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# Developing Societal Progress Indicators

A PRACTICAL GUIDE

Dennis Trewin, Jon Hall

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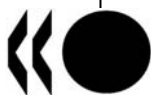
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*This paper contributes to work on measuring progress and well-being. It has been prepared by Dennis Trewin and Jon Hall.*

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**DEVELOPING SOCIETAL PROGRESS INDICATORS: A PRACTICAL GUIDE****Dennis Trewin and Jon Hall****ACKNOWLEDGEMENTS**

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## **ABSTRACT**

There is a broad recognition that the development of cross-cutting, high-quality, shared, and accessible information about a society's progress is crucial to ensure that decision-making is simultaneously responsive and responsible at all levels. There is no single correct way to manage a project to measure societal progress - different projects will have different goals, audiences and resources. However, there are certain steps which most projects should consider when planning and implementing the process. This paper presents advice and practical guidelines for anyone who is considering running a societal progress indicators project. It identifies six key steps in the process, from defining the issue and selecting collaborators, through producing and disseminating the indicators, to ensuring they are used and remain relevant.

## **RÉSUMÉ**

Pour mesurer le progrès des sociétés, il est largement reconnu, l'importance cruciale de développer et de rendre accessible des informations transversales et de bonne qualité, afin d'assurer une prise de décision à la fois souple et responsable à tous les niveaux. Il existe plusieurs façons de gérer un projet sur les indicateurs de mesure du progrès de la société : chaque projet a son objectif propre, son public et ses ressources. Cependant, certaines étapes lors de la planification et la mise en œuvre du processus devraient être envisagées pour la plupart des projets. Ce document présente des conseils et des directives pratiques pour quiconque envisage la réalisation d'un projet d'indicateurs de progrès sociétal. Il couvre six étapes principales du processus ; depuis la définition du problème et la sélection des collaborateurs, à travers la production et la diffusion des indicateurs, jusqu' à l'assurance de leurs utilisations et du maintien de leurs pertinences.

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## Introduction

1. Effective democracy relies on access to good information. This information can help governments and others to make more effective decisions and to identify the need for policy intervention of one form or another. Good information can also assist citizens to judge the performance of governments and enable them to make informed decisions at elections and on other occasions. This can improve overall performance in a democratic society. Importantly, information is becoming increasingly available to be used for these purposes, and not just from government sources. If we do not use factual information, the alternative is to rely on anecdotes or to be over-dependent on ideology – surely this will lead to worse decisions.

2. Keeping score of progress is important for a range of reasons. It will help a country better understand and meet the needs of its citizens. It also builds public trust in governments. Facts can often paint a different picture to perceptions. For example, until the Australian Bureau of Statistics published Measures of Australia's Progress there was a widespread view in Australia that the rich had become richer and the poor had become poorer. The statistical facts presented a different picture and had a big impact on the debate.

3. Today, there is a broad recognition that the development of cross-cutting, high quality, shared, accessible information about how a society is doing is crucial to ensure that decision-making is simultaneously responsive and responsible at all levels. This is a key issue for democracy. One of the tenets of democratic systems of government is that the more an electorate is able to hold its policy makers accountable through evidence of their performance, the greater the incentive for policy makers to make better policy. Economic policy is clear evidence of this. In all OECD countries, statistical information plays a vital role in effective economic policy making.

4. Progress is not just about GDP, although growth in GDP is usually a necessary if not sufficient condition for progress. In fact, part of the reason for the move towards greater interest in progress indicators was concern that life satisfaction was not increasing at the rate commensurate with growth in GDP. Progress is multidimensional and includes social, environmental and governance areas as well as economic. Their relative importance will not be the same from country to country, but some matters such as health, education and access to clean water are important for all countries.

5. What are the factors that will most influence what the citizens of a country regard as important? The state of development of a country is clearly one influence. Higher priority may be given to basic human needs in less developed countries than in countries where these needs are largely satisfied. But it is the country's core values which are possibly the most important influence. By core values we mean the things that the citizens of a country consider to be the most important.

6. Consistent with this philosophy, there is now a growing consensus that countries and governments need to develop measures that provide a comprehensive view of progress (consistent with the underlying core values). This is one of the motivations for providing this report and has been recognised recently through the Stiglitz Commission and the 2009 meeting of the G20. It is expected that most countries will want to have such a picture and that their national statistical offices will play a role in this endeavour. Furthermore, there is a growing interest in the inter-relationships between different measures of progress. For example, what is the relationship between economic growth and different aspects of the environment? What is the interconnection between education, health and employment?

7. The absence of a common understanding of reality through trusted information renders fruitful democratic debate almost impossible. But even when statistics are produced according to high quality standards and perceived as credible, if users do not understand them and transform them into knowledge, the likely final result is that decisions will still be made using ideology. Thus steps taken to improve awareness, accessibility and presentation of statistics are also important.

8. The target audience for this paper is any organisation that has been persuaded of the usefulness of measuring progress, and would like some pointers about what to do next. These might be national statistical offices, research institutions or non-government organisations. The paper aims to provide practical guidelines to the process of developing a set of progress indicators. It does not attempt to make the case for measuring progress *per se*. It covers the key steps in a process from designing solid foundations and selecting collaborators, through producing and disseminating the indicators, to ensuring they are used and remain relevant.

9. It is often said by those working with indicators of social progress that the process of selecting and developing indicators is as important, and perhaps more so, than the final product itself. As one observer has noted (writing about local community indicators): “The outcomes [of the process] should be, not just the benchmarks and indicators themselves, but increased community activity.. ; improved standards in government processes... ; increased awareness and understanding (of government, and community priorities); and over time, an enlarged capacity for participation and thus more empowered communities” (Salvaris, 2000). At a national level, such benefits are also important. The authors’ experience in the Australian Bureau of Statistics with the national initiative *Measures of Australia’s Progress* has shown that one unintended outcome of that process was improved ‘whole-of-government’ communication around the issues at stake.

10. Everyone will want to approach the development of an indicator set in different ways, depending on their own situation. This guide presents six ‘key steps’ to help in planning and implementing the process. The six broad ‘steps’ covered in Part 2 are as follows:

*Step 1: Defining the issue: what matters most to a society*

11. Any indicator project needs to be situated within a framework of what progress means in a specific place and time. A good framework will define the scope of the work. It will identify the specific aspects – or dimensions - of progress that one is seeking to measure and describe the ways in which they relate to one another.

*Step 2: Identifying partners to carry out the effort and establishing a core group of stakeholders*

12. Any organisation seeking to measure progress should engage a wide range of stakeholders. Of course, deciding who should be part of the “coalition” depends on the historical, political, institutional, and cultural elements that characterise the society whose progress is being measured. An institution that seeks to measure progress might be a governmental body, a research institute, an institution devoted to address the issue of accountability of public policies or to support their development, a civil society organisation, or a statistical institute. In each case, institutions that are perceived as authoritative and open to the collaboration with other institutions are more likely to be successful. The higher the past record of launching and implementing successful projects, the easier it will be to engage others. Finally, it is likely that the original group of stakeholders may change over time. This is not necessarily a problem, unless the turnover of the participants is perceived as a sign of weakness of the leading institution. It also implies that a single person in authority, or a small group of people, need to be charged with the responsibility to make the key decisions on the content of the progress report.



*Step 3: Producing an initial set of indicators*

13. The process to identify what to measure and how to measure societal progress, i.e. to define the key dimensions of what progress means (health, material well-being, etc.), and to select the most relevant indicators takes time. Patience and good management in organising the political and technical dialogue are key ingredients of this phase. The legitimacy of the final result will depend on the extent to which key stakeholders have been involved in the process. Of course, the range of institutions that could be involved is often large, and the more voices in the process, the more difficult it can be to find an agreement. This implies that a balance needs to be struck appropriate to the resources of the lead institution.

*Step 4: Getting the information 'out there'*

14. The fourth step is getting the information out to intended audiences. This is a step that most producers of indicators are familiar with and accept as a key objective. Getting the information 'out there' can be done in a variety of ways: releasing print publications and publishing the data on the web tend to be the most common strategies. However, simply putting the information into the public domain is not the same as ensuring the information reaches the target audiences. It may be that the intended audience is 'everybody', but while it is admirable to be so ambitious, some thought should be given to the different needs of different groups within the target audience. For example, it is unlikely that policymakers will have the same requirements and respond to the same kinds of information as schoolchildren. This does not mean that the same set of indicators cannot be used to reach different groups, but there needs to be a clear idea of the needs of the audience from the beginning, in order to design effective dissemination strategies.

*Step 5: Communicating and building knowledge with the indicators*

15. While it may seem obvious to suggest that dissemination is a key step for indicator producers, the problem comes when releasing the information is seen as the end of the process. To paraphrase Albert Einstein, "Information is not knowledge". The difference between data, information and knowledge is an issue of understanding and application. Information is data that has been given meaning (rather than rows of raw numbers in a spreadsheet). Knowledge comes about when information has been absorbed by users, allowing them to understand and relate the information to an appropriate context. Building knowledge is therefore the next important step in the journey from data to action, but it is not a straightforward task.

*Step 6: Ensuring continuity and relevance*

16. Indicators of societal progress, when published regularly over time, allow all members of society to judge where society is performing well and where action is needed to change course. Producing an influential indicator report cannot be a one-off exercise though: to have any kind of meaningful impact, the exercise must be repeated regularly over time. It will probably also be necessary to make adjustments to the indicators and the communications approach over time, in order to ensure the continued relevance of the exercise.

17. This paper does not attempt to offer an official definition of progress. In simple terms, progress means "life getting better for a society", as defined by members of that society. Hall et al. define progress as the "an increase in the sustainable and equitable well-being of a society". Progress may also be defined as success in attaining or nearing the goals that are established through a political process or other type of civic engagement. Progress is multidimensional and typically includes economic, social and environmental factors along with other areas that people see as important to life (for example, culture or the quality of governance). Although progress implies change for the better, any assessment of progress must also include assessment of regress. While it will be up to each community or society to decide for itself what

progress looks like, there is a good deal of overlap around the world in how many projects define progress (see Hall et al. 2010 for some examples).

18. The authors draw on their own experience setting up the publication *Measures of Australia's Progress*, as well as examples of other projects from around the world. The guidelines are intended to be of general relevance to a range of indicator producers, although attention is given to the specific issues faced by national statistical offices.

### **Step 1: Defining the issue: what matters most to a society**

19. The first step in developing indicators of a society's progress is to arrive at a clear framework mapping out the territory one is seeking to measure. A good framework will define the scope of the work. It will identify the specific aspects – or dimensions - of progress that one is seeking to measure and describe the ways in which they relate to one another. Second, one needs to select the corresponding indicators that best measure progress in each dimension. Progress is multidimensional and means different things to different people. The choice of indicators is not, therefore, automatic and should be based on appropriate consultation with a range of stakeholders from the society whose progress you are seeking to measure. The availability of data is another consideration which is discussed below. This section describes this process.

20. A conceptual framework of progress is a useful tool to sketch out the territory one wants to measure, and to select indicators. It can support analysis and commentary and show linkages between the elements of the framework. Frameworks have two main purposes.

21. At one level, frameworks can break the world into manageable pieces by providing a map of the conceptual terrain surrounding an area of interest. In other words frameworks can define the scope of an enquiry, delineate the important concepts associated with a topic and organise these into a logical structure. Rather than asking 'how should we measure progress?' one can use a framework to consider, separately, ways to measure progress in social, environmental and economic concerns. It can also be used for presentational purposes.

22. At another level, a framework can provide a theory of the way the world works. These frameworks also set out to demonstrate how the various aspects of progress fit together and relate to one another. Such theoretical frameworks often require value-judgments about what overall progress means. National statistical agencies are usually uncomfortable making such statements, but may be prepared to use such a framework if it has wide acceptance. In 2003, Professor Alex Michalos, from the University of Northern British Columbia, discussed the claim by Berger-Schmitt and Jankowitsch (1999) that “the indicator systems are missing a real theoretical foundation which defines the concept of welfare used and explains the relations between the various components” (p. 11). Professor Michalos noted that “since there is no generally accepted definition of a ‘scientific theory,’ this may not be a very serious complaint” (Michalos 2003, p2). Some type of framework is useful for keeping a project manageable; but a theoretical framework, while highly desirable, is not essential.

23. Most frameworks relate progress to a number of different dimensions, which can be grouped into fewer domains. Each dimension is a specific part of progress that, as Alkire (2002) suggests, is non-hierarchical, irreducible, incommensurable and hence a basic kind of human end. A dimension of progress is a basic building block in the process of creating a picture of progress. A group of related progress dimensions can be placed together in a domain (or pillar). For example indicators of national income and national wealth might both be grouped under the economy domain.

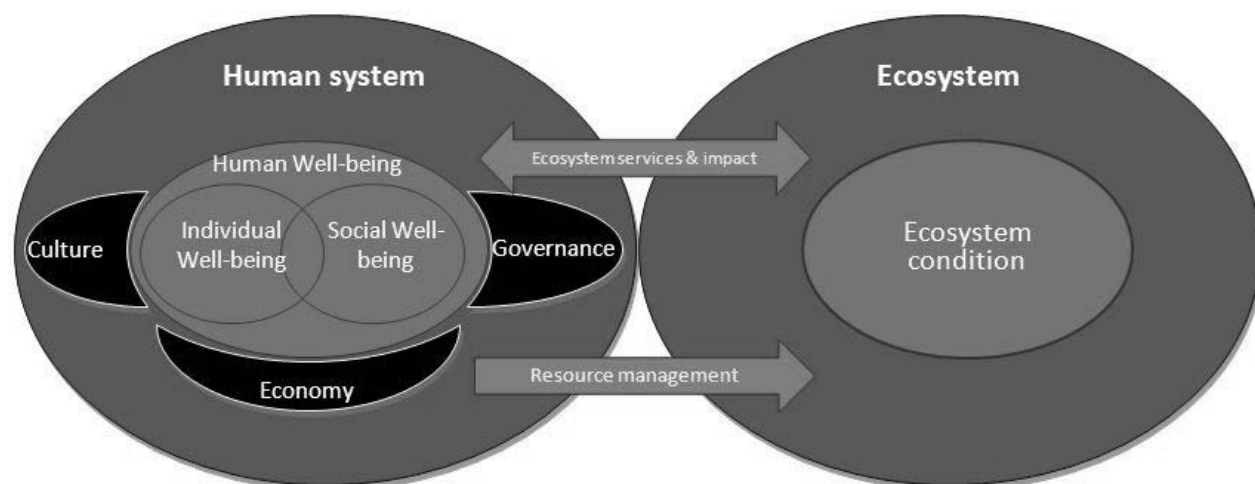
24. Differences in core values, theories, and approaches have resulted in the development and application of different frameworks around the world or within a single country. And so there is no single international framework on which everyone agrees. Some international statistical initiatives, such as the United Nations' Human Development Index (HDI), consider only a very few issues of concern common to all nations. Others use a larger number of issues. But it is unlikely that any international initiative will include all aspects that are important to any one country. At the national and sub-national levels a number of frameworks have been developed to measure wellbeing, quality of life, human development and sustainable development<sup>1</sup>. Some of these frameworks use a conceptual approach and are derived from a particular view of what progress means, while others use a consultative approach in which the components (dimensions) are selected through discussion and agreement.

**Box 1. “Measuring the Progress of Societies” Proposed Framework**

Hall et al. (2010) have proposed a broad framework for the measurement of societal progress as part of the Global Project on “Measuring the Progress of Societies”. The framework considers that societies are based on two systems - the human system and the ecosystem – with each system comprising different domains (see Fig. 1). In this view, overall human wellbeing comprises individual and social wellbeing, and is supported by three domains: economy, culture and governance. The ecosystem comprises one domain, the ecosystem condition.

Within each domain, the framework suggests a list of dimensions that could be taken into account when measuring ‘outcomes’ of societal progress. In the human wellbeing domain these dimensions include physical and mental health, knowledge and understanding, decent work, material wellbeing, freedom and self-determination, and interpersonal relationships as “final outcomes”. “Intermediate outcomes” are listed in the three supporting domains as: national income and national wealth (economy); human rights; civic and political engagement; security and violence; trust; and access to services (governance); and cultural heritage; and arts and leisure (culture). The ecosystem condition can be assessed through four dimensions: land, water, biodiversity, and air.

**Fig. 1 – Proposed Framework for Measuring the Progress of Societies (Hall et al. 2010)**



The framework stresses that neither the human system nor the ecosystem can be considered in isolation, and sets out linkages between the two under the headings “ecosystem services & impact” and “resource management”. Resource management comprises the dimensions “resource extraction and consumption”, “pollution”, and “protection and conservation of economic and environmental assets”. Ecosystem services/impact includes “resources and

<sup>1</sup> For the sake of brevity, we will hereinafter refer to all these concepts simply as the *progress of society*. Put simply a society progresses if “life is getting better”. Of course deciding whether life is getting better is not a trivial task.

processes provided” and “impact of natural events”.

Finally, the framework discusses how to consider “cross-cutting perspectives”. These include areas like subjective well-being, vulnerability and resilience, intra-generational aspects such as equity (including gender equity) and inequality, and inter-generational concerns such as sustainability.

25. Box 1 gives an example of a proposed framework for the measurement of broad societal progress which aims to encompass all of these aspects. The most widely-used type of framework is *issue-based*. Such frameworks contain indicators grouped into different issues or domains relating to progress. They are especially common in official national indicators sets, with topics usually determined on the basis of policy relevance (e.g. environmental sustainability). Issue-based frameworks provide a clear and direct message to policy-makers and facilitate raising awareness of citizens. They are also flexible and can adjust to new priorities and policy targets over time.

## Step 2: Identifying Possible Partners

### *The Role of Consultation and Collaboration*

26. Appropriate consultation in the development of a framework is a vital prerequisite for a successful initiative on measuring progress. Hall (2005) notes that “whichever approach is taken, it is likely that anyone undertaking a project in this field will want to consult widely about aspects of the project, particularly the areas of progress that should be measured. There are at least three broad ways of taking on board the views of the ‘world outside’, all of which should probably be used to greater or lesser degrees.

- referring to international standards or practice;
- referring to current policy issues and debates;
- referring to the views of stakeholders and the general public.”

27. Radermacher (2004) explains that “indicator construction has to cope with the conflicting goals of statistical measurability, scientific consistency, and political relevance [and] three major actors will emerge: statistics, science and politics.” He goes on to note that all of these actors need to be involved and that “indicator construction cannot be linear but has to be an iterative decision-making process”.

28. Consultation is important for at least three reasons. First, consultation can help ensure that the indicators are legitimate. Progress is not strictly defined and there are many ways of considering it. And so a framework for societal progress should be developed “in a way that respects the insights and aspirations of women and men of all races, classes, and political orientations” (Alkire, 2002). That is, anyone in society – expert or otherwise – is entitled to have a legitimate view about what progress means. So the process of selection and definition of indicators should involve a much wider group than technical experts. Community engagement that is perceived as legitimate can also help protect an initiative against accusations of bias. There are various ways of doing this, some embracing wider audiences than others. At a minimum, a reference or consultative group should be set up so that it is reasonably representative of the community and their views. At the other extreme, surveys could be run of the community’s views on the most important elements of progress. Sometimes surveys of this type will have been already conducted for other purposes. Usually, the results from these surveys emphasise the importance the community puts on aspects such as health, education and employment.

29. Other initiatives that might be pursued to improve community engagement are:

- arranging and advertising public meetings to discuss indicator projects, and
- distributing discussion papers that raise the key areas of contention in the development of the project.

30. Second, consultation can build a broader ownership of the indicators themselves, to better ensure they are used, supported and promoted. “Listening to the views of stakeholders was particularly important in MAP’s [*Measures of Australia’s Progress*] development. Giving stakeholders some ownership in the publication was almost as valuable a determinant of the publication’s success as the advice they gave” (Hall, 2005). Hall et al. (2004) note that “working alongside Civil Society Organisations can foster a wider level of ownership and support for a project, which can help to ensure it achieves its outcomes. And collaboration with Central Statistical Offices can help ensure that the publication is promoted and reaches its intended audience.”

31. Third, from the point of view of those running an initiative, Hall (2005) notes that the benefits from collaboration with experts “can include tapping into some of a nation’s leading thinkers... Collaborating with them provides access to their skills, knowledge and resources. Understanding the opinions of civil society organisations can help ensure that the indicators do not reflect the potentially narrow viewpoint of the statistician or bureaucrat.”

32. You might want to consult with different people at different stages of the process. Consultation about selecting the aspects of life that should be included might involve a much broader group of people than a more technical discussion on the precise statistical indicators to use to capture the desired concepts. Having said that, it is useful to engage a diverse group of people at every stage: people from outside the statistical community can provide fresh ideas around the indicators and their presentation, thereby challenging people to think differently.

### ***Lessons in Consultation***

33. Referring to the views of stakeholders and the general public can be time consuming and costly. There are different approaches to do this, ranging from consultation with a few experts or community leaders, through to large scale public consultation. There are pros and cons with each approach and the costs and benefits of each should be assessed. But consultation, in some form, seems key, not least because, as Andrew Jackson (2004) notes, “the selection and privileging of social indicators are inevitably a political process informed by interests and values”.

34. There is no one size fits all way to consult or collaborate. But, whichever approach is taken, it is worth bearing in mind some general principles. In particular it is important to pay attention to the choice of collaborators, the pace of collaboration and the ways in which interaction is managed.

### ***Choice of collaborators***

35. Consultation, even if not truly ‘public’, should seek the views of a broad range of stakeholders. Simply relying on an open invitation may not attract a particularly diverse audience, and care should be taken to ensure that a range of opinions and population groups are involved. Tasmania Together, for instance, undertook a relatively massive consultation exercise<sup>2</sup>. But still there is evidence that some stakeholders – such as the elderly, disabled or those with young children – were not well represented (it is perhaps not a coincidence that these groups are among those least able to attend open consultation sessions).

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<sup>2</sup> See *What we Heard: Community Consultation Summary, 2006*, [www.tasmaniattogether.gov.au](http://www.tasmaniattogether.gov.au)

36. The diversity of collaborators is particularly important if an indicator initiative appoints some sort of *expert group* to guide the publication. Such a group provides most benefit when its membership provides expertise across a range of aspects of progress and a diversity of backgrounds and political philosophy. And the perception of the style and diversity of consultation is important too. Another group of experts with whom collaboration might be beneficial are ‘futurists’ who might be able to give guidance on what might be important to mention in the future as discussed in Box 2 below.

### **Box 2. Measuring progress and futures studies**

Futures studies – sometimes known by the name of “foresight” – can be defined as the use of a wide spectrum of methods to think about possible and probable futures in a structured way in order to be better prepared for the future and to try to shape it. It is not primarily about making better forecast about an inherently unpredictable future. The methods and conclusions of futures studies can be of great use for research on progress. And, vice versa, indicators of progress are important for the work of all those who try to identify preferable futures.

Wendell Bell, Professor Emeritus of Sociology at Yale University and one of the great names in futures studies, described the development of futures studies in his 1997 book “Foundations of futures studies” and showed the links to the social indicators movement: In 1929, sociologist William F. Ogburn was appointed by U.S. President Herbert Hoover to head a “Research Committee on ‘Social Trends’”. In the 1930s, Ogburn worked for the U.S. government on what we today call “technology assessment”, an important branch of futures studies. His “idea that a society should produce a quantitative picture of itself as a way of knowing where it had been, where it was going, and how to make sound decisions about social policy grew into the “social indicators movement” in the 1960s.” (Bell 1997, p. 8).

One of the challenges when measuring societal progress is to find agreement on the features that constitute a preferred state of a society and on the features we would rather avoid. The method of scenario analysis can be of great help here. In the most basic form it brings together a diverse group of individuals to identify the two most important uncertainties that would determine the future of a specific issue. Then these two uncertainties are plotted with a high and a low manifestation in a scenario-cross to give four scenarios. Stories are developed to describe each scenario. Possibly, but not necessarily, participants then agree on a preferred scenario and on indicators that they would like to track over time in order to see whether this scenario materializes.

One indicator of progress that is used in futures studies is the UNDP’s “Human development index (HDI)”. For example, the RAND Corporation, a non-profit think tank in California, uses an adjusted green-HDI when applying its method of “Robust decision making” to the issue of global environmental sustainability in order to rank a large number of computer-generated scenarios for the path to the year 2100 (Lempert et al. 2003).

Futures studies are largely about open forms of communication that involve a large number of stakeholders and policymakers in order to create new realities. Scenario processes are one method, but there need not be an agreement on the best future. The method of “visioning” is about developing only one version of a preferred future. Different stakeholders communicate to agree on a joint vision and on the roles they will play in it. When comparing that description of the future with today’s situation, action points for each stakeholder can be derived in order to make the vision become reality.

Focusing on only one future may be important to gather support for it – but it may lead us to be poorly prepared if another future materializes. The method of robust decision making mentioned above offers a tool for policy makers to develop robust and adaptive strategies that work well over a large spectrum of possible futures that are ranked according to a measure of progress (Lempert et al. 2003).

Contributed by Stefan Bergheim, Center for Societal Progress, Frankfurt

### ***Pace of collaboration***

37. Anecdotal evidence suggests that the pace of collaboration can be a significant determinant of success. The speed of an initiative's development depends on many factors, such as the diversity of stakeholders, the political environment, and the complexity of the topic. But, because the process of collaborating can inculcate a sense of ownership in a project, it should not be rushed. Some initiatives have foundered because consultation and collaboration was initiated too late or undertaken too quickly. That said, consultation on a prototype version can provide a more focused discussion than something more open-ended. Moreover, one needs to guard against over-consultation, which is expensive, can lead to stakeholder "fatigue", and create frustrations that a project is stagnating.

### ***Interaction between collaborators***

38. Many of the 'dos and don'ts' that determine the effectiveness of collaboration between government and others apply equally to other successful relationships. In successful collaborations, partners listen to one another; are open to new ideas and act on them. They also understand the wider systems in which their partners operate. These facets in turn help build a shared trust. And when collaborators feel that they have genuine influence over an initiative, they bring a greater energy and enthusiasm to the collaboration.

39. But consultation isn't always handled well. David Yencken, a prominent academic and member of Australian civil society wrote about his experiences in Hall et al (2004) "Membership of an advisory body to government can be a very frustrating experience. All too often the views of the advisory body are ignored. Often they are seen to be too adventurous. This is particularly a problem with middle management in bureaucracies when they are uncertain about the views of the head of the department or agency or the minister. Hence the great importance of leadership and the openness of the institutional environment in which government employees work. In passing, it is a reason why monitoring and review tasks are best done by statutory bodies. There are many other forms of public consultation and participation which there is no space to explore in this paper. Suffice it to say that public consultation by government bodies is a very complex matter and that it can be done for many different reasons and in many different ways. There are rules of thumb that need to be recognised. They include that the smaller the group of people involved the less representative it will be, that there is unequal opportunity to participate for reasons of access, education, confidence and the like and that consultation without genuine commitment to listen and respond is quite counterproductive."

40. The OECD's *Citizens as Partners: A Handbook on Consultation and Public-participation in Policy Making* (OECD 2001) discusses ten tips for government officials wanting to strengthen government-citizens relationships:

- Take it seriously
- Start from the citizen's point of view
- Deliver what you promise
- Watch timing
- Be creative and dynamic
- Balance different interests
- Be prepared for criticism
- Involve your staff

- Develop a coherent policy
- Act now

41. Finally, it is important to recognise, that collaboration should be ongoing. Issues important to indicator initiatives change over time, and continued collaboration can ensure that such issues are recognised and measured as they arise.

### **Step 3: Producing an initial set of indicators**

#### *Selecting and Developing the Indicators*

42. This section summarises how to select progress indicators once the dimensions of progress have been selected. Particular attention is paid to some of the difficulties inherent in measuring the progress of certain phenomena, and we introduce strategies for tackling these difficulties. Once a dimension of progress has been selected as worthy of representation in a key set of indicators it needs to be measured, and so one (preferably) or several need to be selected (other things equal, the fewer the indicators the better). There are several considerations that need to be borne in mind when selecting an indicator. The decision will eventually be a pragmatic one, based on the availability of data of sufficient quality.

43. Several steps can guide the process of indicator selection. Taking each dimension in turn one should:

1. Develop an understanding about why the particular dimension is important for the progress of society;
2. Based on this understanding, agree on the key facets of progress that the indicator(s) should express;
3. Identify the conceptually best indicator(s);
4. Consider which indicators are actually available and select one or more, recognising the gap between what they measure and the conceptual ideal.

44. These steps are considered in more detail below.

#### *Develop an understanding about why the particular dimension is important for the progress of society*

45. Before selecting an indicator for each progress dimension, with the support of collaborators, it is useful to develop an understanding of why that dimension of progress is important for the progress of a society. This is not always as straightforward as one might think. When considering the labour dimension, for example, many people would agree, that some measure of unemployment (broadly defined) is useful to assessing progress. But they might have rather different ideas on why it is an important measure of progress. An economist might view this indicator as important because it represents the underutilisation of productive labour, and so they might regard underemployment as a preferable indicator or employment as an indicator of productive activity. On the other hand, sociologists might see unemployment as a key social problem that affects poverty and people's self-esteem and would be more likely to consider unemployment as a preferable indicator. The view one takes will in part determine the choice of indicator.

#### *Agree on the key facets of progress that the indicator should express*

46. Ideally, one would seek to find just one headline indicator to measure progress in each dimension, although this may not always be possible. Once consensus has been reached on the question 'Why is this dimension particularly important to the nation's progress?' the next step is to ask, 'What are



the key facets of progress in this dimension that any headline indicator should seek to express?”. For instance, when considering health, one might ideally like to consider measures that summarise the length of people’s lives and how healthy they are during their lives.

*Identify the conceptually best indicator(s)*

47. Once the key facets of progress have been identified, consider what indicator – conceptually - could be used to measure them best (such an indicator might not exist in practice). This is best illustrated by an example. Consider selecting an indicator for progress in the health dimension. During the development of Measures of Australia’s Progress, the ABS reached agreement that progress in health was important because “people hope to have a long life, free from pain, illness or disability. Good health for all brings social and economic benefits to individuals, their families and the wider community.” (ABS 2002) The ABS next decided that an indicator combining mortality (i.e. how long Australians live) and morbidity (taking into account the full burden of illness and disability), would be the best summary measure of progress in health. This could be represented by an indicator of quality adjusted life years.

*Select the best available indicator*

48. The conceptually ideal indicator is not always available, so often one needs to use one’s judgement to find the best proxy. Looking again at the Australian indicator publication, the ABS noted that indicators of quality adjusted life years (QALYs) – the conceptually ideal progress measure - were not available as a time series. So the ABS selected life expectancy at birth - one of the most widely used indicators of population mortality – as the headline indicator of progress. The ABS noted that it focuses on length of life, rather than its quality, but considered that it provided an acceptable proxy summary of the health of the population.

49. It is important to reflect on the size of the gap between the conceptual ideal and the best available indicator. If the gap is significant then one might want to use additional indicators to paint a more accurate picture of progress (for example supplementing life expectancy at birth with information on disability rates).

50. The process of indicator selection is inherently subjective and can be quite technical. But that subjectivity can be reduced by agreeing at the outset on a set of criteria on which the indicator selection will be based. Many projects use a set of criteria for selecting indicators. Each set will depend on what the project is trying to achieve. A good deal of work has been done that considers, in general terms, what factors are inherent in a good indicator. For example, a good headline indicator should:

- be relevant to the particular dimension of progress;
- where possible, focus on outcomes for the dimension of progress (rather than on say, the inputs or processes used to produce outcomes);
- have no ambiguity – that is show a ‘good’ direction of movement (signalling progress) and ‘bad’ direction (signalling regress) ;
- be supported by timely data of good quality;
- be available as a time series;
- be sensitive to change;
- be summary in nature;
- be capable of disaggregation by, say, geography or population group;

- be intelligible and easily interpreted by the general reader,
- and, other things equal, be comparable internationally and adhere to international standards.

51. Two criteria that can be particularly influential in selecting indicators are:

- The Outcome Criteria; and
- The No-Ambiguity Criteria.

### ***The Outcome Criteria***

52. Societal progress indicators should, where possible, focus on outcomes, rather than, say, the inputs or other influences that generated the outcome, or on the government and other social responses to the outcome.<sup>3</sup> Outcomes more accurately reflect the end objective of government activity. For example, an outcome indicator in the health dimension should if possible reflect people's actual health status and not, say, their dietary or smoking habits, or the public and private expenditure on health treatment and education (an increase in life expectancy represents a change in an outcome and represents progress, an increase in an output such as number of patients treated in hospital might reflect a more larger or more efficient health care system but might also reflect an increase in the number of sick people). Input and response variables are of course important to understanding why health outcomes change, but the outcome itself must be examined when one is assessing progress.

53. Although outcome measures are generally considered to be conceptually better measures of societal progress than outputs, they are not easily attributable to the outputs from a single sector and so can be influenced only partially by any one actor such as a government. One consequence is that it is difficult to connect such measures tightly to specific policy or government action, as multiple factors tend to contribute towards any given outcome. (Bertok et al. 2006). This means that outcome indicators are often of less relevance to policy-makers than might be the case if indicators focused on inputs: policies are generally targeted at changing inputs or processes in the belief that these will lead to better outcomes. Moreover, some outcome measures (such as life expectancy) change relatively slowly and can reflect changes in inputs (such as smoking habits) that happened many years earlier. These limitations can be addressed in the commentary accompanying each indicator, where changes in input and response indicators can be described alongside the links with the outcome indicator(s).

### ***The No-Ambiguity Criteria***

54. It is important that movements in any indicator can be unambiguously associated with progress. For instance, one might consider including the number of divorces as an indicator for family life. But an increase in that indicator is generally ambiguous – it might reflect, say, a greater prevalence of unhappy marriages, or greater acceptance of dissolving unhappy marriages.

55. Applying this no-ambiguity criterion depends crucially on interpreting movements in one indicator, when assuming that the other indicators of progress are unchanged. For example, some would argue that economic growth has, at times, brought environmental problems in its wake, or even that the problems were so severe that economic growth was undesirable. Others would argue that strong environmental protection might damage overall progress because it hampers economic growth. However, few would argue against economic growth or strong environmental protection if every other measure of progress was unaffected: that is, if economic growth could be achieved without environmental harm, or if

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<sup>3</sup> Though, of course, input and output measures are also needed for good policy design and effective decision-making.

environmental protection could be achieved without impeding economic growth. Of course, although keeping other things equal might be possible in theory, it seldom, if ever, occurs.

### ***Comparing the Progress of Societies***

56. Another factor important to bear in mind during the indicator selection process is whether or not you want to compare the progress of your society (nation, region etc) with that of others. When considering a nation's progress it is often desirable to compare levels and rates of progress with those of other countries. Improvements in life expectancy, for example, might seem less impressive if they are slower than improvements in life expectancy overseas. Ideally, therefore, one might choose dimensions and indicators of progress for which international comparisons are available. But there are at least two drawbacks to such an approach, regarding dimensions and indicators.

57. **Comparable Dimensions:** Some dimensions of progress might cover aspects of progress that are (almost) unique to your society. For example salinity (a form of land degradation) is not a significant problem in many parts of the world but it a significant problem in Australia. Restricting your measures of progress to cover only those areas of concern for which international data are available might force you to neglect areas of progress important to your society.

58. **Comparable Indicators:** For many dimensions of progress, it is likely that some international data are available. But it can be misleading to compare different data sets. For some indicators, say life expectancy at birth, where there is an agreed international definition, international comparisons are generally robust. For other indicators, such as recorded crime rates reported by the police, differences might, however, be influenced by compiling practices. For other indicators, such as the number of people with education degrees, differences might be influenced by university curriculum standards.

### ***Common Problems in Selecting Indicators***

59. There are a number of problems that can be encountered when trying to select an appropriate set of indicators for any dimension. We deal with four potential problem cases here:

1. The dimension of progress is conceptually well understood, but progress is difficult to summarise using just one or two indicators (as in the case for air quality).
2. The dimension of progress is conceptually well understood and progress can be summarised using one indicator, but the necessary data are not available, so proxy indicators are needed (as for the case of health).
3. The dimension of progress lacks a clear consensus on its definition and measurement (as is the case for poverty).
4. The dimension of progress is conceptually poorly-defined (as is the case for social cohesion).

#### ***Problem 1: Summarising Different Aspects of Progress in One Measure: Case Study on Measuring Air Quality***

60. The quality of the air we breathe is important to people's wellbeing as well as to the environment. But trying to summarise air quality in just one measure for a society is challenging as air quality is inherently multidimensional:

- a. it differs from place to place (even within a city);
- b. it changes over the course of a day and from day to day; and

c. there are different forms of air pollution.

61. Any serious assessment of air quality would require measures of the incidence of various pollutants in different places and at different times. But this would result in a whole set of indicators, the overall importance of which would be difficult to summarise.<sup>4</sup>

62. *Measures of Australia's Progress* (ABS 2002) designed a summary indicator that captured these concerns in a single measure. The indicator looked at the number of days each year when air quality standards were exceeded in selected locations. This measure had a number of advantages.

63. First, by focusing on the number of days when standards were exceeded, it dealt with seasonal and daily variation. Second, apart from dust storms, poor air quality (in Australia at least) is largely confined to major cities. Because of this, data from only the five largest cities were considered. The data were weighted (by population) and combined to give a national picture. This dealt with the geographic variation. Third, poor air quality can be caused by different types of pollutants. In theory, it could have been possible to count days when the incidence of different pollutants exceeded health guidelines, but this implied risks of double counting (i.e. days when health standards were exceeded by more than one pollutant). Because of this, the indicator selected focused on one type of air pollution – fine particle pollution – which experts regard as the more serious threat to people's health in Australia.

64. The UK's 1999 *Quality of Life Counts* publication of sustainable development indicators presents two headline indicators for air pollution.<sup>5</sup> The first combines four separate measures of air pollution: the annual average ozone concentration in rural and urban areas, along with annual average fine particle concentrations from urban and roadside monitoring areas. The second indicator looked at the number of days per year when air pollution was moderate or higher than agreed standards in (separately) rural and urban areas. Air pollution was defined according to a range of different pollutants (and one day could be counted more than once if more than one pollutant exceeded health standards).

65. Statistics Canada measure air quality for the set of Canadian Environmental Sustainability Indicators<sup>6</sup>. Their indicator looks at the Canadian population's exposure to ground level ozone, and measures the seasonal average (from April 1 to September 30) of the highest eight-hour average ground-level ozone concentration for each day. The indicator is designed to reflect potential health impacts attributed to ozone over the entire season, which are not driven solely by maximum or peak values. As in Australia, the indicator is population-weighted and it assumes that ozone concentrations are constant within a radius of 40 km around each monitoring station. Statistics Canada notes that in future fine particle pollution will also be included.

66. Of course other approaches are possible but each of these examples shows an innovative way to summarise a complicated story. The above discussion has ignored greenhouse gases. This as an important aspect of air quality and should be included as an indicator in most progress reports. An alternative to including it as an air quality indicator would be to designate a separate dimension for climate change given the global nature of the issue and its importance.

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<sup>4</sup> When we talk about air quality, we are focussing on the quality of air and its effect on organisms, rather than the state of the atmosphere and climate system.

<sup>5</sup> See: <http://www.sustainable-development.gov.uk/sustainable/quality99/>

<sup>6</sup> See <http://www.statcan.gc.ca/pub/16-251-x/16-251-x2005000-eng.htm>.

*Problem 2: Finding the best proxy indicator: measuring health outcomes*

67. Most people would agree that health is an important dimension of a society's progress. The conceptual preference would be to develop a measure of the health status of the population: something that assesses how long people live and how healthy they are while they are alive. However, this is conceptually and technically difficult. Actual health rates can be conceived as a composite measure of various health indicators such as whether people were experiencing or not experiencing certain health outcomes (e.g. obesity, AIDS). But there are many value judgements involved in deciding which health outcomes to consider and how they should be weighted. Alternatively, summary measures such as self-assessed health are problematic, as studies have shown that these self-assessments are shaped by people's circumstances and those of their peers. For example, population sub-groups such as indigenous people in Australia, can assess their health status as similar to that of the rest of the population, even though objective measures show that it is clearly worse. Changing age profiles over time can also impact the reliability of this measure. For example, if populations are ageing, this can have an influence on the average of self-assessed health as elderly people tend to have a lower self-assessment of health status.

68. A conceptually ideal indicator of progress in this area would look at how long people live and how healthy they are while they are alive. One way of capturing these effects is through measures of Quality Adjusted Life Years (QALYs). In simple terms a QALY looks at how long people can expect to live, and, for each year that they are alive, a value of between 0 and 1 is assigned depending on their health, where 1 represents perfect health and 0, death. But the methodology for constructing a QALY remains controversial, because of difficulties in defining "perfect health" and in assigning weights to different types of illness and injury. Moreover the data are expensive to collect and, even if available, are often less regularly available than other measures such as life expectancy at birth.

69. In the absence of a conceptually ideal measure – one that measures length and (health) quality of life – one can look just at length of life as a proxy. Life expectancy at birth is one of the most widely used indicators of population health. It focuses on length of life rather than its quality, but it usefully summarises the health of the population. As a headline indicator, it might often be the best available outcome measure. But its limitations should be recognised and the picture it tells about progress in health should be complemented with other measures that reflect the quality of people's health while they are alive (such as disability rates for example). One difficulty with this measure is that there is a considerable lag between improvements in the health system and other causal factors and changes in life expectancy measures.

70. Input measures such as expenditure of health or the number of doctors may be useful complements but they do not necessarily reflect improvements in health status. The reverse may even apply, as in the case where government healthcare expenditure increases as obesity rates rise.

71. Similarly indicators that look at risk factors (e.g. smoking rates) or steps taken to reduce risks (immunisation rates) are important but do not necessarily reflect current health status so are not good proxy indicators. If they lead to improvements in health status, there will be a lag. Disease rates can also be interesting (e.g. the proportion of the population with HIV/AIDS or Malaria) and relevant to the health status of the population.

72. One important lesson from the above discussion is that the limitations of each measure should be explained and, where possible, fleshed out with supplementary information for the interested reader.

*Problem 3: Lack of consensus on indicator definition: measuring unemployment and poverty*

73. The choice of an indicator for some domains may be more difficult because of political considerations especially when there is no consensus on how to best measure the underlying concept. This is more likely to be the case if there are no conceptual standards, international or national, that can be used as a point of reference. Two examples are used in this section: the measurement of unemployment and the measurement of poverty.

74. The unemployment rate is an example of where the existence of an agreed international indicator is of great assistance. In many countries, there is considerable debate about how much work per week should be undertaken before a person should be regarded as employed. The ILO definition agreed by countries, defines the unemployed as those who have taken active steps to seek employment, and who will be available to start work in the short-term, who have not worked in the reference week. It uses a relatively low amount of work (1 hour per week) to define people as employed. Despite its weaknesses, it is the measure that should be used as the headline measure of unemployment. No doubt there will be critics, but it is a justifiable response to point to an internationally agreed definition. Any divergence from international standards should be applied only for very good non-political reasons and have broad support. Otherwise, accusations could be made of political bias.

75. Another thing to be aware of is that, if you use a standard which is different from the international one, international comparisons are no longer valid. In these circumstances, organisations like the OECD will often adjust the national estimates so that they are more comparable across countries. However, this means that the nationally published estimates and internationally published estimates of the same concept will be different.

76. Nevertheless, there may be pressure to include measures of unemployment that differ from the ILO definition. This was the case in the development of *Measures of Australia's Progress*. The approach taken was to include a labour underutilisation (or underemployment) measure as a supplementary indicator.

77. Dennis Trewin talked about this in a 2002 article about his experience with *Measuring Australia's Progress* (Trewin 2002):

78. “There are often pressures on us to divert from international standards. Sometimes this is to make the Australian situation look better (e.g. government finance statistics). In other cases, such as with the ILO unemployment definition, the pressure is because the international definition does not seem to reflect the real situation in Australian circumstances. We resist these pressures but it is important that we have a well documented international standard as a reference point to justify our position. Nevertheless, where diversions from the international standard are made on an exception basis, they need to be well documented with a clear explanation of the reason. In cases where there is a clear need to have information on a basis other than the international standard our position is that we should publish on both bases. The headline figure would reflect the international standard as increasingly the Australian situation is being compared with that of other countries and it is important that it is done on a comparable basis.”

79. Another example of an indicator lacking clear consensus around its definition is poverty measurement (see Box 3). It is very likely that one will want to include some measure of poverty in any set of progress measures. Poverty differs from unemployment in that there is no agreed international standard and, as discussed in the box below, several alternative approaches to its measurement. These range from relative income inequality to people living below some sort of poverty line, to broader measures that go beyond money to look at all the resources available to people. The approach taken with *Measures of Australia's Progress* is used as an illustration (here the focus was on income inequality).

80. Here the basic concept being measured was relative income poverty. This measure required information on the distribution of income. The key data source is an income survey. As with most countries, there tend to be more data problems at the two extremes of the income distribution. On the one hand, there is some underreporting of income at the upper income levels. On the other hand, many of the low income measures do not reflect 'poverty' as in the case of self-employed people whose income is temporarily low; and they may reflect people who are "income poor, but asset rich".

81. There are two important adjustments to the income measure:

1. The preferred measure is of net income and should adjust for taxes and include income received from various forms of government support i.e. a disposable income measure.
2. Different types of households require different amounts of income to maintain the same standard of living e.g. larger households tend to require more income than smaller households to maintain the same standard of living. Therefore income data needs to be "equivalised" to put the different types of households on a similar footing.

82. There are a number of possibilities that could be used to measure relative poverty. These include:

- Ratio of incomes at the top of selected percentiles (e.g. P90/P10, P80/P20, P80/P50, P20/P50)
- Share of income received by households with low incomes – this may be based on the income for households in the second and third lowest income deciles if there are data problems with the lowest decile, as is often the case with survey data.
- Gini index.

83. In *Measures of Australia's Progress*, the dimension of poverty was referred to as 'Economic Disadvantage' in the first edition and 'Financial Hardship' in the second edition. The headline indicator in both editions was average real equivalised weekly disposable income for households with low incomes (i.e. the second and third deciles). The equivalent measure for the middle income group was used as an 'anchor', to enable comparisons of growth rates. Other measures of income distribution, including those mentioned above, were published in a separate table. See Box 3 for a further discussion on alternative measures of poverty.

84. To conclude this discussion on dimensions lacking clear definitions, the headline indicator should refer to an agreed international or national standard wherever it exists to avoid accusations of political bias. Supplementary indicators could possibly be used to support the headline indicator. But what if standards do not exist? There are three basic approaches.

- a. Develop a standard, based on a broad consensus, through the use of a Reference Group.
- b. Decide a single indicator after consultation, possibly in combination with supplementary indicators.
- c. Use multiple indicators

### **Box 3. Alternative measures of poverty**

Ask any politician whether he or she is personally committed to take action against poverty, and the chances of an affirmative reply will approach 100%. And yet, behind this apparent consensus, lies a wide range of radically different interpretations about the nature of poverty. This variety of views hinders political dialogue and the accountability of policy-makers, and underlies the importance of reaching a shared understanding about the measurement of poverty.

This variety of views should not come as a surprise. Poverty is a complex phenomenon, varying across time and space, with different philosophical perspectives leading to different conclusions about its nature, and with alternative measures sometimes providing conflicting indications about its size and evolution. In general, all measures of poverty rely on a metric to assess the well-being of people, on a threshold to separate the poor from the non-poor, and on an index to express how far from the threshold the poor are. But this is where the commonalities end, with different approaches making different choices in terms of each of the criteria listed above.

One distinction between poverty measures is whether the metric used to assess people's conditions is monetary or non-monetary, and whether it refers to inputs (i.e. the resources required to achieve well-being) or to outcomes (i.e. the final conditions people achieve). Most poverty measures are monetary and input based, with income measures as the most obvious example. Income-based measures of poverty differ however in terms of the income-concept used (e.g. income before taxes, as in most US analysis, or income after taxes, as in the EU); the unit of analysis (whether you count the number of people who are poor or the number of households or families in this conditions); and how to account for differences in needs across households of various characteristics (such as household size and presence of children).

Income based measures of poverty can be further distinguished depending on whether they rely on absolute or relative thresholds. Absolute thresholds are typically expressed in the form of the cost of a basket of goods and services deemed to be required to assure minimum living conditions, indexed for prices changes over time (e.g. the United States). Absolute thresholds are also used internationally (as in the case of the World Bank's poverty lines of 'one-dollar' and 'two-dollars' per day and per person, measured at purchasing power parities) to monitor progress by the international community in meeting commitments to eradicate extreme poverty (to halve the 1990 \$1 a day poverty rate by 2015) in the context of the Millennium Development Goals.

Relative thresholds are set as a proportion of the income level that is most typical in each country. While some observers may be uneasy about some of the implications of using a relative threshold (as it implies that poverty will decline even when the income of the poor is falling, provided that the income of the non-poor is falling faster), this approach follows logically from Adam Smith's notion that the consumption standards prevailing in a community dictate which goods are viewed as essential and which ones are not. In the EU, a community regulation has set this threshold at 60% of median household disposable income, with each person being attributed the "adjusted" income of the household to which he/she belongs (adjusted through the so-called "modified OECD-scale"). This concept of the population "at risk of poverty" is monitored through indicators of its prevalence (i.e. the number of people who are poor, as a share of the total population) and severity (i.e. the gap between the median income of the poor and the poverty line). EU countries also use indicators of poverty based on a relative threshold "anchored" in time, so as to highlight changes in the absolute income of the poor.

Other approaches to the measurement of poverty rely on direct measures of people's access to the types of goods and activities deemed to be necessary to enjoy a "decent" standard of living, rather than using income as an indirect measure of the resources available to satisfy consumption. These approaches generally assess the conditions of people through surveys designed to distinguish between situations where the lack of a good or activity reflects the preferences of each person and those where they reflect the lack of financial resources to pay for them, and select these "necessary" items based on either experts' views or on surveys that elicit people's consensus of which consumption items are most critical to a decent standard of living. This approach to the measurement of multidimensional poverty can be used either as an alternative to income-based measures or in combination with them, as in the Irish definition of "consistent poverty" (which counts as consistent poor those people who have both relative low income and who experience a given number of deprivations).



Other approaches to the construction of multidimensional poverty are rooted in the notion of capabilities (the freedom of a person to choose among the various things that he or she manages to do or be in leading a life). A concrete application of this approach is provided by the Multidimensional Poverty Index (MPI), developed by the Oxford Poverty and Human Development Initiative and the United Nations Development Programme, for inclusion in the 2010 edition of the Human Development Report. The MPI reflects deprivations in health, education and standard of living, measured through a combination of 10 (equally-weighted) indicators. The MPI, which is currently available for around 100 developing countries, shows both the prevalence and intensity of multidimensional poverty (both within and across countries), that differ significantly from those based on absolute income thresholds.

Several countries have official measures of poverty, typically defined as the costs of a nutritionally adequate food bundle plus an allowance for non-food poverty; in some of these countries, these official thresholds also define the conditions of access to various types of benefits. The existence of an official definition of poverty cuts short all ambiguity. This, however, generally comes at a price: politically, it has often proved difficult (if not impossible) to change definitions when warranted by changed conditions. One telling example of this difficulty is represented by the lack of agreement, despite decades of discussion, on how to revise the US poverty line, which dates back to the 1950s and whose value is today is equivalent to less than 40% of median income. The OECD, relies on measures of income poverty based on several relative thresholds (set at 40%, 50% and 60% of median household disposable income, and adjusted with a “square root” elasticity<sup>7</sup>) to benchmark countries performance, while also using alternative measures (multidimensional) for some more specific applications.

*Problem 4: Indicators for a conceptually fuzzy dimension: measuring social cohesion*

85. The choice of an indicator for some domains may be complex because of the lack of an agreed conceptual framework for the domain in question. A good example is social cohesion.<sup>8</sup> The approach taken by several countries to choose indicators in these circumstances is to use multiple indicators. The lack of a satisfactory measurement framework is far more of a problem for social and environmental domains than economic domains. For the latter, the conceptual issues have mainly been resolved.

*1. Australian Bureau of Statistics*

86. “Family, Community and Social Cohesion” is one of the domains of progress included in *Measures of Australia’s Progress*. A more cohesive society is one in which communities are strong and inclusive, in which inequalities are reduced and people have a sense of belonging. When the support offered by people’s families and communities declines or is absent, it can contribute to a range of social problems such as poverty, illiteracy, ill-health, and social exclusion.

87. Family and community are important aspects of society, but the way in which they contribute to progress is difficult to define and measure, and so there is no single indicator that captures all that might be important. The effective functioning of families and communities depends on a wide range of factors. For example, the quality and strength of people's relationships and bonds with others - their family, friends and the wider community - are important elements which contribute to social cohesion. In the absence of a shared conceptual framework, multiple indicators that touch on various aspects of this domain that might be included.

<sup>7</sup> The OECD relies on measures of income poverty based on thresholds (set at 40%, 50% and 60% of median income), that are either fixed at a point in time (also called ‘anchored’ poverty rates) or change over time (implying that an increase in the income of the poor equal to that of the median person will leave the poverty rate unchanged). To account for differences in needs among households of different sizes, household income is ‘adjusted’ by a ‘square root’ elasticity (which implies that the needs of a household composed of four people are twice as large as those of a single (or 1.4 ( $\sqrt{2}$ ) times those of a of a childless couple for example). For further details, see [www.oecd.org/dataoecd/61/52/35411111.pdf](http://www.oecd.org/dataoecd/61/52/35411111.pdf).

<sup>8</sup> Another term commonly used to describe this concept is social inclusion. It is growing in importance as an area of possible policy intervention so it is important that measures of this type are included in the progress report.

88. In the 2010 edition of *Measures of Australia's Progress*, no headline indicator was presented. A social capital framework was introduced and multiple indicators were used to cover different aspects, including: proportion of children without an employed parent; volunteering rates; suicide rates; and drug-related death rates. Supplementary indicators were used to highlight issues such as family structure, family stresses, caring for the elderly and disabled, contact with family, friends and social networks, homelessness and cultural issues. Some of these indicators – like cultural diversity – are simply contextual: they do not measure outcomes and have no good or bad direction of movement. But they do help portray change. Others, like the suicide rate, are good measures of progress, albeit too narrow to fully capture changes in an area as broad as “family, community and social cohesion”.

## 2. *Canadian Index of Well-being*

89. The *Canadian Index of Wellbeing* ([www.ciw.ca](http://www.ciw.ca)), uses ‘Community Vitality’ to describe *social cohesions*. A social capital approach is also taken in this report. The indicators used in the report for this domain are participation in activities; volunteering; number of close relatives; providing assistance to others; poverty crime; violent crime; walking alone after dark; trust; experience of discrimination; caring for others; and belonging to community.

90. The variables differ somewhat between the Australian and Canadian examples, even though they are purportedly describing similar concepts, and social cohesion measures will vary by country. On the one hand, this will be because data sources vary by country. On the other hand, it will be because the concept of social cohesion will vary by country or even by ethnic groups within countries. For example, cultural attachment can often be much more important to indigenous people than non-indigenous people.

91. There may be situations where there is broad agreement to the best indicator even though there is no underpinning conceptual model. This approach is riskier because it is harder to respond to criticisms about the inappropriateness of the indicator. In these circumstances, the best defence is to point to the widespread consultation assuming the consultation has embraced a wide spectrum of views.

### *Missing data*

92. If one follows the process outlined above – by thinking first about what should be measured before looking for data – it is quite likely that data will not be available to populate some dimensions of progress. The alternative approach – basing one’s dimensions of progress on just those areas for which data are available is, however, rather like the story about the drunk looking for the house keys he has lost and focusing his search under the streetlight: not because he thinks he dropped the keys there, but because that is where he can see the road.<sup>9</sup>

93. What should one do about dimensions of progress for which few, if any data, are available? If there are no data whatsoever then one possibility would be to include the dimension concerned in the final set and note the lack for the time being of any decent headline indicator. Usually, however, some data will be available that could be used, but one should note upfront the shortcomings of the data, noting that no headline progress indicator is available to accurately measure progress for that dimension, and that other supplementary indicators show only the partial story.

94. In either case the inclusion of the missing dimensions in the final set might serve as an impetus for better data collection in each area (people will ask, why, if the area is key to the progress of society, are data not being collected?); it can also ensure that the dimension of progress is not forgotten in future compilations of the indicators; and can help demonstrate that the set of progress indicators were guided by

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<sup>9</sup> Professor Mike Salvaris from RMIT university in Australia must be credited for this metaphor.

logic and consultation rather than by the expediency of data availability. Box 4 looks at the role of National Statistical Offices in selecting data sources.

**Box 4. The Role of National Statistical Offices: Selecting Data Sources**

Selecting the best data for the indicators is a sometimes challenging task. While there are good reasons to involve a national statistical office (NSO) in a project (and sometimes an NSO will take the lead), it is at the data selection step, even more than any other, that it is vital to engage the experts from the statistical office.

There are likely to be several potential sources of data for many dimensions of progress. National statistical offices will usually be best placed to provide an overview of the different data and describe the strengths and weaknesses of each potential source notwithstanding whether the data are “official” or from the private, academic or non-governmental sectors. Statisticians should be included early in the process, not as an afterthought, because they are also well placed to ask probing questions during the selection of the progress dimensions. If those running the project decide that “reducing poverty” is a key aspect of national progress, then it will be important to ask sooner, rather than later, what do you mean by poverty?

An increasing amount of data is available from sources outside of government. When selecting the final indicators there is no reason, *prima facie*, to rule out non-official data. Indeed, if resources permit you might even consider collecting your own data. What is vital though is that the data are of sufficient quality to be fit for purpose, and national statistical offices are usually best placed to provide that assessment. Poor quality data, the limitations of which are not explicitly recognised in the final publication, risk undermining the whole initiative. The indicators need to be perceived as accurate if they are going to be used.

That said, it is also important not to wait for the perfect product. As Kaminara (2007) notes :”It is important to never underestimate the time it takes to convince people internally and externally of the benefits of introducing a scheme...[and] it is too complex to solve everything before the beginning of the pilot phase. As a result there is a need to have an evolving approach. The evaluation of the pilot phase will be able to highlight issues and any negative effects.

A first set of progress measures will be experimental and should be labelled as such. It is often effective to release an experimental product for comment – so long as one is transparent about its limitations. This experience is reiterated by those responsible for the Newfoundland Community Accounts. They found it difficult to elicit comments from Newfoundlanders about proposals for a set of indicators. The public were much less reticent however to comment on a prototype publication.

**Step 4: Communication – getting the information “out there”**

***The importance of communication***

95. An indicator – or set of indicators – is only successful if it is used. And that requires communication: communication that helps ensure the indicators move from statistical information to knowledge and hence have an impact on decision-making. And so the work of measuring progress does not end once the measures are released. Effort needs to go into ensuring that they reach, and are used by, their target audience. There are many strategies to achieve this and they of course differ according to the audience for the indicators. This section discusses the importance of communication and of an effective communication strategy. It may be prudent to engage communication experts to assist with the development of a strategy.

96. One might ask whether there is a problem with the ways in which indicators are communicated at the moment. After all, we live in an age when more people have easier access to more information than ever before. However, evidence suggests that problems remain. People are bombarded by data but remain worryingly ignorant about much of the key information they need to judge the progress of their societies.

97. Why does ignorance remain? There are several reasons. In some cases, one can access lots of data which conflict with one another and this increases confusion. It is tempting to conclude that many of us are lost in this ocean of information. People are looking for effective, understandable and easily accessible indicators, but often they cannot find them. So, in the end they prefer to follow their opinions, beliefs, ideologies, or rely on the opinions of others rather than the facts. In short although people say they would like to know the facts, they often do not understand the facts because they can find the volume of information confusing.

98. Alan Blinder and Alan Krueger looked at this in their 2004 paper on what the public knows about economic policy and how it knows it (Blinder and Kreuger 2004). Starting from an analysis of the determinants of public opinion, they moved to a survey of people's knowledge of US economic policy indicators and analysed why people said they wanted to be informed. The highest percentages of respondents who wanted to be informed said it was because they wanted to be responsible citizens (55%) and that information affects personal finances (54%). More than 50% of those interviewed declared that to be informed is very important.

99. The April 2007 Eurobarometer study found that 69% of European citizens believe that it is necessary to know key economic data (such as GDP growth, unemployment rate, inflation rate, etc.)<sup>10</sup>, but 53% of European citizens do not even have a vague idea of what the GDP growth rate is in their country and only 8% know the correct figure<sup>11</sup> (Eurobarometer 2008).

100. Although the challenge of moving from 'information providers' to 'knowledge builders' applies to all organisations involved in compiling indicators of progress, it may be a special challenge for NSOs as it takes them away from their traditional dissemination role. Box 5 describes the increasingly important role National Statistical Offices have in building knowledge not just providing information.

**Box 5. The Role of National Statistical Offices: Moving from Information Providers to Knowledge Builders**

Traditionally, statistical offices have the function of an information broker in the sense that they meet the specific information needs of users; they provide objective, accurate and timely statistical information to users at reasonable cost; they balance information needs of users against the public's concern for privacy and burden on provision of data.

Nowadays though, statistical offices are playing an increasingly important role in decision-making processes. They are no longer content with just being an *information provider*, but they have to assume the role of a *knowledge builder*. This means statistical offices have to be capable of meeting the genuine needs of the community; they have to contribute more to the development of the economy; and they have to be capable of building up prestige and trust in the community and thus securing adequate resources from the government.

Factors that urge statistical offices to move towards the role of a knowledge builder include the need to avoid failing to reflect the reality of a dynamic, heterogeneous and complex society; the growing need to make use of innovative and integrated statistical information to describe critical issues; and the always increasing need to help

<sup>10</sup> These data were collected in 2007 by the European Commission (Eurobarometer 2008) at the OECD's request in preparation for the second OECD World Forum on "Statistics, Knowledge and Policy" ([www.oecd.org/oecdworldforum](http://www.oecd.org/oecdworldforum)).

<sup>11</sup> Similar figures have been obtained by Curtin (2008) for the United States.

societies accumulate wisdom and knowledge for intellectual decision-making.

For statistical offices to meet the growing information needs of modern society and become knowledge builders they should: be fully alert, responsive and reacting flexibly to the rapid and continuous social and economic changes in the community; take a proactive role in uncovering the new or noteworthy phenomena from the wealth of statistical information; promote advocacy for official statistics and understanding of statistical concepts and methodologies in different sectors of the community; and establish an enabling environment to disseminate statistical information within a very short time lag.

*Source:* Presentation given by Hin-wang Fung, commissioner of the Census and Statistics Department, in Hong Kong, China at a roundtable session of the second OECD World Forum on *Statistics, Knowledge and Policy*, held in Istanbul, Turkey on 27 June, 2007. For access to the full presentation - *Statistical Offices—Information Brokers or Knowledge Builders?* – see the agenda for the 2<sup>nd</sup> World Forum at [www.oecd.org/progress](http://www.oecd.org/progress).

### ***Effective Communication and Dissemination: Some Basic Principles***

101. Effective communication and dissemination is fundamental to the success of an initiative. The most well crafted and rigorous indicators of progress will achieve nothing if they are not used. Most statisticians would not see their job as turning knowledge into policy. That is for the policy-makers. But data producers do have a role in making sure they produce the evidence that policy-makers require, and produce it in a way that ensures it can be used. The job of producing indicators does not end once the data are released. Ideally, data producers should assure themselves that the indicators are going to reach their intended audience and have an impact. A number of factors are important to achieving this.

#### *1. Use plain language and effective presentation*

102. A set of progress indicators is nearly always produced for a broad audience. It is important to keep the users in mind when preparing the publication (be it paper, electronic or web-based). Use plain language, clear presentation and avoid more detail than is necessary. It is important to be objective and rigorous of course, but one should strike an appropriate balance between scientific accuracy and over-complication.

103. Too often, those producing the indicators are tempted to err on the side of over-precision. In their quest to make the commentary absolutely precise the story the indicators tell becomes lost in a sea of qualifications. A balance needs to be struck between communicating the key messages and remaining accurate. One way is to include any qualifications to the data in the end notes and annexes to ensure they are easily accessible to interested readers. The balance is a matter of common-sense as the joke in Box 6 illustrates. The same goes for good graphical presentation. Similarly less is often more. Strive for a parsimonious use of indicators to cover the key aspects of progress without overwhelming the reader.

**Box 6. Statisticians as communicators**

Statisticians are not famed for their prowess in communication. And a variation on an old joke is a nice way to illustrate this. An economist, a mathematician and a statistician are travelling to a conference in New Zealand. They are all European and it is their first time in the southern hemisphere. As they take the bus from Auckland airport to the conference centre they notice a black sheep in a field.

“Look!” says the economist. “All the sheep in New Zealand are black.”

The mathematician, who has been trained in logic, responds with a smug look. “No. In New Zealand there is at least one black sheep”.

At this point the statistician clears his throat. “I think you will find that in New Zealand there exists a sheep one side of which appears to be black.....”

2. *Design an effective communication and dissemination strategy.*

104. A communication strategy should be seen as an integral part of the initiative, and thought should be given to it from the beginning of a project, not left until the very end. The final set of indicators can be released in several ways. It is normal to have a hard copy version of an indicator publication: this is the form still preferred by some influential readers such as politicians and the media. Ideally, there should be an electronic release. It should not simply be an electronic reproduction of the hard copy version. It should be designed for the electronic media and for some purposes it may be worth producing an abbreviated version that is more digestible for those seeking an overview only.

105. The media is the most important way of informing the public of the main “progress” stories contained in the publication. The media needs to be engaged. This requires more than simply providing media releases and hoping that the media will pick it up. The media strategy may comprise a mixture of the following.

- contacting key journalists and informing them of the forthcoming release of the publication and offer to assist them to produce media articles based on the publication,
- preparing media releases,
- attaching some interesting story lines that journalists might possibly use, and,
- providing some well-briefed contacts that journalists can use to assist them with their media articles.

106. Presentations at conferences, seminars, etc. can be another way of promoting the findings of the publication. For example, a series of presentations were made to business leaders on *Measures of Australia's Progress*. There was very strong interest and, even though most of the indicators were available elsewhere, the knowledge on the trends in these indicators was lower than expected. Presentations to business leaders have the added advantage of increasing awareness of official statistics. Increased awareness of the usefulness of statistics is likely to lead to higher levels of co-operation in official surveys.

107. Increasingly the Internet is where people will access the data so a well designed website is important. However, different styles of website can be used for different purposes. Allowing users to interrogate the data and to extract information at different levels of geography is one clear advantage the Internet has over print. This is particularly useful when data are available at a local level. The web sites of

Newfoundland's Community Accounts<sup>12</sup> and the United Kingdom's Neighbourhood Statistics<sup>13</sup> are good examples of this.

108. Indicator initiatives have employed a variety of approaches from high to low tech to disseminate their information.

109. For example, the New Yorkers for Parks organisation pressured the City Parks Department to post their own internal inspection ratings (such as on the quality of the toilets) inside the city's parks, for the public to see. The interest in the ratings among the public, and the increased accountability it generated, led the City Council to legislate that the Parks Department must post beach and park inspection ratings on their website. Prior to the legislation, the Parks Department's inspections had only served as an internal management tool, and their findings were not publicly accessible.

110. Box 7 below shows how an indicator set might be used in future.

**Box 7. Fictional radio broadcast: CKIW Winnipeg Radio Newscast, April 21, 2011**

Christine Kahn: Mild temperatures will continue throughout southern Manitoba, with a high expected of 12 degrees in the Winnipeg area, clear skies into this evening, an overnight low of 2.

And that's a look at CKIW news headlines, sports and weather. Turning over to Peter now for a look at today's numbers from Bay Street to Main Street.

Peter Singroy: Thanks Christine. Canadian stocks turned in a strong performance over the course of the trading session yesterday largely due to strong gains in energy stocks. The TSX was up over 80 points to surpass the 16,000 mark for the first time.

But the real news this morning is a five-point jump in the Canadian Index of Wellbeing, representing a significant bounce since the last release of the Index. Canada's primary measure of progress is now up to 136. Stats Can officials point to improvements in indicators measuring greenhouse gas emissions and early child development, and reductions in child poverty as the biggest drivers of this sturdy rebound.

May Fairweather, a senior economist with the Canadian Institute of Wellbeing, is buoyant about today's results.

May Fairweather: Canadians have been breathing a bit easier since the Province of Ontario began phasing out coal plants and bringing more green technologies online. The new federal "Clean-air Transit" initiative is also key. It provides cities with a much-needed booster shot for public transit.

Adding to the rally on Main Street was an increase in early learning opportunities. The first phase of the federal program has opened the door for thousands more child care spaces. As well, the federal and Ontario governments met poverty reduction goals for the last quarter.

The CIW might have risen even higher but these gains were partially off-set by an increase in diabetes rates across the country. But we're happy that Parliament is paying attention. Today, the Health Minister said he would be summoning his provincial counterparts to Ottawa to discuss putting together a national strategy for combating the disease.

Peter Singroy: Meanwhile in business news, the Canadian dollar was up another quarter of a cent to \$1.12 U.S yesterday. The latest increase is continued good news for Canadian shoppers and snowbirds, but the Bank of Canada is still concerned about the effect of the high loonie on Canada's declining manufacturing sector.

<sup>12</sup> <http://www.communityaccounts.ca/>

<sup>13</sup> <http://www.neighbourhood.statistics.gov.uk/dissemination/>

Christine Kahn: Thanks Peter. Coming up a special panel and phone-in discussion: Canada's soaring diabetes rate – what's driving it, who is suffering, and what can we do about it? We talk to the experts and then open up the phone lines for your calls.

Canadian Index of Wellbeing (2007). This imaginary radio broadcast is illustrative of what is possible in CIW reporting. To listen to an audio version see: [http://www.wikiprogress.org/index.php/Canadian\\_Index\\_of\\_Wellbeing](http://www.wikiprogress.org/index.php/Canadian_Index_of_Wellbeing)

### **Step 5: Building Knowledge with the Indicators**

111. Getting the information 'out there' is just the first step in communicating the data. To 'build knowledge' around the data means enabling people to draw and retain meaning from the indicators. This can be done through statistical 'storytelling'; however care must be taken to remain as impartial as possible in the presentation of the indicators. Web 2.0 developments have opened up a new potential for users of indicators to engage with the data on a new level.

#### ***Telling a story with statistics***

112. The information within a set of progress measures paint some of the most important and interesting stories about a society. There is simply no reason to shy away from telling the stories in a way that does justice to the data. Of course, one should not sensationalise the data or jeopardise the impartiality of the commentary. But behind every indicator there is a potentially interesting story and this should be brought out in the commentary if one wants the indicators to impact on debate and decision-making.

113. Statistical story-telling is a skill that is not taught in many statistics courses. Apart from being concerned about jeopardising impartiality and objectivity, some statisticians find it difficult to know which story to tell when confronted with a set of data. It may be a particular challenge for NSOs where 'statistical precision' is a strong part of their culture when describing data. Box 9 discusses the issue of statistical commentary for national statistical offices). How does one develop a narrative? There are, of course, many ways in which an indicator might be presented. But some of the basic questions to ask about an indicator can help structure the commentary. For each indicator you could ask the following questions:

1. *What is the latest data on progress and how has the indicator changed over time?*

114. This is the key information about the indicator that should always be presented. Both the direction and rate of change in a progress indicator are important. It is informative to see whether an indicator is increasing or decreasing, but the rate of increase also matters particularly when compared with historical trends.

115. Each indicator might focus on progress during the recent past. Where possible, though, reference should be made to progress over the longer term. Some indicators move only slowly, and so a longer time horizon is needed to perceive any appreciable change. For other indicators, the longer lasting trends that are of greatest interest are overlaid by cyclical and other short term variation (e.g. the business cycle or regular climatic patterns such as El Niño). Agreeing on a common window of time over which to analyse each indicator can help ensure that presentation is impartial, otherwise some might put pressure on the producers of the indicators to vary the time horizon in order to put an indicator in a better light (for example by seeking to begin the time series in the depths of an economic recession so that the most recent data in the series will appear 'better' when compared to its origin than would have been the case had the series began at the peak of the economic cycle).



116. As with any statistical analysis, care must be taken not to make too much out of changes over time or differences between groups or regions that are not statistically significant. This is a matter of common sense.

**Box 8. Statistical Commentary: an issue for National Statistical Offices**

“The question of public perception is very relevant when we consider how to measure the progress of societies. Official statistics play a central role here and yet they are by no means perfect. Thus we are constantly developing the statistics we use to improve our understanding of this issue. Statistics are a fundamental instrument of policy making. But if statistics are to fulfill their democratic function, objective and high quality communication to the general public is needed.” (Almunia 2008)

It is simply not good practice to issue a set of statistics without comment. Additional information is needed to ensure the statistics can be interpreted correctly. This may be in the form of metadata that explains the statistical concepts, data sources and statistical methods. It may also be in the form of analysis that can help users interpret the statistics.

Analysis of official statistics covers a wide range of possibilities, from quality assessment through to the use of complex techniques and models. The possibilities for analysis include:

Quality assessment and validation

‘Routine’ adjustments and summaries such as seasonal analysis - to show trends/direction

Age/sex standardisation - to compare populations with different age and sex structures

Descriptive analyses designed to convert data into useful information that make the key features in the statistics more understandable

Descriptive text

Deciding which tables to publish

Deciding which graphs to publish

Multivariate analysis and analytical constructs - to summarise data e.g. Socio-Economic Indexes,

Measures of transitions and longitudinal analysis

Creation of new statistical outputs using analytical methods (e.g. small area statistics)

User-oriented analyses that shed light on possible links between outcomes

All statistical agencies undertake at least some quality assessment and some basic analysis during the production and presentation of statistical outputs, for example, deciding which tables and figures to publish, which graphs require analysis of the data to determine the most important outcomes, and which relationships to display. Routine adjustments such as seasonal analysis are also commonplace. Beyond these routine applications of analysis, however, there is great diversity across agencies in the application of more sophisticated methods of analysis, and in how agencies are organised to undertake or support such applications.

With respect to analysis, at a minimum, the NSO should decide which tables and graphs should be used to represent the selected headline indicators. If supplementary indicators are being used, it must make similar decisions on tables and graphs for these indicators. It should decide which methods, if any, should be used to standardise the statistics (e.g. age-sex standardisation) to ensure the statistics are comparable over time. It should decide which descriptive analysis should be used to explain the statistics. It should decide the main themes for statistical analysis. This might include:

- how the indicator has changed over time;

- how different subpopulations vary from the average;
- how do other nations or regions compare;
- what has driven the change in the indicator; and
- how does the change impact on other aspects of progress.

Of course, there are some pitfalls with analysis that have to be managed carefully. The key pitfall is lack of objectivity or perceived lack of objectivity with respect to the selection of topics for analysis, the robustness of the methods used, and the presentation of the results. NSOs in particular should avoid commenting on, or advocating policy change.

Good practice should be adopted with analysis. The quality limitations of the data must be understood. The validity of the statistical methods and underlying models must be understood. It is important to avoid misleading inferences and to be aware of statistical relationships in the data which are not meaningful.

With respect to interpretation, the NSOs primary role is to provide the data, metadata and supporting analysis so as to allow accurate interpretation by other users. It should avoid making the interpretation itself, leaving this to others. There will often be several interpretations of the same set of numbers. That is natural. However, it would be unfortunate if numbers were misinterpreted because the NSO provided insufficient information. While the emphasis above has been on the NSO role, many of the messages would also apply to other providers of measures of progress. To have maximum influence they need to be trusted and seen as impartial.

2. *How does the level and rate of progress vary across geography or population sub groups within a society?*

117. Although an aspect of life for a nation as a whole may be progressing or regressing, the rate of change - or even its direction - may not be mirrored in every region, every industry or every population group. Furthermore base levels of these indicators may be different. One cannot discuss every difference within a country. But one can discuss some of the more significant differences, and provide signposts to the more detailed and disaggregated data sets underlying the indicators. Many policy initiatives may be aimed at sub-populations rather than at the country as a whole or be at the instigation of governments and communities below the national level.

118. Big differences in progress across a society are of interest. Of course, one needs to be careful to explain these differences if they seem more sensational than they really are. Perhaps incidence of cancer is much higher in one part of the country than another. This is doubtless important but is it because the population is, on average, older in the area with higher cancer rates than elsewhere, and it is the more elderly population that is driving the difference? Consulting with experts can help ensure that the commentary recognises this.

3. *What has driven change in the indicator?*

119. Readers will want to know the reasons for changes in progress indicators. It should not be assumed that they will know, and available analysis may not always provide all the answers. For example, there may have been an external event or a policy intervention that has had an influence on the trend. Great care has to be taken that such commentary is objective. Although one might possibly refer to policy initiatives, one should not be seen to be supporting or criticising a policy position.

120. Seldom if ever can one be precise about this. Most progress indicators are influenced by a myriad of factors, some well understood and others less so. But one aim of a set progress indicators should be to frame a debate about the tough choices a society has to make between competing policies or the allocation of resources: choices about how progress in one area might come at the expense of progress in

another, for example. Where there is consensus behind some of the major influences on an indicator, it can be helpful to discuss this, particularly if one can map the influences back to other measures of progress.

4. *How does change in the indicator affect other indicators of progress?*

121. This is very similar to the point above. One can discuss some of other areas of progress that will be affected by progress in the dimension under review. Each aspect of progress is related, either directly or indirectly, to most of the others. For example, one aim of a set of progress measures should be to encourage a more facts-based debate about the choices societies need to make when deciding on their priorities for progress. Change in one dimension of progress is typically accompanied by change elsewhere and so it is important to consider the full array of indicators together.

122. Broadly, we may think of two types of relationship between different dimensions of progress - trade-offs and synergies.

- *Trade-offs* occur when one area of progress improves at the expense of another. In some cases, trade-offs arise due to a change of preference: spending on education might be cut, for example, to give more money to health. But they also occur as flow-on effects: for example, economic activity rises and so might greenhouse gas emissions.
- *Synergies* occur when one aspect of progress improves and strengthens another. For example, as economic production rises, so might employment.

123. In reality, the overall effects of a change in any one dimension are much more complex. An intricate system of trade-offs and synergies comes into play when any dimension of progress changes. Suppose, for example, that factory output increases. This generates more income, and so there is more money to pay for health care, for instance. But increased factory output might also increase air pollution, which is harmful to people's health or might be detrimental to other economic activity such as agriculture. Within the indicator commentary one might mention some of the more obvious links, but it is not practicable to mention every relationship.

5. *How does progress in our society compare with progress in other societies?*

124. Setting the progress of one's own society in a broad context is informative. A health ministry might be satisfied to learn that life expectancy has increased by 5 years in the past 20 in their country. They might be less satisfied if they also learned it increased by 10 years over the same period in a neighbouring country. If a country's progress is lagging behind similar countries it may signal a need to review policy. Of course, as already mentioned, care needs to be taken with international comparisons to ensure one is comparing like with like because differences in figures that purport to measure the same thing can be driven by different standards or reporting practices.

**Box 9. Analysis in “Measures of Australia’s Progress”**

Separate analysis is undertaken for each dimension. Most dimensions are represented by a single indicator known as a headline indicator.

In the summary section, a graph shows the trend in the indicator. The time period of the graph will depend on the particular indicator but it is usual to have at least 10 years, and in Measures of Australia’s Progress a ten year window was used wherever possible for the headline indicators. There are brief comments under each of the following headings. Each comment is no more than two or three sentences. The headings used are:

- The relationship of the indicator to progress,
- About the headline indicator and its limitations,
- Other indicators of progress within the dimension,
- Some differences within Australia, and
- Links to other dimensions.

In the more substantive analysis sections, the main headings are:

- Progress and the headline indicator (includes a longer term view),
- Some differences within Australia,
- International Comparisons,
- Factors influencing change, and
- Links to other Dimensions.

Supplementary indicators are used to support the analysis particularly in the commentary on factors influencing change. Graphics, summary tables and boxes are also used extensively.

125. Blocks of text can be rather boring and do not help to make interpretation easy. It is good practice to include graphics, summary tables and boxes to break up the text and provide additional information to assist interpretation. An additional element of the publication that might be considered is an essay or special article on a particular topic of interest, especially one that involves more than one dimension of progress. Perhaps it is easiest to illustrate this by example. In *Measures of Australia’s Progress*, the essays have included “Multiple Disadvantage”, “Population, labour force participation and productivity”, “Life satisfaction measures of progress” and “Relationships between domains of progress”. Box 10 briefly outlines the method of analysis presented in *Measures of Australia’s Progress*.

126. The previous paragraphs have focussed on how to tell the story for each indicator. But is it possible to summarise the different indicators to paint an overall picture of progress?

127. One approach is to use a composite indicator of the various component indicators. This approach is being used for the Canadian Index of Well-Being. Issues that need to be considered are the validity of the index, normalisation of the variables so their variability is relatively consistent, the weights to be applied to the component indicators and robustness. For example, if the number of indicators in the composite indicator is relatively small, a sharp movement in an individual indicator can cause a strong movement in the composite indicator even though the other component series may not have changed much.

128. An alternative approach which is somewhat more sensitive to extreme movements is to use a “traffic” light approach. That is each indicator is allocated green, orange or red depending on whether the

indicator has improved, showed no significant difference, or deteriorated. The net result could be used to indicate whether there has been improvement or not. The implicit assumption is that each of the indicators is equally important. Also, a large increase (or decrease) in the value of the variable is given the same weight as an increase (or decrease) of a smaller size in any other.

129. The preferred approach will generally be to use multiple indicators with a supporting essay discussing the implications of the movements on individual indicators and interdependencies amongst indicators.

### *New ICT Tools*

130. The development of Web 2.0 and other Information and Communication Technologies (ICT) are creating a revolution in the way in which information is produced and shared. The success of Internet platforms where communities create information through interacting provides evidence that the well-consolidated roles of producers and users of information are radically changing. Concepts like “collective intelligence”, “crowdsourcing” and “prosumers” are at the basis of initiatives like Wikipedia and Facebook. The field is changing so rapidly that any discussion of particular packages for the dissemination of information will likely be out of date within a few months. However, although it is evolving rapidly, the Web 2.0 phenomenon seems destined to have a profound impact on the way knowledge is spread.

131. New ICT tools and the success of Internet are profoundly changing the way in which people, especially new generations, look for and find data. For example:

- according to Internet experts, 95% of those who use Google do not go beyond the first page of occurrences; and once they reach a particular site, a similar percentage of users do not click more than three times to find what they want: if after three clicks they have not found what they are looking for, they quit the site<sup>14</sup>.
- the way in which “discovery metadata” are structured is fundamental to be placed in the first page of Google’s results. However, these metadata have nothing to do with the intrinsic quality of the information provided. Therefore, sources able to structure their “discovery metadata”<sup>15</sup> well can appear higher than those which have better quality information but do not invest in this kind of information.
- For younger people, the Internet is clearly the media of preference. The ways in which they use the Internet also change over time and publishers need to be alert to these trends.

132. Web 2.0 is producing major changes in the way in which “collective knowledge” is generated today (e.g. “wikis”), and how this is affecting the “digital native” generation’s thinking<sup>16</sup>. Why is this so

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<sup>14</sup> See <http://www.infotoday.com/linkup/lud110103-goldsborough.shtml>

<sup>15</sup> Discovery level metadata provides a minimum of essential information to enable a user to find out if a particular dataset or reference exists, its location and ownership, and how to obtain further information. This is as compared to “full metadata” which provides additional information on such aspects as data quality and lineage (provenance) and technical details for access and exploitation.

<sup>16</sup> *Web 2.0* refers to a perceived second generation of Web-based communities and hosted services – such as social networking sites, wikis and folksonomies – which aim to facilitate collaboration and sharing by users. The main difference between the first and the second generation of Internet platforms is that the former are mainly “repositories of information”, while the latter are “marketplaces” where people exchange and share information, meet people, discuss ideas, etc. A *digital native* is a person who has grown up with digital technology such as computers, the Internet, mobile phones and MP3. A *wiki* is a medium which can be edited by anyone with access

important? The main reason is that this approach tends to transform the “consumer” of a particular information/service provided via Internet into a “prosumer”, i.e. a person that is simultaneously a consumer and a producer of the information/service. Wikipedia is the most popular example of this approach, but there are many other platforms that use “collective intelligence” to develop innovative services.

133. Of course, reliable statistics cannot be generated using “collective intelligence”, but this does not mean that this approach does not impact on the way in which statistics are perceived or used. If, for example, an authoritative member of a “community” spreads word that a particular official figure (for example, inflation) is unreliable, it would be extremely difficult to change community members’ minds using the arguments usually used in statistical circles. Of course, the system can also underline the validity of figures or sources. Just to underline how this approach is typical of new Internet platforms, the developers of Wikipedia recently proposed to build a discovery system based on “trusted user feedback from a community of users acting together in an open, transparent, public way”<sup>17</sup>. In other words, the proposal is to replace Google discovery algorithms with a system based on the “recommendations” provided by users. Box 11 looks at the implications of these developments for national statistical offices.

#### **Box 10. Web 2.0 and national statistical offices**

These developments represent a great challenge, but also an important opportunity, for statistical data providers, who could develop a strategy to convince the Internet community to recommend official statistics instead of other sources. There is a question here for official data providers: are they ready to engage themselves in this “new world” and to invest significant resources in new forms of communication? For example, if Web 2.0 platforms are a marketplace for discussion, and not just a repository of information, should statistical institutions create discussion sites about the quality of data used in the public domain and especially of their own data? Of course, this could open a “Pandora’s box” and give space to those who criticise official data. On the other hand it would allow statistical offices to receive valuable feedback and be perceived as transparent institutions. It might also allow them to make observations on unreliable data produced by other sources, as stated by one of the Fundamental Principles of Official Statistics adopted by United Nations<sup>18</sup> (Principle 4: “The statistical agencies are entitled to comment on erroneous interpretation and misuse of statistics”). This proactive approach would be coherent with the idea of making the statistical agency a “knowledge builder” for all society, putting its technical capabilities at the service of everyone, and helping it to discriminate between good and bad information and, in the process, gain a stronger legitimacy.

134. New tools and websites have also been accompanied by a growth in organisations run for profit, or as a public good, that turn statistics into information. The Gapminder foundation is a leading example, with their development of software that animates statistical time series as “moving bubbles” (see Box 12 below).

#### **Box 11. Gapminder**

Gapminder is a non-profit venture promoting sustainable global development and achievement of the United Nations Millennium Development Goals by increased use and understanding of statistics and other information about social, economic and environmental development at local, national and global levels.

Hans Rosling, one of its founders and a Professor in Public Health, realized the need for a Gapminder when he discovered that most Swedish medical students scored below random when ranking countries according to child mortality. The reason, he felt, was they had preconceived ideas about the state of the world that

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to it, and provides an easy method for linking from one page to another. Wikis are typically collaborative websites, though there are now also single-user offline implementations.

<sup>17</sup> See <http://www.ecommercetimes.com/story/61080.html>

<sup>18</sup> See: <http://unstats.un.org/unsd/methods/statorg/FP-English.htm>.

corresponded to the situation as it was 30 years ago. The students needed access to current development statistics in a visual format that could challenge their preconceived ideas. And so the Gapminder team – led by Ola Rosling and Anna Rosling Rönnlund – started to develop software for interactive animated visualization of development statistics.

The initial work led to the Trendalyzer software. This software unveils the beauty of statistical time series by converting boring numbers into enjoyable, animated and interactive graphics. In March 2006 Google acquired Trendalyzer from Gapminder.

Since the Trendalyzer development was taken over by Google, the Gapminder Foundation maintain the same aims, and uses Trendalyzer and its resources to produce videos and web service showing major global development as trends with animated statistics. Each 3 to 10 minute video is called a GapCast and they are published as free web casts with the aim of promoting a fact-based world view. A GapCast converts statistical time series into moving graphics in ways that allows evidence based trends to be told as simple story lines. The time series used will be made freely available in the web service called Gapminder World enabling end users to further explore the underlying statistics in Trendalyzer graphics.

Hans Rosling notes the power of gapminder, when he compares statistics to a musical score. “Only very few musicians can read the notes and say: ‘Oh, this is beautiful music!’ And I think this is often how we are, we that love and work with statistics, often we show the notes, we don’t play the music”

[www.gapminder.org](http://www.gapminder.org)

135. Although some initiatives developing sets of progress measures will seek to use these new tools themselves, others will seek to pass on the information to third parties who will repackage the data in innovative ways. This is a good strategy if you don’t have the skills to do this yourself. Indicators of progress can tell many fascinating stories. With potentially thousands of statistical story-tellers available via the internet, one should not try to tell every story. It can be more effective to provide the information in a way that makes it easier for the army of story tellers to begin their work. And this is not just something for developed countries. It has applications all around the world as Shailaja Chandra from India explains.

136. “Although such data has been available for decades, the difference now is that technology has enabled it to be displayed in visual form capable of being downloaded and lending itself to analysis even by a layperson. By improving access to information, leaders can keep themselves abreast of developments and have a basis to profess how they are promoting the quality of citizens’ life and how progress can be measured.” (Chandra 2008)

### ***Working with the Media***

137. Statistical information can be disseminated in many ways and to many different audiences (either directly or through intermediaries). Traditionally this has been done by the data provider in the form of publications and data sets, and through the media. But new technologies are revolutionising the ways in which this occurs.

138. If you want to reach citizens, then you will need to work with the media, and not just the print media. In the United States, for example, in 2004, the most common source of information on official figures is TV (78%), followed by newspapers (58%), Internet (37%), radio (34%), family/working networks (34%) and magazines (14%) (Blinder and Kreuger, 2004).

139. There are many ways to help ensure the media pick up the indicators. A dissemination strategy is clearly important. And it is also useful to talk to the journalists themselves to better understand what they

want. Journalists will often want press releases that can be tailored simply into articles – articles written in approachable plain English, not detailed technical pieces interpretable only by experts. They like graphics and so data should be well presented. Radio and TV require short sound bites and clear messages. Although the statistician is often tempted to present every detail and nuance in the data, some of this will need to be sacrificed to ensure that a message that is approximately correct reaches a wide audience (rather than a message that is precisely correct reaches just a very few). Journalists – particularly those with expertise in a specific area – will often want to talk to the statistical experts about the data. So it helps if statisticians are willing – and trained – to work with the media.

### **Step 6: Ensuring Continuity and Relevance**

140. Finally, the sixth and last step of the process is less a step in its own right than a continuous revisiting and adaptation of the previous five steps. Encouraging meaningful social change with indicators will probably take time. Producing an influential indicators report cannot usually be a one-off exercise: to have an impact, the exercise must be repeated regularly. In this way, the act of managing a successful indicators project should be seen as a cyclical and ongoing process from the very beginning.

141. In many ways these issues are interlinked. For example, securing stable and adequate funding may depend on the support of key stakeholders. This support is more likely if they are engaged in the development and communication process.

#### *Appropriate indicator selection*

142. While it is important to maintain continuity to measure trends over the long term, it is also important to regularly assess the relevance of the selection and the presentation of the indicators. It may be necessary to revise the selection of indicators to maintain relevance. For example, the community action plan ‘Tasmania Together’ was reviewed in 2006, five years after its launch, to assess the selection of indicators. After this review, which was undertaken by a partnership of representatives from both the public and non-governmental sectors and in consultation with the public, the number of indicators was reduced to 143 from 212, with some new indicators replacing some of the original selection. One of the reasons for this change was that the indicators which were retained were considered to be ‘measurable benchmarks’, and as such, more useful for monitoring progress towards the 12 quality of life goals agreed under the Tasmania Together plan. Of the original 212, only 103 were considered to be measurable benchmarks (Tasmania Together Progress Board, 2006).

#### *Adequate resources*

143. Repeating the exercise on a regular, long-term basis requires that the indicator project is appropriately institutionalised, with stable funding and appropriate resources (including staffing). Projects that are dependent on financing from external sources, such as those led by nongovernmental organisations, will need to devote a large amount of time to fundraising. Even projects housed within national statistical offices and governmental departments will need to make sure that the project is supported throughout the organisation, in order to guarantee continued backing from top decision makers. Regardless of the source of funding and the manner of institutionalisation, it is essential that the project continues to be impartial and non-partisan, and to be seen as such.

#### *Continued stakeholder engagement*

144. One risk with even the most successful indicators project is ‘indicators fatigue’, where users lose interest in the indicators over time. One way to deal with this is to find new approaches to engaging stakeholders and to make the indicators more relevant. For example, many community indicator projects in



the United States and elsewhere run ‘adopt an indicator’ programmes. Truckee Meadows Tomorrow<sup>19</sup> is one example of this approach. Truckee Meadows Tomorrow (TMT) is a community indicators project in Nevada in the United States. In order to involve the community more closely, TMT invites local groups and organisations to choose a specific indicator (such as enhancing job opportunities or preserving the natural environment) towards which they would like to contribute. Those wishing to adopt an indicator submit a plan of action and commit to working towards achieving concrete positive outcomes in that area. Of course, this kind of innovative involvement may only be possible in relatively small geographic areas. However, for indicators project of any scale, the continued engagement of key stakeholders is something that is integral to the entire process if the project is to maintain relevance and broad-based support.

#### *Adapting communication and presentation methods*

145. Without effective communication an indicators project will die. This means not only maintaining communication efforts for every repetition of the exercise but also adjusting the approach if necessary for continued or improved impact. For example, for the first few years of the UK Sustainable Development Indicators project<sup>20</sup> there was no communications strategy in place and, not surprisingly, the public, policy and media response was disappointing. In 2000, a 2-page summary of the headline indicators was included in the report. As a result, the indicators got considerable media interest, with articles and debates on sustainable development in the newspapers and on television. In the following years, the leaflet was produced more professionally and thousands were distributed annually. However over time, it came to be felt that the headline indicators took away attention from the rest of the data. Since 2004, a new format has been introduced, where there are no ‘headline indicators’ and the overall set has been reduced from 150 to 68. These 68 indicators are now widely disseminated in a ‘pocket-sized’ report, which uses a ‘traffic light’ format to show whether the trend of the indicators is heading in the right direction (green), the wrong direction (red) or stayed the same (amber), so as to quickly communicate the key information in the data set.

#### **Concluding Remarks**

146. There is no single right way to run an indicator project. Different projects will have different goals, different audiences and different levels of resources available to them. This paper has set out some of the key steps along the way and some of the options open to those seeking to measure the progress of their societies.

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<sup>19</sup> [www.truckeemeadowstomorrow.org](http://www.truckeemeadowstomorrow.org)

<sup>20</sup> [www.defra.gov.uk/sustainable/government/progress/](http://www.defra.gov.uk/sustainable/government/progress/). See also Hall (2007).

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