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Background note on "Measurement beyond GDP"

- Député européen (Verts, France) - Économie - Divers economie -

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Preliminary remark:

On a regular basis, if there were to be political will in the EP, the question of "going beyond GDP" could stand high on the political agenda of the EP, through the adoption of various reports: adoption of the *Sustainable Development Strategy* or the renewal of the *Lisbon Strategy*.

The fact that the renewed European Sustainable Development Strategy (EU SDS) identifies Sustainable Consumption and Production [1] (SCP) as one of the key challenges to be addressed to meet the challenges of sustainable development presents another occasion to address, through the coming European action plan on SCP, this key issue for the Greens.

To feed our reflections within the Green group on this issue, and in view of the context of the European electoral campaign of next year, here is a summary of the **conference "Beyond GDP"** which was organised in Brussels in November 2007, with the following objective: to analyse the shortcomings of GDP and to see which indicators could serve as a new base for measuring progress and the well-being of nations.

This background note aims to give an overview of the key issues debated, and on the opportunities/shortcomings of other indicators which go beyond growth.

I. Why we need other indicators

Till now, traditional economic indicators play a dominant role in guiding decisions. Economic performance is generally being measured through GDP (Gross Domestic Product), which is used to reflect "standards of living". However, most misconceptions concerning GDP stem from its overt abuse as an *indicator of welfare*.

Indeed, this indicator grossly counts all transactions with a market price and thus bluntly adds up benefits and costs in its accounting. It leaves aside two large realms where money doesn't "change hands" and outside "welfare": the family/community, as well as the environment. Beside, considering "welfare" from a purely financial point of view is restrictive: all transactions in GDP are monetary income for someone, whether it is the fireman cleaning up the havoc of a hurricane, or the divorce lawyer making money out of a human relationship tragedy. In order words, being able to discern and measure progress more comprehensively than with GDP per capita is a key prerequisite for improved decision making.

On the same line, the mistake is to *confuse the concepts of "growth" and "development"*. As Herman Daly [3] puts it, *"growth is the quantitative increase in physical scale while development is qualitative improvement or the unfolding of potentiality. An economy can grow without developing, or develop without growing, or do both, or neither".* For instance, a boost in car production may result in higher income for people working in the car factory but may lead to more air pollution and greenhouse gas emissions, resulting in an increase of global warming.

1. Shortcomings of the GDP criteria in brief:

Among the elements of well-being, there are:

the notion of "economic well-being" which is a broader concept than GDP, and which however can still be captured with standard economic measures: leisure, wealth, non-market activities, unemployment, insecurity;

the notion of "living conditions" which is even broader than GDP, such as: quality of the environment, health, education, inequality;

the notion of "happiness", which refers to family, activities, friends, work satisfaction, etc.

In this respect, the main flows of the GDP criteria can be summed up as follow:

Shortcoming of GDP - Economic Measures

GDP excludes a range of non-market activities (such as housework, childcare, care for the elderly and the ill, or any other forms of volunteer work) that influence well-being, but are difficult to measure since their value is not easily defined in market terms;

GDP reflects essentially what a society produces rather than what it can consume;

Shortcoming of GDP - Living conditions

Environmental - Pollution and Resource Depletion - GDP doesn't take into account of externalities, such as pollution or environmental deterioration, nor of depletion of non-renewable resources [4].

Inequality:GDP doesn't distinguish differences in the distribution of income [5].

Health: changes in the health conditions of a society are only reflected in GDP in so far as they increase the costs of the health system.

Crime and Family breakdown: all forms of social breakdown that involve the police, damages to property or lawyers who manage divorces add to GDP!

2. Evolution of economic theory in respect with GDP

The consensus among economists on the use of GDP per capita as a good proxy measure of well-being is becoming less obvious. According to some of them, the relationship between added income and added well-being doesn't hold true anymore at a certain point of economic growth [6]. If there is an undeniably strong correlation between GDP levels and components of basic welfare such as high literacy rates, better nutrition and health care, communications technology, life expectancy, - which are all important factors contributing to people's welfare -, the correlation between welfare and GDP is far from automatic, but conditional. The need to take into account "non-market factors" to assess well-being is all the more necessary when societies move beyond the point where they are capable of meeting the basic needs of the population for food, shelter and clothing.

Moreover, they stress that if there are many policies where wellbeing and GDP go hand in hand, there are also many cases of policies that contribute to well-being but that slowdown GDP growth. For instance: when people work less hours, it reduces undoubtedly GDP but it enhances also wellbeing. The preservation of a natural forest is another

example in case where wellbeing will turn into less GDP. Although the wood will not be sold on the market, the ecosystem will be maintained, including access to the forest for recreation.

3. Use of indicators to measure sustainable progress: difficulties to overcome

"Wellbeing" should be seen as a multidimensional concept that captures many aspects of human life. As a general principle, there is the difficulty to attach a monetary value to various non-monetary factors in order to obtain a better proxy of the well-being of individuals and societies.

More precisely, the main difficulties to overcome are:

a concept, such as "welfare", is difficult to measure since it involves *subjectivity.* Even on an individual basis, welfare may be perceived differently from one individual to another.

indicators are useful for policy analysis on condition that it is possible to use and compare indicators results on different scales (international, national, regional, local). However, theses indicators are very often based on data gathered following different methods as *no methodological international standard* has been developed. Furthermore, *data availability* differs on local, regional and national scale.

average values across a national level may hide regional and local trends, giving a distorted picture of reality.

Two possible strategies to develop new indicators:

Strategy 1: to develop full-fledged measures of wellbeing;

Strategy 2: to complement GDP either by providing indicators for issues not picked up by GDP, or by modifying GDP.

More precisely, this strategy could take the following form:

1. Search for indicator sets with a small number of high-level indicators, including for example the footprint or a biodiversity indicator [7].

2. Include economic risks of ecological decline in economic outlooks, even if they cannot be fully quantified and monetised [8].

General principles to which the selection of indicators should reply to:

The need for consensus on indicators is crucial. Without that there are no real possibilities for cross-country comparisons or for analysing how things have evolve over time;

A plethora of competing indicators will leave too much room for indicator shopping. One of the benefits of indicators is their potential to help public debate. For this to materialize, one cannot have too complicated indicators and also not too many!

Criteria to take into account for the selection of indicators:

Analytical soundness

An indicator should preferably:

- be based on international standards and international consensus about its validity;
- be as objective in its construction as possible.

Measurability

The data required to support the indicator should preferably be:

- available in homogeneous and coherent databases allowing to assess interdependencies between the indicators.

Policy relevance and utility for users

An indicator should preferably:

- provide a representative picture of economic conditions, social aspects and environmental conditions;
- be simple, easy to interpret and able to show trends over time;
- allow for communicating the result and the direction a policy should head to;
- be universal and provide a basis for international comparisons.

II. Sustainable Development Strategy and implications for policy making

1. General principles

Considering that sustainable development is a transversal objective of the EU since the Amsterdam Treaty (1997), Gross Domestic Product (GDP) - which combines in a single figure the total market value of all final goods and services produced within a country's economic territory during a given period -, reflects a market growth focus that is theoretically no longer representative of the EU's ambitions and time horizon. Therefore, a sustainable development strategy requires clear and multidimensional indicators showing the links among a community's economy, environment and society.

The need to go "beyond GDP" is now fully recognised at political level. The **EU Sustainable Development Strategy (SDS)** which was adopted by the European Council in June 2001 was renewed in June 2006. In its resolution, the EP asked for balancing the emphasis placed on GDP by an equal concern about the qualitative aspects of growth. Parliament therefore called for a limited set of key sustainability indicators that would allow quantitative and prompt assessments of health (quality and distribution of heath care, life expectancy, child mortality, etc.), awareness

(education and culture, etc.), inclusion (participation in society's decisions, etc.) and environmental quality (air and water pollution, etc.). The need to go beyond GDP was also reasserted last month in plenary in the adoption of the Lisbon resolution for the Spring summit of March 08.

Beside, the "**Istanbul Declaration** [9]", signed in June 2007 by the European Commission, the OECD, the Organisation of the Islamic Conference, the United Nations, the UNDP and the World Bank confirm their commitment to measuring and fostering the progress of societies in all dimensions, with the ultimate goal of improving policy making, democracy and citizens' wellbeing.

However, although many international organisations have joined their forces with scientists to discuss ways how to move beyond GDP, this has not led until now to concrete success in the sense of consensus on indicators.

2. What has been done so far

Over the last 15 years several OECD countries have developed indicators for measuring progress towards sustainable development.

As regards the development of indicators that measure well-being that are not picked up by GDP, there are:

The **European Environment Agency**, which updates regularly its Core Set of 37 environmental indicators;

In their "Society at a Glance", the OECD collects social indicators of a large variety;

There is a **European Foundation on Social Quality** which attempts to come up with an aggregate social indicator, with the purpose of cross-country comparisons, etc.

However, the challenges remain the same:

There is still no consensus among researchers around what the term "wellbeing" encompasses, in view of its subjectivity. Therefore, there is no agreement on a "set of indicators" to measure wellbeing;

There are not yet established mechanisms for integrating the concerns of environment into measurements of economic resources [10].

There is this idea that the more indicators exist, the least there are likely to have world wide impact.

3. Sustainable Development Indicators (SDI)

The EU Sustainable Development Strategy and the EU Lisbon Strategy use the *Sustainable Development Indicators* and the *Structural Indicators* respectively to measure progress in achieving the targets set by the Strategies.

The development of SDI has its political starting point at the first Earth Summit in Rio 1992, where Agenda 21 was adopted calling for the development of SDI's. SDI concentrates on different determinants of well-being, such as social, economic and environmental issues. While they primarily focused on (large) sets of indicators that cover comprehensively the full scope of Sustainable Development (SD) policies, the trend was at a second stage to limit

them to key indicators so as to allow for a quick overview of major trends of SD.

So far, some indicators are already related to policy making:

1) *Concrete policy proposals*: Impact assessments typically use a selection of non-monetary indicators (covering social and environmental aspects).

2) *Monitoring and evaluation*: some indicator sets serve to monitor and evaluate progress of policies. Examples: the structural indicators that monitor progress towards the targets of the EU's Lisbon Strategy.

The SDI indicators, - which include very different fields, such as work, health, education, housing conditions and social relation, - have however various shortcomings, which need to be overcome in the future:

In contrast to indices like the Human Development Index (HDI) or the Genuine Progress Indicator (GPI), the SDIs are not aggregated in order to provide general direction in a single comprehensible measure. With more than 150 indicators it is quite difficult to get an overview.

Moreover, as "GDP per capita" is still considered as the "headline" indicator, the shortcomings of GDP are carried into the SDI.

It is necessary to answer which type of data base needs to be built to pave the way for consensus on indicators. Although Eurostat is active in this field by building data sets on structural indicators and SDI (and the OECD has data sets on many fields), more remains to be done to reach consensus, especially in respect with DSI, where there is still a lack of uniform data availability.

In conclusion: the way forward

Assessing existing policies or developing new policy options requires indicators: to describe the current situation/problem; to analyse the causes; to identify possible solutions and analyse, select and implement policy proposals; to monitor and evaluate the policies and to communicate the outcomes at all steps of the policy cycle. In other words, indicators are necessary in all steps of the policy cycle.

The variety, quality of information tools to support a balanced European policy has markedly improved over the past decade, notably so in the environmental domain. However, much remains to be done to apply this information in every day decision making and accounting for decisions.

Questions to discuss for the Greens:

The EU has developed both the Lisbon & the Sustainable Development Strategy with indicator systems for monitoring social, environmental and economic developments which are: the Structural Indicators and the SDIs respectively. For improving policy coherence: either one strategy and indicator system needs to be abolished, or both systems should merge into a comprehensive overarching strategy and indicator system for (sustainable) social, economic and environmental development. What would the Greens suggest in this respect?

Do the Greens privilege a strategy where we replace GDP completely or is it in favour of a strategy to complement GDP with other indicators?

Do the Greens prefer a strategy with a limited amount of indicators, or a list which is more comprehensive for the EU policy making process?

Among all the indicators developed by the academic community, and in spite of their shortcomings, what are the ones the Greens would pick up?

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III. How to go beyond GDP: overview of the existing indicators

The need to go beyond GDP is crystal clear: while GDP could continue to be used for economic policy (such as fiscal and monetary policy), it definitely cannot be used as a general sustainable development and welfare measure. For these reasons, there is a need to turn into alternative measures going beyond GDP. As we will see in this section, there is no shortage of research on indicators complementary to GDP, but for the present this remains a subject for academic debate and is not used by policy makers. Beside, they all present opportunities and shortcomings to overcome in order to be part of an EU sustainable Development Strategy.

The possible ways to proceed are as follow:

1) to ***adjust GDP*** by including monetised environmental and social indicators.

2) to ***replace GDP*** by developing indicators that try to assess well-being more directly than GDP, e.g. by assessing average satisfaction or the achievement of basic human functions (like the Human Development Index, or the Happy Planet Index). Although these indicators can serve as valuable instruments to assess and communicate several aspects of sustainability and well-being, this option is often considered as non-realistic option for decision-making, in view of a lack of universal consensus on what it stands for.

3) to ***supplement GDP*** with environmental and social information in relation to GDP.

1. Adjustment of GDP indicators: lessons to draw for the EU:

Genuine Progress Indicator

Opportunities

Among the indicators which are meant to adjust GDP, the "**Genuine Progress Indicator** (GPI)" is highly relevant for the EU. It is similar to the *Index of Sustainable Economic Welfare (ISEW)*, originally developed in 1980s, and which takes into account the links between environment, economy and society. But unlike ISEW, the "GPI" incorporates additional elements such as crime, divorce, unemployment and changes in leisure time. Furthermore, it is considered as less complex and more accessible to all people.

At this stage, the GPI addresses several of the key objectives of the EU Sustainable Development Strategy (EU SDS). By providing an integrated measure of economic progress and "social equity and a healthy environment", it could also promote synergies between the EU SDS and the EU Lisbon Strategy. The GPI could complement both the Structural Indicators as well as the Sustainable Development Indicators as a single, integrative, top-level indicator!

Shortcomings

The shortcoming of this indicator is that there is no systematic attempt so far for measuring GPI across European countries or on the European level. Developing a measurement methodology for GPI at the European level could help to reduce the arbitrariness of the indicator and increase its policy relevance.

Green GDP or Green National Accounting

Experienced in China, green GDP is an index of economic growth incorporating the environmental consequences of that growth, including the depletion of natural resources and degradation of the environment. In order words, green GDP is to account for the non-market benefits of nature.

Shortcomings:

- ecological or health damage caused by industrial pollution may take years to appear. Furthermore, pollution may not harm locally, close to the enterprise causing the pollution, but may damage more distant areas.

- the practicality and validity of green GDP are being complicated by the need of putting prices and values on the nature aspects.

- there is no internationally recognised standards for calculating "Green GDP".

Opportunities:

Although the Green GDP faces the usual problems when addressing environmental damage in monetary terms, the setting-up of a European "Green GDP", based on a tested, established methodology that is transparent and widely accepted, should help to raise awareness on the price of reckless development and environment damage.

Genuine savings (Adjusted net savings) by Worldbank

Gross National Savings measures how much the country is investing in future consumption. It recalculates national savings figures by accounting for depreciation of produced assets, depletion of natural resources, the value of global environmental pollution (including loss of welfare in the form of human sickness and health), and investments in human capital (spending on education is seen as saving rather than consumption as it increases human capital).

Although this indicator has various shortcomings (related to the methodology, the factors taken into account, etc.), as human capital investments are included in the Genuine Savings, the indicator could support the Lisbon Agenda of the EU of creating a competitive "knowledge based economy". More broadly, its integrative treatment of economic, social and environmental factors could foster synergies between the indicators devised for the Lisbon and the Sustainable Development Strategy, working as a headline indicator.

2. Indicators replacing GDP: lessons to draw for the EU:

Human Development Index (HDI) and Gender-related Development Index (GDI)

The Human Development Index (HDI) is a composite measure which takes into account three basic dimensions of human development: longevity (measured by life expectancy at birth), knowledge (measured i.e. by the adult literacy rate) and income (as measured by GDP per capita).

The index, which was developed in 1990, is mainly used in a development context, to verify progress on key indicators of developing countries. It is used by the World Bank and the UN.

The HDI has many advantages:

it is promoted through the annual flagship report of a UN programme (UNDP) and is highly recognised and visible worldwide;

while the data for calculating the HDI is widely available, the indicator has significantly raised awareness for the concept of "human development".

However, since all European countries are in the top group, the challenges that Europe faces are not well picked up by HDI (although the HDI might be best suited for application in EU cooperation and trade policy). And there is a need for a more complex indicator (the HDI doesn't cover ecological aspects of sustainability!).

Ecological footprint (EF) and Happy Planet Index (HPI)

The Ecological Footprint [11] (EF) measures how much land area (how many planets?) is required to sustain a given population at present levels of consumption, technological development and resource efficiency. Therefore, the concept of EF is useful for developing and assessing future scenarios related to different policy options.

The Ecological Footprint, which provides a connection between consumption and resource use, is appealing as communication and awareness-raising tools. However, it is not frequently used in policy processes. For practical reasons, it is easier to measure the carbon footprint than the total ecological footprint (due to data availability and reliable measuring techniques).

At this stage, the carbon footprint might therefore be a more appropriate tool to use within policy-making in the EU rather than the EF.

Happy Planet Index (HPI)

The Happy Planet Index is an index of human well-being and environmental impact. It is based on two objective indicators, life expectancy and ecological footprint per capita, and one subjective indicator "life satisfaction". In order words, the index is a mixture of "soft" (life satisfaction) and "hard" (life expectancy, ecological footprint) criteria. It accounts for individual circumstances affecting people's well-being.

The HPI is not a measure of which is the happiest country in the world: it is a measure of the *environmental efficiency of supporting well-being* in a given country. The highest average score is being achieved in Central America; the G8 countries generally score badly in the index.

Although HPI contains weaknesses (difficulty to measure "happiness"" or "life satisfaction" which are very subjective and personal issues), the HPE could nevertheless be a tool to measure progress on the European Sustainable

Development Strategy (EU SDS), as it integrates the target of "improvement of quality of life" and the challenge to "manage and use resources efficiently". In order words, the index would allow an assessment regarding the "quality of life" goal in the UE SDS.

Beside, the **Gross National Happiness indicator (GNH)**, similar to the HPI, was brought forward by the King of Bhutan, which set four policy-bundle priority areas: sustainable and equitable socio-economic development; conservation of the environment; preservation and promotion of culture; and promotion of good governance. Its commitment to GNH has allowed Bhutan to both expand its network of roads and increase its forest cover.

3. Indicators "supplementing" GDP: Environmental Accounts (EA)

One of the fathers of the GDP success was the national account data base. Environmental Accounts are a tool to analyse the links between the environment and the economy at EU, national, regional and industry level. An important characteristic of environmental accounting is that the data are consistent with the National Accounts which mean that the environmental data can be directly compared to well known macro-economic indicators such as GDP, inflation and investment rates, developed in the System of National Accounts (SNA).

In order words, combined with the national accounts, the environmental accounts provide a powerful tool to analyse to what extent our current production and consumption patterns are degrading natural resources or are polluting the environment [12].

System of Economic and Environmental Accounting (SEEA)

The SEEA 1993 (System of Economic and Environmental Accounting) represented the first international handbook on environmental accounting. It has been developed to link environmental and economic statistics. The challenge was to operationalise the concept of sustainable development.

Specific accounts in the SEEA cover e.g. 1) natural resources such as forests, oil and gas; (2) flow accounts for material use, air emissions, water, waste; and (3) economic accounts for environmental expenditure and revenues, eco-industries and taxes.

An important development in SEEA is the creation of the United Nations Committee of experts on Environmental Accounting. This committee has been installed to improve the global promotion, implementation and harmonisation of environmental-economic accounts and to pave the way for SEEA to become an international standard rather than a set of international recommendations.

However, there are various shortcomings to overcome: the system is complex, and while the SEEA integrate the environmental and economic aspects of sustainable development, they do not consider the social aspects and are thus to some extent limited in providing encompassing sustainability information.

Along with Eurostat a number of European countries are active in the development and revision of the environmental accounting framework. The EU shall aim to improve and expand the use of the System of Economic and Environmental Accounting (SEEA).

National Accounting Matrix including Environmental Accounts (NAMEA)

The NAMEA accounting system was developed by Statistics Netherlands at the end of the 1990s and has since been applied in various EU countries.

NAMEA-based analysis is comprehensive covering the production and consumption system. It allows approaching environmental issues both from the production side (e.g. environmental pressure generated by industries) as well as the consumption side (e.g. focussing on the life cycle wide environmental pressures generated by the consumption of certain products).

In order to be used in support of European and national policy making process, some weaknesses will have to be lifted. Indeed, the methodology focuses on the environment-economic aspects of sustainable development, but does not include social aspects. Moreover, data availability is currently limited, both in terms of regional scope (countries for which NAMEA type tables are available) and in terms of time series data (most recent year available is 2000).

German Environmental Economic Accounting (GEEA)

The GEEA provides some of the most comprehensive data sets on the interaction between the environment and the economy at the national level. It is based on the SEEA, fully compatible with the German National Accounts and is already used to support policy advice in the area of sustainable development.

With regards to sustainable development the GEEA is highly policy relevant. Annual statistics are available for the whole of Germany from 1991 onwards for energy, emissions, water and wastewater and environmental taxes; as well as for materials, raw materials and land use from 1994 onwards. Beside, the reliability of data is also relatively high. However, it shares basically the same weaknesses and limitations of the SEEA.

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[1] Decoupling environmental pressures from economic growth is one of the main objectives of the EU Sustainable Consumption and Production Policies (SCP), which are supposed to "promote sustainable consumption and production by addressing social and economic development within the carrying capacity of ecosystems and decoupling economic growth from environmental degradation". For this purpose the Commission planed to propose in early 2008 a European action plan on SCP.

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[3] Herman Daly, ecological economist and former senior economist in the environmental department of the World Bank.

[4] Ex: natural capital is required to maintain a functioning biosphere and supply resources to the economy. Numerous studies show how this capital is being degraded (e.g. Millennium Ecosystem Assessment, 2005).

[5] To most people, a huge increase in national income that goes exclusively to a tiny handful of very wealthy families will not increase general well-being as much as it were more equitably distributed.

[6] For instance, according to the economist Max-Neef (1995): *"For every society there seems to be a period in which economic growth (as conventionally measured) brings about an improvement in the quality of life, but only up to a point - the threshold point - beyond which, if there is more economic growth, quality of life may begin to deteriorate".*

[7] For example, a recent proposal of the UK Sustainable Development Commission (SDC) calls for the introduction of three core indicators to monitor overall well-being, one for economic aspects (GDP), one for environmental (carbon dioxide footprint of the UK) and one for social (not yet defined).

[8] Since the mid 1990s, a new generation of quantified world-wide environment assessments has emerged. These include UNEP's Global Environment Outlooks reports, the assessment reports of the Intergovernmental Panel on Climate Change and the World Water Vision. Stern report is of course another report being a recent example of an assessment that in fact improved GDP projections by including economic risks and environmental pressures.

[9] The Istanbul Declaration states that "there is an emerging consensus on the need to undertake the measurement of societal progress in every country, going beyond conventional economic measures such as GDP per capita. The United Nation's system of indicators to measure progress towards the Millennium Development Goals (MDGs) being a step in that direction".

[10] The cost-benefit ratio as an indicator illustrates this difficulty. Cost-benefit analysis (CBA) is an economic technique widely applied to decision-making, which attempts to quantify and compare the economic advantages (benefits) and disadvantages (costs) associated with a particular project or policy for society as a whole.
Difficulties in applying CBA to environment-relates issues include:
i) how to quantify natural resources (like biodiversity or services like clean water);
ii) how to estimate their value in monetary terms;
iii) whether and how to discount future costs and benefits to their present values.

[11] The main components of the EF are land used for crops, animal products, fisheries, forest products, and the land needed to absorb and sequester CO2 emissions from fossil fuels.

[12] EA can answer tricky political questions and give a complement to environmental statistics: are we reaching the desired decoupling (economic growth with less and less impact on the environment)? Are we respecting the Kyoto targets in terms of greenhouse gas emissions or are we simply exporting the emissions by relocating production activities? What are the more or less harmful economic sectors for the environment? What is the productivity from natural resources at European level? How much employment is generated by environmental protection? Are eco-industries growing? Are Market-based policy instruments increasingly used?