

ENV.2011.4.2.2-1 Knowledge brokerage activities for engaging in a "beyond GDP" society

New ways are called for to make use of research results in policy-making through their "secondary exploitation" in order to support the mainstreaming of the "GDP and Beyond" policy process. Economists and other stakeholders have for a long time pointed to the shortcomings of GDP in taking into account environmental and social aspects. Yet, it is only recently that these concerns have come to the core of the political agenda, notably with the European Commission Communication of August 2009 "GDP and beyond: measuring progress in a changing world" and report by The Commission on the Measurement of Economic Performance and Social Progress ("Stiglitz report") issued in September 2009. This topic calls for the mobilization of scientific knowledge to accelerate the shifting away from GDP as an exclusive mainstream indicator. In the proposal, the "research reservoir" shall be made explicit as well as the policy aim for activating this research reservoir. The proposal shall guarantee full involvement of policy makers, either through the composition of the consortium and/or through the work plan design. Over the duration of the project, knowledge brokerage activities should systematically monitor and report the progress of "GDP and beyond" issues and build structures designed to continue beyond the project's duration. Due to the experimental nature of the project, and the importance of the learning process, the design should include an in-built evaluation process that documents and critically analyses successes and difficulties with the knowledge brokerage approach.

Funding scheme: Collaborative Project (small or medium-scale focused research project)

Additional eligibility criterion:The requested EU contribution shall not exceed EUR 1 500 000.

Additional information: Bottom-up topic, up to three projects will be selected.

Expected Impact: Increase influence of indicators on the sustainable development policy process. Improve knowledge transfer among researchers in academic institutions and in (policy) think tanks, non-governmental organisations, stakeholders and policy-makers and optimised the uptake and use of research results in the field of sustainable development indicators.



Proposal full title: **LINKING KNOWLEDGE TO ACTION FOR A SOCIETY BEYOND GDP**

Proposal acronym: **XXXXX**

Type of funding scheme: Collaborative Project, Small or medium-scale focused research project

Work programme topics addressed: ENV.2011.4.2.2-1 Knowledge brokerage activities for engaging in a "beyond GDP" society

Name of the coordinating person: XXXXX

List of participants:

| Participant no. * | Participant organisation name | Country |
|--------------------------|--------------------------------------|----------------|
| 1 (Coordinator) | A | Italy |
| 2 | B | Netherlands |
| 3 | C | Czech Republic |
| 4 | D | Austria |
| 5 | E | Italy |
| 6 | F | Spain |

Proposal

1: Scientific and/or technical quality, relevant to the topics addressed by the call

1.1 Concept and objectives

Concept

Gross Domestic Product (GDP) is nowadays the most known and internationally adopted measure of macro-economic activity. Such a fundamental pillar of our economic and political system was initially developed in the 1930s, mostly thanks to the advancements made by the group of the US Bureau of Foreign and Domestic Commerce's Division of Economic Research, led by the Nobel Prize winner Simon Kuznets.

The group built up the “national income and product accounts” (NIPA's,) a comprehensive set of accounts capable to measure the total value of final goods and services (gross domestic product, or GDP) produced by the U.S. economy and the total of incomes earned in producing that output (Gross Domestic Income, or GDI). Therefore, GDP was meant to measuring final purchases by households, business, and government by summing consumption, investment, government spending, and net exports. On the contrary, GDI for measuring total incomes earned by households by summing wages and salaries, rents, profits, interest, and other income. The accounts also provided information on the prices at which the output were sold and measures of real, inflation-adjusted, measures of output and income.

“Prior to the development of the NIPA's, policymakers had to guide the economy using limited and fragmentary information about the state of the economy”.¹ The NIPA's allowed for a comprehensive and integrated analyses of the impact of alternative policy actions, or of external events, on the entire economy as well as on detailed components of final demand, incomes, industries, and regions of the country. Consequently, GDP has become a standard point of reference used worldwide by economist and policy-makers not only to aggregate the value added of all money-based economic activities but has also served “as a proxy indicator for overall societal development and progress in general” (EC, 2009)².

However, it is now widely recognised that such an approach substantially underestimates the relevance of the so called external (environmental and social) costs, associated to the economic activity. Since the late 60's, some economists³ (Boulding 1966; Mishan 1968; Kapp, K. William, 1971) as well as the former President of the United States of America Robert “Bob” Francis Kennedy in his speech at the University of Kansas in March 1968, started highlighting the limits of the GDP approach, especially when taking into consideration not only the economic aspects of the economic activities but also environmental and social ones.

¹ See: US Bureau of Economic Activities (BEA) “*GDP: One of the Great Inventions of the 20th Century*”

² Communication of the European Commission [COM(2009) 433]: “*GDP and beyond: Measuring progress in a changing world*”.

³ Boulding, 1966. “The economics of the coming Spaceship Earth”; Mishan, E. J., 1968. “The cost of economic growth”; Kapp, K. William, 1971. “Environmental and Social Costs: a challenge to economics”.

As a matter of fact, GDP does not measure environmental sustainability or social inclusion and these limitations have to be taken into account when using GDP in policy analysis and debates. The need to improve data and indicators to complement GDP has been progressively increasingly recognised and is the focus of a number of international initiatives. More recently, after the formulation of the concept of Sustainable Development, these topics have become a core element of the international and national political agenda, reflecting renewed societal and political priorities.

Sustainable development, started as a predicament about intergenerational distribution of natural resources over a longer than usual time horizon it gradually extended to include a whole range of economic and social aspects of human development. Over the past two decades following the publication of the World Commission on Environment and Development (WCED) Report, also known as Brundtland Report (1987), several attempts to develop sustainability indicators and to make them a more appropriate measure of progress, well-being and nature conservation, have proliferated in order to go beyond GDP.

According to the concept of “sustainable development”, the initiatives aimed at re-equilibrate the three dimensions (economical, environmental and social) when considering the concept of development, distinguishing it from the pure concept of growth. These attempts adopted diverse approaches and different degrees of integration of the before left apart dimensions.

In March 2000, the Lisbon European Council set out a ten-year strategy to make the EU “*the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion*”

Then, in 2001 the European Council in Gothenburg formally adopted the first *EU Sustainable Development Strategy* (SDS), adding an environmental dimension to the Lisbon objectives. Following the review of the EU 2001 SDS launched by the Commission, in June 2006 the European Council finally adopted an ambitious and comprehensive renewed *Sustainable Development Strategy* for an enlarged European Union⁵.

Within the “SDS framework”, set out in Lisbon and Gothenburg, several cross cutting and thematic strategies and action plans have been adopted at EU level, covering a wide range of areas to improve security, public health, enhance social inclusion, strengthen cohesion sustainable use of natural resources, waste prevention and reuse and to halt the loss of biodiversity, improve soil, water and air quality. Member States have been asked to adopt their own national sustainable development strategy and to monitor their performances through indicators.

In November 2007, the European Commission together with the European Parliament, the Club of Rome, the WWF and the OECD organised the Beyond GDP conference.⁶ The conference revealed strong support from policy-makers, economic, social and environmental experts and civil society for developing indicators that complement GDP and aim to provide more comprehensive information to support policy decisions.

Recently, the European Commission (EC) and the Organization for Economic Co-operation and Development (OECD), with the “*Commission on the Measurement of Economic Performance and Social Progress Report*” (“Stiglitz Report”) and the EC Communication

⁵ *Communication from the Commission of 13 December 2005 on the review of the Sustainable Development Strategy - A platform for action* [COM(2005) 658].

⁶ See: www.beyond-gdp.eu

"*GDP and beyond: measuring progress in a changing world*" respectively, launched a clear signal of a necessity to go beyond the classical "GDP approach" and paved the way forward towards new measurement of development. This called for a mobilization of scientific knowledge to accelerate the shifting from GDP as an exclusive mainstream indicator towards a progressive substitution with other metric making use of different approached based on a more comprehensive concept of development.

Instruments to mobilize the scientific knowledge are embedded in the Knowledge Brokerage (KB) approach. Knowledge brokering instruments are methods or tools which aim to increase the quality of science policy interactions and to facilitate collaborative learning. KB provides a link between research producers and end users by developing a mutual understanding of goals and cultures, supports the collaboration between knowledge producers and end users in the identification of issues and problems for which solutions are required, and facilitates the identification, access, assessment, interpretation, and translation of research evidence into local policy and practice.

The proposed project, Linking knowledge To Action for Sustainability (X) is aimed at linking research and policy through the implementation of a set of brokering instruments .

A new type of knowledge is needed more capable to reflect the complexity and the multidimensional character of sustainable development. The new paradigm must be able to encompass different magnitudes of scales (of time, space and function), multiple balances (dynamics), multiple actors (interests) and multiple failures (systemic faults)⁷.

Those making policy need to be informed as possible about complex social problems of major importance and need to be supported in the decision making process by a type of knowledge that is co-produced⁸ through participatory processes and the interaction between scientists and practitioners, policymakers, and citizens

This approach that is beginning to emerge is related to a new scientific paradigm⁹, known as *Sustainability Science*. Emerged as a new science to address the complexity and the multidimensional character of sustainable development, Sustainability Science is based on an integrated and trans-disciplinary approach, with the aim to analyze and to understand the links among environmental sciences, economics, social sciences and political sciences.

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⁸ Add a reference on the concept of knowledge co-production active involvement of the different stakeholders, civil society, the private sector and policy makers, in a process of scientific co-production.

⁹ Sustainability science is inspired by concepts of 'post-normal', 'mode 2', 'citizen/civic', 'triple helix' science (Funtowicz and Ravetz, 1993; Gibbons et al., 1994; Irwin, 1995; Etzkowitz and Leydesdorff, 2000) and employs corresponding research paradigms such as participatory, interactive, transdisciplinary, transacademic, collaborative, and community-based research approaches (Kasemir et al., 2003; Bäckstrand, 2003; Savan and Sider, 2003; Hirsch Hadorn et al., 2006). All these approaches have in common that they endorse research collaborations among scientists and non-academic stakeholders from business, government, and the civil society for addressing issues of sustainability. See Wiek, A. and Farioli F. "From complex systems thinking to transformational change: Epistemological and methodological challenges in sustainability science", Background Paper presented at the II International Conference on Sustainability Science, Rome June 2010 (www.icss2010.net)

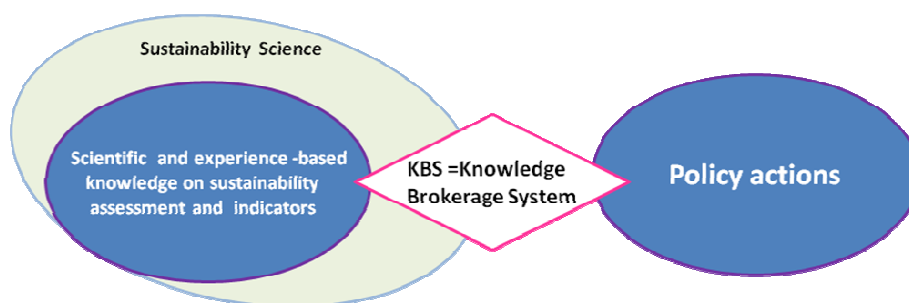


Figure 1

The project is based on the assumption of Sustainability Science according to which a single approach is not sufficient and not suitable to address the complexity and the challenges of a beyond GDP society. An integrated approach is needed embedding analytical, participating and management methods.

Scope and objective

Main objective of the project is to increase **the usage of sustainable development indicators in the decision-making process, to ease their implementation by policymakers** and to **strengthen policy-orientation** of sustainability-focused research community. In order to reach this objective the project will develop innovative *knowledge brokerage (KB) approaches and an integrated assessment tool to link knowledge to action*, aimed at supporting the selection and application of scientific knowledge regarding sustainability to be translated in best policy practices and to guide the transposition of research advancements into policies in the context of sustainable development.

Furthermore, a more general goal of the project is to **shift the time horizon of policy actions and decisions**, moving their evaluation from short/medium term towards longer ones when facing global challenges related to sustainability. As a consequence, to influence the policy making process from the beginning, till the end of a problem-solving political context.

Several initiatives have emerged at EU and international level, aimed at overcoming GDP as exclusive mainstreaming indicator¹⁰. However, implementation and up-take of the use of sustainable development indicators, is difficult and finds many barriers (as those related to different temporal and spatial scales of indicators, the difficulty in clearly identifying the object to be measured due to the complexity of the concept of Sustainable Development itself).

The main expected result of X is to contribute to increase the use of sustainable development indicators and of new approaches to measure progress towards sustainable development, making use of sectoral policies analysis (for examples policies can be selected in some macro-areas like energy and environment). According to that principle, will be

¹⁰ See <http://www.beyond-gdp.eu/>, Commission on the Measurement of Economic Performance and Social Progress, 2008. "Issues Paper". Commission on the Measurement of Economic Performance and Social Progress, 2009. Commissione Europea (CE) 2010. Communication COM (2010) 2020 EUROPE 2020: "A strategy for smart, sustainable and inclusive growth".

selected a set of sectorial policies formulated to incorporate Sustainable Development indicators. Moreover, an assessment to determine (i) which indicators have been used, (ii) how they have been selected, (iii) the quality of the process through which they have been selected, (iv) benefits and challenges in using those indicators will be carried out; and (v) which other indicators could have been employed in order to reach policy target more efficiently. The assessments will include inputs and information from Stakeholders' Community, gathered through a web platform and other KB instruments. The expected outcome of this integrated approach is a new methodology to evaluate the contribution of policies selected to the achievement of sustainable development (for examples in macro-areas like energy and environment). This new approach is intended to support decision makers to define more appropriate policies for a sustainable society.

The work plan will be based on:

- the review of the state of the art on sustainability assessment approaches and indicators with the aim of making an overview of the applicability of different methods in the policy formulation for sustainable development;
- the collection and review of experience-based knowledge
- the creation of a Stakeholders' Communities (researchers, policy-makers, practitioners, NGOs, etc) involved in the topics selected by the project.

In order to support the use of appropriate knowledge for good practices, the project will define integrative knowledge approaches matching scientific knowledge with information and knowledge derived from different stakeholders, making use of participatory approaches.

A good policy making process is based on needs like:

- Knowledge of the critical issues (not only economics, but also social and environmental) on the territory;
- Planning policies taking into account other political subjects (e.g. European Union policy) and stakeholders actions ;
- Develop stakeholder engagement techniques for citizen involvement and consensus building;
- Communicate policy making choice and results with appropriate tools and language.

Clearly those steps could obtain better answers with: proper indicators, a common language shared with technicians and citizens and a well defined participation process . this is exactly the principal aim of X' KB process.

Particular attention, in X' KB process, will be over the scale (local, regional, national) of application of knowledge brokerage instruments. Scale is a fundamental feature in a "beyond GDP society" because perceptions, opinions and interests of stakeholders are strongly influenced by this dimension. This is well explained, for example, by the notorious citizen nimby (not in my backyards) syndrome and for the characterization of the local authorities skills. From the legislative power or funding role (national and regional), to planning and public services (municipalities). X use of sustainable development indicators will be aimed to different skills of the involved policy makers and institutions.

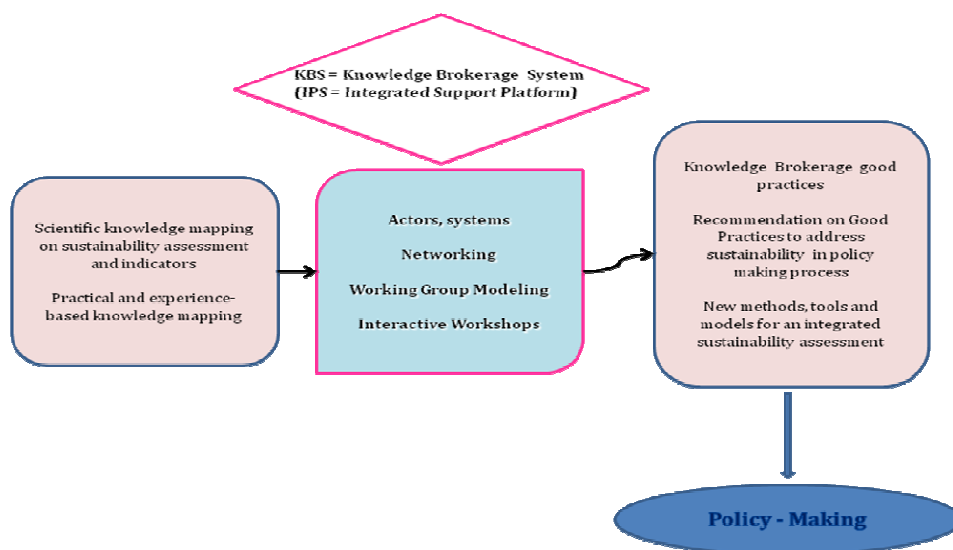
The Stakeholders' Community is built through a web platform and other knowledge brokering instruments that help to identify a common vision on sustainability (starting from the single

visions of different actors) and therefore to generate new social knowledge. Through these instruments, focused on participatory methods that allow the mutual learning, the analysis is enriched by the integration of the knowledge possessed by participants from diverse areas of expertise, by new relations among actors, news change of behavior of actors.

The main expected result will be an integrated approach to evaluate the progress towards sustainable development at country level, in order to assist decision makers to determine which actions should or should not be taken in an attempt to make society sustainable and promote the influence of the use of sustainable development indicators in the policy process, **strengthening of the policy-orientation** of research community. This approach to evaluate contribution to sustainable development is intended to allow to:

- Measure indicators and respective trends
- Address the complexity and uncertainty of the systems that change and evolve over time (the approach is iterative, adaptive and capable to respond to changes)
- Adjust objectives and indicators in response to new facts and new points of views
- Promote social learning and mutual feedbacks in the decision-making process building a common language;

The project will also look at the Transition Management approach¹¹ as a possible approach for linking knowledge to action.



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¹¹ The Transition Management is a new approach that produces a common language and mode of communication to aid strategy development and to move toward concrete action. This facilitates the creation of a community with shared goals and ambitions at a collective, system level, while allowing for disagreement and competition on a more concrete and everyday level. As a governance approach, transition and transition management facilitate cooperation and coproduction between science and policy, as well as the development and use of new scientific methods. New coalitions, strategies, and experiments involving pioneering scientists, “courageous political leaders, enlightened business executives and civil society at large” have been launched in the wake of transition management as governance for sustainability: a collective process of learning-by-doing and doing-by-learning based on a shared way of thinking. Derk Loorback, Governance for sustainability. Dutch Research Institute for Transition, Erasmus University Rotterdam. Sustainability: Science, Practice and Policy, _Volume 3, Issue 2:5

1.2 Progress beyond the state-of-the-art

State of the Art

Here below we provides with a brief summary of the very abundant literature that has been devoted to the measurement of sustainability or durable development. We distinguish among (1) large and eclectic dashboards or sets of indicators, (2) composite indices, (3) indices that consist of correcting GDP in a more or less extensive way, and (4) indices that essentially focus on measuring how far we currently “overconsume” our resources.

Dashboards or sets of indicators

Dashboards or sets of indicators are one widespread approach to the general question of sustainable development. This approach involves gathering and ordering a series of indicators that bear a direct or indirect relationship to socio-economic progress and its durability. In the last couple of decades, international organizations have played a major role in the emergence of sustainability dashboards, with the United Nations playing a prominent role. In particular, the 1992 Rio Summit adopted Agenda 21, whose 40th chapter invites the signatory countries to develop quantitative information about their actions and accomplishments.

Other international initiatives to build sustainable development dashboards have been taken by the OECD and Eurostat, following the European Council’s adoption of its own Sustainable Development Strategy in 2001. The current version of this dashboard includes 9 themes with 11 indicators for level 1 (see table), 33 indicators for level 2, and 78 indicators for level 3, with the level 2 and 3 indicators covering 29 sub-themes.

| Theme | Level 1 indicators |
|-------------------------------------------|-------------------------------------------------|
| 1: Socio-economic development | Growth rate of GDP per inhabitant |
| 2: Sustainable consumption and production | Resource productivity |
| 3: Social inclusion | At-risk-of-poverty rate after social transfers |
| 4: Demographic changes | Employment rate of older workers |
| 5: Public health | Healthy life years and life expectancy at birth |
| 6: Sustainable development | Total greenhouse gas emissions |
| | Consumption of renewables |
| 7: Sustainable transport | Energy consumption of transport |
| 8: Natural resources | Common bird index |
| | Fish catches outside safe biological limits |
| 9: Global partnership | Official Development Assistance (ODA) |

Source: Eurostat, 2007. (http://epp.eurostat.ec.europa.eu/cache/ITY_OFFPUB/KS-77-07-115/EN/KS-77-07-115-EN.PDF)

Similar national initiatives have accompanied this general movement, albeit in a somewhat scattered way. Local initiatives have also mushroomed over the last decade, some based on the initial impetus from Agenda 21.

For the user, the most striking feature of this very abundant literature is the extreme variety of the indicators proposed. Some are very comprehensive – GDP growth retains its place, and is even the first indicator in the European Dashboard – while others are much more specific, such as the percentage of smokers in the population. Some pertain to outcomes, others to instruments. Some can easily be related both to development *and* to sustainability – literacy performance matters for both current well-being and future growth – but others pertain only either to current development or to long-run sustainability.

These dashboards are useful in at least two respects. First, they are an initial step in any analysis of sustainability, which by its nature is highly complex and therefore necessitates an effort at establishing a list of relevant variables and encouraging national and international statistical offices to improve the measurement of these indicators. The second one is related to the distinction between “weak” and “strong” sustainability. The “weak” approach to sustainability considers that good performance in some dimensions can compensate for low performance in others. This allows a global assessment of sustainability using monodimensional indices. The “strong” approach argues that sustainability requires separately maintaining the quantity or quality of many different environmental items. Following this up therefore requires large sets of separate statistics, each pertaining to one particular subdomain of global sustainability.

Dashboards nevertheless suffer because of their heterogeneity, at least in the case of very large and eclectic ones, and most lack indications about causal links, their relationship to sustainability, and/or hierarchies amongst the indicators used. Further, as communications instruments, one frequent criticism is that they lack what has made GDP a success: the powerful attraction of a single headline figure allowing simple comparisons of socioeconomic performance over time or across countries.

Composite indices

Composite indices are one way to circumvent the problem raised by the richness of dashboards and to synthesize the abundant and purportedly relevant information into a single number. The technical report reviews a few of these.

For example, Osberg and Sharpe’s Index of Economic Well-Being is a composite indicator that simultaneously covers current prosperity (based on measures of consumption), sustainable accumulation, and social topics (reduction in inequalities and protection against “social” risks). Environmental issues are addressed by considering the costs of CO₂ emissions per capita. Consumption flows and wealth accumulation (defined broadly to include R&D stocks, a proxy for human capital, and the costs of CO₂ emissions) are evaluated according to national accounts methodology. Each dimension is normalized through linear scaling (nine OECD countries) and aggregation relies on equal weighting. But at this stage the “green” dimension of this index is still secondary.

Other examples focus more specifically on the green dimension, such as the “Environmental Sustainability Index” (ESI) and the “Environmental Performance Index” (EPI). The ESI covers 5 domains: environmental systems (their global health status), environmental stress (anthropogenic pressure on the environmental systems), human vulnerability (exposure of inhabitants to environmental disturbances), social and institutional capacity (their capacity to foster effective responses to environmental challenges), and global stewardship (cooperation with other countries in the management of common environmental problems).

It uses 76 variables to cover these 5 domains. There are, for instance, standard indicators for air and water quality (e.g. SO₂ and NO_x), health parameters (e.g. infant death rate from respiratory diseases), environmental governance (e.g. local Agenda 21 initiatives per million people), etc. The EPI is a reduced form of the ESI, based on 16 indicators (outcomes), and is more policy-oriented.

The messages derived from this kind of index are ambiguous. The global ranking of countries has some sense, but it is often considered to present an overly optimistic view of developed countries' contribution to environmental problems. Problems also arise between developed countries. For instance, the index shows a very narrow gap between the United States and France, despite strong differences in terms of their CO₂ emissions. In fact, the index essentially informs us about a mix of current environmental quality, of pressure on resources and of the intensity of environmental policy, but not about whether a country is actually on a sustainable path: no threshold value can be defined on either side of which we would be able to say that a country is or is not on a sustainable path.

On the whole, these composite indicators are better regarded as invitations to look more closely at the various components that underlie them. This kind of function of composite indicators has often been put forward as one of their main *raison d'être*. But this is not reason enough to retain them as measures of sustainability *stricto sensu* which could secure the same standing as GDP or other accounting concepts.

There are two reasons for this. First, as with large dashboards, there is the lack of a well-defined notion of what sustainability means. The second is a general criticism that is frequently addressed at composite indicators, i.e. the arbitrary character of the procedures used to weight their various components.

These aggregation procedures are sometimes presented as superior to the monetary aggregations that are used to build most economic indices, because they are not linked to any form of market valuation. Indeed, and we shall come back to this point several times, there are many reasons why market values cannot be trusted when addressing sustainability issues, and more specifically their environmental component. But monetary or not, an aggregation procedure always means putting relative values on the items that are introduced in the index.

In the case of composite sustainability indicators, we have little understanding of the arguments for putting one relative value or another on all the different variables that matter for sustainability. The problem is not that these weighting procedures are hidden, non-transparent or non-replicable – they are often very explicitly presented by the authors of the indices, and this is one of the strengths of this literature. The problem is rather that their normative implications are seldom made explicit or justified.

Adjusted GDPs

Other candidates for the measurement of sustainability are those that restart from the conventional notion of GDP but try to systematically augment or correct it using elements that standard GDP does not take into account and that matter for sustainability.

Nordhaus and Tobin's sustainable measure of economic welfare (SMEW) may be regarded as the common ancestor to this strand. They provided two indicators. The first was a Measure of Economic Welfare (MEW) obtained by subtracting from total private consumption a number of components that do not contribute positively to welfare (such as

commuting and legal services) and by adding monetary estimates of activities that do contribute positively to welfare (such as leisure and work at home).

The second step consisted in converting the MEW into the SMEW by taking into account changes in total wealth. The SMEW measures the level of MEW that is compatible with preserving the capital stock. To convert the MEW into the SMEW, Nordhaus and Tobin used an estimate of total public and private wealth, including reproducible capital, non-reproducible capital (limited to land and net foreign assets), educational capital (based on the cumulated cost of years spent in education by people belonging to the labor force) and health capital, based on a permanent inventory method with a depreciation rate of 20% per year. But they did not in the end include estimates of environmental damage or natural resource depletion.

Two strands have developed from this seminal contribution. The first has tried to enrich Nordhaus and Tobin's approach, sometimes deviating increasingly from the criterion of accounting consistency. Examples include the Index of Sustainable Economic Welfare (ISEW) and the Genuine Progress Indicator (GPI). These indicators deduct some evaluations of the costs of water, air and noise pollution from consumption and also try to account for the loss of wetlands, farmland, and primary forests, and for other natural resource depletion, and for CO₂ damage and ozone depletion. Natural resources depletion is valued by measuring the investment necessary to generate a perpetual equivalent stream of renewable substitutes.

In all countries for which both ISEW and GPI are available, their values are very similar and at some point in time start diverging from GDP. This has led some authors to put forward a so-called "threshold" hypothesis, according to which GDP and welfare move in the same direction up to a certain point, beyond which the continuation of GDP growth does not allow any further improvement in well-being. In other words, according to such indicators, sustainability is already far behind us, and we have already entered a phase of decline.

The other strand is more firmly integrated into the realm of national accounting. It is based on the so-called System of Environmental Economic Accounting (SEEA), a satellite account of the Standard National Accounts (SNA). The SEEA brings together economic and environmental information in a common framework to measure the contribution of the environment to the economy and the impact of the economy on the environment. The UN Committee of Experts on Environmental-Economic Accounting (UNCEEAA), created in 2005, is now looking to mainstream environmental-economic accounting, to elevate the SEEA to an international statistical standard by 2010 and to advance SEEA implementation in countries.

The SEEA comprises four categories of accounts. The first considers purely physical data related to flows of materials (materials drawn into the economy and residuals produced as waste) and energy and marshals them as far as possible according to the SNA accounting structure. The second category of accounts takes those elements of the existing SNA that are relevant to the good management of the environment and makes the environment-related transactions more explicit. The third category of accounts comprises accounts for environmental assets measured in physical and monetary terms (timber stock accounts, for instance).

These first three categories of the SEEA are vital building blocks for any form of sustainability indicator. But what is at stake here is the fourth and last category of SEEA

accounts, which deals with how the existing SNA might be adjusted to account (exclusively in monetary terms) for the impact of the economy on the environment. Three sorts of adjustments are considered: those relating to resource depletion, those concerning so-called defensive expenditures (protection expenditures being the most emblematic ones), and those relating to environmental degradation.

It is these environmental adjustments to existing SNA aggregates that are better known under the rather loose expression of “Green GDP”, which is an extension of the concept of net domestic product. Indeed, just as GDP (Gross) is turned into NDP (Net) by accounting for the consumption of fixed capital (depreciation of produced capital), the idea is that it would be meaningful to compute an “ea-NDP” (environmentally-adjusted) that takes into account the consumption of natural capital. The latter would comprise resource depletion (the over-use of environmental assets as inputs to the production process) and environmental degradation (the value of the decline in the quality of a resource, roughly speaking).

Green GDP and eaNDP remain, however, the most controversial outcomes of the SEEA, and as such are less implemented by statistical offices, because of the many problems that are raised by these two concepts. Valuing environmental inputs into the economic system is the (relatively) easier step. Since these inputs are incorporated into products that are sold in the market place, it is possible (in principle) to use direct means to assign a value for them based on market principles. In contrast, as pollution emissions are outputs, there is no direct way to assign a value to them. All the indirect methods of valuation will depend to some extent on “what if” scenarios. Thus, translating valuations of degradation into adjustments to macro-economic aggregates takes us beyond the realm of *ex-post accounting* into a much more hypothetical situation. The very speculative nature of this sort of accounting explains the great discomfort and strong resistance among many accountants to this practice.

But there is a more fundamental problem with green GDP, which also applies to Nordhaus and Tobin’s SMEW and to the ISEW/GNI indices. None of these measures characterize sustainability *per se*. Green GDP just charges GDP for the depletion of or damage to environmental resources. This is only one part of the answer to the question of sustainability. What we ultimately need is an assessment of how far we are from these sustainable targets. In other words, what we need are measures of overconsumption or, to put in dual terms, of underinvestment. This is precisely what our last category of indicators purports to do.

Indicators focusing on overconsumption or underinvestment

Under this heading, we group all kinds of indicators that address the issue of sustainability in terms of overconsumption, underinvestment or excessive pressure on resources. Though such indicators tend to be presented in flow terms, they are built upon the assumption that some stocks that are relevant for sustainability correspond to the measured flows, i.e. stocks that are being transmitted to future generations and determine their opportunity sets. As with GDP and other aggregates, trying to perform this task with a single number requires the choice of a metric and an explicit aggregation procedure for these stocks and their variations.

Adjusted net savings (ANS)

Adjusted net savings (also known as genuine savings or genuine investment) is a sustainability indicator that builds on the concepts of green national accounts but

reformulates these concepts in terms of stock or wealth rather than flows of income or consumption. The theoretical background is the idea that sustainability requires the maintenance of a constant stock of “extended wealth”, which is not limited to natural resources but also includes physical, productive capital, as measured in traditional national accounts, and human capital. Net adjusted savings is taken to be the change in this total wealth over a given time period, such as a year. Such a concept clearly appears to be the relevant economic counterpart of the notion of sustainability, in that it includes not only natural resources but also (in principle at least) those other ingredients necessary to provide future generations an opportunity set that is at least as large as what is currently available to living generations.

Empirically, adjusted net savings are derived from standard national accounting measures of gross national savings by making four types of adjustment. First, estimates of the capital consumption of produced assets are deducted to obtain net national savings. Second, current expenditures on education are added to net domestic savings as an appropriate value for investment in human capital (in standard national accounting these expenditures are treated as consumption). Finally, estimates of the depletion of a variety of natural resources are deducted to reflect the decline in asset values associated with their extraction and harvest. Estimates of resource depletion are based on the calculation of resource rents.

An economic rent represents the “excess” return to a given factor of production. Rents are derived by taking the difference between world prices and the average unit extraction or harvest cost (including a “normal” return on capital). Finally, global pollution damages from carbon dioxide emissions are deducted. Negative adjusted net savings rates imply that “extended wealth” is in decline, and as such provide a warning of non-sustainability.

How does this indicator compare with standard measures of saving and investment in national accounts? World Bank-computed ANS for developed countries such as France and the United States shows that changes over time are almost exclusively driven by gross savings, while the gap in levels between ANS and gross savings is due mostly to capital consumption and human capital accumulation whereas, according to the index, natural capital changes play only a relatively marginal role. Moreover, the ANS figures show that most developed countries are on a sustainable path, while many emerging or developing countries are not. In particular, according to this measure most natural resource-exporting countries are on a non-sustainable path.

As for local pollution damages, these are difficult to estimate without location-specific data. Nevertheless, an augmented version of ANS for local pollution is also provided by taking into account health damage due to urban air pollution (particulate matter PM10).

This kind of approach appeals to many economists, as it is grounded on an explicit theoretical framework. However, the current methodology underlying empirical calculations has well-known shortcomings: the relevance of the ANS approach crucially depends on what is counted (the different forms of capital passed on to future generations), namely, what is included in “extended wealth”, and on the price used to count and aggregate in a context of imperfect or indeed nonexistent valuation by markets – the problem that we already mentioned when discussing the implicit prices used by composite indicators.

Indeed, a major shortcoming of ANS estimates is that the adjustment for environmental degradation is only limited to a restricted set of pollutants, the most significant one being carbon dioxide emissions. The authors acknowledge that the calculations do not include

other important sources of environmental degradation, such as underground water depletion, unsustainable fisheries, and soil degradation, and *a fortiori* biodiversity loss.

For those natural assets that are taken into account, pricing techniques remain the major issue. For exhaustible resources, the World Bank's estimates of ANS rely on current prices. In theory, the use of market prices to evaluate flows and stocks is warranted only in a context of perfect markets, which is clearly not the case in reality, and especially not for natural resources, where externalities and uncertainties are paramount. Further, market prices for fossil energy sources and other minerals have tended, in recent years, to fluctuate widely, causing significant swings in measures of ANS based on current market prices and this has very strongly reduced the practical relevance of the ANS for concerned countries.

As for pricing environmental degradation, things turn out to be even trickier because of the absence of any market valuation that could be used as a starting point: in theory, we must evaluate so-called "accounting prices" by modeling the long-term consequences of given changes in environmental capital and how they impact future well-being. But practical implementation raises considerable problems. Under the current state of the art, the prices used to value carbon emissions in existing estimates of ANS are not able to give it any significant role in the global assessment of sustainability, and this casts doubts on the usefulness of the indicator as a guide for policy.

Finally, by computing ANS per country we miss the global nature of sustainability. Indeed, one may feel uneasy when faced with the message conveyed by ANS about resource exporting countries (e.g. oil). In these countries, from the ANS perspective, non-sustainability stems from an insufficient rate of reinvestment of the income generated by the exploitation of the natural resource: "over-consumption" by importing countries is not an issue at all. Developed countries, which are generally less endowed with natural resources but richer in human and physical capital than developing ones, would then appear unduly sustainable.

As a consequence, some authors have argued in favor of imputing the consumption of exhaustible resources to their final consumers, i.e. the importing countries. If scarcities were fully reflected in the prices at which exhaustible resources are sold on international markets, it is true that there would be no reason for making such a correction. However, when prices are non-competitive, the importing country pays less for its imports than would be required; it will have a responsibility in global non-sustainability that is not captured by the money-value of its imports. Low prices allow such countries to over-consume and to transfer the long-term costs of this over-consumption to the exporting countries.

Footprints

Although apparently quite different from "extended wealth" notions, various attempts at measuring sustainability through the use of "footprints" are also inspired by the general approach of comparing current flows of consumption and their effects on certain dimensions of the environment with an existing stock. In this sense, they may also be regarded as "wealth" measures. However the focus is exclusively on natural capital, and the valuation convention differs from the ANS one in that no market prices are explicitly used.

The Ecological Footprint (hereafter EF) measures how much of the regenerative capacity of the biosphere is used up by human activities (consumption). It does so by calculating the amount of biologically productive land and water area required to support a given population at its current level of consumption. A country's Footprint (demand side) is the total area required to produce the food, fiber and timber that it consumes, absorb the waste

that it generates, and provide space for its infrastructure (built-up areas). On the supply side, biocapacity is the productive capacity of the biosphere and its ability to provide a flux of biological resources and services useful to humankind.

The results are well-known and rather striking: since the mid-1980s, humanity's footprint has been larger than the planet's carrying capacity, and in 2003 humanity's total Footprint exceeded the Earth's biocapacity by approximately 25 per cent. While 1.8 global hectares per person are available world-wide, Europeans use 4.9 global hectares per person and North Americans use twice that amount, that is, much more than the actual bio-capacity of those two geographical zones.

This indicator shares with accounting approaches the idea of reducing heterogeneous elements to one common measurement unit (the global hectare, e.g. one hectare with productivity equal to the average productivity of the 11.2 billion bioproductive hectares on Earth). It assumes that different forms of natural capital are substitutable and that different natural capital goods are additive in terms of land area, but strongly stands against weak sustainability assumptions. In fact, this indicator gives no role to savings and capital accumulation: any positive ecological surplus (biocapacity that exceeds the ecological footprint) does not entail an increase in some natural capital stock, and hence an improvement in future productive capacity. A fortiori, saving and accumulating manufactured or human capital does not help sustainability. On the other hand, one must observe that the indicator ignores the threat to sustainability resulting from the depletion of non-renewable resources (e.g. oil): the consequences for sustainability are treated only from the waste assimilation (implied CO₂ emissions) point of view rather than from an analysis based on depletion dynamics.

The results are also problematic for measuring a country's own sustainability, because of the substantial anti-trade bias inherent in the Ecological Footprint methodology. The fact that densely populated (low biocapacity) countries like the Netherlands have ecological deficits, whilst sparsely populated (high biocapacity) countries like Finland enjoy surpluses can be seen as part of a normal situation where trade is mutually beneficial, rather than an indicator of non-sustainability. Indeed, recent research has tended to move away from comparing a country's EF with its *own* biocapacity, and to propose instead to divide all countries' EFs by *global* biocapacity. By doing this, one is acknowledging that EFs are not measures of a country's own sustainability but of its contribution to global non-sustainability.

Overall, this means that the Ecological Footprint could at best be an indicator of instantaneous non-sustainability *at the worldwide level*. EFs for countries should be used as indicators of inequality in the exploitation of natural resources and interdependencies between geographical areas. Moreover, even the worldwide ecological deficit emphasized by the EF may not convey the message it is said to. Indeed, one can show that the worldwide imbalance is mostly driven by CO₂ emissions, expressed in hectares of forest needed for storage. By definition, the worldwide demand placed on cropland, built-up land and pasture cannot exceed world biocapacity.

As a result, less-encompassing but more-rigorously-defined footprints, such as the "Carbon Footprint" (CF), would seem better-suited, insofar as they are more clearly physical measures of stocks that do not rely on specific assumptions about productivity or an equivalence factor. As far as communications is concerned, such an indicator is just as capable of sending strong messages in terms of the over-utilization of the planet's capacity for absorption. The CF also has the interesting feature of being computable at any level of

disaggregation. This makes it a powerful instrument for monitoring the behavior of individual actors.

Progress beyond the state of the art.

From Sustainable Indicators towards Best in class Policy Implementable Sustainable Indicators

If the literature on sustainability indicators can be considered very abundant, less attention has been paid to the analysis of how, how much and how easily such indicators have been implemented in the policy process. Similarly, there is no specific focus regarding the applicability of such indicators. X aims exactly at filling this gap, making use of knowledge brokerage approach capable to reveal the political implementation phase.

Indeed, from a theoretical perspective an indicator may be sound and robust, but also strongly difficult to be implemented or applied in politics, both at national or regional level. Consequently, it may cause problems when looking at the dissemination of its message or information and difficulty understood by public opinion.

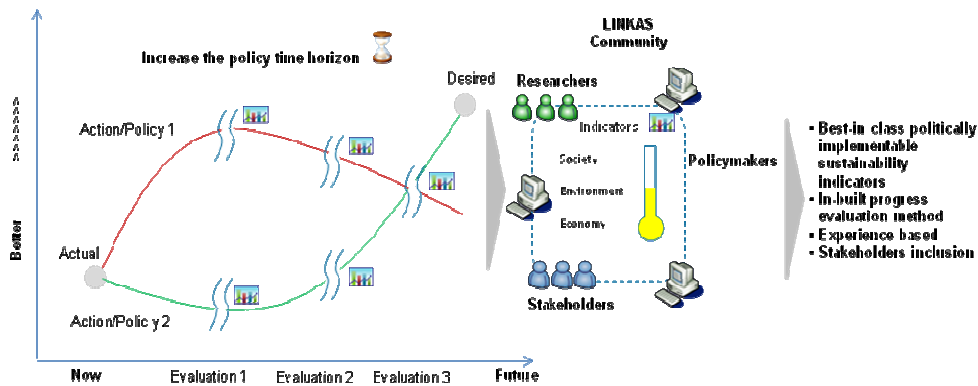
X, through a mapping of indicators and tools, the analysis of their applicability in the decision making process and the development of an integrated assessment tool that will link the scientific knowledge to the political action, will focus on energy and environmental sustainability indicators that can proficiently put together the scientific knowledge of researchers with decision making protagonists as well as balancing the stakeholder's community interests.

Often, one of the main barriers towards the implementation of policies for sustainability is the existing discrepancies between the timing and needs of politics (i.e. elections) and the necessary time to both, politicians and stakeholders, start benefiting from sustainability-related policies, meaning letting them demonstrate their effects. As a consequence, frequently politicians need to opt for quicker solutions (policies), that initially seems more appropriate because easier to implement, more appropriate for political reasons and respondent to the present needs.

However, when dealing with highly complex problems especially when looking at sustainability, political actions and decisions have to embrace a different time horizon and to fully understand the future consequences of policies they are putting in place.

X foresees that a strong link among deep knowledge of researchers, policymakers and stakeholders needs, can guarantee the selection of best in class policies and therefore solutions to complex problems, above all for sustainability related problems. On the top of that, through the suggestion of the most suitable sustainability measurement tools and identifying best-in class implementable sustainability indicators, will support policy makers in the selection of the most appropriate policies for sustainability.

This process will implicitly guarantee the increase of political time horizon as well as the usage of appropriate tools when evaluating the implemented policies.



X is expected not only to bring advancement of the usage of indicators beyond GDP but also to “link knowledge to action” through approaches/model that the project will implement with the aim to transfer knowledge about indicators to policy makers.

With this aim a mapping of existing efforts to develop sustainable development indicators at the European and national levels, will be carried out (WP 1), an exploration of different approaches of KB (as Group modeling systems, interactive workshop, stakeholder analysis, cognitive maps, etc.) and their application to support the link between science and policies implementation will be carried out in order to identify good practices(WP 2).

Moreover, case–studies will be carried out at national level as pilot test of the application of KB instruments and sustainability indicators identified in WP 1 and 2. In addition will be crystallized best practices (according to the type of policy and the type of policy actor) in order to transfer the findings coming from the use of indicators (derived from the mapping made in WP1 and 2) in selected policies and different countries. Consequently, through a joint workshop with participation of all Partners, experience at country-level will be shared as well as a synthesis of “knowledge to action” provided, presenting results of these applications and wrapping-up on what has emerged in terms of benefits, outcomes, room for improvement, and challenges.

Moreover, an assessment to determine (i) which indicators have been used, (ii) how they have been selected, (iii) the quality of the process through which they have been selected, (iv) benefits and challenges in using those indicators, will be carried out.

1.3 S/T methodology and associated work plan

The overall strategy of the work plan

The main expected result will be an integrated approach to evaluate the progress towards sustainable development at country level, in order to assist decision makers to determine which actions should or should not be taken in an attempt to make society sustainable and promote the influence of the use of sustainable development indicators in the policy process, **strengthening of the policy-orientation** of research community.

In order to achieve this result, the project will deliver a multi-disciplinary, cross-sectoral framework in a matrix of carefully integrated work-packages, each led by globally recognised Research Centres, Universities and think-thanks (benefiting from the involvement of stakeholders and implementers), designed to provide scientific and experience-based knowledge on sustainable development indicators, tools and approaches necessary to transfer this knowledge to policymakers.

The project work of X is divided into five Work Packages comprising a specified number of Tasks, Deliverables and Milestones.

WP1: Mapping sustainable development indicators.

It will provide a mapping of existing and on-going efforts on development of sustainability indicators, assessment methods, tools and frameworks to bridge two, three or all four pillars of sustainable development, namely economic, environmental, institutional and social ones, to support the policy formulation process with regards to sustainable development. It will also focus on application of these indicators to policies implementation, according to their definition of welfare, wellbeing and sustainability and the links between them.

The work will be based on the state of the art of key initiatives carried out at European and International level in the field of indicators and sustainability assessment methods and will provide an in depth analysis of the main existing barriers towards an easy implementation by policymakers.

WP2: Knowledge Brokering Instruments (KBIs) and KBIs good practices

WP2 will map and explore the knowledge brokering instruments in linking science to policy and sustainable development fields, aiming at defining a good practices set of KBIs. A literature review will be carried out and main strengths and weaknesses identified.

WP3: Linking Knowledge to Action

WP3 will define integrative approaches of knowledge production which match scientific knowledge with knowledge produced by a web base integrated support platform and derived from different Stakeholders through participatory approaches. The aim of WP3 is to collect, manage and transfer the existent knowledge and to generate new social knowledge. Main expected outcome of WP3 is an **Integrated Assessment (IA) tool** to evaluate sustainable development and to incorporate sustainability indicators in sustainable development policies. The design of the IA tool should facilitate decision-making process to determine which actions should or should not be taken in an attempt to make society sustainable, as well as which indicators to employ to obtain the goal, how to access them, taking into accounting timeline and dynamics.

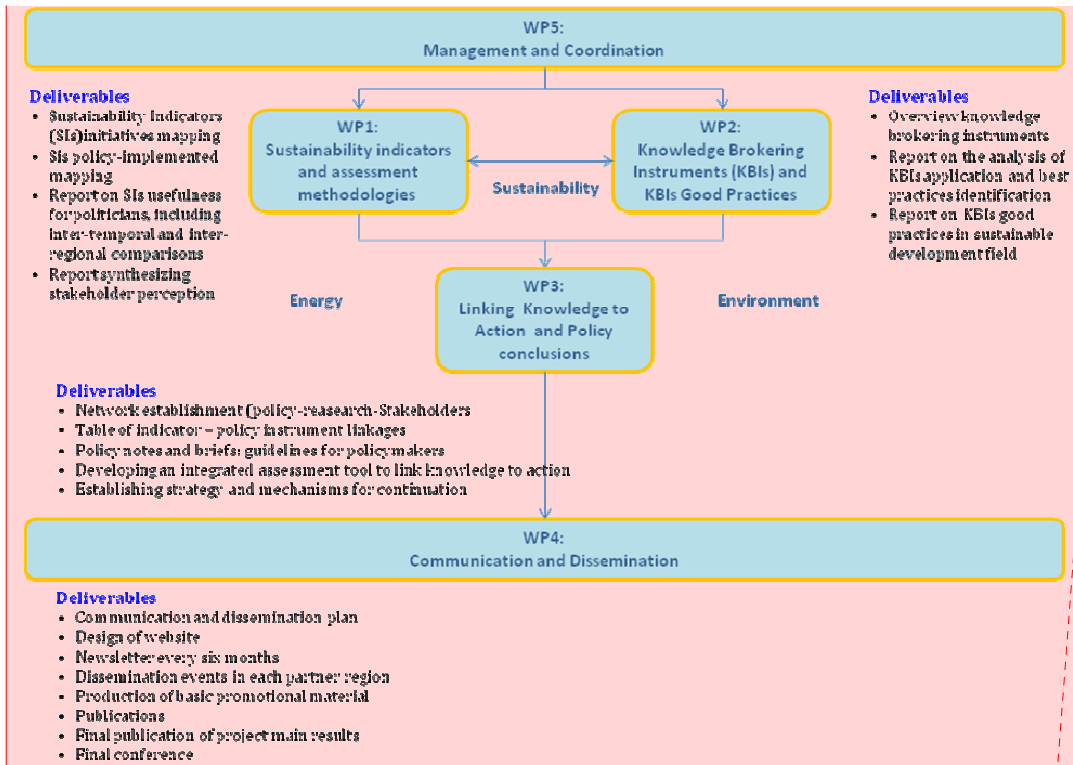
WP4: Dissemination and exploitation

it will ensure the efficient functioning of the coordination action, integration of project activities, effective dissemination and knowledge exchange inside and outside the network, in particular towards policy makers, and the delivery of practical and useful outputs.

The Integrated Support Platform (Web Platform) will include, beyond a restricted community space of interaction among stakeholders, an 'open-to-all' web-based information system serving for the exchange and dissemination of information and good practices

WP5: Management and coordination

The objective of this WP is to establish communication flows within the consortium and with the EC; organize periodical general meetings; Coordination of the EC contract and the work plan; monitor the work progress; Set up of the management structure.



Commento [MSOffice2]: Adapt with the new titles of WPs

Describe any significant risks, and associated contingency plans.

As the impact of the project will be made largely through institutions which already contribute to development of sustainability indicators and knowledge brokering, the risk for not succeeding in delivering the impact seems low. The Project Coordinator as well as individual WP Leaders have key roles in international structures for research or application of research, which proves their ability to cope successfully with project tasks. Anyway, the following are some of possible risks that could arise and relative mitigation actions:

- Lower number of stakeholders engaged in the cases studies application (in WP3). The participation of Partners in already established networks of Stakeholders and their experience of collaboration with local decision makers for the preparation of plans and strategies will mitigate this risk
- Persistent conflicting visions by stakeholders on dashboards indicators to be selected for measuring the progress toward sustainable development (in WP1). Application of appropriate KB Instruments (selected in WP 2 after an overview and analysis of previous experiences) and relevant experiences of some Partners in applying them will mitigate this risk.
- Lower interest showed by policy-makers involved in the case studies application in using indicators for evaluating and monitoring policies towards the achievement of sustainable development objectives (in WP1 and in WP3). The participation of FareFuturo in the project, thanks also to its link to the European Network of EU policy Foundations and think tanks will facilitate the involvement of policy makers and bring the point of view of policy makers into the project as well will raise awareness among policy makers about the use of indicators in policy implementation and facilitate the transfer of the knowledge .
- Difficulties in the use of interactive collaborative instruments supported by web-platform and preference for traditional face-to face instruments (in WP3). A simple and transparent communication approach will be adopted in order to mitigate this risk.

Through an in built evaluation process achievement of expected results will be tracked and when adjustments are needed these will feed back into the project when the project is on progress

Table 1.3 a: Work package list

| Work package No ¹² | Work package title | Type of activity ¹³ | Lead participant No ¹⁴ | Lead participant short name | Person-months ¹⁵ | Start month ¹⁶ | End month |
|-------------------------------|----------------------------------------------------------------|--------------------------------|-----------------------------------|-----------------------------|-----------------------------|---------------------------|-----------|
| 1 | Mapping sustainable development indicators | RTD | 4 | | 61,1 | 2 | 24 |
| 2 | Knowledge Brokering Instruments (KBIs) and KBIs Good Practices | RTD | 1 | | 33,5 | 1 | 14 |
| 3 | Linking Knowledge to Action | RTD | 2 | | 59,5 | 11 | 30 |
| 4 | Dissemination and exploitation | OTHER | 5 | | 41,87 | 1 | 30 |
| 5 | Management of the consortium | OTHER | 1 | | 23 | 1 | 30 |
| TOTAL | | | | | 219 | | |

¹² Work package number: WP 1 – WP n.

¹³ Please indicate one activity per work package:

RTD = Research and technological development (; DEM = Demonstration; MGT = Management of the consortium; OTHER = Other specific activities, if applicable in this call including any activities to prepare for the dissemination and/or exploitation of project results, and coordination activities) According to the description of the funding scheme given previously.

¹⁴ Number of the participant leading the work in this work package.

¹⁵ The total number of person-months allocated to each work package.

¹⁶ Measured in months from the project start date (month 1).

Table 1.3 b: Deliverables List

| Del. no. ¹⁷ | Deliverable name | WP no. | Nature ¹⁸ | Dissemination level ¹⁹ | Delivery date ²⁰ |
|-------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-----------------------------|------------------------------------------|------------------------------------|
| D1.1 | Map of existing and on-going efforts to create sustainable development indicators, classification of these indicators according to the links between four pillars of sustainable development and the questions of inter-regional and inter-generation equity and justice | 1 | R | PU | month 6 |
| D1.2 | Map of sustainable indicators in best case countries that are already implemented into planning practices in accordance to integration into national account framework of measures for social, environmental and institutional capital and other data source | 1 | R | PU | month 12 |
| D1.3 | Report with findings from analysis of identified about indicators according to such criteria as usefulness for politicians and possibility to make inter-temporal and inter-regional comparisons | 1 | R | PU | month 18 |
| D1.4 | Report synthesizing the results from stakeholder workshop and the three – above mentioned deliverables to identify stakeholder perceptions. | 1 | R | PU | month 24 |
| D2.1 | Knowledge brokering instruments overview | 2 | R | PU | Month 5 |
| D2.2 | Report on the Analysis of the application of KBIs and identification | 2 | R | PU | Month 8 |

¹⁷ Deliverable numbers in order of delivery dates. Please use the numbering convention <WP number>.<number of deliverable within that WP>. For example, deliverable 4.2 would be the second deliverable from work package 4.

¹⁸ Please indicate the nature of the deliverable using one of the following codes:

R = Report, **P** = Prototype, **D** = Demonstrator, **O** = Other

¹⁹ Please indicate the dissemination level using one of the following codes:

PU = Public

PP = Restricted to other programme participants (including the Commission Services).

RE = Restricted to a group specified by the consortium (including the Commission Services).

CO = Confidential, only for members of the consortium (including the Commission Services).

²⁰ Measured in months from the project start date (month 1).

| | | | | | |
|--------|----------------------------------------------------------------------|---|---|----|-----------------------------------------|
| | of good practices | | | | |
| D2.3 | Report on KBIs good practices in sustainable development field | 2 | R | PU | Month 14 |
| D2.4 | Report of the technical meeting | 2 | R | RE | Month 14 |
| D3.1 | Map of the network (including communication methods) | 3 | O | PU | Month 14 |
| D3.2 | Design and implementation of web – based Integrated Support Platform | 3 | O | RE | Month 16 |
| D3.3 | Table of indicator – policy instrument linkages | 3 | R | PU | Month 15 |
| D3.4 | Policy notes and briefs | 3 | R | PU | Month 24 |
| D3.5 | Periodic report | 3 | R | RE | Month 24 |
| D3.6 | Synthesis workshop | 3 | O | PP | Month 24 |
| D3.7 | Model of ‘linking knowledge to action’ | 3 | O | RE | Month 26 |
| D3.8 | Continuation strategy | 3 | R | PP | Month 30 |
| D3.9 | Final report | 3 | R | PP | Month 30 |
| D. 4.1 | Communication and dissemination plan | 4 | O | RE | Month 6 (Draft) Continuously updated |
| D.4.3 | Design and web site implementation | 4 | O | PU | Month 4 |
| D. 4.4 | Newsletter every six months | 4 | O | PU | Every 6 months |
| D. 4.5 | Dissemination events in each partner region | 4 | O | PU | Every 6 months |
| D. 4.6 | Production of basic promotional material | 4 | O | PU | Every 6 months |
| D. 4.7 | Publications | 4 | O | PU | Every 6 months |
| D. 4.8 | Final publication of project main results | 4 | O | PU | Month 30 |
| D. 4.9 | Final conference | 4 | O | PU | Month 30 |
| D. 5.1 | Report of the kik off meeting | 5 | R | CO | Month 1 |
| D. 5.2 | Report of the second year general meeting | 5 | R | CO | Month 10 |
| D. 5.3 | Report of the final year general meeting | 5 | R | CO | Month 31 |

| | | | | | |
|--------|------------------------------------------|---|---|----|----------|
| D. 5.4 | Process evaluation report [final report] | 5 | R | CO | Month 36 |
|--------|------------------------------------------|---|---|----|----------|

Table 1.3 c: List of milestones

| Milestone number | Milestone name | Work package(s) involved | Expected date ²¹ | Means of verification ²² |
|-------------------------|-----------------------------------------------------------------------|---------------------------------|------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | Workshop on indentifying basket of sustainable development indicators | WP1 | Month 9 | Workshop on stakeholders perspective, that follows the literature review |
| 2 | Good Practices on KB Instruments | WP2 | Month 14 | Report identifying good practices |
| 3 | Map of network | WP1, WP3, WP4 | Month 14 | Following the Workshop on stakeholders perspective combined with individual case studies, a map of network is produced and added to the platform |
| 4 | Map of indicators to policies | WP1, WP3 | Month 15 | Mapping indicators to policies (using pilot cases and the results of Workshop on stakeholders perspective- Milestone 1) finalized |
| 4 | Communication/dissemination web site | WP3, WP4 | Month 4 | Launch of website |
| 5 | Web based Integrated Support Platform | WP3, WP4 | Month 14 | Launch of ISP |
| 5 | Synthesis Workshop | WP1, WP2 WP3 | Month 16 | The synthesis of knowledge to |

²¹ Measured in months from the project start date (month 1).

²² Show how you will confirm that the milestone has been attained. Refer to indicators if appropriate. For example: a laboratory prototype completed and running flawlessly; software released and validated by a user group; field survey complete and data quality validated.

| | | | | |
|---|--------------------------------|---------------|----------|--------------------------------------------------|
| | | | | action (based on the case studies) |
| 6 | IA linking knowledge to action | WP1, WP2, WP3 | Month 24 | IA model completed |
| 7 | Continuation strategy | WP3 | Month 28 | Strategy completed and verified by practitioners |

Table 1.3 d: Work package description

Work Package 1

| | | | |
|---------------------------------------|---------------------------------------------------|--------------------------------------|----|
| Work package number | 1 | Start date or starting event: | 2 |
| Work package title | MAPPING SUSTAINABLE DEVELOPMENT INDICATORS | | |
| Activity Type | RTD | | |
| Participant number | | | |
| Participant short name | | | |
| Person-months per participant: | 16 | 8,6 | 17 |
| | | 4,5 | 15 |

Objectives

Achievement of sustainable development is one of the key priorities of the countries-members of the European Union and the progress towards sustainable development shall ensure well-being of not only present but as well future generations. Therefore, the objectives of increasing of economic efficiency and material wealth shall take into account as well social and environmental objectives.

Until recently the progress towards sustainable development was measures mainly as economic progress using such statistics as GDP, inflation and balance of payment. The GDP measures markets and how well the government is doing to get free markets to function well in terms of volumes of goods and services traded on the market. But GDP does not capture the market failures, such as poorly defined property rights, information asymmetries, natural monopolies and business cycle. Research has shown that even properly functioning markets do not welfare-maximizing consumption patters. GDP indicator does not give us as well an answer why people living in well-functioning markets, which allow high level of consumption, are often unsatisfied. To move beyond the stickiness of GDP as the dominant economic indicator, it is essential either to identify some ways in which well-functioning markets fail consistently to optimize welfare, or the limitations of welfare as a guiding principal for policy, before then identifying an alternative set of indicators. At the same time, it is essential to recognize most arguments about the failure of GDP and the possible replacements are rooted in particular worldviews.

Some countries, like Hungary and United Kingdom, developed already indicators that address all dimensions of sustainable development and the social aspects are gaining an increasing attention in other countries like Sweden. But there is a need to develop an indicator that will link all four pillars of sustainable development and can be used by politicians for interregional comparisons and evaluation of progress towards sustainable development over a definite period of time.

To overcome these limitations of GDP, it is necessary to review all initiatives to develop alternative measures, namely sustainable, and identify barriers and strengths with each of them, as tools to support decision-making policies.

Thus, the work package has three overall objectives:

- One of the overall objectives of this work package is to map both, existing and on-going efforts on development of sustainability indicators, assessment methods, tools and frameworks to bridge two, three or all four pillars of sustainable development, namely economic, environmental, institutional and social ones. This objective includes as well two additional pieces of analysis. The first one is an identification how these indicators are facing cross-sector and international issues like globalization and climate change. The second one is an identification of inter-generational equity and fairness namely what “value-added” the indicators have for advancing sustainable development in order to secure

resources for further generations.

- Another objective is to analyze these indicators according to their applicability to the policy making process. This objective will include in-depth analysis of barriers and strengths for implementation by politicians of each of these indicators. On the basis of the matrix of results the best cases will be identified. These will be indicators or other measurement tools that respond to a set of criteria. Among such criteria are: possibility and easiness of implementation, data requirements, applicability under conditions of developing and developed countries, possibility to use these indicators for construction of ratings to make interregional comparisons and comparisons over a definite period of time to be able to follow a dynamic of an event. These indicators shall be evaluated from a pragmatic point of view, insuring that they are useful to politicians. In order to be used by politicians, these indicators shall as well allow tracking performance of a country against sustainable development action plans and strategies.
- The third objective is to classify these indicators according to their definition of welfare, wellbeing and sustainability and the links between them. This objective includes as well measurement of perceptions from the side of different groups of stakeholders regarding such definitions as the quality of life and its components. This objective will allow to strengthen the link to the understanding of the European citizens' needs and interests.

Description of work

Task 1: Review and analysis of literature on existing indices of sustainable development

The work will include the review of existing and on-going efforts to develop sustainable development indicators. As the sustainability indicators are not simple "state indicators" but they rather measure the state vis-à-vis some reference situation and what is the distance until this "ideal situation", for every indicator we will analyze what is understood under the "ideal sustainable situation", how does this situation respond to correlation between markets and state regulation, between social, individual and environmental well-being and what are the institutional setting behind this indicator, do they involve good governance institutions like accountability, transparency and freedom of voice, how do they understand conception of the quality of life, including all four pillars of sustainable development.

Task 2: Identification of case countries and analysis of national accounts

Further on, the analysis of existing national accounts in selected countries will be conducted as a starting point to identify the existing practices and data sets. This analysis will be followed by the mapping of indicators that extend the existing national accounts with environmental and social accounting and other data source. Accounting frameworks will be analyzed as well according to how they measure social, institutional and environmental capital. The comparison of accounting frameworks will allow to identify how the existing indicators capture distribution of various assets, like social, environmental and financial, among populations and countries

Task 3: Multi-criteria analysis of identified indicators on the basis of stakeholders' perceptions

In order to be able to reach the third objective of this work package, we plan to use methods of stakeholder interactions. These interactions will be framed in a form of a workshop. The first goal of the workshop will be to identify perceptions of stakeholders regarding such questions as components of the quality of life and on interrelations between consumption and sustainable development and their usefulness as tools to aid policy decision making. The second goal will be to face stakeholders with findings from literature review and analysis of national accounts and other data source. We will present them a map of indicators created on the basis of these findings. We will use the methods of roundtable discussion to deepen our results with the help of stakeholders'

feedbacks on these findings. In course of discussion, which will be facilitated among different groups of stakeholders, like officials, NGOs, business and academia, we plan to identify the point of conflicts and consensus and to determine the strengths and weaknesses of each indicator, with regard to their influence on policy makers.
 Technical meetings are periodically planned along the whole project to guarantee a proper exchange of the analytical work.

- Deliverables**
- D1.1 Map of existing and on-going efforts to create sustainable development indicators, classification of these indicators according to the links between four pillars of sustainable development and the questions of inter-regional and inter-generation equity and justice (month 6)
 - D1.2 Map of sustainable indicators in best case countries that are already implemented into planning practices in accordance to integration into national account framework of measures for social, environmental and institutional capital and other data source (month 12)
 - D1.3 Report with findings from analysis of identified about indicators according to such criteria as usefulness for politicians and possibility to make inter-temporal and inter-regional comparisons (month 18)
 - D1.4 Report synthesizing the results from stakeholder workshop and the three – above mentioned deliverables to identify stakeholder perceptions. (month 24)
 - D1.5 Report of the technical meeting

Work Package 2

| | | | | | | |
|---------------------------------------|-----------------------------------------------------------------------|--------------------------------------|---|-----|--|--|
| Work package number | 2 | Start date or starting event: | 1 | | | |
| Work package title | KNOWLEDGE BROKERING INSTRUMENTS (KBIS) AND KBIS GOOD PRACTICES | | | | | |
| Activity Type ²³ | RTD | | | | | |
| Participant number | | | | | | |
| Participant short name | | | | | | |
| Person-months per participant: | 20 | 6 | 3 | 4,5 | | |

Objectives

The main objective is to identify a set of knowledge brokerage good practices with to aim of engaging people and visions for a society “beyond GDP”. These KB good practices will be applied to case studies described in WP3.

In order to do that WP2 will map and explore the knowledge brokering instruments (KBIs) and

²³ Please indicate one activity per work package:
 RTD = Research and technological development; DEM = Demonstration; MGT = Management of the consortium; OTHER = Other specific activities, if applicable (including any activities to prepare for the dissemination and/or exploitation of project results, and coordination activities).

identify main strengths and weaknesses of these instruments.

WP2 will provide WP 3 with a set of knowledge brokerage good practices and will facilitate the creation of a collaborative Stakeholders' Community (network composed by the Consortium and external Stakeholders). WP2 attempts to evaluate the adoptability of the knowledge brokerage methods to engage society toward sustainability. Main objectives are:

- To map and explore knowledge brokering instruments with a focus on those applied to linking science to policy, A literature review will be carried out and main strengths and weaknesses identified ,
- To explore knowledge brokering instruments applied in sustainable development field (with a focus on Energy and Environment macro area) and individuation of success and barrier factors
- To identify lessons learned and KBIs good practices in sustainable development field

Description of work

KBIs involve relevant stakeholders, and are aimed to collect and share the scientific knowledge as well knowledge coming from practitioners and other actors. They aim to enhance the connectivity between different research and policy-making communities by providing specifically tailored arenas for personal exchange, information provision, and offline community-building.

In order to explore the practicability of different knowledge brokering instruments, three tasks will be carried out:

2.1 Mapping of knowledge brokering instruments (KBIs)

A set of interactive participatory instruments are explored through a deep and detailed of literature analysis. Among the KBIs reviewed the following will be taken into consideration: multi-criteria analysis, stakeholders analysis and stakeholders interaction techniques cognitive maps, interview with policy makers, group model building (GMB) and participative workshops, **Delphi technique, perspective method, network analysis and social networks**. These instruments are integrated in web platform (a knowledge brokering instrument itself).

Commento [c3]: These are what ICIS can contribute in addition to Stakeholder analysis.

2.2 Analysis of the application of KBIs and identification of good practices

This task will allow to identify appropriate and transferable methodologies and tools for knowledge brokerage through the exploration, analysis and evaluation of their application to actual case studies for connecting science and policy. Methods such as **multi-criteria analysis, transitional management** are to be taken into consideration for the evaluation.

Commento [c4]: These are also what ICIS can contribute.

Strengths, weaknesses, barriers and success factors of these instruments will be identified through the above assessment.

Among the elements that can represent success factors of these instruments the following can be mentioned: 1) the use of causal chains in group discussion, 2) the use of stakeholder mapping and a representation of a good cross-section of their interests that can allow a better stakeholder engagement 3) participation of experts in workshop and consultation with the public

The expected result of this task is a better understanding of factors that will allow a highly conducive environment for the exchange and transfer of knowledge, and the identification of good practices in the application of KBIs in linking science to policy as well as to facilitate process evaluation of the project.

2.3 KBIs good practices in sustainable development field

This task attempts to evaluate the adoptability of the knowledge brokerage methods in the sustainable development field, through the identification of a set of knowledge brokerage good practices. Actual case studies will be identified and analyzed

Knowledge brokerage good practices will identify, among other things, most appropriate engaging process that creates active opportunities for stakeholders to debate and exchange knowledge on Sustainable Development issues (Energy and Environment macro areas) within workshops and other interactive approaches utilised in WP3.

The task will also identify how KBIs good practices can improve the performance of sustainability assessment methods (collected in WP1).

Technical meetings are periodically planned along the whole project to guarantee a proper exchange of the analytical work.

Deliverables

D2.1 Overview knowledge brokering instruments overview : Task [2.1] (month ...)

D2.2 Report on the Analysis of the application of KBIs and identification of good practices: Task [2.2]

D2.3 Report on KBIs good practices in sustainable development field: Task [2.3] (month ...)

D2.4 Report of the technical meeting

Work Package 3

| | | | | | | | |
|---------------------------------------|------------------------------------|----|--------------------------------------|---|------|---|--|
| Work package number | 3 | | Start date or starting event: | | | 1 | |
| Work package title | LINKING KNOWLEDGE TO ACTION | | | | | | |
| Activity Type²⁴ | RTD | | | | | | |
| Participant number | 1 | 2 | 3 | 4 | 5 | 6 | |
| Participant short name | | | | | | | |
| Person-months per participant: | 15 | 18 | 3 | 1 | 17,5 | 5 | |

Objectives

The main objective is to facilitate identification, access, assessment, interpretation, and translation of research evidence into national and local policy and practice, and vice versa, in order to realise the shifting away from GDP as a mainstream indicator. WP3 attempts to enhance the adoptability of sustainability indicators to EU policy objectives and development strategies as well as evaluate their applications.

²⁴ Please indicate one activity per work package:

RTD = Research and technological development; DEM = Demonstration; MGT = Management of the consortium; OTHER = Other specific activities, if applicable (including any activities to prepare for the dissemination and/or exploitation of project results, and coordination activities).

- To link identified indicators to identified policy instruments
- To define a management/facilitation system ensuring the right information reaches the right agencies/organisations (including both government agencies and research institutes) at the right time.
- To define integrative approaches of knowledge production which match scientific knowledge with stakeholders' knowledge (incorporating WP1 and WP2)
- To maintain and to extend the dialogue within scientists, that and between scientists and practitioners (with the foundation established in WP1 and technical support provided by WP4).

Description of work

In order to explore the practicability of shifting away from GDP as an exclusive mainstream indicators, specific policies are selected as pilot cases and networks (including mechanisms when needed) are established for implementation and possible continuation. There are four tasks within WP3:

3.1 Establishing the network:

Relevant practitioners and researchers are identified (and approached if outside the consortium), particularly from the reservoir of identified stakeholders in WP1, to form a network in selected case studies regarding abovementioned policies. In addition to the basic mapping and contact points, communication methods are also identified and recorded.

3.2 Mapping indicators with identified policy instruments:

Indicators are only meaningful in the context of decision-making. Specific energy, environmental and other welfare related policy instruments are selected for case studies in the Netherlands, Italy, Czech, Spain, Austria, Belgium, and European level etc. WP3, taking further from findings in WP2, will then define integrative approaches of knowledge production which match scientific knowledge with stakeholders' interests and knowledge (WP1). For that purpose, a set of policies, among those in the field of Energy and Environment, formulated to incorporate Sustainable Development indicators will be selected. ICIS will develop an assessment to determine (i) which indicators have been used, (ii) how they have been selected, (iii) the quality of the process through which they have been selected, (iv) benefits and challenges in using those indicators, will be carried out, and (v) which other indicators could have been employed in order to reach policy target more efficiently. Indicators identified in WP1 are assessed, incorporating Transition Management Approach and other appropriate methods identified in WP2, in order to map to the studied policy instruments. [*Farefuturo provides policy notes*] The assessment process incorporates inputs and information from Stakeholders' Community (WP1), gathered through a web platform (WP4) and other KB instruments (WP2).

3.3 Developing an integrated assessment tool to link knowledge to action

A workshop will take place to synthesise the findings from the case studies (Task [B]). An expected result is an integrated assessment (IA) tool to evaluate sustainable development and to incorporate sustainability indicators in sustainable development policies. The design of the IA tool should facilitate decision-making process to determine which actions should or should not be taken in an attempt to make society sustainable, as well as which indicators to employ to obtain the goal, how to access them, taking into account timeline and dynamics.

3.4 Establishing strategy and mechanisms for continuation:

WP3 also considers the opportunities of the continuation of this work once the project is finalized. A continuation strategy and mechanisms will be formulated to ensure the continuation of the project findings. Technical meetings are periodically planned along the whole project to guarantee a proper exchange of the analytical work.

Deliverables (brief description and month of delivery)

- D3.1 Map of the network (including communication methods): Task [3.1] (month 12)
- D3.2 Table of indicator – policy instrument linkages: Task [3.2] (month 12)
- D3.3 Policy notes and briefs: Task [3.2] (month 12)
- D3.4 Periodic report: Task [3.2] (month 12, month 24)
- D3.5 Synthesis workshop: Task [3.3] (month 20)
- D3.6 Model of ‘linking knowledge to action’: Task [3.3] (month 24)
- D3.7 Continuation strategy: Task [3.4] (month 30)
- D3.8 Final report Tasks [3.2], [3.3] and [3.4] (month 30)
- D3.9 Report of the technical meeting

Work Package 4

Commento [MSOffice5]: Ultima versione fornita da FF con focus solo su external public. Inserire Workshop per gathering stakeholder knowledge nel WP 3, Insert also tasks

| | | | | | | | |
|---------------------------------------|---------------------------------------|--------------------------------------|---|---|---|--|---|
| Work package number | 4 | Start date or starting event: | | | | | 1 |
| Work package title | DISSEMINATION AND EXPLOITATION | | | | | | |
| Activity Type²⁵ | OTHER | | | | | | |
| Participant number | 5 | 1 | 2 | 3 | 4 | | |
| Participant short name | | | | | | | |
| Person-months per participant: | 32,5 | 2,37 | 5 | 1 | 1 | | |

Objectives

- communicate and disseminate the results obtained in the project through several communication tools (e.g. website, newsletter, final conference & publication);
- to promote the developed methodology and tools among relevant interested parties (e.g. public bodies, policy makers, research institutes, universities, think tanks, public agencies, etc.).

²⁵ Please indicate one activity per work package:

RTD = Research and technological development; DEM = Demonstration; MGT = Management of the consortium; OTHER = Other specific activities, if applicable (including any activities to prepare for the dissemination and/or exploitation of project results, and coordination activities).

Description of work

The dissemination activities are aimed to reach stakeholders non involved in the project partnership or in methods and tools testing. The targets of communication activities are wider.

D, with the support of the other partners, is responsible to define the project communication and dissemination plan. This plan includes the design, implementation and management of project website, the time schedule of the local dissemination events that will be organised by each partner, the organisation of the final conference, etc.

The plan will contain the following items:

-objectives: raise awareness on sustainability indicators use in policy process, spread appropriate methodologies and tools for knowledge brokerage in sustainable development policies, support the transfer of knowledge activities;

-target: policy makers, public bodies, research institutes, universities, think tanks, public agencies;

-message: influence sustainability of policies through eco-indicators;

-communication tool: conferences, seminars, newsletters, publications, website, networks, etc.

-responsibility;

-resources;

-timing.

All Partners are involved in WP4 and will contribute by providing all the necessary material for newsletter, publication, website, etc.

Every partner will develop the parts of communication plan related to their own activity. The universities will define which tools (or mix of tools) will be better to communicate results to research institutes. The think tank will define tools aimed to policy makers.

Every partner will be responsible for his own part. Timing, responsibilities and costs of the plan application will be agreed by all the partners.

The communication and dissemination plan framework will be developed on the basis of international standard ISO 14063 on Environmental Communication.

The principles of a correct information at the basis of the environmental communication will be:

- *Transparency*. The processes, procedures, methods, data sources and assumptions used in environmental communication will be available to all interested parties, taking account of the confidentiality of information as required. Interested parties will be informed of their role in environmental communication.

- *Appropriateness*. The information provided in environmental communication relevant to interested parties will use formats, language and media that meet their interests and needs, enabling them to participate fully.

- *Credibility*. Environmental communication will be conducted in an honest and fair manner, and will be provided information that is truthful, accurate, substantive and not misleading to interested parties. Communication of information and data will use recognized and reproducible methods and indicators.

- *Responsiveness*. Environmental communication will be open to the needs of interested parties and will respond to the queries and concerns of interested parties in a full and timely manner. Interested parties will be made aware of how their queries and concerns have been addressed.

- *Clarity*. Environmental communication approaches and language shall be understandable to interested parties to minimize ambiguity.

The communication tools will be differentiated among the interested parties. For example, blog and social network represent useful tools for policy makers and think tanks, while conferences and workshops are more suitable to reach researchers. Articles and newsletters could be used for both kinds of target.

The setting up of the website will be developed by the project Coordinator; it will be organised in order to contain all the necessary and relevant information about the work progresses and the main public outputs of the project. The Project Coordinator will be responsible for the implementation of a blog aimed to policy makers and citizens and of web 2.0 tools.

Website could host the web platform used in WP3, if this solution will be assessed as the more suitable for the platform members/participants.

The aim of the local dissemination events is the promotion and diffusion of the developed methodology and tools, and will involve interested parties of each country involved (e.g. public bodies, policy makers, research institutes, universities, think tanks). The number of these events will be decided by each partner. The events could be forum, workshops or other kind of events decided by partners.

The Final conference of the project will be organised by D and the project Coordinator and will be aimed at disseminating, at an international level, the results of the project and the developed methodology.

D will be also responsible for gathering from each Partner and processing all the necessary information and documents for the newsletters and the final publication.

Newsletters will contain a description of the partners activities and a progress report. The document contents will be clear and understandable. The newsletter will be distributed through a mailing list (in an electronic format) and local dissemination events (in paper format), and will be also available within the project website.

Project Coordinator, with the support of D and contribution of all Partners, will produce project promotional material as leaflets, a common project slides show, etc. Number of copies of dissemination material will be decided on the basis of Partners' needs.

D with the support of project Coordinator will elaborate a final publication of main results. Number of copies will be decided by Partners.

Dissemination activities will be performed in a continuous way during all project duration.

Deliverables

- D4.1 Communication and dissemination plan
- D4.2 Design of website
- D4.3 Newsletter every six months
- D4.4 Dissemination events in each partner region
- D4.5 Production of basic promotional material
- D4.6 Publications
- D4.7 Final publication of project main results
- D4.8 Final conference

| | | | | | | | |
|--------------------------------|-------------------------------------|-------------------------------|---------|--|--|--|--|
| Work package number | 5 | Start date or starting event: | Month 1 | | | | |
| Work package title | MANAGEMENT OF THE CONSORTIUM | | | | | | |
| Activity Type ²⁶ | MNG | | | | | | |
| Participant number | 1 | 3 | 5 | | | | |
| Participant short name | | | | | | | |
| Person-months per participant: | 17 | 3 | 3 | | | | |

Objectives

Establish communication flows within the consortium and with the EC; organize periodical general meetings; Coordination of the EC contract and the work plan; monitor the work progress; Set up of the management structure.

Description of work

5.1 MANAGEMENT OF THE CONSORTIUM

The expected result of this Task is to perform an effective and efficient management of the consortium. To reach this objective, different kind of activities will be implemented by the project Coordinator:

- Implementation and Maintenance of the project infrastructure, e.g., the internal platform for information exchange and email lists,
- Handling of the project correspondence and the day-to-day requests both from partners and external bodies,
- Designing and maintaining partner specific templates for collecting input to the required EC documents,
- Implementing and maintaining of a project-specific database for reporting and controlling, including the adaptation of the structure after changes in the work plan and the Consortium,
- Preparing and post-processing of EC reviews from the consortium-side including support in the implementation of recommendations from the EC and reviewers,
- Preparing, executing and post-processing of major project meetings such as Steering Committee meetings, General Assemblies and meetings with the advisory board (tasks: agendas, invitations, location of meeting places, organization of rooms and equipment, preparation and distribution of materials, minutes and action lists).

The Project Coordinator will establish communication flows among partners (a list of at least two contacts from each partner will be always kept up to date and made available to the partners) and with the Commission Services. An online tool will be set up, to help exchanging information among partners, coordinating the technical advancement and ensuring the development and production of deliverables. The Project Coordinator will be responsible for the day-to-day co-ordination of the EC contract and the corresponding work plan. The WP Leaders will be responsible for achieving the objectives related to the respective Work Package (planning, costs etc) and for targets and deliverables defined by the program for the WP concerned.

It will be the duty of the coordinator to perform a synthesis of working papers and monographs and prepare the reports for submission to the EU Commission
Every year the Project coordinator will consolidate and distribute the annual reports, in order to assess achievements and proper strategies for completion of the project. The work package Leader will prepare a report at the achievement of each milestone and at the completion of each work package.

²⁶ Please indicate one activity per work package:

RTD = Research and technological development; DEM = Demonstration; MGT = Management of the consortium; OTHER = Other specific activities, if applicable (including any activities to prepare for the dissemination and/or exploitation of project results, and coordination activities).

At the same time, the Project Coordinator will prepare a consolidated overview of the budgetary situation of the project, on the basis of the cost statements from the partners and of the payments that have been made, for submission to the Commission. When required, an audit certificate will accompany the relative cost statement, created according to the internal accounting system of each beneficiary (e.g. as subcontracted activity).

A Project Steering Committee, composed by the project Coordinator and the WP Leaders, will supervise the implementation of the whole programme and will decide about the project strategy and scientific management issues. The management also ensures that adequate levels of communication are maintained and promotes discussion among partners in order to achieve expected levels of scientific and technical outputs. The Committee will be chaired by the project Coordinator. Starting with the kick off meeting, at the beginning of each project year, one general meeting will be organized, eventually using an online platform, involving the legal responsible for each partner, in order to organize the administrative and general management of the project.

At the end of the contract, a final meeting will be held to discuss and assemble the Final Report, and to critically review all activities performed and results obtained in the course of the whole project. The last month of the project is entirely allocated to allow for the preparation of the Final Report.

We have planned the time schedule in such a way that there will be time to properly incorporate changes once the analytical work is open for discussion.

5.2 IN BUILT EVALUATION

A process evaluation is implemented throughout the entire project period. It is not only for systematically monitoring and documenting this experimental project, but also for facilitating project itself to swiftly responses to successes and difficulties. Partner n. 2 (ICIS) will be responsible for this activity.

Deliverables

- D. 5.1. Report of the kick off meeting (month 1)
- D. 5.2 Report of the second year general meeting (month 10)
- D. 5.3 Report of the final year general meeting (month 31)
- D. 5.4 Process evaluation report (month 36)

Table 1.3 e: Summary of staff effort

| Participant no./short name | WP1 | WP2 | WP3 | WP4 | WP5 | Total person months |
|-----------------------------------|------------|------------|------------|------------|------------|----------------------------|
| Part.1 CIRPS | 8,6 | 20 | 15 | 2,37 | 17 | 63 |
| Part.2 ICIS | | 6 | 18 | 5 | | 29 |
| Part.3 CUEC | 17 | | 3 | 1 | 3 | 24 |
| Part.4 IIASA | 16 | 3 | 1 | 1 | | 21 |
| Par.5 FAREFUTURO | 4,5 | 4,5 | 17,5 | 32,5 | 3 | 62 |
| Part. 6 ISUPC | 15 | | 5 | | | 20 |
| TOT | 61,1 | 33,5 | 59,5 | 42,87 | 26 | 219 |

2. Implementation

2.1 Management structure and procedures

The management tools aim at ensuring that all the project activities, are carried out properly and successfully, and reducing any risk of failure, within the constraints of the project time schedule and budget.

The management activities have the following objectives:

- ✓ to manage and monitor the project resources, schedules and activities;
- ✓ to ensure the collaboration and communication to EC and among partners;
- ✓ to check the consistency between the development and the strategic objectives of the partners;
- ✓ to ensure the overall quality of the results.

The management activities will consist of a limited number of committees and members, maintaining the required flexibility for continuously monitoring the project progresses and readily taking most appropriate decisions. All partners, apart from the Coordinator will participate in the management activities and will allocate a part of their resources for management.

The structure of the management consists of:

Project Steering Committee: it is composed by the WP leaders and the Project Coordinator (who will be chair it).

It will be responsible for overall management: technical management, revision of internal and external publications, major decisions concerning the work contents, self-assessment, information dissemination, relationship with EU officers and third party organization.

It will be responsible for global supervision of the project, and for decisions in case of problems.

In order to allow a joint control of the work progress and a rapid-decision-making structure, all conflicting situations that may appear in the project, and that are not solved autonomously will be settled by the Steering Committee.

WP Leaders and Task Leaders: for each work package a technical leader will be nominated, that has the responsibility of completing the work planned, monitoring the progresses and integration of work done by all partners involved in the WP.

Besides, there will be task leaders responsible for specific actions and results as planned in the work plan. Reporting will be conducted half-yearly at the overall project level and more frequently at the individual WP level.

The Project Coordinator will be responsible for managing the overall project on a day-to day basis. He will be supported by a Scientific project manager for coordinating the scientific aspects. He will thus be responsible for the overall contractual, ethical, financial and administrative aspects of the project. Furthermore, he will be in charge of reporting the activities under the EC contract and for all communication and exchanges between the EC and the other participants. The project Coordinator will consolidate the project planning, the progress reports, milestone reports, cost statements, budget overviews, etc.

Meeting

The following meetings among partners are planned:

- ✓ Kick-off meeting, to define in detail boundary and interface specifications that are needed to harmonize activities included in different work packages, and those performed by different partners under each WP. Presentation, discussion and approval of the detailed work plan expected for the first six months. Description by each partner of the respective work approach and methodology. The kick-off meeting will be held within 6 weeks of the start date of the contract.

During the kick off meeting, a project management workshop will be held for administrative-management personnel.

In fact, thanks to our previous experience as coordinator, Cirps realized that involving only the technical personnel in the explanation of the financial and management EC rules of the project, did not produce the expected results (probably because they are not the persons who directly dealt with such activities). Moreover, one of the main causes of the delay in delivering the project reports, is that administrative personnel are often not used to working with EC forms and tables and are not well aware of the EC financial regulation.

Therefore, during the kick off meeting, we would like to organize a workshop, where a A management expert, together with another expert from the accounting company utilized by Sapienza-University of Rome, will directly explain to the partner administrative personnel all the financial rules and formats necessary to implement the administrative and financial aspects of the project.

- ✓ General Progress (MNG) and technical (RTD) meetings, to discuss and assemble the Progress Report and verify the accomplishment of project tasks, as indicated in the proposal and transferred to the Technical Annex of the Contract. In case of displacements between activities carried out, results accomplished (reported in deliverables) and milestones achieved, on one hand, and activities programmed and respective objectives, on the other hand, the meeting should clarify scientific, technical or practical obstacles (or focus on unexpected, more positive findings) and their impact on the project, and propose modifications or contingency plans for WP tasks affected and their respective time-table, activities and funding re-distribution among partners.

Progress meetings are scheduled every six months; when necessary, additional meetings will be organized by the coordinator, involving a restricted number of partners and dealing with specific topics (also using teleconferences systems).

The detailed work plan expected for the next six months will be presented, discussed and approved. The final version of the Progress Report will be issued by the Coordinator within three weeks from the date of the meeting. The meeting place will be made to rotate among all Partner sites, excluding Kick Off and Final Meeting, which will be held at Coordinator premises.

- ✓ Final meeting, to discuss and assemble the Final Report, to critically review all activities performed and results obtained in the course of the whole project, in the light of what is defined in the work plan. By the completion of the 35th month, all documentation should be forwarded to the Coordinator in order to allow him to prepare the draft of the Final Report. At least a week prior to the final meeting, the report will be circulated among all partners. Based on the discussions at the final meeting, and with the agreement of all partners, the Final Report will be completed and submitted to the Commission Services. All disagreements between results obtained and those envisaged at the start of the activities will be carefully analyzed either in terms of scientific and technical aspects that originate them, and in relation to their consequences on the project final objective. The Scientific Officer chosen by the Commission to supervise the project activities will be invited to all project meetings. The minutes of all meetings will be prepared by the Coordinator, sent to the Commission and circulated among partners, together with electronic transparencies accompanying scheduled communications presented at each meeting. If necessary, assessment meeting will be organized, with EC officers and external reviewers in order to check the research and innovation progresses and the confidence of reaching the goals and objectives, and for re-focusing the project objectives.

Monitoring

Each work package Leader will be responsible for the detailed co-ordination, planning, monitoring and reporting of specific work packages. If needed, meetings of the partners involved in the work package will be organized and chaired by the Leader.

For each deliverable, within the work package, the Leader will assign direct responsibility either to himself or to an associate individual. A list of individuals responsible for each deliverable will be forwarded to the project Coordinator. The work package Leader is, in the first instance, the person who will be contacted by the project Coordinator as part of the monitoring of progress towards completion of the deliverables and of the assigned work package.

Each partner will formally report every six months to the work package Leader of each work package he is involved in and for which he has performed tasks during the reporting period on progress of the activities within the agreed work packages. The work package Leader will forward every six months a consolidated progress report to the Coordinator, if tasks have been performed during the reporting period. He will also prepare a report at the achievement of each milestone, describing the actual results obtained, and discussing it in relation to the project specific objective and a WP report at the completion of the work package. The project Coordinator will consolidate and distribute the six monthly progress reports, the annual reports, the detailed mid-term report, and the final project report.

Budget

At the end of each reporting periods, the Project Coordinator will prepare a consolidated overview of the budgetary situation of the project, on the basis of the cost statements he has received from the partners and of the payments that have been made, for submission to the Commission.

Communication flows

The project Coordinator will ensure that proper communication flows among the partners are achieved, in order to optimize the progress of the project.

At the beginning of the project activities, each partner will submit a list of at least two individuals who can be contacted. This will ensure that temporary absences of specific individuals will not impede the progress of the project.

In general, relevant information will be sent to the project Coordinator, who will then forward it to the partners involved in the specific action. Direct partner-partner communications flows will be set up in those cases where an increase in efficiency can be achieved.

At each meeting, and based upon the six monthly work plan, the efficiency of the communication system will be reviewed. Furthermore, planning for publication to be made and conferences to be attended on behalf of the consortium will be a topic at each project meeting.

Project web site

A project web-site will be set up, describing to the general public the scientific and technical content of the project, and its impact, this section of the web-site will be periodically updated to include outlines of major results obtained. The web-site will also include a section with access restricted to partners and to the Scientific Officer, to help communications flows necessary to the activities performed in each WP and to the implementation of the programme as a whole.

With these features, the web-site will be an important tool for project management, either in terms of promoting relations among partners, and in terms of disseminating the objectives and the major results within a much larger circle of scientists, technologists and decision-makers. The presence of both, an open and a restricted-access section, will allow to deal properly with the issue of protection of knowledge and know-how. An integrated support web-platform will also be realized.

Consortium agreement

The Coordinator will submit to all legal entities participating in this project (beneficiaries) a draft of the Consortium Agreement, coherent with general FP7 directives, to deal with matters like:

- internal organization of the consortium;
- distribution of the Community financial contribution;

- additional rules on dissemination and use of knowledge resulting from the project (foreground), intellectual property rights (IPR), exploitation of jointly owned results, access to pre-existing know-how (background), etc.;
- settlement of internal disputes.

The Coordinator will also take care of the whole procedure to conclude the agreement.

Management capability of the Coordinator

The Coordinator of the project will be A, an association among several Italian universities.

A has been managing several projects co-funded by the European Commission(5-6-7FP, Tempus, Marie Curie, EuropAid, Tacis, Cip), in particular in the area of innovative solutions for new energy scenarios and capacity building activities, and has also been involved in the management of International University Networks and in Co-operation activities, A has run moreover scientific and co-operation activities, like international conferences, workshop, masters, etc.

These experiences enables A administrative and managerial staff to run all the procedures relating to an EC project. For more precise details, please refer to the description of A profile.

2.2 Individual participants

YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY

2.3 Consortium as a whole

The European consortium’s partners of the X project combine excellent complementary expertise in the fields of:

- Sustainability indicators and assessment tools
- Brokering Stakeholders and interaction
- Linking science to policy action
- Dissemination activities
- Support to policy making and intermediation with policy actors

In order to realize the ultimate goal of this project to promote the influence of the use of sustainable development indicators in the policy process, **this consortium** brings together universities, specialized research centers and political foundation which have the capacity to address all aspects connected to linking indicators at policy instruments to evaluate the achievement of policies toward the sustainable development.

The **X’ partnership** comprises 6 European partners that are the following: **A, B, C, D, E, F**

Through the very strong involvement and of high-level European partners it will be ensured a well-balanced competencies in relation to project objectives and strategy project.

A large impact and worldwide dissemination of the co-ordination activities and results of the X project is ensured by the fact that several project partners are actively linked with and/or representatives of a variety of international networks and sustainable development initiatives, and have received the permission to disseminate project activities and results through the channels of the respective networks.

Some partners are member of the same network, or have experience of previous collaboration, for example in EU projects (MATISSE and International Network on Sustainability Science- ICSS). For examples A and B are partners of Sustainability Science Initiative..

Sustainability Science is an international Initiative, that is based on the creation of a network of scholars, researchers and experts from research centers and universities around the world and their connection in a close partnership with leading representatives from civil society, the business community and policymaking institutions. This initiative was born in .2008.. planned several

conferences: the last conference was at Rome in 2010 (second edition of the International Conference on Sustainability Science, ICSS2010) and its aim was to bring advancement in Sustainability Science's knowledge structuring as well a consolidation and formalization of its research Network and solicit the active participation of the different stakeholders in a process of scientific co-production. The other organizers of Conference on Sustainability Science are represented by international research centers (such as United Nations University (UNU), United Nations University Institute for Sustainability and Peace (UNU-ISP), Integrated Research System for Sustainability Science (IR3S) - University of Tokyo), Arizona State University (ASU)) that, all together will contribute to international dissemination of the our project result through their own networks.

Moreover, C allows the link with the Advisory Board Members of "Beyond GDP Conference", because Charles University (Prague) was part of the Board in 2007

An effective implementation of the coordination activities within the respective work packages is guaranteed through the set-up of expert teams (addressing specific project tasks) and working groups. The work package leaders have been carefully selected in order to be able to fulfill their task to effectively coordinate all work package and working group activities and to ensure that all deliverables are completed on time with respect to the project planning.

In the following the work package leaders will be briefly presented, as well as lists of consortium partners actively contribution to the respective work packages and working groups. Detailed information on the expertise of the X consortium partners are presented in the organization profiles below.

Work package 1: Mapping sustainable development indicators

This work package will be lead by the D. This institute conducts policy-oriented research of problems that are too large or too complex to be solved by a single country or academic discipline. Problems that include sustainable development, that shall be addressed at both global and national levels. The B has an optimal expertise in the field of sustainability indicators assessment, climate change and adaptation. Among its contributions it is very important a participation of D in the project Y where the overall objective is to identify the decision-making criteria that are important for long-term investment decisions in various energy generation options within Europe, and to incorporate these criteria into evaluations of potential future energy paths and policies to achieve those paths.

The other partners that contribute to WP1 are:A,B,F

A will contribute to analyze sustainability indicators for development (especially in energy and environmental field). A has several experiences in sustainability assessment of energy systems. Among all, A collaborated with F on the project named "Beyond GDP. The new indicators of well-being and sustainable development".

C will contribute to project with the involvement of Department of Environmental Sustainability Indicators, that worked on development of criteria for indicator assessment from the viewpoint of their policy relevance, credibility and legitimacy, work on calculation and use of aggregated indicators and broader issues of indicator/sustainability assessments. Also, experience of A in the European project is very important because it shows a higher and increased competence deriving by its participation in Z project. E participated also at "Assessment of Sustainability Indicators" project (SCOPE, 2004-7) aimed to assess the progress in development and application of sustainable development indicators. The main outcome was an Island Press publication composed of "cross-section" chapters on methods, concepts, and relevancy of the indicators, and chapters on specific examples of indicators.

Other participation of E was in the "Indicator-based evaluation of interlinkages between different sustainable development objectives" project (6th FP EU, 2006-9), that had two major goals: to test

methods and instruments for assessment of relations among various aspects of sustainable development and to contribute to development of selected indicators used by Eurostat in assessing EU sustainability. The latter goal also included development of method for evaluation and selection of the sustainability indicators through quantitatively measurable criteria.

B has been a highly proactive university in the last decade in the field of sustainability, developing a specific strategic institutional profile in Sustainable Development (UPC Sustainable 2015). A specialized competence is that acquired during the analyses of Sustainability of Terrassa Municipality where it focused on the use of indicators and indexes. Major fields of scientific and professional activities of B are operations research and dynamics systems in urban problems, with vision integrated different dimension of sustainability.

Work package 2: Knowledge Brokering Instruments (KBIs) and KBIs Good Practices

This work package will be lead by A. A has experience in capacity building projects and stakeholder analysis and participation:

- 1) Training and consultancies on-the-job provided to local government officers for the evaluation of the implications of their choices for the composite well-being of the women and men living in their territory ;
- 2) Capacity building provided to local government officers from H
- 3) C addressed to local government officers to industry sector (both private and public) through a collaborative set of activities involving local authorities and a local environmental NGO, a delivery model for the facilitation of private industry participation in CDM implementation in China has been provided (Europe-Aid Capacity Building On Business Opportunities For CDM Projects In China);
- 4) C addressed to enhancing the capacity of local university faculty members and relevant regional government officials in dealing with regional energy development programs The project also aimed to stimulate the creation of long-term network and mutual partnership among institutions within a region in developing their regional energy sector (Europe-Aid, Regional University Capacity Building In Regional Energy Sector Development);
- 5) creation of a Network for local official in Balkan and Mediterranean Countries (Ital Govnmet);
- 6) Group modeling building and interaction with stakeholders

A and B will participate in WP2 through its contribution in Mapping of knowledge brokering instruments (KBIs) (Delphi techniques, perspective methods, stakeholders analysis) and in identification of KBIs good practices (multi-criteria analysis, transitional management), and

D will contribute to WP2 in the definition of existing barriers to the use of knowledge brokerage tools by policy makers and public bodies. This is a suitable role for D, on the basis of feedback collected through its participation at networks of policy makers, public authorities and think tanks.

Work package 3: **Linking** Knowledge to Action

This work package will be lead by E. A central aim of E is to improve existing methodology and to develop new methods and tools for Integrated Assessment. Current Integrated Assessment approaches at E include: participatory methods, scenarios, transitions, indicator-analysis and modelling techniques. For this rational, competences of E are optimal to gain the final result and objectives of the project. E will be responsible for implementation of Integrated Assessment tool and apply a case study at national and European level, to set a continuation strategy, and synthesize the overall mechanisms and strategies. E (together with B) is responsible also for European level. For this WP C provides policy notes and non technical reports. These documents will be aimed to translate concepts expressed in scientific language in a language more friendly for policy makers. Moreover, C will contribute in the engagement of policy makers to involve in testing activities.

Work package 4: **Dissemination**

This work package will be lead by C Foundation. C aims to create the preconditions of a better policy-making, linking technical analysis to political “vision”.

C is only three years old, but has already worked on two specific working papers, dealing with “sustainable development” and “beyond GDP”: “Italy and green economy”; “Green Italy”. These papers were elaborated together with other think-tanks, associations and national-level stakeholders. Also, an entire issue of Charta minuta (a bi-monthly magazine who target policy makers) was dedicated to the “economics of happiness”, in cooperation with the national institute of statistics, leading national universities and research centres.

C has experienced related to organization of: meetings, seminars, workshops, discussion forums and training courses. It provides researches, annual reports and working papers on social policies, economics, international politics, sustainable development. The foundation publishes books, essays and magazines. It also edits the daily webmagazine “Ffwebmagazine”, concerning national and international politics, culture and economics.

C will use its experience contributing to the organization of project conferences and coordinating the partners in the elaboration of communication and dissemination documents and events.

Every partners will make dissemination activities within individual countries.

Other partners have experiences related to the dissemination tasks of the above mentioned projects in which they participated. They have also experience in conferences organization and publications elaboration, as tools to spread result of their research activities.

Subcontracting:

A will sub-contract the realization of the website and the integrated support web-platform to a Company, which will be identify according to its internal administrative rules.

C will sub-contract the technical assistance in testing activities, in the elaboration of the final report and the policy notes, in the assessment of better sustainability indicators and KB tools (SWOT analysis) and the Elaboration of publications and newsletters to a Company to be identify.

For the periodic certification of the project costs, sub-contracting has been considered under OTHER costs by some of the beneficiaries; following a procedure already applied in previous EC contracts, the remaining partners can rely upon officials qualified for this job, hired by their respective administrations

2.4 Resources to be committed

The distribution of the budget and financing have been calculated taking into account the distribution of the work and the number of WP/task, which each partner is involved in.

All applicants are involved in research activities at the core of their respective interests and business, the staff effort in man-months is shown in Table 1.3 above, relative to each work package and partner. The personnel costs are summarized in part A3 of the proposal; these have been calculated according to current regulations and internal accounting procedures in force at the corresponding institutions.

With reference to the kind of project, the major costs are related to RTD activities and concern personnel costs, other direct costs are related to travelling for project meetings and conference, presentations of project results, organization of workshops, website, etc.

Partner n.1 A

1) RTD activities:

a) Personnel costs: 4 personnel involved (2 senior+ 2 junior) Eur = 138.000

Eur, Hourly rate average:35 €, Workload: 43,65 person months, Workload related to RTD activities.

b) Other direct costs:

23000 EUR Travel costs (flights, accommodation, allowances) of 3 technical project meetings, each attended by 2 researchers/project administrators, travel and accommodation to the three workshops.

2) Management activities:

a) Personnel costs: 58.801,60 Eur, hourly rate average: 55,72 Eur, Workload: 19,37 person months, Workload related to project management.

b) other direct costs: 15.000 euro, Organization of three project meeting: catering, meeting room, project documentation, etc

3) Other activities:

b) Other direct costs:1000 EUR Dissemination activities, participation at national/international events

b) Subcontracting: 2000 € realization of the website and the integratæl support webplattform, 3000 € Costs of external financial audits.

Partner n.2 B

1) RTD activities:

a) Personnel costs: 29 * 6500 Eur = 188500 EUR , Monthly rate: 6500 EUR, Workload: 29 person months. Workload related to RTD activities.

b) Other direct costs: 6 * 1000 EUR = 6000 EUR, equipment 2000 EUR, consumables / conference = 3000 EUR Travel costs (flights, accommodation, allowances) of 3 project meetings, each attended by 2 researchers/project administrators

3) Other activities:

a) Subcontracting:1500 EUR Costs of yearly audit.

Partner n.3 C

1) RTD activities:

a) Personnel costs: 20 * 4200 Eur = 84000 Eur Monthly rate: 4200 Eur, Workload: 20 person months, Workload related to RTD activities.

b) Other direct costs:

6 * 1000 EUR = 6000 EUR Travel costs (flights, accommodation, allowances) of 3 project meetings, each attended by 2 researchers/project administrators

2) Management activities:

a) Personnel costs: 3 * 4200 Eur = 12600 Eur, Monthly rate: 4200 Eur, Workload: 3 person months, Workload related to project management.

3) Other activities:

a) Personnel costs: 1 * 4200 Eur = 4200 Eur, Monthly rate: 4200 Eur, Workload: 1 person month
Workload related to organization of national workshop, which will be held in Prague in year 3 of the project, in order to discuss and disseminate results of the project.

b) Subcontracting: 4500 EUR Costs of 3 yearly audits.

c) Other direct costs:

2000 EUR Expenses to rent the venue for organizing the workshop mentioned above.

Partner n.4 D

1) RTD activities:

a) Personnel costs: 21 * 7500 Eur = 157500 Eur, Monthly rate: 7500 Eur, Workload: 21 person months, Workload related to RTD activities.

b) Other direct costs: 11 * 1000 EUR = 11000 EUR Travel costs (flights, accommodation, allowances) of 3 project meetings, each attended by 2 researchers/project administrators
1*30000=30000 EUR Organization of the Workshop

2) Management activities:

a) Other Management costs: 1*1500 = 1500 EUR Travel

3) Other activities:

a) Subcontracting: 1*2500= 2500 EUR Auditing

Partner n.5 E

1) RTD activities:

a) Personnel costs: 85750 Eur, Workload: 26,5 person month Workload related to RTD activities

b) Subcontracting: 10000 EUR (SWOT analysis)

c) Other direct costs: 3000 Eur Travel costs (flights, accommodation, allowances) of 3 project meetings, each attended by 1 researchers/project administrators

2) Management activities:

a) Personnel costs: 6900 Eur Workload: 3 person months Workload related to project management.

c) Other direct costs: 1500 Eur Travel costs (flights, accommodation, allowances) for management meetings

3) Other activities:

a) Personnel costs: 99350 euros Workload: 32,5 person month

b) Subcontracting: 25000 EUR Elaboration of publications and newsletters. Costs of 2 audits

b) Other direct costs: 12.500 EUR Print of dissemination and communication tools as newsletter, publications (Charta Minuta) and so on.

Partner n.6 F

1) RTD activities:

a) Personnel costs: 26 * 4200 Eur = € 167.612,40 Eur, Monthly rate: 4200 Eur, Workload: 20 person months, Workload related to RTD activities.

b) Other direct costs: 6 * 1000 EUR = 6000 EUR Workload related to organization of national workshop, which will be held in year 3 of the project, in order to discuss and disseminate results of the project, Expenses to rent the venue for organizing the workshop mentioned above.

2) Management activities: 1500 € Travel costs (flights, accommodation, allowances) of project meetings, each attended by 2 researchers/project administrators

3) Other activities:

a) Subcontracting: 4500 EUR, Costs of yearly audits.

3. Impact

3.1 Expected impacts listed in the work programme

Several initiatives have emerged at EU and international level, aimed at overcoming GDP as exclusive mainstreaming indicator²⁷. However, implementation and up-take of the use of sustainable development indicators, is difficult and finds many barriers (as those related to different temporal and spatial scales of indicators, the difficulty in clearly identifying the object to be measured due to the complexity of the concept of Sustainable Development itself and the gap between production of scientific knowledge and its use in the policy process formulation). Another barrier towards the implementation of policies for sustainability is the existing discrepancies between the timing of politics (i.e. elections) and the time needed to start benefiting from sustainability-related policies, meaning letting them demonstrate its effects.

In order to overcome those barriers and increase the usage of sustainable development indicators in the decision-making process, to ease their implementation by policymakers and to strengthen policy-orientation of sustainability-focused research community, and to bridge the gap between rigorous science and the urgent need for solutions, X will provide an Integrated Approach linking Knowledge to Action in order to evaluate sustainable development and to incorporate sustainability indicators in sustainable development policies. The design of an Integrated Assessment tool is intended to facilitate decision-making process to determine which actions should or should not be taken in an attempt to make society sustainable, as well as which indicators to employ to obtain the goal, how to access them, taking into accounting timeline and dynamics.

The co-production of knowledge facilitated by the application of different KB Instruments analyzed and then some of them applied to individual case studies, and the support of an Integrated Web Platform, will allow a better link between researchers and policymakers and therefore the definition of science-based good policies for sustainable development.

Knowledge transfer among researchers in academic institutions and in (policy) think tanks, non-governmental organisations, stakeholders and policy-makers will be improved and facilitated through the development of Stakeholders' communities that can understand and use the science, and scientific knowledge about sustainable development indicators for policy formulation and assessment.

The Political foundations, in particular, have shown their high potential in the last few years as ideal entities to allow politics speak with the world of science, research and other stakeholders not structurally linked with the political world. The approach proposed by X with the aim of increasing influence of indicators on the sustainable development policy process is supported by the participation and role of C, a policy think tank, that through its link with the European Network of political Foundations and policy think-tanks will allow and facilitate the dialogue between scientist, stakeholders and policy makers as well as the transfer of knowledge for a better policy-making, linking technical analysis to political "vision".

The major *impact areas* are below indicated:

1) Improved knowledge transfer among researchers in academic institutions and in (policy) think tanks, non-governmental organisations, stakeholders and policy-makers, through the use and implementation of knowledge brokerage instruments analysed. X will keep track of this impact through a process of built-in evaluation. Built-in evaluation ensures a continued learning process on the knowledge brokerage approach taken within X. The tasks performed in WP3, that run alongside the experimentation with online and offline tools, will help identify the successes and difficulties with the chosen approach and, thereby, provide insights into ways of effective knowledge brokerage in sustainable development and in this sense also feed into the WP1.

In order to measure the effectiveness of the use of KBIs in knowledge understanding and transferring, the following factors can be evaluated:

²⁷ See <http://www.beyond-gdp.eu/>, Commission on the Measurement of Economic Performance and Social Progress, 2008. "Issues Paper". Commission on the Measurement of Economic Performance and Social Progress, 2009. Commissione Europea (CE) 2010. Communication COM (2010) 2020 EUROPE 2020: "A strategy for smart, sustainable and inclusive growth".

- Increased understanding of the factors constituting the problem situation
- Reaction, insight, commitment, behavior of stakeholders
- Commitment to future action and learning
- Creating and maintaining a space for exchange of knowledge and viewpoints
- Communication, consensus or mental model alignment, shared language
- Internal knowledge sharing and external knowledge sharing.

2) Optimised uptake and use of research results in the field of sustainable development indicators

Through a mapping and classification of existing efforts to develop sustainable development indicators at the European and national levels, and a multi-criteria analysis conducted on political applicability of on-going efforts to measure sustainable development and possibilities to conduct inter-regional and inter-temporal comparison, X will contribute to identify applicable and useful indicators for policy makers an optimized uptake and use of research results in the field of sustainable development indicators.

3) Increased influence of indicators on sustainable development policy process contributing to strengthen of the policy-orientation

Through the development of a new Integrated Approach to evaluate sustainable development and to incorporate sustainability indicators (applicable and useful for policy makers) in sustainable development policies the project will increase influence of indicators on sustainable development policy process.

To achieve the above will apply KB approaches and instruments to pilot test policies where those indicators have been used (identifying barriers and strengths), and will define an Integrated Assessment tool linking knowledge to action. As a result, a set of indicators that can be relatively easily used by policy makers - as a support - to select, implement and progressively evaluate sustainability-related policies whose performance (i.e. in terms of achievement of certain SD goals) can be measured. A series of policy-briefs/notes will also be produced

In order to achieve the main objectives and expected impacts and so to bring about the impacts above indicated, the following steps are foreseen..

The project starts from the assumption that a single approach is not sufficient and not suitable to address the complexity and the challenges of a beyond GDP society.

To analyze the four pillars of sustainable development (economic, social, environmental and policy/institutional) and explore sustainability indicators according to their applicability to the policy making process an important step will be to identify a basket of sustainable indicators through workshops and mapping of the indicators to policies.

In order to define an integrated assessment tool to evaluate sustainable development and the use of sustainability indicators in policies, a collaborative model using appropriate knowledge brokerage approach will be implemented. For this the project will design stakeholder engagement and the employment of strategic techniques explicitly recognizing the diversity of types of knowledge represented, different types of stakeholders given the policy issues under consideration, knowledge basis and information needs to adjust knowledge brokerage.

The “beyond GDP” approach is a European issue. Some EU policy acts asserted this challenge. The revised Lisbon Strategy (Gothenburg, 2001) promoted the use of sustainability indicators among Member States aimed to monitor their performances and to create a common system of quantified targets definition.

In 2008 the “*Commission on the Measurement of Economic Performance and Social Progress Report*” (“Stiglitz Report”) analysed the limits of GDP and the useful contribution of sustainability indicators as tools towards a “beyond GDP society”.

The EC Communication 2009/433 “*GDP and beyond: measuring progress in a changing world*” defined the necessary steps to do, for European Union, to overcome existing barriers and reach the goal of a “beyond GDP society”.

The first step is aimed to spread and evolve the use of environmental and social indicators. Moreover, the Communication underlined that the indicators have to be recent, updated and that the EU needs an experiences exchange related to policy answers among Member States.

X project fits perfectly with these objectives of European Commission. Through its effort in linking knowledge to action and identifying of a set of indicators beyond GDP applicable by policy makers, X contributes to make a step forwards in the direction set of the EC Communication 2009/433

The European approach is necessary because EC aims to build a strategic vision for the European Union and to develop operative tools for Member States. The project partnership permits an overview of cases studies related to eco-indicators and sustainable policies in different European countries. In the experimental tasks of the project, best practices of sustainable development indicators and policy transfer will be developed and tested. The result will be a panel of tools coherent with European Commission expectation: innovative, representative of excellence and shared.

The project will bring the research results and experience of Sustainability Science Networks, both at EU level (European sustainability Science Group) and international level (Network of Networks on Sustainability Science launched in 2008 as a follow up of G8 University Summit- (<http://www.infss.org/> see also www.icss2010.net), thanks to the participation of some of the Partners of the Consortium in the two above initiatives.

Sustainability Science aims to address the complexity and the multidimensional character of sustainable development, it is based on an integrated and trans-disciplinary approach, with the aim to analyze and to understand the links among environmental sciences, economics, social sciences and political sciences. Sustainability science can guide decision making, providing provisional knowledge about social problems, the desirability of new systems of provision, and the longterm effects of interventions—issues on which science has no definitive answer. Sustainability may be understood as a specific kind of problem framing that emphasizes the interconnectedness of different issues and scales, as well as the long-term and indirect effects of actions that need to be accounted for as part of decision making.

In particular the project will benefit from the following aspects of the research framework of Sustainability Science:

1) investigation of the scale issues, gaining insight into the linkages between events on both the macro and the micro scale, promoting the integration on a larger geographical scale in order to get beyond the sometimes easy but finally artificial division between global and local perspectives of sustainability, 2) capacity of integration of different styles of knowledge creation in order to bridge the gulf between science, practice and politics; 3) support to identify directions in which change is needed.

The external factors that can occur and therefore allow the achievement of the impacts below indicated can be summarized as follows:

- The development of objectives and tasks of EC COM 2009/433 and the awareness raising among policy makers and national governments through European Commission initiatives
- The development of the eco-indicators use caused by rules or incentives in the countries involved in the project (for example: law about environmental accounting in local bodies)
- An increased interest in policy makers and public authorities about sustainable indicators as an answer to stakeholders pressure (for example local committee, local agenda 21 forum, etc.)
- An increase interest in policy makers and public authorities about sustainability policies monitoring tools and communication tools to obtain positive feedbacks in terms of citizens consensus (election during project period) or economic opportunities (funding during project period)

3.2 Dissemination and/or exploitation of project results, and management of intellectual property

The outcomes of X work packages will be disseminated by means of two kinds of activities:

- a) activities for general publication, diffusion and dissemination of project progresses, outputs and results. These include: publication of project information and deliverables on a constantly updated dedicated web site, publication of periodical newsletters, diffusion of basic promotional material, organisation of local dissemination events, general project conferences;
- b) activities for targeted dissemination, aimed at dissemination to researchers, institutional technical bodies and policy makers, in order to promote and organize future cooperation and exploitation of project results. This kind of activities includes: identification of interested network and platforms, linkages with them and dissemination of results in order to provide suggestions and obtain feedbacks. Targeted dissemination intends to provide adequate basis for further exploitation of project outputs by researchers and institutional bodies and for wider application at the international level. It is expected that the EU funding will establish the X network which will continue to develop through external funding after the end of EU funding.

The details of the activities undertaken in the framework of X project for using and disseminating the project results are presented in WP4 (Dissemination).

The project web site will include an Integrated Support Platform a restricted community space of interaction among Partners and stakeholders, and an 'open-to-all' web-based information system serving for the exchange and dissemination of information and good practices

A large impact and worldwide dissemination of the co-ordination activities and results of X is ensured by the fact that several project partners are actively involved and/or representatives of a variety of international networks on sustainable development (for examples Sustainability Science International Network and the European Sustainability Science Group).

project results will be used and disseminated both by the entire consortium and by all participants individually

In addition, the X consortium will define and propose to the responsible EC Scientific Officer for acceptance within the first 6 months a Draft Dissemination and Communication Plan to be implemented by the consortium during the project.

The issues to be considered by the consortium for the definition of the Draft Plan for Using and Disseminating Knowledge include the following:

- (1) Creation of a project website including an Integrated Support Platform with a part of it open to the wide public.
- (2) Publications in Scientific popular press.
- (3) Publication in the daily/weekly press, specialised magazines.
- (4) Issuing of press releases to local, national or international press at suitable occasions.
- (5) Organisation of media events such as press conferences, exhibitions or information days, for example on the occasion of a project meeting.
- (6) Production and dissemination of information dedicated to appropriate media means, e.g. printed brochures, flyers, videos, newsletters.
- (7) Participation at conferences under the condition that the project results are properly documented and disseminated.
- (8) Organisation of / participation to university exhibitions and conferences.
- (9) other actions

The deliverables list of the X project includes the Draft Dissemination and Communication Plan for month 6. This draft plan is maintained and up-dated through the lifetime of the project and the Final Dissemination and Communication Plan (month 30) will describe the participants' actual achievements in dissemination and their plans for the exploitation of their results.

As the ultimate goal of the X project, the X consortium will put emphasis on the involvement of a large variety of stakeholders also beyond the research community for raising public participation and awareness.

All project results and outputs will be available for free and open to future exploitations, apart from the Integrated Assessment tool whose utilization will be regulated by the consortium agreement among the Partners

4. Ethics Issues

To ensure compliance with ethical principles, the Commission Services will undertake ethics audit(s) of selected projects at its discretion.
 A dedicated website that aims to provide clear, helpful information on ethics issues is now available at: http://cordis.europa.eu/fp7/ethics_en.html.
 The site includes guidance documents on privacy and data protection, developing countries , informed consent procedures etc.

ETHICS ISSUES TABLE

(Note: Research involving activities marked with an asterisk * in the left column in the table below will be referred automatically to Ethics Review)

| Research on Human Embryo/ Foetus | | YES | Page |
|-----------------------------------------|--------------------------------------------------------------------------------------------------------|------------|-------------|
| * | Does the proposed research involve human Embryos? | | |
| * | Does the proposed research involve human Foetal Tissues/ Cells? | | |
| * | Does the proposed research involve human Embryonic Stem Cells (hESCs)? | | |
| * | Does the proposed research on human Embryonic Stem Cells involve cells in culture? | | |
| * | Does the proposed research on Human Embryonic Stem Cells involve the derivation of cells from Embryos? | | |
| | I CONFIRM THAT NONE OF THE ABOVE ISSUES APPLY TO MY PROPOSAL | | |

| Research on Humans | | YES | Page |
|---------------------------|----------------------------------------------------------------------|------------|-------------|
| * | Does the proposed research involve children? | | |
| * | Does the proposed research involve patients? | | |
| * | Does the proposed research involve persons not able to give consent? | | |
| * | Does the proposed research involve adult healthy volunteers? | | |
| | Does the proposed research involve Human genetic material? | | |
| | Does the proposed research involve Human biological samples? | | |
| | Does the proposed research involve Human data collection? | | |
| | I CONFIRM THAT NONE OF THE ABOVE ISSUES APPLY TO MY PROPOSAL | | |

| Privacy | | YES | Page |
|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|-------------|
| | Does the proposed research involve processing of genetic information or personal data (e.g. health, sexual lifestyle, ethnicity, political opinion, religious or philosophical conviction)? | | |
| | Does the proposed research involve tracking the location or observation of people? | | |
| | I CONFIRM THAT NONE OF THE ABOVE ISSUES APPLY TO MY PROPOSAL | | |

| Research on Animals ²⁸ | | YES | Page |
|------------------------------------------|---------------------------------------------------------|------------|-------------|
| | Does the proposed research involve research on animals? | | |
| | Are those animals transgenic small laboratory animals? | | |

²⁸ The type of animals involved in the research that fall under the scope of the Commission's Ethical Scrutiny procedures are defined in the [Council Directive 86/609/EEC](#) of 24 November 1986 on the approximation of laws, regulations and administrative provisions of the Member States regarding the protection of animals used for experimental and other scientific purposes Official Journal L 358 , 18/12/1986 p. 0001 - 0028

| | | | |
|---|--------------------------------------------------------------|--|--|
| | Are those animals transgenic farm animals? | | |
| * | Are those animals non-human primates? | | |
| | Are those animals cloned farm animals? | | |
| | I CONFIRM THAT NONE OF THE ABOVE ISSUES APPLY TO MY PROPOSAL | | |

| Research Involving ICP Countries²⁸ | | YES | Page |
|------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|-------------|
| | Is the proposed research (or parts of it) going to take place in one or more of the ICP Countries? | | |
| | Is any material used in the research (e.g. personal data, animal and/or human tissue samples, genetic material, live animals, etc): a) Collected in any of the ICP countries? b) Exported to any other country (including ICPC and EU Member States)? | | |
| | I CONFIRM THAT NONE OF THE ABOVE ISSUES APPLY TO MY PROPOSAL | | |

| Dual Use | | YES | Page |
|-----------------|--------------------------------------------------------------|------------|-------------|
| | Research having direct military use | | |
| | Research having the potential for terrorist abuse | | |
| | I CONFIRM THAT NONE OF THE ABOVE ISSUES APPLY TO MY PROPOSAL | | |

X will operate under well proved practices. We will operate respectfully to colleagues and all those directly and indirectly linked to the project work. The project team does not expect to meet any complex ethical issues during the implementation of the project.

5. Consideration of gender aspects

X project will consider gender issues as well as gender participation in management and decision-making levels.

The diverse background of X will provide women researchers a unique platform for exchanging experiences and good practice as well as facilitating cooperation and consultation between female researchers across sciences. Moreover, the participation of women will be enhanced through the partners involved in the project, giving also opportunities to the dissemination of the gained experiences and knowledge for future women scientists. The gender equity will be met by giving equal opportunities for both men and women in the recruitment process in the phase of consortium building.

² In accordance with Article 12(1) of the Rules for Participation in FP7, 'International Cooperation Partner Country (ICPC) means a third country which the Commission classifies as a low-income (L), lower-middle-income (LM) or upper-middle-income (UM) country. The list of countries is given in annex 1 of the work programme. Countries associated to the Seventh EC Framework Programme do not qualify as ICP Countries and therefore do not appear in this list.