

1. Bellagio Sustainability Assessment and Measurement Principles (BellagioSTAMP) – Significance and Examples From International Environment Outlooks

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INTRODUCTION

What does ‘good practice’ mean for assessments of sustainable development policies?

Good practice in assessing progress, or future strategies, towards sustainable development of course depends upon the circumstances. The purpose, audience, budget, time and availability of other resources, subject matter and many other aspects are all determining factors. There is no single standard for what is good.

However, over the past twenty years, a large body of work has built up which assesses progress towards sustainable development. Over this period, dozens of elaborate global assessments have been produced and many more on a smaller geographical scale. For an overview from a European perspective, see for example the catalogue of forward-looking environment studies in the EEA ‘Glimpses’ project (EEA 2007). The purposes of these assessments span the entire full policy life cycle, from assessing progress towards sustainable development goals to ex post and ex ante assessments of the policies’ appropriateness.

Using these as a basis, the Bellagio Sustainability Assessment and Measurement Principles (BellagioSTAMP) were established. They do not define good practice but are intended to provide critical guidance for the development of new assessments and affect choices in their design.

This chapter begins by presenting the purpose and basis of these principles, followed by a discussion of the considerations that led to the development of each principle and the reasons why it should be used for a sustainable development assessment. Some implications are illustrated by way of one or two examples. Most examples originate from work on environment assessment on a global or regional scale, and a few come from the ongoing development of a methodology for sustainable development assessments at the Netherlands Environmental Assessment Agency.

How can BellagioSTAMP help?

The Bellagio principles are to help practitioners fulfil the potential of sustainable development assessments. They are intended to help professionals compiling, reviewing or managing these studies, sponsors and users as well as those who commission the assessments.

The purpose of the principles is to help in the following areas:

- Content – the questions that should be answered in the assessments
- Process – the method in which the assessments should be carried out
- Scope – the temporal, geographical and thematic range of assessments
- Impact – the way to maximise the impact that assessments have on policy makers and the public

What are these principles based on?

BellagioSTAMP are based on twenty years of experience in policy-oriented assessments in environment, natural resources and sustainable development. This practical understanding was gained both through retrospective studies and outlooks based on scenarios, on both the local and global scale. For example, IPCC assessments, the UNEP Global Environment Outlook and the Millennium Ecosystem Assessment, all of which are included in BellagioSTAMP, all feature reporting on interlinked global, regional and national dynamics. In the past few years, a substantial body of work that evaluates and reflects on the methods and impacts of these studies has become available.

Sources and authors

The principles described here were formulated in mid 2009 by nineteen practitioners from various continents and organisations including NGOs, government, academia and media.^{1, 2, 3}

In fact, the formulation of BellagioSTAMP in 2009 is an updated version of the widely used set of principles compiled by a similar group in 1996 (Hardi and Zdan 1997). One third of the members of the 2009 group participated in 1996 as well. The others were new, including, practitioners from India and China.

This chapter provides commentary and examples by the chapter author. Examples are mostly taken from the author's line of work in global and regional environmental outlooks. By necessity, this provides a specific interpretation of the Bellagio principles. This interpretation is the responsibility of the chapter author.

Why revisit the original 1996 Bellagio principles?

Though the 1996 Bellagio principles were originally successful, new assessment methods and challenges to sustainable development have overtaken them. This is the result of the considerable increase in the number of integrated environment assessment studies being produced globally (for example on climate and on agriculture) as well as nationally (applicable to many countries in Latin America, for instance). In these assessments, the concept of sustainable development was included more often than in those from the mid-1990s. In addition, it has become increasingly clear that the differences in world view and how problems are framed must be acknowledged in these assessments. Lately, a shift in general emphasis from identifying problems to identifying options for action has been taking place. Based on these developments, the new Bellagio team was able to re-examine the concepts. The resulting new list of principles is conceptually more condensed, making it more easily implemented.

THE BELLAGIO PRINCIPLES

The following section is the core of this chapter and provides a commentary on each of the eight principles. The wording of the principles is presented in a box at the beginning of each section.

Principle 1: Guiding Vision

Assessment of progress towards sustainable development will be guided by the goal to deliver well-being within the capacity of the biosphere to sustain it for future generations.
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Sustainable development is by definition a forward-looking concept. Its key element is to ensure that future generations are able to meet their own needs. Considering the significant and growing risks to their ability to do so, it is important to develop positive visions of the future. Having a vision in place helps to orient performance evaluation and defines the direction and scope of desirable change,.

An example of a goal that has been helpful not only in orienting the policy debate but also in guiding assessments is the use of the two-degree target in climate policy. It is not universally accepted, but it is well-known and can thus be used to structure analyses of effort, burden sharing and so forth. Another example of this are the Millennium Development Goals which, for all their imperfections, have also been useful in structuring assessments even if they look beyond the current MDG system, as in the study by Hilderink (PBL 2009b).

In practice, assessments differ in how explicit a goal or vision appears in the eventual reports and presentations. Backcasting studies are by nature very explicit in the vision for the future that serves as their point of orientation for mapping the policy actions to reach it. For some assessments, participation and social engagement during the development of the vision are essential features while other approaches take an expert-based approach. Another way in which goals play a role in assessments is through the quantitatively defined goals that are essential for creating indicators, the practical implications of which are emphasised under principles three and four. Finally, perhaps the most important point to consider is that the audience, or participants, will find it easier to appreciate the results of the assessments if it is clear what inspired the study.

Principle 2: Essential considerations

Sustainability Assessment consider:

- the underlying social, economic and environmental system as a whole and the interactions among its components
- the adequacy of governance mechanisms
- dynamics of current trends and drivers of change and their interaction
- risks, uncertainties, and activities that can have an impact across boundaries
- implications for decision making, including trade-offs and synergies

An operational rule of thumb to assessment methods and tools is that they should adequately inform users along the three dimensions of sustainable development: consideration between now and the future, between 'here' and

‘there’ and across policy portfolios. The last of these is the subject of principle 2, and adequate scope in terms of time and space are the subject of principle 3.

Looking at the system as a whole

One of the reasons often mentioned by users for commissioning, or even just appreciating, integrated, broad assessment studies is that they show linkages between policy domains that are related in substance but generally organised in different governmental or business ‘silos’.

For example, land use research illustrates that a number of aspects need to be brought together in order to understand long term changes, risks and vulnerabilities, opportunities and intervention points. These range from agricultural technology to the role of meat in the human diet or bioenergy use, from climate change to terms of trade and land rights.

By the same token, such research also illustrates that very clear choices concerning the design of the study must be made. Otherwise the analysis will become unmanageable. For example, global, forward-looking studies on agriculture, ecosystems and land use must decide to what extent they should speak about hunger. Agricultural production is of course related to food availability, but the global incidence of hunger also has other causes that are at least of equal importance such as poverty and conflict (UNEP 2008). These assessments must therefore decide whether to carry out full, region-specific assessments that give a comprehensive picture of the situation or to address the very specific links between agriculture and hunger such as the size of global tradable stocks of food, and price volatility (see for example IFPRI 2009). They could also choose not to address hunger at all, making clear why that choice has been made. Integrated assessments encounter similar design decisions on issues that involve cities and urbanisation where various themes in sustainable development tend to be particularly interconnected.

One obvious implication of this principle for the practice of integrated assessment is that a typical sustainable development assessment must overcome a number of barriers, or lack of connectivity, such as between administrations, between scientific disciplines and between separate information systems. On the other hand, this is precisely where a large part of a sustainable development assessment’s added value comes from.

Looking at dynamics

The need to consider temporal dynamics can be illustrated by the example of replacing coal-fired power stations with stations using natural gas as fuel. For

the time being, this does have a climate-friendly outcome. However, an analysis over a 40-year time horizon – the average life span of a power station – reveals this fuel shift to be a lock-in that will eventually hinder low-carbon power production. This fact of course sheds new light on investment and regulation over the next five to ten years.

Another example of changing dynamics over time can be witnessed in the global game of catch-up between improvements in agricultural productivity and the demand for agricultural products over the coming decades. Any strategic assessment of land, agriculture or biodiversity needs to address this process and its determining factors.

The obvious implication of this principle is that designers of broad assessments should conduct an analysis that subdivides the time interval between the present and the assessment's time horizon. By the same token, important regional differences will be brought into view – as in the above example of agricultural production and demand – as well as differences between regions or sectors in their typical views of how the world works, or should work. For example, very different trade-offs between economic efficiency, environmental risk and technological logic can lead to either as-late-as-possible or as-early-as-possible investments in a low-carbon energy system. The former seeks to minimise opportunity costs and anticipates autonomous technology improvement while the latter seeks to maximise technological learning processes and cost improvements with scale and experience (MNP and OECD 2008). Which conclusion is drawn depends on the perspective applied. For important issues the assessment should illuminate various views, perhaps with the aid of more than one computational model.

Looking across boundaries

Typically, assessments related to sustainable development must at some point in the analysis address the management of an environmental asset comprehensively and, therefore, across administrative boundaries. A classic example is the case of international river systems: An assessment claiming to address sustainable development should at least marginally address any important cross-boundary impacts, even if commissioned to primarily cover only one side of the border.

Furthermore, in addition to geographical boundaries, there are 'boundaries' in how things are grouped in the vast social, environmental and economic subject matter of these assessments. Taking the example of water again: By extending the modelling of water use in agriculture to cover soil moisture, water vapour and water in crops, new assessments of water quantity issues were able to point to a larger potential of water-preserving

measures than previously indicated, such as through the management of evaporation. This will allow stakeholders to make informed choices concerning the optimal use of land and water resources, involving for example strategic choices on the balance between domestic production, export and import of specific agricultural products.

Considering implications for decision making

The assessments that inspired BellagioSTAMP are by definition intended to inform policy. How this works has become ever more explicit over the past twenty years. Over this period, the IPCC has made policy response strategies one of its three pillars, in terms of its organisational set-up and its assessments on climate change.⁴ Moreover, for many regions and countries, the Global Environment Outlook (GEO) of the United Nations Environment Programme has probably been used as the main template. Using GEO as a template means that part of these assessment is supposed to address policy responses to the problems. This has been a major step forward relative to traditional State of the Environment reporting as the only authoritative policy document in this field (UNEP 1999; UNEP and RIVM 1999).⁵ The outlook component of GEO ensured that it addressed both the adequacy of existing policies and the challenges to be met by future policies.

More recently, there have been calls and attempts to move the overall emphasis in global environment-related assessments away from problem identification and towards options and responsibilities for action (PBL 2008, PBL 2009a, Rothman et al. 2009). The OECD Environmental Outlook to 2030 (OECD 2008) fits this pattern: It does re-establish what the larger problems for the coming decades are but follows this with a focus on policy context and policy strategies. Another example is 'Getting into the Right Lane for 2050' (PBL and SRC 2009, PBL and Clingendael 2009). It backcasts what strategic steps the EU should take within the next five to ten years if it is to be on target for its ambitious visions half-way through the century. The idea of backcasting is in itself not new and is described for example in the classic Global Scenario Group 'Bending the Curve' report (Raskin et al. 1998) or the Sustainable Society Project volume 'Visions' (Robinson et al. 1996) in Canada.

The demand for a greater focus on policies will probably mean that in the coming years there will be less room for sets of widely contrasting, explorative scenarios of the type that proved to be so mobilising among the regional participants in GEO-3 and GEO-4 (UNEP 2002 and 2008, UNEP and RIVM 2004). This is because these scenarios do not make policies separately visible, but tend to integrate them with many other changes that would take place such as changes in values, technology and trust. It is

therefore likely that some assessment series will revert to classic comparative analyses of policy cases in relation to baselines or switch to techniques such as backcasting.

Principle 3: Appropriate scope

Sustainability Assessments adopt:

- an appropriate time horizon to capture both short and long term effects of current policy decisions and human activities
- an appropriate geographical scope ranging from local to global

Assessments for sustainable development typically need to span a long period of time, both retrospectively and into the future, in order to produce a time horizon that adequately depicts the impacts on resources for future generations.

In addition, particular issues may also require even longer time horizons, such as investments in renewable energy infrastructure, which are a matter of long-term policy, typically spanning decades (European Climate Foundation, 2010). Although postponing serious policies until the very end of the scenario period may register as beneficial in purely economic terms, in order to make an accurate comparison, the assessment design should account for impacts that continue beyond the cut-off date of the policy scenario. For this reason, the OECD Environmental Outlook to 2030 applied an ‘impact window’, which took effects until 2050 into account in combination with its policy window up to 2030.

One implication of this principle for the design of future sustainable development assessments is that their regional classifications should enable its compilers to show adequate scope, by clustering areas that need to be clustered, or compared, and relating across different levels of aggregation, if that is an important element in the analysis. In itself, this requirement is not different from other domains. However, because of the wide range of disciplines feeding into sustainable development assessments, it is not unusual that their compilers have to combine information that was originally collected using regional classifications that are problematic in this new context. For example, some economic classifications of Sub-Saharan Africa cluster countries according to their trade associations – irrespective of shared ecosystems such as trans-boundary rivers. In addition, forward-looking assessments typically use models where the regional breakdown is essentially a characteristic of the modelling. In contrast to working with statistics, that typically come as national numbers that can at least in theory be regrouped, it would not be possible to take the output of such a model and re-classify

Sudan from Central Africa to North Africa – because there would be no separate number for Sudan. Therefore, fixing a regional classification early in the design process is a challenging but important step in ensuring that the eventual assessment will have an appropriate scope.

This principle is also a reminder that other geographical aspects have to match geographical reality in scope and scale. For example, national annual totals of water availability and use are in and of themselves not adequate for assessing the risk of water stress. Accounting on this basis would assume that rainfall at one end of the country can satisfy demand at the other. This would cause overestimation of water availability in larger countries, for example China or Australia, as well as in various other geographical situations. The river basin is a more appropriate unit, as this is where demand and availability meet. And even then, care is needed in the analysis because upstream or downstream location can matter.

Principle 4: Framework and Indicators

Sustainability Assessments are based on:

- a conceptual framework that identifies the domains that core indicators have to cover
- the most recent and reliable data, projections and models to infer trends and scenarios
- standardised measurement methods wherever possible, in the interest of comparability
- comparison of indicator values with targets and benchmarks, where possible

This principle – providing meaningful information for good decision making directly to policy makers as well as to their voters and the media who follow them – goes to the core of the assessments. While the very first principle already highlights the need for a guiding vision that clearly defines the challenge and the approximate direction to be taken, this principle contributes to an assessment’s practical use and quantification. In other words, it helps to answer questions such as ‘What natural resources is this outlook going to consider and in what terms; does it have to address domestic resource use only or does it have to show the country’s share of future global resource use – perhaps even shown on a map?’ And if an ex ante evaluation of policy options is included: ‘What is the target? How much progress is sufficient?’ It speaks to the need for a framework and indicators – often core terms when an assessment is being commissioned.

A well-defined conceptual framework and indicators help assessments to generate clear results despite the often complex and ambiguous nature of sustainable development as a subject. Both illustrate that in order to achieve clear results, a consistent, clear viewpoint needs to be maintained throughout these complex, multi-participant studies. For example, the responsibilities of OECD countries and BRIC (Brazil, Russia, India, China) for the global environment in the coming decades. Or: identifying the urgent among the many important issues, for the EU as a whole, in view of its long-term ambitions.

Framing

As Mike Hulme so clearly described in the case of climate change, disagreements over the solutions to a problem often stem from the different ways in which people frame a problem (Hulme 2009). For example, whether climate change is framed as technology gone wrong, or something that has always existed or as global injustice, determines the 'space' in which the solutions are to be sought. Consequently, the framing also determines what the correct setup of the analysis should be, that is its time horizon, sector classification, and who should be involved and how.

Comparability

In order to provide an analytical base for an assessment in terms of the three key dimensions of sustainable development (connecting now with the future, 'here' with 'there' and connecting across policy portfolios), comparability along these three dimensions is needed. Obviously, the use of standardised metrics helps.

For example, the use of land use statistics in international assessments tends to be a source of disagreement between country representatives, who typically favour nationally acknowledged sources of information, and the analytical team, the members of which typically favour globally harmonised data sets. There is no easy solution for this dilemma other than using harmonised datasets for global or regional pictures, while switching to specialised – such as national – data sets for pertinent in-depth analysis. Of course, one ought to rely on more than one source and be aware of potential controversies beforehand.

Another example is in the comparison of biodiversity developments over time, between scenarios and between parts of the world, which requires synthetic indicators that brutally simplify such a complex issue. Mean species abundance is one such indicator, as are species area range and potentially disappeared fraction. This class of indicators tends to be controversial with

those who have devoted their careers to the study of this complexity and requires great care in communication to a non-technical audience.

Outlooks and models constitute a particularly exciting arena for comparability, considering that a model is a consolidated world view. For example, computable general equilibrium models; or deterministic, or engineering type models; or vision-oriented participatory approaches. The challenge here is to rise above one's particular school of thought. Two international modelling forums in the field of energy and climate are very useful in this respect (the Energy Modelling Forum, associated with Stanford University, and the Asia Energy Environment Modelling Forum). In operational terms, a useful practice, which emerged from the agricultural work for the OECD Environmental Outlook to 2030, is to compare models on the basis of the overall picture they project, such as an increase in South-South trade and in the production of oil crops, rather than in terms of model details such as elasticities, even though the latter are indeed based on important research and academic thinking.

Indicators

Just like other elements of these assessments, indicators cannot be neutral. Most importantly, they must contain a reference value that helps to interpret the numerical value. This could be, for example, the naturalness of ecosystems or of the incidence of child malnutrition. One particularly elegant reference value is built into the adjusted net savings indicator (formerly known as genuine savings). Its design rests on the intuitive notion that, to any country, dissaving over a prolonged period of time will be unsustainable (Bolt et al. 2002). Obviously, however elegant the solution for the reference value, calculating in practice when saving turns to dissaving remains fraught with practical and conceptual difficulties, including the perennial disputes on valuation of common goods and of long-term risks.

The bottom line is perhaps that the effectiveness of an assessment of sustainable development issues can benefit from investing time in a better understanding of the audience's practical needs, including any underlying questions that may not always be visible at first glance. For example, it may well be that the target audience of such an assessment is not the decision maker who requested it but 'bystanders' whose political support is nevertheless important and who require a different information format.

Principle 5: Transparency

Assessment of progress toward sustainable development:

- ensures that the data, indicators and results of the assessment are accessible to the public
- explains the choices, assumptions and uncertainties determining the results of the assessment
- discloses data sources and methods
- discloses all sources of funding and potential conflicts of interest

Assessments as discussed here are a matter of trust. Typically, they are about a set of problems in which different groups have different interests, involving from starkly different perspectives on how the world works and what its problems are.

For these reasons, it is key to be open about the analytical methods applied. This includes questions such as ‘Can this assessment be trusted?’ and ‘If my favourite analytical team had carried this out, would the outcome have been much different and in what way?’

For example, the critical reviews of IPCC assessments suggest that more transparency is needed in the actual assessment: That is how the assessment team progressed from evidence (mostly spotty, or conditional) to statements about an overall pattern. (for example PBL 2010).

Even if the assessment is so complex that a full listing of data, model characteristics and sources of bias and uncertainty would not help the audience to gain more of an overview, opening the assessment up for inspection is still the right thing to do. For specific features within the complex machinery of such an assessment, inspecting parties usually have specific, manageable test questions, such as questions concerning certain price elasticities or country-specific green house gas emissions. But the complexity of assessments for sustainable development remains a problem for their trustworthiness.

One obstacle to inspecting the trustworthiness of assessments for sustainable development is their complexity. Traditional uncertainty analysis tends to drown the user in listings of imprecisions, model sensitivities and unknown factors. In an attempt to avoid this and truly tackle the issue of trust, Petersen et al. (2006) have been pioneering an approach that focuses instead on the robustness of main conclusions. In practical terms, a checklist is followed with questions such as ‘Have you checked whether alternative views on this issue exist?’ Uncertainties or bias that could affect the main conclusions are then singled out for in-depth scrutiny (Janssen et al. 2003). In contrast, the multitude of uncertainties unimportant to the main conclusions

is put aside, saving valuable time for the audience as well as for the assessment team. Examples of this method can be seen in CBD Secretariat and MNP (2007), MNP and OECD (2008) and PBL (2010).

The need to disclose interests may sound logical nowadays, when it has become customary in this line of work to understand who the source of a message and not just the message alone. However, this was less obvious in the 1990s and is the only aspect to which the originators of the Bellagio principles gave no consideration to.

Principle 6: Effective communication

In the interest of effective communication, to attract the broadest possible audience and to minimize the risks of misuse, Sustainability Assessments:

- use clear and plain language
- present information in a fair and objective way that helps to build trust
- use innovative visual tools and graphics to aid interpretation and tell a story
- make data available in as much detail as is reliable and practicable

Assessments as discussed here provide not only data and analysis but, more importantly, an interpretation of the significance of the findings. In other words, their purpose is clarification. It naturally follows that they should be as clear as possible.

Collectively, the role of these assessments in global environmental change has been characterised as ‘reducing the political risk of doing the right thing’ – for example, putting serious quotas in place for fisheries or bringing air transport under a climate policy regime. This implies that their primary audience is not decision-makers but their constituencies (Cropper 2007). In this vein, they must reach non-specialists and audiences that are concerned with a number of divergent issues. Their findings will probably reach these target groups through the media, not as original reports. Their language, examples and the visual material offered to the media must make this transfer of information as easy as possible.

In addition, the assessments referred to here tend to be far more complex than most individual compilers realise, especially when the assessment involves an outlook for the future. Typically, they involve a comparison in many dimensions: between the present and the future, between a reference scenario and one or more policy cases, between world regions, between different issues, between the current study and the source publications, and between different viewpoints. In addition to this, different parts of an assessment may represent their own specific take on the problems, such as

IPCC's reporting on the science of climate change, on its regional impacts and on its policy options.⁶

In view of this complexity, the task of those who compile the reports and present the results is not to showcase the entirety of the complexity of the problem but to clarify the significance of the results to the policy user in mind. In doing so, it may be helpful to organise the reporting of complex assessments in different layers such as a 'Summary for Decision Makers' and a main report, or a main report and background reports.

Although most of the assessments discussed here have a strong quantitative component, particularly concerning the environment and the economy, an effective approach is often to aid the reader by means of 'computer-aided storytelling' or 'storytelling and simulation' (Alcamo 2001). Obviously, this requires the compilers to be clear about the story themselves, which can be a challenge for larger assessment projects with a large and diverse group of modellers, writers and reviewers.

Principle 7: Broad participation

To strengthen their legitimacy and relevance, sustainability assessments should:

- find appropriate ways to reflect the views of the public, while providing active leadership
- engage early on with users of the assessment so that it best fits their needs

This principle reflects the societal role of most of the assessments considered. Typically, assessments of this kind take place at the interface between science and public policy. At the same time, both elements of this principle express the need for optimisation, rather than maximising public participation.

Reflecting views of the public

The need to reflect the views of the public relates *inter alia* to the insight that issues of environment and sustainable development are viewed very differently by different groups. For example, in relation to the future of agricultural production feeding nine billion people, some see globalisation as the key to solutions ('production taking place where it is most effective') while others see it as deeply problematic and the wrong thing to encourage ('irresponsible players and a reduction of everything to its global market price'). In fact, the difficulties that the Agricultural Assessment wrestled with

had much to do with the highly contrasting views concerning the problems of agriculture, technology and globalisation (IIASTD 2009).

In light of this, the set of scenarios in the third and fourth Global Environment Outlook ('Markets First', 'Security First', 'Policy First', 'Sustainability First') can be seen as representing not only possible pathways into the future but also worlds in which different sets of preferences prevail.

The scientists Rotmans and De Vries pioneered methods to reflect these varying perspectives in assessments in an explicit manner (Rotmans and De Vries 1997). For example, such perspectives define the nature of the problem, how the world supposedly works, and what level of risk is acceptable. While their approach, in principle, would help to illuminate dilemmas and to place discussions of uncertainties in a policy context, when applied to a real assessment project, it remains a challenge to keep things sufficiently simple and to avoid interpretations such as 'It all depends on how you look at it'. The Netherlands Sustainable Development Outlook, after attempting to tackle this in its first edition, eventually moved the discussion of perspectives to a separate, final chapter. This final chapter reflected on how controversial or robust the conclusions of the report looked politically, in view of various perspectives and opinion surveys (Aalbers 2006 and Petersen et al. 2006). This is at least one pragmatic way to acknowledge the range of public perspectives whilst keeping the assessment report concise and conclusive.

Engaging with users early on

The variety of methods and approaches used in these assessments has grown steadily over the past twenty years. As the choices for the design of assessments are better understood, engaging early on with users becomes ever more useful. This message came loud and clear from the two workshops for managers and key contributors to the global assessments that appeared in early 2008 (Rothman et al. 2009).

One example of user interaction that has worked very well has been the preparation of the OECD Environmental Outlook to 2030. It was conducted from 2003 to 2008 through the OECD's structure of standing working groups, extended on occasion to include representatives of major groups and experts from non-OECD member countries. This is perhaps an unexpected example because it comes from a traditional institution. However, it clearly worked, not only providing oversight for the preparation of the outlook but also providing positive stimuli for policy discussions as the analysis was progressing (OECD 2008).

One implication of this principle for future assessments is that it is useful to decide early on the design of an assessment whether interaction with the users is needed, and, if so, how, and if not, why. Another implication is that

ample time is required in project schedules to make effective participation and consultation possible.

Principle 8: Continuity and Capacity

Assessment of progress towards sustainable development require:

- repeated measurement
- responsiveness to change
- investment to develop and maintain adequate capacity
- continuous learning and improvement

Measurement of progress requires, by definition, consistent observations over time. This may seem obvious, but, in fact, a surprising amount of international effort in this area has been one-off. Despite this, very useful programmes exist that cater to long time series. Some are less than glamorous and run on relatively tight budgets. For example, the GEO data portal⁷, the OECD environment indicators (Linster 2003), the Hundred Year Data Base on the Environment (HYDE)⁸, and OECD's work on very long economic time series (Madison 2010). At the same time, initiatives like 'Beyond GDP' (European Communities 2009) and 'Measuring the Progress of Societies'⁹ highlight the need to adapt established schemes of measurement and reporting, in particular on economic progress.

In other words, building and managing the capacity for repeated assessments of progress towards sustainable development is a balancing act between promoting policy orientation and protecting routine operations, between year-to-year flexibility and investing over a longer period, and between routine and renewal.

For example, in terms of assessment capacity, the wider achievement of the Global Environment Outlook has been that it has established a network of collaborating centres, capable of connecting global and regional reporting.¹⁰ Even though the evolution of the programme was not smooth and was, in typical UN fashion, overstretched, it did deliver learning tools such as methodical evaluations of each global assessment, technical reports as well as successive editions of handbooks (UNEP and IISD 2007). Moreover, its ongoing process of workshops and reviews has eventually established a network that is regionally balanced and capable of periodically re-inventing itself. In this way, the motto adopted by UNEP for setting up GEO, namely 'learning by doing' seems to have been effective.

One implication of this principle for assessment practice is that the core organisations should adhere to the principle that a good assessment process includes care for continuity, capacity and renewal. The IPCC is exemplary

for each of these three points. Another example is the capacity and collaboration for environment-economy modelling that OECD has invested in (mainly for its Environmental Outlook to 2030) and now intends to maintain as a valuable tool (MNP and OECD 2008).

EPILOGUE

The re-launch of the Bellagio principles is intended to rethink and rephrase the valuable principles created more than a decade ago, against the backdrop of increased use of sustainable development assessments.

Policy-oriented sustainable development assessments come in a large variety – by application area, policy phase and methodological approach. Therefore, rather than compile a ‘how-to’ manual, the practitioners at Bellagio identified joint principles spanning their wide range of practices. These should offer just the combination of clarity and flexibility to be of help. The added value that BellagioSTAMP intends to bring is making these insights easily available for any group assessing societal progress, considering policy options or advocating change.

This chapter delineated each of the principles, as well as the considerations that led to them, and explored examples for each from the domain of work of the author. From this exercise, it must be concluded that the revised principles match practice. What is more, the principles also seem to provide a useful, easily comprehensible structure to speak about project design choices, for example with those who are considering commissioning an assessment.

Notions similar to BellagioSTAMP have recently been expressed by a range of projects and publications. In particular, parallels exist with:

- two reviews of recent global environmental assessments and their significance for the Netherlands, the EU and UNEP (PBL 2008 and PBL 2009a);
- the large OECD initiative towards Measuring the Progress of Societies⁹, papers and conference notes in preparation of the Beyond GDP conference (European Communities 2009);
- findings of the two TIAS workshops in 2008 and 2009 on experiences with the making of Global Assessments (Rothman et al. 2009);
- a set of Quality Requirements for Sustainability Evaluations developed in the framework of the EPOS network (please refer to chapter 12 of this book).

NOTES

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3. The main website on BellagioSTAMP is <http://www.iisd.org/measure/principles/progress/bellagiostamp/>
4. See the guide on http://www.ipcc.ch/working_groups/working_groups
5. Also see the regional reports on alternative policies at <http://www.unep.org/geo2000/techrpts>
6. http://www.ipcc.ch/publications_and_data/publications_and_data_reports.shtml
7. See <http://geodata.grid.unep.ch>
8. See <http://www.pbl.nl/en/themasites/hyde/index.html>
9. See <http://www.oecd.org/progress>
10. See the GEO reports for Brazil and Pacific Islands on www.unep.org/geo and the West Asia alternative policy study in GEO-2000, UNEP 1999.
11. See <http://www.oecd.org/progress>

REFERENCES

- Aalbers, T. (ed) (2006) *Waardenoriëntaties, Wereldbeelden en Maatschappelijke Vraagstukken. Verantwoording Van het Opinieonderzoek Voor de Duurzaamheidsverkenning 'Kwaliteit en Toekomst'*, Netherlands Environmental Assessment Agency, Bilthoven.
- Alcamo, J. (2001) *Scenarios As Tools For International Environmental Assessments. Environmental Issue Report No. 24*, European Environment Agency, Copenhagen.

- Bolt, K., M. Matete and M. Clemens (2002) *Manual for Calculating Adjusted Net Savings*, World Bank, Washington DC
- CBD [Convention on Biological Diversity] Secretariat and MNP [Milieu en Natuur Planbureau] (2007) *Cross-Roads of Life on Earth. Exploring Means to Meet the 2010 Biodiversity Target. Solution-Oriented Scenarios for Global Biodiversity Outlook 2. CBD Technical Series No. 31*, Secretariat of the Convention on Biological Diversity, Montreal.
- Cropper, A. (2007) 'Global Assessments: Expectations of Policy Makers', *Issues in Global Water System Research*, 2 (2007), 20–23.
- EEA (2007) *The Pan-European Environment: Glimpses Into An Uncertain Future. EEA Report 2007/4*, European Environment Agency, Copenhagen.
- European Climate Foundation (2010). *Roadmap 2050. A Practical Guide to a Prosperous, Low-Carbon Europe*, European Climate Foundation, The Hague.
- European Communities (2009) *Beyond GDP. Measuring progress, true wealth, and the well-being of nations. 19–20 November 2007. Conference proceedings*, Office for Official Publications of the European Communities, Luxembourg.
- Hardi, P. and T. Zdan (1997) *Assessing Sustainable Development: Principles in Practice*, International Institute for Sustainable Development, Winnipeg.
- Hulme, M. (2009) *Why We Disagree About Climate Change. Understanding Controversy, Inaction and Opportunity*, Cambridge University Press, Cambridge, UK.
- IFPRI [International Food Policy Research Institute] (2009) *Implementing Physical and Virtual Food Reserves to Protect the Poor and Prevent Market Failure. IFPRI Policy Brief 10*, International Food Policy Research Institute, Washington DC
- IIASTD [International Assessment of Agricultural Knowledge, Science and Technology for Development] (2009) *Agriculture At A Crossroads. Global Report*, Island Press, Washington DC.
- Janssen, P.H.M., A.C. Petersen, J.P. van der Sluijs, J.S. Risbey and J.R. Ravetz (2003) *RIVM/MNP Guidance for Uncertainty Assessment and Communication. Quickscan Hints & Actions List*, Netherlands Environmental Assessment Agency, Bilthoven
- Linster, M. (2003) *OECD Environmental indicators. Development, measurement and use. Reference paper*, Organisation for Economic Co-operation and Development, Paris.
- Madison, A. (2010) *Contours of the World Economy 1-2030 AD. Essays in Macro-Economic History*, Oxford University Press, Oxford.
- MNP [Milieu en Natuur Planbureau] and OECD [Organisation for Economic Co-operation and Development] (2008) *Background Report to OECD Environmental Outlook to 2030: Overviews, Details, and Methodology of Model-Based Analysis*, Netherlands Environmental Assessment Agency, Bilthoven and OECD, Paris
- OECD [Organisation for Economic Co-operation and Development] (2008) *OECD Environmental Outlook to 2030*, Organisation for Economic Co-operation and Development, Paris
- PBL [Planbureau voor de Leefomgeving] (2008) *Lessons From Global Environmental Assessments*, Netherlands Environmental Assessment Agency, Bilthoven.
- PBL (2009a) *Environment for Development. Policy Lessons from Global Environmental Assessments. Report for UNEP*, Netherlands Environmental Assessment Agency, Bilthoven.
- PBL (2009b) *Beyond 2015: Long-Term Development and the Millennium Development Goals*, Netherlands Environmental Assessment Agency, Bilthoven
- PBL (2010) *Rethinking Global Biodiversity Strategies. Exploring Structural Changes in Production and Consumption to Reduce Biodiversity Loss. A Contribution to*

- the Project on The Economics of Ecosystems and Biodiversity (TEEB)*, Netherlands Environmental Assessment Agency, Bilthoven.
- PBL and SRC [Stockholm Resilience Centre] (2009) *Getting Into the Right Lane for 2050*, Netherlands Environmental Assessment Agency, Bilthoven.
- PBL and Clingendael [Netherlands Institute of International Relations] (2009) *Adapting EU Governance For A More Sustainable Future*, Netherlands Environmental Assessment Agency, Bilthoven.
- Petersen, A.C., T.G. Aalbers, N.D. van Egmond, B. Eickhout, J.C.M. Farla, A.H. Hanemaaijer, H.A.R.M. van den Heiligenberg, P.S.C. Heuberger, P.H.M. Janssen, R.J.M. Maas, J.M. Melse, D. Nagelhout, H. Visser, H.J.M. de Vries and H. van Zeijts (2006) *Methodrapport Duurzaamheidsverkenning*, Netherlands Environmental Assessment Agency, Bilthoven.
- Raskin, P., G. Gallopin, P. Gutman, A. Hammond and R. Swart (1998) *Bending the Curve: Toward Global Sustainability. A Report of the Global Scenario Group. Polestar Series report No. 8*, Stockholm Environment Institute, Stockholm.
- Robinson, J.B., C. van Bers and D. McLeod (1996) 'Life in 2030: The Sustainable Society Project', in A. Dale and J. Robinson (eds), *Achieving Sustainable Development*, UBC Press, Vancouver, pp. 3–23.
- Rotmans, J. and B. de Vries (1997) *Perspectives on Global Change. The TARGETS approach*, Cambridge University Press, Cambridge, UK
- Rothman, D.S., C. van Bers, J. Bakkes and C. Pahl-Wostl on behalf of The Integrated Assessment Society (2009) 'How to Make Global Assessments More Effective: Lessons From the Assessment Community', *Current Opinion in Environmental Sustainability*, 1 (2), 214–218.
- UNEP (1999) *Global Environment Outlook 2000*, United Nations Environment Programme, Nairobi and Earthscan, London.
- UNEP (2002) *Global Environment Outlook 3*, United Nations Environment Programme, Nairobi and Earthscan, London.
- UNEP (2008) *Global Environment Outlook 4*, United Nations Environment Programme, Nairobi and Earthscan, London.
- UNEP and IISD [International Institute for Sustainable Development] (2007) *GEO Resource Book: A Training Manual on Integrated Environmental Assessment and Reporting*, United Nations Environment Programme, Nairobi.
- UNEP and RIVM [Rijksinstituut voor Volksgezondheid en Milieu] (1999) *GEO-2000 Alternative Policy Study for Europe and Central Asia: Energy-Related Impacts of Policy Scenarios*, UNEP, Nairobi and RIVM, Bilthoven.
- UNEP and RIVM (2004) *The GEO-3 scenarios 2002-2030: Quantification and Analysis of Environmental Impacts*, UNEP, Nairobi and RIVM, Bilthoven.