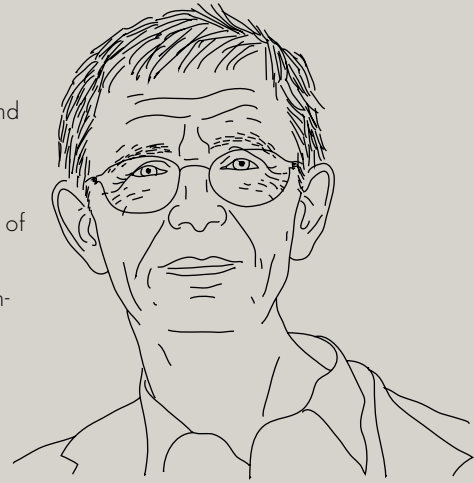


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SUSTAINABILITY – EACH GENERATION'S RESPONSIBILITY

Mankind's well-being depends heavily on ecosystem services and erosion of nature is thus a threat to future generations. It is the responsibility of each generation to manage the use of nature and the environment, the extraction of natural resources and the genuine saving in such a way that future generations' standard of living is sustainable. This is the core principle of sustainability. In the economic literature, two definitions which both focus on equality amongst generations are common. The classical Brundtland definition 'Development that meets the needs of present generations without compromising the ability of future generations to meet their own needs' (1987) and the Asheim definition 'A requirement to our generation to manage the resource base such that the average quality of life we ensure ourselves can potentially be shared by all future generations' (1994). The question is, how much should each generation sacrifice to maintain or perhaps even improve future generations' welfare? This is an ethical and moral question closely related to fairness between generations.

The sustainability concept is a difficult one and consists of at least three components: Environmental sustainability, economic sustainability and social sustainability and the key question is: Does overall sustainability permit any trade-offs amongst the three goals? And a second key question is: Will economic growth based on technical progress and improved efficiency 'solve' the sustainability challenge? Or is economic growth the obstacle to ensuring sustainable development?

The answer is strongly related to the degree of substitution between natural resources and man-made capital and to weak versus strong sustainability concepts. If we do not accept some degree of substitution between natural resources and between natural resources and other kinds of goods and services, then it will be very difficult to avoid a negative genuine saving. Extraction of non-renewable resources means less for future generations but investment in human capital and research capacity can be a substitute

for the decreasing stock of non-renewable resources – and future generations will be as well off as the present generation. This is true if, and only if, some degree of substitution is possible and the weak sustainability concept is accepted.

It often comes as a surprise to non-economists that economists do not believe that GDP and national account measures for consumption equate to wealth/happiness/well-being. Furthermore, economists know that an appropriate and good measure for wealth is difficult to find and that sustainability cannot be achieved through the free market. The fundamental problems are market failures and 'bad' governance and that we are facing the tragedy of the commons. This results in too much pollution, global warming and nature of low quality as well as in-optimal exploitation of non-renewable and renewable resources. Consequently, sustainability is threatened. At the same time, our knowledge of future generations' preferences is unknown and the question is to what degree this should influence our behavior. Uncertainties are fundamental and the adoption of the precautionary principle is one way to cope with future uncertainties regarding the preferences of future generations and the reaction of nature to major changes.

The good news is clearly linked to the economists' toolbox. Economic instruments are very powerful in managing sustainability. Taxes, user fees and transferable quota are all incentive-based instruments and the power of these instruments is supported by empirical evidence. But in some cases, direct command and control such as technical standards are preferable, or in combination with economic instruments. Some serious problems remain unresolved due to the fact that international coordination is difficult. No international institution has the responsibility and power to ensure and enforce actions needed to secure a sustainable development. The prisoner dilemma problem remains unresolved in worldwide politics and this is a threat to the well-being of future generations. Sustainability and international cooperation go hand in hand – and it is each generation's responsibility.