not yet fixed, it has already been agreed that the approach to the latter will be modelled, in major part, on that of the Sustainable Development Strategy (SDS). Therefore, taking account of this will also bring us closer to the framework fixed by the Greater Region.

Finally, it is interesting to note that the majority of European countries have also implemented sustainable development indicator sets based on the European Union Sustainable Development Strategy (SDS). This explains the limited number of European countries included in the benchmarking exercise (See below).

- ✓ Luxembourg's neighbouring countries (Belgium[88], the Netherlands[89], France[90]), the indicators of the former PNDD[91], and those of Switzerland[92], countries with certain similarities with Luxembourg: these countries have carried out work in this field and have common economic and social features. The social and economic model is of the continental type or the countries are "old Europe". In addition, these indicator sets provide genuine added value by comparison to the indicators for the European Union Sustainable Development Strategy indicators.
    - o Taking account of Belgium and the Netherlands is useful, due to their traditional association with Luxembourg in the context of the Benelux, and the originality of the existing indicator sets[93].
      In addition, that used for Belgium was drawn up by a *Conseil du Développement Durable*[94] (Sustainable Development Council).

[88] Note on an indicator set for sustainable development in Belgium: http://www.belspo.be/frdocfdd/DOC/pub/ad_av/2007/2007a15f.pdf

[89] Sustainability Monitor for the Netherlands 2009: http://www.rivm.nl/bibliotheek/rapporten/500147002.pdf

[90] The documents of the national conference on sustainable development indicators: http://www.cnis.fr/agenda/CR/CR_0546.pdf

[91] The Luxembourg PNDD (Plan National pour un Développement Durable / *National Plan for sustainable Development*) indicators for 2006: http://www.environnement.public.lu/developpement_durable/indicateurs/IDD_MAJ_06_08_ALL_PDF.pdf

[92] MONET indicators system: http://www.bfs.admin.ch/bfs/portal/fr/index/themen/21/02/01.html

[93] The Netherlands indicator set (The Netherlands Sustainability Monitor) is original in that it is based on the per capital approach and those chosen by Belgium were drawn up by a Conseil du Développement Durable (*Sustainable Development Council*) (please see the note at the bottom of the next page for further explanation).

- France was used due to the interest of the Joint Group in the French work, as witnessed by the invitation of Mr. Philippe Le Clézio to the inaugural conference of the "GDP Well-being" project on 1 March 2010, Mr. Jean Philippe Cotis to the 1st workshop, on 19 May 2010, and Mr. Patrick Viveret, on 2 June 2010.
- The Swiss case is also interesting, due to the large number of common features with the Grand Duchy: high GDP/inhabitant level, numerous cross-border workers, a highly developed banking sector, multilingualism, etc. In addition, the Swiss project is one of the pioneer projects, subsequently used as a basis by other countries such as New Zealand.
- Then, in the absence of a new indicator set for the PNDD, the indicators of the first PNDD were used.
- Finally, it should be noted that Germany has carried out a wealth of work on sustainable development for several years ("Green GDP" and satellite accounts) and it has just launched its study work on well-being. Although not included in the benchmarking exercise, this work will be taken into account and will help develop the list of indicators used.

Remark: Only indicator sets from developed countries were used, as the latter are experiencing problems similar to those in Luxembourg. It seems inappropriate to take account of sets from developing countries as a basis for comparison in a benchmarking exercise on this problem.

Synergies achieved

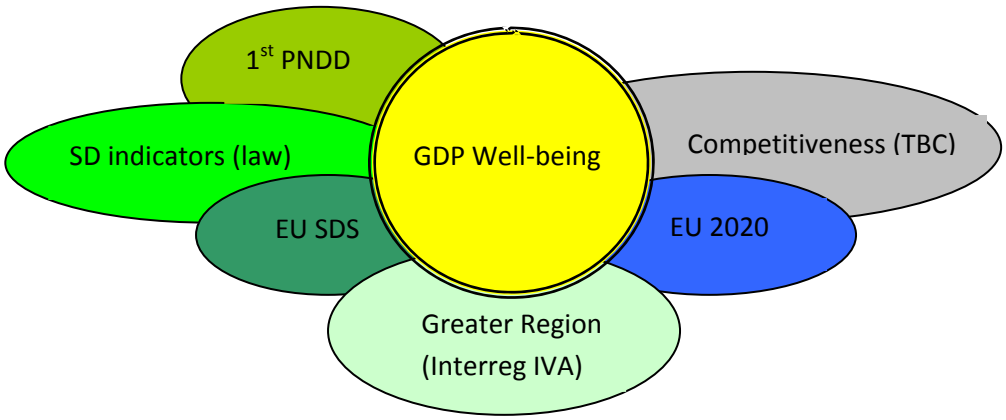
A communication drive was undertaken with the participation of both those responsible for the selection of the PNDD indicators and those responsible for

[94] The indicator set used for Belgium is that from the Conseil Fédéral du Développement Durable (CFDD) (*Federal Sustainable Development Council*) referred to in the *Avis pour un set d'indicateurs pour le développement durable au niveau belge* (Opinion on a set of indicators for sustainable development in Belgium) of September 2007. Although it was not used at the national level, contrary to the *Bureau Fédéral du Plan* (Plan Federal Office) set, we used the former in our approach, for two reasons. Firstly, the *Bureau Fédéral du Plan* set was heavily based on the Eurostat approach, already included in our benchmarking. Secondly, this indicator set was produced by a consultative institution representing the representative bodies of the nation and civil society, e.g. an institution close to the joint ESC-HCSD (*Conseil Économique et Social – Conseil Supérieur pour un Développement Durable*/Economic and Social Council – Higher Council for Sustainable Development) group.

sustainable development in the Greater Region[95]. The aim was not to have common scoreboards, but scoreboards with a sufficient number of common and consistent points to ensure that there would be some cohesion between the different measurement instruments.

The visibility of the well-being indicators should then result in a reduction in the number of inconsistencies or divergences within the information systems.

The diagram below shows how the projects in progress interlink:



Indicator selection

Given the variety of scoreboards used, it was necessary to determine a method for standardising the latter. It was therefore decided that all the indicators would be taken for "single level" scoreboards, while only the first level of indicators would be used for "multi-level" scoreboards. This approach was recommended because the purpose of this report is to initially assist in the determination of a first level scoreboard which, moreover, is the most restricted possible.

Key to reading the results table

In the table on the next page:

- ✓ The order of classification is determined by the number of occurrences of the variable in the benchmarking.
- ✓ The crosses (x) represent the variable used "as is" in an indicator set (for example, the unemployment rate is recorded as is).
- ✓ The "approximately equal" symbols (≈) represent a very close variable used in an indicator set (for example, the employment rate is checked with

[95] Work of the "Statistics" working group of the Greater Region in the context of the Interreg-IVA (2010–2011) project "Research and analysis of new harmonised indicators for the Greater Region: A thematic approach": http://www.grande-region.lu

this symbol as the unemployment rate). This type of grouping can be used as this is a benchmarking exercise. In fact, it is highly probable that one country chooses one indicator and another chooses a different one. The danger, in the case of not grouping the variables, is therefore of not obtaining a high score for phenomena that can be measured using several close variables.

- ✓ The boxes coloured green represent the variables found in at least one-third of the countries and at a maximum in three-quarters of the countries.

Results obtained for key indicators (indicators included in the summary scoreboards or headline indicators)

Classification of variables (no. of times the variable was found)	A	NZ	CA	IE	SDS	UE	PNDD	FR	BE	NL	CH	TOT
Total greenhouse gas emissions	x			x	x	x	x	x	x	x		8
Unemployment rate / employment rate	x	X	≈	x		≈	x	x			x	8
Life expectancy at birth	x	X	x	x	x			x	x	x	x	8
Net public aid to development/GNI			x	x	x		x	x	x		x	7
% of 25–64 year-olds having received at least a basic education…	≈	X		x		≈	x	≈		x		7
GDP				x	x		x	x	x	x		6
Proportion of victims of personal crimes (thefts and attacks)	x	x	x	≈							x	5
Chronic/ long-term unemployment rate	≈	≈	x	x					x			5
Net available actual income per person	x		≈	≈							x	4
Growth in national debt or Debt/GDP				x			x		x		x	4
Growth in Research and Development expenditure (R&D)				x		≈		x		x		4
Poverty risk rate / after social transfers				x	≈	≈			x			4
Growth in energy consumption/GDP or energy intensity				x		≈	x				x	4
No. of days when the conc. of fine particles exceeded fixed thresholds	x	x								≈		3
Number of actual or attempted burglaries and car thefts	x		x	≈								3
Ratio of the last decile/ over the first decile of available income		x	≈					x				3
% of the population with housing requiring one additional room		x	≈				x					3
Share of the voting-age population who do not vote		x	≈	x								3
Proportion of women elected to Parliament		x	x					x				3
Share of respondents considering certain groups suffer discrimination		x	≈							≈		3
Share of the population confirming they can trust others		x	x							≈		3
Gross Fixed Capital Formation (GFCF): investment				x			x				x	3
Number of early school-leavers				x		x		x				3
Dependence ratio (working age population/retired pop)				x			x		x			3
Share of renewable energies in total energy production					x	x		x				3
Abundance of common birds					X			x			x	3

Correspondence with the conclusions of the workshops

Breaking down the variables based on the three sections of the Stiglitz-Sen-Fitoussi Commission report, we get the following representation:

Economic component		
GDP	**Net actual disposable income/capita**	Growth in R&D expenditure
GNI/capita	*GNI/capita or Final effective consumption*	

Social and Quality of Life Component					
Unemployment rate/ employment rate	Chronic/long-term unemployment rate	**Risk of poverty / after social transfers**	**Life expectancy at birth**	Proportion of victims of personal crimes	Proportion of 25-64 year-olds having received at least a basic education…
		Measurement of inequalities (Gini, inter-quintile ratios, inter-deciles, poverty rate)	*Life expectancy at 65 years, in good health, satisfaction with health, self-reported state of health*		

Sustainability and Environment Component			
Total greenhouse gas emissions	**Energy intensity**	Debt/GDP	Net public aid to development/GNI
Decoupling indicators	*Share of renewable energies*		

The indicators from the workshops and in the benchmarking are shown in bold. The alternative indicators proposed during the workshops are shown in italics.

Results obtained for additional rank indicators

For the extended benchmarking, e.g. beyond the 1st rank indicators, the methodology used is different. In fact, all the 1st rank indicators were used for each country, together with the 2nd and 3rd rank indicators, the context and additional indicators. All the indicators for each scoreboard were therefore used for this benchmarking. The indicators used are sub-divided into three categories:

- ✓ Those in yellow found in at least one-third and at maximum half of the cases
- ✓ Those in gold found in at least half and at maximum ¾ of the cases
- ✓ Those in orange found in at least ¾ of the cases for the countries selected

Classification of variables (no. of times found)	A	NZ	CA	IE	SDS	UE	PNDD	FR	BE	NL	CH	TOT
Unemployment rate	x	x	x	x	x	x	x	x	x		x	10
Greenhouse gas emissions	x			x	x	x	x	x	x	x	x	9
% of early school leavers				x	x	x	x	x	x	x	x	8
Inequality of distribution of incomes	x	x	x		x			x	x		x	7
Public aid to development			x	x	x		x	x	x		x	7
Research and development expenditure (R&D)	x			x	x	x		x		x	x	7
Persons living below the poverty threshold	x	x			x		x	x			x	6
Life expectancy in good health		x	x		x				x	x	x	6
Share of investments in GDP	x			x	x		x			x	x	6
Energy intensity = Energy consumption/GDP				x	x	x	x			x	x	6
% of renewable energies in energy production					x	x	x	x		x	x	6
GDP/capita	x			x	x		x	x	x			6
Number of higher level degrees	x	x		x		x	x		X			6
% having received secondary/third-level education	x	x		x		x	x			x		6
Life expectancy	x	x	x	x	x			x				6
Household income	x	x	x	x							x	5
Suicide rate	x	x			x				x		x	5
Number of violent crimes	x	x	x	x							x	5
Proportion of women elected to assemblies	x	x	x					x			x	5
Reading skills	x	x		x	x						x	5
Employment productivity	x			x	x				x		x	5
Public debt				x	x		x		x		x	5
Volume of municipal waste				x	x		x		x		x	5
Waste recovery rate				x	x		x		x		x	5
Long-term unemployment rate	x		x	x	x				x			5
Number of deaths on the roads	x	x			x		x		x			5
Rate of participation in legislative elections	x	x	x	x	x							5
Volume of voluntary work	x		x							x	x	4

Internet use rate	x	x		x						x	**4**
Number of patent applications lodged				x					x	x	x	**4**
Modal split of transport of persons					x		x		x		x	**4**
Modal split of transport of goods				x			x		x		x	**4**
Final energy consumption					x		x		x		x	**4**
CO2 emissions	x				x		x				x	**4**
Concentration of fine particles	x				x					x	x	**4**
Population of nesting/common birds	x				x			x			x	**4**
Risk of poverty after social transfers				x	x	x			x			**4**
Fertility rate				x	x			x	x			**4**
Feelings of discrimination	x	x	x							x		**4**
Breakdown of deaths by cause	x	x			x		x					**4**
% of individuals living in households without jobs	x			x	x	x						**4**

Breaking down the aforementioned variables found in at least half of the selected sets based on the three sections of the Stiglitz-Sen-Fitoussi Commission report, we get the following representation:

Economic Component					
Unemployment rate	**Inequality of distribution of incomes**	Research and Development expenditure (R&D)	**Persons living below the poverty threshold**	Share of investments in GDP	**GDP/capita**
	Poverty measurements		*Inequality measurements*		*GNI/capita*

Social and Quality of Life Component				
% of early school-leavers	Life expectancy in good health	Number of higher level degrees	% having received a secondary/third-level education	Life expectancy

Sustainability and Environment Component			
Greenhouse gas emissions	Public aid to development	**Energy intensity = energy consumption/GDP**	**% of renewable energies in total energy production**
Decoupling indicators		Decoupling indicators	

The indicators from the workshops and in the benchmarking are shown in bold. The alternative indicators proposed during the workshops are shown in italics.

The **complete list of indicators of the extended benchmarking**, broken down by section of the Stiglitz-Sen-Fitoussi Commission report and then by topic, is as follows:

○ For the economic component:

-GDP/capita
-household income

-unemployment rate
-long-term unemployment rate

-inequality of distribution of incomes

-persons living below the poverty threshold
-% of individuals living in households without jobs
-poverty risk after social transfers

-share of investments in GDP
-research and development expenditure
-number of patent applications lodged
-Internet use rate
-participation in continuous education courses
-employment productivity

-public debt

○ For the social component:

-% of early school leavers
-number of higher level degrees
-% having received secondary/third-level education
-reading skills

-life expectancy
-life expectancy in good health
-suicide rate
-number of deaths on the roads
-breakdown of deaths by cause
-fertility rate

-proportion of women elected to assemblies
-participation rate in legislative elections

-number of violent crimes
-feelings of discrimination

○ For the environmental component:

-greenhouse gas emissions
-CO2 emissions
-concentration of fine particles

-final energy consumption
-energy intensity
-share of renewable energies in energy production

-volume of municipal waste

-waste recovery rate

-modal split of transport of persons
-modal split of transport of goods

-public aid to development
-population of nesting/common birds

Please note that other indicators were found during the benchmarking exercise and may represent certain features specific to Luxembourg.

○ These more specific indicators are the following:

-cost of housing
-number of houses completed per year
-local programmes on TV
-use of the local language
-preservation of the local language[96]
-% of people who can speak the local language

[96] Share of persons who can speak the language of their ethnic group.

Conclusion

Drafting a scoreboard and report on Luxembourg societal progress

Summary of indicators identified by the technical report

The technical report enabled the identification of over one hundred potentially usable variables (variables from the workshops, the scientific literature and from the benchmarking). The ESC and the HCSD must assess, modify and validate these choices.

The Stiglitz Commission report and other best practices recommend or use a structuring of these indicators at several levels; most often there are three levels: a scoreboard level with ten to fifteen indicators, a second more detailed level, and a final level including all of them. It is appropriate that the ESC and the HCSD examine these aspects and request, where necessary, additional work.

The list below shows the indicators identified by the technical report for the well-being scoreboard. The variables in bold are from the public in the different workshops and those in italics need to be developed. The variables from the Valcos (*Valeurs et Cohésion Sociale* / Social Values and Cohesion) project produced from the EVS survey are not regularly available but could be the subject of annual development.

Well-being

001. **Satisfaction with life** (*Travail et Cohésion sociale* report/Labour and Social Cohesion Report)

Social capital/solidarity

002. Proximal solidarity/with relatives (Valcos)
003. Distal solidarity/with the poorest (Valcos)
004. Social associations (Valcos)
005. Humanitarian organisations (Valcos)
006. Youth/sports organisations (Valcos)
007. Interpersonal relationships (Valcos)
008. Contacts with friends, colleagues (Labour and Social Cohesion)
009. Help available from outside the household if necessary (Labour and Social Cohesion)
010. Interpersonal trust (Labour and Social Cohesion)
011. Acceptance of immigration (Labour and Social Cohesion)
012. Acceptance of diversity (Labour and Social Cohesion)

013. Perception of the economic importance of immigration (Labour and Social Cohesion)
014. Public aid to development (benchmark)

Culture

015. *Indicator for participation in cultural activities (to be developed)*
016. Participation in social, cultural and sporting associations (Labour and Social Cohesion)
017. Cultural organisations (Valcos)
018. Share of local programmes on TV (benchmark)
019. Use/preservation of the local language (benchmark)
020. Share of individuals who can speak the local language (benchmark)

Economy/Standard of living

021. GDP (benchmark)
022. Green GDP
023. Gross internal expenditure on R&D (EU2020)
024. Share of investments in GDP (benchmark)
025. Number of patent applications lodged (benchmark)
026. Internet use rate (benchmark)
027. Debt/GDP or growth in the debt (benchmark)
028. *Indicator for post-growth (to be developed)*

029. GDP/capita
030. **GNI/capita**
031. Average/median available income (adjusted)
032. Private consumption of households (Labour and Social Cohesion)
033. *Household wealth (to be developed)*
034. *Total economic value of voluntary work (to be developed)*

Education

035. Young people having left education and training early (EU2020)
036. Level of higher education for the 30–34-year-old category (EU2020)
037. Part of 25–64-year-olds having received secondary/third-level education (benchmark)
038. Number of higher level degrees (benchmark)
039. Reading skills (benchmark)
040. Continuing education (benchmark)

Employment

041. Unemployment rate/employment rate (benchmark)
042. Chronic/long-term unemployment rate (benchmark)
043. Employment rate for 20–64-year-olds (EU2020)
044. Employment productivity (benchmark)

Environment/Energy

022. Green GDP

045. Greenhouse gas emissions (EU2020)[97]
046. CO2 emissions (benchmark)[98]
047. Air concentration of fine particles (benchmark)

048. Renewable energies in the gross final consumption of energy (EU2020)
049. Energy intensity of the economy (EU2020)
050. Final energy consumption (benchmark)
051. ***Dependence of the economy on fossil fuels*** *(to be developed)*

052. **Ecological footprint**
053. Carbon footprint
054. Decoupling indicators
055. Resource productivity
056. Organic farming
057. Environmental quality measurements

058. Volume of municipal waste (benchmark)
059. Waste recovery rate (benchmark)

060. Modal split of transport of persons (benchmark)
061. Modal split of transport of goods (benchmark)

062. Population of nesting/common birds[99] (benchmark)

Governance

063. Trust in national systems (Valcos)
064. Trust in national organisations (Valcos)
065. Trust in authoritative organisations (Valcos)
066. Satisfaction with the government and democracy (Valcos)

[97] In Luxembourg, the difference between greenhouse gas emissions and CO2 emissions is small due to the fact that more than 90% of the greenhouse gas emissions are due to CO2 emissions.

[98] Same as above

[99] This indicator is not relevant for Luxembourg as common birds have a tendency to multiply and the "small" birds have a tendency to disappear

067. Legal political participation (Valcos)
068. Illegal political participation (Valcos)
069. Institutions' policy actions (Valcos)
070. Political behaviour in daily life (Valcos)
071. Trust in institutions (Labour and Social Cohesion)
072. Political engagement (Labour and Social Cohesion)
073. Participation in political and civic associations (Labour and Social Cohesion)
074. Interest in politics (Labour and Social Cohesion)
075. Proportion of women elected to assemblies (benchmark)
076. Participation in legislative elections (benchmark)[100]
077. Feelings of discrimination (benchmark)
078. Political associations (Valcos)

Inequalities / Poverty / Equity

079. **Gini coefficient**
080. **Inter-quintile, inter-quartile, inter-decile range**
081. Relative poverty measurement
082. Share of individuals in financial difficulties
083. Population at risk of poverty or exclusion (EU2020)
084. Persons living in households with a very low work intensity (EU2020)
085. Share of individuals living in households without jobs (benchmark)
086. **Persons at risk of poverty after social transfers** (EU2020)
087. **Persons in a situation of serious material deprivation** (EU2020)
088. ***Global risk indicator for society*** *(to be developed)*
089. *Social confidence indicator (to be developed)*

Housing

090. **Land and housing price indicators**
091. Share of households concerned with the cost of housing (STATEC)
092. Average cost of housing (benchmark)
093. Number of houses completed per year (benchmark)

Health

094. **Life expectancy at birth** (benchmark)
095. Life expectancy in good health (benchmark)
096. Suicide rate (benchmark)

[100] This variable is not relevant for Luxembourg due to the mandatory requirement to vote in legislative elections.

097. Number of deaths on the roads (benchmark)
098. Breakdown of deaths by cause (benchmark)
099. Fertility rate (benchmark)
100. **Satisfaction with health** (Labour and Social Cohesion)

Security

101. Number of violent crimes (benchmark)
102. Share of victims of personal crimes (thefts and attacks) (benchmark)

+ PNDD2 monitoring indicators

The 14 unsustainable trends identified by the PNDD2:

1) The excessive use of natural resources
2) The excessive consumption of space
3) Climate change
4) A steady increase in traffic
5) Population marginalisation
6) Risks to social cohesion
7) The development of so-called modern-day illnesses
8) Population ageing
9) Risks of economic crisis
10) Inadequate financial resources
11) Significant differences in income between the north and the south
12) Challenges for the education system
13) Unequal opportunities between men and women
14) Deficits in relation to coherent governance

+ Quality of life component indicators

Partners / spouses / relations
Health
Living in a nice location
Money and financial situation
Religion / spiritual life
Community and friends
Career development
Material living conditions
Health
Education
Personal activities including work
Participation in political life and governance
Social links and relationships
Environment
Economic and physical security

+ Dublin Foundation quality of life indicators

Concluding remarks

The technical report did not address a full set of questions / topics. The latter are, by their nature, the responsibility of the ESC and the HCSD. They can be addressed by these two institutions during their deliberations with a view to submitting their opinion to the Government.

The following points remain among the questions still unanswered:

- The country's values and economic and social development objectives The choice of groups of indicators to be used or developed
- The follow-up to this work in the context of the opinions to be issued

With regard to the last two points, there are several possibilities requiring work.

** The indicators*

- The ranking of the indicators
- The selection of ten to fifteen main indicators
- The structuring of all the indicators into three groups: the ten to fifteen main ones, a larger series and sets of specialised indicators on certain topics.

** The follow-up*

- Frequency: Every year? Every two years?
- Drafting of a report on societal progress in Luxembourg (based on the Australian, New Zealand or Irish examples): analytical text + data
- Summary brochure on the first group of indicators (New Zealand)
- Who will produce such a report?
    - The ESC and the HCSD
    - The STATEC working with a group of experts appointed by the ESC/HCSD or the Government
    - A group designated by the ESC/HCSD
- The revision and adaptation of the list of indicators:
    - Prepared by the STATEC
    - Debated annually / every two years by the ESC and the HCSD

These periodic reports will also represent, for the two institutions, a means of conducting/continuing the debates on societal issues, the changes to reference models and the adoption of new objectives for the development of Luxembourg society.

Necessary developments to the statistical appliance to implement a "GDP Well-being" in Luxembourg

In the short term:

To reform the GDP

- To calculate the average/median available income (adjusted) for households
- To develop wealth accounts, by giving access to STATEC to micro-data held by the tax authorities.

For sustainable development

- To develop the "Green GDP" and environmental accounts as soon as possible
- To better measure "better consumption" (organic farming, renewable energies, environmental quality measurements, etc.)

For quality of life

- To develop subjective data, particularly that related to satisfaction
- To set up time use surveys

In the medium term:

- To develop sector accounts
- To develop accounting for non-market output by developing a system of satellite accounts, in particular for voluntary work, due to its nature as a creator of social links.
- To finance the European Social Survey (ESS)

In the long term:

- To measure individually each capital item of the Total National Wealth
- Comparison between subjective and objective data should be developed and even systematised.
- A macroeconomic-socio-environmental model, using the example of the Peter Victor model, should be developed to best determine the future choices for development.

Specific measurements to be developed:

- A measurement of the global risk for society
- A measurement for social trust
- A measurement for decoupling
- A measurement for the productivity of resources
- A measurement for use / dependence in relation to fossil energies
- A measurement in relation to the problems related to land resource