Annex III: Sustainable development and environment

1. Introduction: current and future well-being

The concept of wealth is crucial. Indeed, as it is expressed in terms of stocks, it relates directly to the potential for future well-being.

In its third part, the Sarkozy Commission (SC) emphasises that appropriate measures of well-being can provide a current picture of the situation on that particular area but do not in themselves provide information about the potential for future well-being or on sustainable development more generally. Whilst a new indicator set to measure well-being must sit **within an indicator set on sustainable development** (and therefore include both current well-being and future well-being), the Government will need to set out its aims for each theme **separately** as the two are not synonymous. With regards to the current work of DEFRA/ONS, it seems that the **focus sits on current well-being** indicators, while information about potential for future well-being needs to be better introduced.

Equally, identifying where the two areas **intersect** will be an important task to achieve. On this latter point, as stressed out by Cassiers,[1] a criticism that could be directed at the SC is the radical wainscoting it operates between the different parts. This is clearly mentioned from the beginning: *the assessment of sustainability is complementary to the question of current well-being or economic performance, and must be examined separately* (p.19). Understanding properly the different components of both future and present well-being is a necessary but not sufficient step. Indeed, an analysis of the links which lie between these different components is the next stage that is not tackled properly by the SC.

To illustrate this, Cassiers uses the following analogy: how to make some links between current individual preferences (I like driving my 4x4), the general well-being at the same time (towns are polluted and suffer from traffic when you add up all these individual behaviours) and the future well-being (the future generations are threatened by the excess of CO_2 generated by our current behaviour).

The intra-generational well-being issue has been examined in the previous annexes (the distribution issues, R4&R8). The intergenerational well-being issue is the aim of this annexe. It can be summarised in the following words, from the Norwegian Policy oriented capital Framework[2]: "*What is the (best) future welfare development we can expect to achieve given the present day starting point? This question draws the attention to what resources we have at our disposal today, and towards the issue whether we manage these in ways that make it possible to maintain and further develop the resource base over time*".

2. A Dashboard of Indicators

R11 (1st part): Sustainability assessment requires a well-identified dashboard of indicators. The distinctive feature of the components of this dashboard should be that they are interpretable as variations of ***some underlying stocks***

The approach advised by the SC as well as by the OECD to evaluate the potential for future well-being is the so-called "stock-based" or "capital-based" or "wealth-based" approach to sustainability. The SC's argument is that, ultimately, the sustainability issue is about how much stock of resources we leave for future generations/periods, and the question is whether we leave enough of these to maintain opportunity sets at least as large as the one we have inherited of.

A common misunderstanding of using the word capital or wealth is that it refers to the neo-classical theory which traditionally restricts to understanding economic development through expansion of markets and increases in human-made capital.[3] However, the sustainable development perspective calls for a broader view of capital, which includes all what matters for future well-being, and does not restrict to the future economic well-being.

At this stage, one general recommendation can already be made. Indeed, the approach promoted by any new dashboard measuring progress towards sustainable development should be such that conventional economics fit with sustainable development, not the other way around. And this is unfortunately not what is suggested by the current focus on financial and produced assets, as well as human capital restricted to its productive potential, as demonstrated below.

The joint UNECE/OECD/Eurostat Working Group[4] identifies five components of the Total National Wealth which have to be managed in a way that secures their maintenance over time: financial capital like stocks, bonds and currency deposits; produced capital like machinery, buildings, telecommunications and other types of infrastructure; natural capital in the form of natural resources, land and ecosystems providing services like waste absorption; human capital in the form of an educated and healthy workforce; and, finally, social capital in the form of functioning social networks and institutions.

However, the current measures of capital tend to focus on the first two while the latter three are subjected to national pilots or research (see Annex 1). They should therefore be completed by indicators relating to natural capital, human capital and social capital. The UK Government initiatives contributing to give a fuller picture of the total National wealth are examined below, starting with the environmental assets and ending with the social and human capital.

3. Environmental Stocks and environmental limits

The capital approach described above assumes a certain degree of substitutability between the assets. This substitutability is achievable through aggregation of heterogeneous types of capital in a same unit, namely the monetary unit. Clearly, such an assumption constitutes a weak sustainability approach. Such an approach admits that destruction of natural capital could be compensated through an increasing of another type of capital, e.g., improved knowledge (human capital) or green technologies (produced capital).[5] Conversely, the strong approach of sustainability advocated by the Sustainable Development Commission (SDC) refuses substitutability between natural capitals and other types of capitals and raises the question of ecological limits. The SDC therefore favours tracking variations of stocks separately, as suggested by R12.

R12: The environmental aspects of sustainability deserve a separate follow-up based on a well-chosen set of physical indicators. In particular there is a need for a clear indicator of our proximity to dangerous levels of environmental damage (such as associated with climate change or the depletion of fishing stocks).

Living **within ecological limits** is one of the five Sustainable Development Principles agreed by the four UK governments. This Principle sets out the simple fact that our natural resources are finite and should not be outstripped, in order to protect and maintain the wellbeing they provide. We would go further to define an environmental limit as:

The critical point(s) at which pressure on a natural resource or system creates unacceptable or irreversible change to the resource or system itself and to the detriment of the [humans and] organisms to which it provides a service.

An indicator of environmental wealth therefore must reflect the need to keep a safe operating distance away from such critical points. The UK carbon budgets provide the potential for including an indicator that not only measuring the degradation of environmental capital but also captures the notion of an environmental limit and a sense of how much of a critical environmental capital is left.

However, the maintenance of our ecosystems goes further beyond the carbon asset. Limits have to be set for a more comprehensive panel of natural assets, including air quality, water (addressing scarcity and quality), biodiversity and habitat (quality, quantity and connectivity), soil productivity, land use, etc.

One might think that the UK Environmental Satellite Accounts[6] are a good starting point as they provide information on the environmental impact of UK economic activity (in particular on the emissions of pollutants) and on the importance of natural resources to the economy. Most data are provided in units of physical measurement (volume or mass), although some are in monetary units, where this is most relevant or the only available data. However, the issue of limits is not tackled by such accounts.

The work of The Economic of Ecosystems and Biodiversity (TEEB) and the **UK** National Ecosystem Assessment (UK NEA) [7] also offer the opportunity to develop an indicator measures the proximity we are to critical environmental limits. The UK National Ecosystem Assessment is the first analysis of the UK's natural environment in terms of the benefits it provides to society and continuing economic prosperity.

Nevertheless, as one of the NEA's latest reports assesses,[8] the focus is on applying economic analysis techniques to ecosystem service assessments. Economic analysis of the role and value of ecosystem services begins through isolating their contribution to welfare bearing goods. This contribution is then valued through the application of a range of methods and techniques ranging from adjustments of market prices to the measurement and valuation of preferences for non-market goods. As a solution to the depletion of ecosystem assets and the avoidance of stock threshold and tipping point effects, safe minimum standards are adopted. They consist in as a precautionary approach to the management of a natural asset; i.e. economic decision making prevails unless a threshold threat is identified.

As the *R11 (2nd part)* underlines, *A monetary index of sustainability has its place in a dashboard but, under the current state of the art, it should remain essentially focused on economic aspects of sustainability*

However, the brief analysis of several initiatives in terms of assessing the value of ecosystems shows that economic valuation is the default rule. Other measures including physical or non-utilitarian measures only complete the picture when the necessary assumptions allowing a proper economic valuation are not encountered. This suggests that the approach adopted is such that sustainable development fits with conventional economics, not the other way around. The attempts to measuring human and social capital confirm this trend, as showed below.

4. Beyond the productive potential of social and human wealth

Human Capital

Valuing the human capital stock is part of a ONS recent research project.[9] The estimates of human capital stocks are derived by applying[10] a lifetime labour income methodology to data from the UK Labour Force Survey. Using an annual discount rate of 3.5 per cent and assuming long term annual labour productivity growth of 2 per cent, the market value of the UK's human capital stock was £16,750bn in the final quarter of 2009.

A potential application of this measure of human capital recognised by the paper is its use as a measure of future societal well-being, '*as the empirical work on economic growth suggests that countries with higher levels of human capital, other things being equal, have greater potential output and income in the future*.'

However, the SDC's main criticism of this approach is that it reduces human wealth to its productive capacities, leaving little space to other dimensions that have to be transmitted to the future generations, such as social cohesion, respect, altruism, culture. Once more, the focus is on competition rather than on cooperation. Furthermore, reducing human capital to a market value recalls the "arrogance of economics" highlighted by Fine and Green[11], in assuming the superiority of its own methodologies over those of other disciplines.

Social Capital

The work undertaken by ONS[12] to measuring social capital suffers from the same pitfall, as it focuses on social capital as an independent variable explaining the variations of economic growth, crime, health or well-being. Nevertheless, capturing the complexities of the circuits of social capital through the formalised mathematical models of conventional econometrics is viewed as impossible by Fine and Green.

One might think that measuring social capital is a purely analytical task, without any political implications. However, as highlighted by the SC itself, *what we measure shapes what we collectively strive to pursue, and what we pursue determines what we measure*. Therefore, when measuring social capital, it is essential for the Government to determine what it pursues.

As argued by Fine and Green, economists either approach social capital in an attempt to draw all areas of social life into the conceptual framework of utility maximisation or reject the concept as imprecise and confounding of equations. Confirming this latter trend, Arrow urges the abandonment of the metaphor of capital as the essence of social networks is that they are built up for reasons other than their economic value.

The SDC goes beyond and concurs with Baron *et al*.[13] view of social capital. Beyond the importance of its understanding and its policy implications, the social capital's strongest claims are in challenging existing modes of thinking and strengthening the point of complex and multi-dimensional investigation.

References

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3 UNECE/OECD/Eurostat Working Group (2008), *Measuring Sustainable Development*, p.5. New York and Geneva: United Nations.

4 *Ibid.*

5 Pillarisetti, J., Vvan den Berghe, J. (2008) 'Sustainable Nations: what do aggregate indicators tell us?', Tinbergen Institutes Discussion Paper, TI 2008-012/3.

6 UK Environmental Satellite Accounts, available at www.statistics.gov.uk/STATBASE/Product.asp?vlnk=3698

7 See www.teebweb.org/ (TEEB) and http://uknea.unep-wcmc.org/ (UK NEA)

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11 *Ibid.*

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