

10th Anniversary Focus: From mainstream 'environmental economics' to 'sustainability economics'. On the need for new thinking

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Traditional ideas of science as being separate and separable from ideology and politics have to be reconsidered. Each interpretation of sustainable development is not only scientific but at the same time ideological. For this reason our ideas about good science should also be related to normal imperatives of democracy.

Mainstream neoclassical economics is specific in scientific and ideological terms. This paradigm is useful for some purposes and has played a role as a mental map in guiding us towards economic growth and other ideas about progress in society and the economy. Sustainable development, however, represents an ideological turn in our ideas about progress and it is no longer clear that neoclassical theory will be enough. Alternative perspectives in economics are being developed as part of a pluralistic strategy and the monopoly position of neoclassical economists at university departments of economics is thereby challenged. A 'political economic person' is suggested as alternative (complement) to Economic Man assumptions and a 'political economic organization' to be compared with the

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neoclassical profit maximizing firm. Alternative ways of understanding markets and international trade, efficiency, decision-making, monitoring and assessment are also needed. It is argued that such an alternative mental map is useful for actors who take the challenge of sustainable development seriously.

Introduction

Economics has become a fairly established discipline and economics is equal to neoclassical economics for many actors in business and politics. Many are those who have read neoclassical textbooks in micro- and macroeconomics and who know of no other economics. Reference is made to this economics in identifying problems in society and suggesting ways of achieving 'efficient resource allocation'. In fact the theoretical perspective or paradigm of neoclassical economics is the main mental map used in guiding us towards 'development' and 'progress'.

There is a problem, however, for those who use neoclassical economics as the basis for their decisions. Things are not going so well in the economy and in society. Many kinds of systematic environmental degradation can be observed and the performance in relation to poverty and other aspects of development need not be much better.

Does this mean that we should abandon neoclassical theory all together and look for another 'map' to guide us towards the future? My answer is that there is still a role for neoclassical economics as part of a pluralistic idea of economics. The thing to be abandoned is instead the monopoly of neoclassical economists and neoclassical economics at university departments of economics in all parts of the world.

Interpretations of sustainable development

It is increasingly recognized that the ideas of progress in society have to be reconsidered. Focusing exclusively on economic growth in GDP-terms is no longer enough. As an alternative idea, 'sustainable development' was launched in the Brundtland report¹ and the documents from the UN conference in Rio de Janeiro in 1992.

It is clear that 'sustainable development' as ideological orientation was supposed to deviate a bit from 'business as usual'. The idea was to systematically bring in environmental and social issues into the development dialogue. But the Brundtland report and the Rio documents are less clear about how to do this. The documents were written and influenced by many actors and interested parties and are to some extent contradictory. At one place, reference is made to "a new era of economic growth",² which does not necessarily go well with the interests of future generations. Thinking always in 'we can have both' or 'win-win' solutions may turn out to be illusionary.

In the social sciences, some of the most important concepts, such as 'power',



Fig. 1 Gro Harlem Brundtland.

'democracy' and 'institution' are so called 'contested concepts'.³ Contrary to traditional ideas of good science where clear definitions, quantitative measurement *etc.* is recommended, one sometimes has to live with complexity in the sense of competing interpretations of a phenomenon. This is however not necessarily a bad thing. Tensions between interpretations may be conducive to creativity and new thinking. 'Sustainable development' belongs to the category of contested concepts in the sense that there are more interpretations than one and that a power game is going on about the relevant interpretation. Each interpretation is specific not only in conceptual terms but also in ideological terms:

A. *Business as usual.* Some actors want to minimize change and continue to emphasize economic growth ('sustained economic growth') at the macro level and monetary profits ('sustained profits') in business.

B. *Ecological and social modernization.* Another group of actors realize that something is wrong with the mental maps that have guided us in the development dialogue and in practical action. But they feel that modification in the sense of some add-on institutions, such as Environmental Management Systems (EMS) in business and Environmental Impact Assessment (EIA) will do it. Institutions need to be 'modernized'. There is no need for more radical institutional change.

C. A third group of actors welcome minor adjustments according to 'B' above but feel that *also more radical changes in institutional arrangements* have to be considered. Dominant mental maps, such as those connected with neoclassical economics and neo-liberalism are no longer enough.

I will here suggest what can be considered a 'reasonable' interpretation of the Brundtland report and the Rio de Janeiro documents. It can be seen as a way of further articulating 'C' above. It does not claim to be the 'correct' interpretation and is mixed with my own ideologically colored thoughts:

- A movement away from one-dimensional, monetary ideas of efficiency and progress in society and business to multidimensional profile thinking where also non-monetary variables of different kinds are articulated and evaluated

- A movement away from assumptions about self-interest as the only guiding motive to also include broader ethical and ideological concerns

- A movement away from extreme technological optimism and belief in market mechanisms to acceptance of complexity and a precautionary principle

- A movement away from extreme reliance on experts ('technocracy') to an increased role for democracy and participation in problem solving processes

Concerning the first point above, economists often refer to a need for a common yardstick. Money is said to be the natural choice; people know about money. With money follows a trade-off philosophy in the sense that one impact *via* its price can be traded against another. This is the main idea behind neoclassical cost-benefit analysis (CBA). The position taken here is that monetary impacts and considerations are often important but that non-monetary impacts cannot be reduced to an alleged monetary equivalent. We have to move away from one-dimensional analysis to multidimensional analysis. One reason is that the non-monetary logic differs from the monetary one. Phenomena such as inertia, path-dependence and irreversibility are common on the non-monetary side. In sustainability assessments of projects and policies, one has to live with this multidimensional complexity rather than assume it away. Monetary reductionism can also be questioned for the kind of ethical-ideological reductionism it involves. Economic theory cannot dictate correct prices for purposes of resource allocation. Reference to current market prices is just one among options.

This brings us to the second point in the list above. Economic analysis that is based on the assumption of self-interest will strengthen egoism by making it more legitimate and is therefore not very helpful in the attempts to get closer to a sustainable path. While self-interest is always there, it is often related to and balanced against the interests of others. Actors who extend horizons socially and geographically to other regions and in time to future generations should be encouraged. Also non-human forms of life should be considered as possible elements of an actor's ideological orientation. The title of the Brundtland report *Our Common Future* is relevant to remind

us that perspectives should be broadened rather than reduced. This title also points in the direction of cooperation and implies that exclusive reliance on competition in markets will not be enough.

The third point above refers to the need to observe a precautionary principle. When it is understood that technology or money (or both) cannot solve all possible future problems because of inertia or irreversibility on the non-monetary side, for instance, then it becomes wise to think before acting. In a study for the European Environment Agency, Poul Harremoës and colleagues⁴ have pointed to a number of cases where the precautionary principle could have saved us from a number of problems, had it been applied. Fisheries, radiation, benzene, asbestos, PCBs, halocarbons and hormones are among the cases described.

The Brundtland report and the Rio documents, such as Agenda 21, argue that experts certainly have a role in dealing with unsustainable trends but that these issues concern all individuals or actors in different roles. In principle all individuals need to understand sustainability issues and can actively contribute by changing behavior and participating in a dialogue and democratic decision-process.

Pluralism as a sustainability strategy

Sustainability issues are complex. Nobody can claim to have the final answers but all can contribute. In such a situation of extreme complexity, it would be a mistake to claim that there is only one path ahead. Rather one should listen to many voices and try more than one path. A debate is certainly going on at many places especially about details in policies and projects proposed by specific parties (*cf.* the 'modernization' interpretation of sustainable development above). But there seem to be limits to the dialogue. I have elsewhere⁵ referred to 'prohibited themes in the development dialogue'. These typically refer to more fundamental issues of perspective. Getting closer to sustainability may require us to also discuss the mainstream *versus* alternatives concerning:

- Theory of science
- Paradigm (in economics in particular)
- Ideological orientation
- Institutional arrangements

The contribution of science to present society has largely been built on positivism while competing theories of science have played a more peripheral role. Neoclassical theory as paradigm in economics is built on positivism and has a close to monopoly position in relation to development issues at many central arenas. Neo-liberalism as ideology with extreme beliefs in the efficiency of business corporations and markets has played a dominant role. Dominant perspectives in these three areas are closely related and together largely explain dominant institutions in present society. Neo-liberalism is largely built on neoclassical economics and a neoclassical understanding of firms, markets, international trade, efficiency *etc.* is behind the business corporation and the market as dominant institutions and also for instance the World Trade Organization (WTO). This neoclassical and neo-liberal dominance is felt in the European Union, in single European countries, such as Sweden and the UK and in many other places.

Neoclassical economics and neo-liberalism may be good for some purposes but tend to run contrary to sustainable development as an ideological orientation. The way out of this is to broaden the dialogue about perspectives as part of a pluralistic strategy. Rather than thinking in terms of monism and one correct perspective, pluralism with respect to theory of science, paradigm in economics and ideological orientation appears to be a way out. Brian Fay has coined the word ‘perspectivism’⁶ to make us realize that there are always more perspectives than one in any human endeavour.

In his study of natural sciences, Thomas Kuhn referred to ‘paradigm-shift’ suggesting that there is only one correct paradigm at a time but that new evidence may make one paradigm obsolete and another take over.⁷ This way of thinking is contrary to perspectivism implying recognition of a multiplicity of perspectives. When thinking in terms of paradigm, one should then move from ‘paradigm-shift’ to ‘paradigm co-existence’. In economics, for example, there has always been competing schools of thought. One may be dominant but other theoretical perspectives claiming relevance in relation to similar issues have normally existed as can be learnt from

textbooks in the history of economic ideas.⁸ It is still relevant and useful of course to refer to a ‘shift in dominant perspective’ at specific arenas as when the neoclassical paradigm became dominant about 1870 while pushing back the previously dominant classical school of ‘political economics’ and its followers to a secondary position.

Pluralism suggests that there may be complementary perspectives. One perspective is good for one purpose and a different perspective useful for some other purpose. Even in relation to one purpose, an additional perspective may add to the view and understanding offered by previously existing perspectives. Especially for the social sciences, the roles of values and ideology adds, as we will see, to the reasons to be open-minded and think in terms of a co-existence of perspectives or paradigms.

From positivism to alternatives with respect to theories of science

Ecology and environmental science is largely built on positivism as a theory of science and the same is true of neoclassical economics. The analyst is standing outside, objectively observing events and environmental conditions according to established method in an alleged value-neutral way. Positivism will always have a role but exclusive reliance on positivism is not enough. Problems related to environment and sustainability do not exist only ‘out in the fields’ or ecosystems but are also a matter of the perspectives and attitudes of actors in different roles. How do specific actors interpret sustainable development and how does that interpretation affect their life as professionals and citizens?

As part of the social sciences, the subjective and value-related aspects of human behavior need to be considered also (right-hand side of Table 1). Social constructivism,⁹ hermeneutics,¹⁰ narratives,¹¹ discourse analysis¹² and contextualism with case studies¹³ are some of the key words connected with social science studies in relation to environmental or sustainability issues. The perspectives, conceptual framework and language used are socially constructed and in that respect possible to modify or change. It is possible and often relevant to interpret the narratives or stories told by

Table 1 Tensions between traditional and more recent ideas about good science¹⁴

Traditional premises (positivism)	Complementary premises
Mechanistic Objectivity Universal regularities Value-neutrality	Evolutionary Subjectivity Contextualism, uniqueness Values unavoidable

specific actors and studying specific cases, for instance individuals or organizations as actors in their contexts (rather than focusing exclusively on large numbers of actors), may add significantly to our knowledge.

From neoclassical monism to pluralism with respect to theoretical perspectives in economics

Just as positivism is dominant as a theory of science, neoclassical theory is the dominant school of economics. This theory focuses on markets for commodities and factors of production and refers to environmental impacts as ‘externalities’ that should be ‘internalized’ (into the market logic as a monetary cost for polluters) through the ‘polluter pays principle’ (PPP). In this way neoclassical theory may contribute by making environmental taxes or charges legitimate. The problem is however that environmental impacts connected with market transactions are ubiquitous rather than exceptional¹⁵ and that therefore almost all prices need to be corrected through state regulation. This would bring us in the direction of a planned economy that most neoclassical economists normally abhor. And since most neoclassical economists (and neo-liberals) believe in the undisturbed market mechanism and are against state regulation, they will not be very active in proposing applications of the polluter pays principle.

This suggests that our ideas about the economy and economics have to be broadened. The understanding of an economy cannot be limited to firms and consumers and their market transactions. Perceiving human beings as consumers and wage earners is too limited and even firms have other relevant roles than monetary profit maximization. Individuals and organizations as actors

are embedded in a context that is social, cultural, institutional and ecological. For ecological economists, this ecological 'embeddedness' connected with ecosystem services, ecosystem resilience *etc.* is of special importance.

As an example of alternative views, the individual can be understood as a 'political economic person' and actor, guided by an ideological orientation and the organization (where firms is a subcategory) as a 'political economic organization' and actor, guided by its mission statement.¹⁶ Actually, the previous 'reasonable' interpretation of sustainable development points to the kind of economics needed from a sustainability point of view. Monetary and non-monetary impacts have to be kept separate in analysis. Prices naturally enter into estimates of monetary impacts but the assumption that non-monetary impacts can be taken into account through their price has to be abandoned. In addition to self-interest, each market actor may consider the interests of other market actors and other impacts connected with a market transaction. A multidimensional analysis is needed where there are monetary as well as non-monetary ideas of efficiency. Reference is for example made to eco-efficiency in a non-monetary sense and to 'ecological footprints'.¹⁷

The second point in our 'reasonable' interpretation of sustainable development is about ethics and ideological orientation. For sustainability purposes, a more open economics in ethical/ideological terms is needed and one that can consider specific interpretations of sustainable development among ideological orientations. Standardized ideas about how to achieve rational and optimal solutions as in monetary cost-benefit analysis (CBA) are no longer valid. Neoclassical economists can not dictate that the market and economic growth ideology of CBA is the only 'correct' way of evaluating alternative policies or projects. Instead, conclusions have to be conditional and related to competing ideological orientations judged relevant among decision-makers and other actors in their particular contexts.

There may be situations where decision-makers and affected parties agree about an objective function to be maximized (or otherwise optimized) but this is rather an exception, considering the

conflicts of interest normally being part of environmental and development issues. Rather than thinking in terms of optimizing, decision-making can be seen as a matter of 'matching' the ideological orientation of each decision-maker and the multidimensional impact profile estimated for each alternative considered.

Accepting complexity in terms of conflicts of interest and uncertainty about relevant ideas of progress, possible alternatives and impacts of specific alternatives is another imperative that should be part of 'sustainability economics'. Indeed some point to a need for a 'post-normal science' to deal with the emerging challenges.¹⁸ Observing normal ideas of democracy is the forth point characterizing the proposed reasonable interpretation of sustainable development. This suggests that actors in the economy should be understood as political actors and that economics, whether neoclassical, institutional or feminist should be understood as 'political economics'. The neoclassical attempt to abandon this label in favor of a 'pure' economics is therefore regarded as a mistake.

Democracy also points in the direction of participation, responsibility and accountability of actors in the economy. 'Experts', for example, have to become more humble persons as facilitators whereas stakeholders and other actors should be given more active roles in problem-identifying and -solving processes. The role of the analyst becomes one of 'illuminating' an issue in a situation characterized by conflicting interests and divergent ideological orientations.

From neo-liberalism to sustainable development as ideological orientation

Neo-liberalism as an ideology is largely built on the conceptual framework of neoclassical economics. Economic growth in GDP-terms is the main idea of progress in society. Private corporations and markets are at the heart of this ideology.¹⁹ Competition between corporations is good for society while little is said about cooperation. Barriers to flows of commodities, capital and labor should be minimized, nationally and internationally. Government regulations of other kinds should similarly be minimized and self-governance by corporations encour-

aged. Corporations are believed to be efficient and privatization of traditionally public activities, such as health care, infrastructure for transportation and water supply, is believed to increase efficiency and contribute to progress in society.

In so far as neo-liberalism is built on the same conceptual framework as neoclassical economics, it suffers from the same weaknesses in relation to the challenge of sustainability. In neo-liberalism, the understanding of 'economics' is reduced to the monetary dimension; economics is about money. But as we have seen, the 'newness' about sustainable development is rather a recognition of a number of non-monetary dimensions, such as those connected with health and environment. A holistic idea of economics is needed.

There is a lot of wishful thinking in the contention that private companies are always more efficient in monetary terms than public utilities or other public organizations.²⁰ This should instead be judged on a case-by-case basis. But the main weakness of the privatization idea is that standardized ideas of 'efficiency' have to be rejected. Efficiency has to be understood as an ideologically open concept and be related to the ideological orientation of each observer. As an example efficiency in terms of environmental performance differs from traditional ideas of monetary efficiency.

Strengthening democracy was listed above as one of the elements in the attempts to reorient development towards sustainability. Neo-liberalism as a market and economic growth fundamentalism is not very helpful in changing direction. It rather suggests that we should have more of that which largely explains the present unsustainable trends. In terms of fundamentalism and rigid beliefs, neo-liberalism (and neoclassical economics, for that matter) can be compared to other kinds of fundamentalism that we have seen in the past. Contrary to such simplistic ideas, democracy implies a kind of humility and willingness to listen to citizens and not only to corporations with their often short-sighted focus on profits.

Sustainability monitoring

Sustainable development can be defined positively by specifying a desired

development path. Since there is (hopefully) more than one sustainable path, it may be wise to focus instead on trends that are unsustainable according to some criteria. How do we identify such unsustainable trends?

The multidimensional understanding of sustainable development emphasized here suggests that there is an almost unlimited amount of potential indicators. Such sustainability indicators can be identified at various levels including those related to the behavior (and life-style) of individuals and the activities of organizations of a business or other kind. Monitoring activities are also relevant for public or business investment projects and for policies of local or national governments. Also regional entities such as the European Union are engaged in follow-up activities through Eurostat and the European Environment Agency. At the global level, the UN Millennium Development Goals exemplify similar efforts.

Indicators can be classified as being monetary or non-monetary in kind (Table 2). They may be flows referring to periods of time or positions (states, stocks) referring to points in time. At the national level, GDP is expressed in monetary terms and refers to a year and therefore exemplifies a monetary flow variable ('a' in Table 2) whereas the debts of the national treasury at a point in time exemplifies a monetary state or position ('b' in Table 2). Similarly, for a business company, the turnover for a year is a monetary flow and the balance sheet at the end of a year tells us about various aspects of its monetary position.

Monetary flows and monetary positions are of course related to each other and those who are interested in the progress of a business company will observe both sets of indicators. The same is true on the non-monetary side where pollution of various substances from

specific sources can be measured as non-monetary flows while impacts on air, water, soil and human health can be measured as non-monetary states or positions.

Monetary indicators have become so popular that we need not bother so much about them except for reasons that they have become too dominant in relation to a total set of potential indicators. Our interest here is in non-monetary indicators of various kinds. The concept of sustainable development points in the direction of environment, natural resources, health, cultural artifacts and social aspects such as those related to equality, fairness and poverty. And poverty should be understood as a multi-dimensional (rather than one-dimensional monetary) concept.

A first contention then is that one should look for unsustainable and sustainable non-monetary trends connected with human activities. While non-monetary flows and non-monetary positions are interconnected and both important, a second rule of thumb is to focus on non-monetary positions in attempts to judge whether progress is made towards sustainability or not. It is a trivial but still essential statement that 'positional thinking' (or thinking in terms of 'states' or 'stocks') is relevant at all levels from the individual to the global level. Is the health of an individual improving or not between two points in time in specific dimensions? Is the content of PCB increasing or decreasing in the human tissues of specific individuals? Is a person's position with respect to knowledge and capabilities improving or

not from the beginning of a study course to its end? Is a person's social position being strengthened or weakened between two points in time?

While monetary thinking is largely built on a trade-off philosophy where one impact through its price can be traded against another, issues of inertia and irreversibility enter the scene on the non-monetary side and thereby a different logic. Thinking in multiple steps becomes essential much like in a game of chess. When deciding about the next move, the expected options for moves at future points in time have to be considered. And it may be added that formulating an objective function in mathematical terms is probably not very meaningful. Rather the ability to think in terms of visual patterns is essential for final success.

Many impacts on the environment and on natural resources are difficult to reverse or irreversible suggesting that it is wise to think before action. The idea of multiple step positional thinking is first presented as a decision-tree in Fig. 2 where P_0 stands for position at time t_0 for an object of description and A_a and A_b are alternatives at t_0 expected to lead to two qualitatively and quantitatively different positions at t_1 , P_{1a} and P_{1b} respectively, each with specific options for choice at time t_1 . At issue is if a specific path through the decision tree, for example $P_0 \rightarrow P_{1a} \rightarrow P_{2ac}$ is acceptable (desirable) from a sustainability point of view or not.

Multiple step processes described in positional terms may refer to many kinds of non-monetary dimensions. In Fig. 3, a case of land-use planning is chosen where it is assumed that a specific plot of

Table 2 Categories of indicators (impacts) for sustainability monitoring and assessment

	Flows (referring to periods of time)	Positions (referring to points in time)
Monetary	'a'	'b'
Non-monetary	'c'	'd'

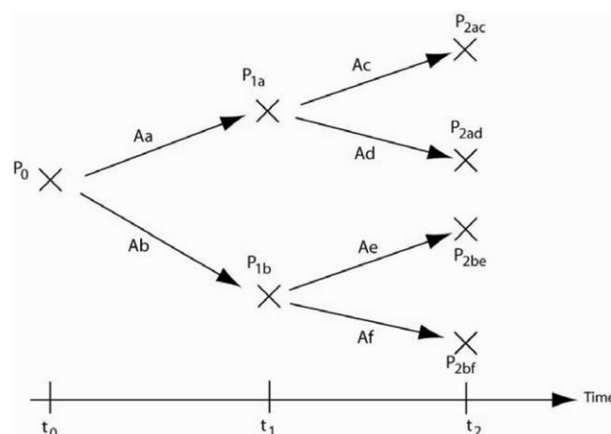


Fig. 2 Decision-tree in positional terms.

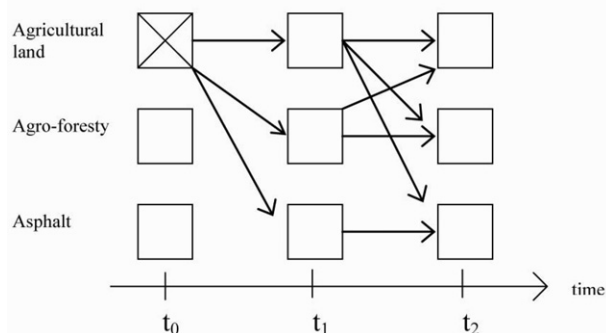


Fig. 3 Decision-tree applied to land-use planning.

land is originally used for agricultural purposes, for example wheat production. One option is to continue with the same land use, another is to plant trees on parts of the plot and engage in agro-forestry. A third possibility is to build a road across the plot. The options at different stages can then be illustrated as in Fig. 3. Possible paths through the decision tree and issues of inertia and irreversibility are indicated by arrows. In the example it is assumed that it is possible to return from agro-forestry to agricultural land but not from asphalt to agricultural land (or to agro-forestry). Some changes in land use are reversible, others are not. As an example, the European Environment Agency tells us that in the European Union between 1990 and 2000, “800 000 additional hectares of naturally productive land were converted into artificial surfaces for homes, offices, shops, factories and roads, adding 6% to the continents urban areas”²¹

Diagrams of the kind presented here do not solve problems in any final sense. But the idea is to make decision-makers and other actors understand the implications of each choice. It is a way of illuminating a decision situation.

Sustainability assessment

Neoclassical cost-benefit analysis (CBA) has been rejected as not being compatible with sustainable development. What then are the alternatives? CBA is a highly aggregated approach in the sense that all kinds of impacts are summarized in monetary terms as a ‘present value’. As the term indicates, future impacts are transformed to present impacts using a discount rate. CBA is furthermore an ethically/ideologically closed approach

Table 3 Categories of approaches to decision-making and sustainability assessment²²

	Ethically/ ideologically closed	Ethically/ ideologically open
Highly aggregated	‘a’	‘b’
Highly disaggregated	‘c’	‘d’

(‘a’ in Table 3) in the sense that the analyst claims to know correct values (prices) for each impact or rather correct ways of identifying the prices to be applied for purposes of societal resource allocation.

The main reason for rejecting CBA is that it is not compatible with normal ideas about democracy. The analyst has no right to dictate correct values for purposes of societal decision-making. In a democracy, there are normally groups (and individuals) of actors and decision-makers that differ with respect to ideological orientation and therefore do not agree about the values to be applied. As observed by Ezra Mishan,²³ himself a textbook writer on CBA, there are many opinions especially in relation to environmental issues. Some even refer to intrinsic values in conserving ecosystems or attempting to save specific species threatened by exploitation interests.

A second reason for rejecting CBA refers to our understanding of sustainable development. Non-monetary dimensions are at the heart of any attempt to get closer to a sustainable path and non-monetary impacts have to be kept separate from monetary ones as part of a multidimensional perspective. At issue is if there are approaches to decision-making and assessment that consciously avoid one-dimensional aggregation and

consider more than one ideological orientation (cf. ‘d’ in Table 3). Among such options, essential features of positional analysis (PA) will here be indicated.

There are ‘technocratic’ elements in PA as in other methods but PA claims to represent a move in the direction of more democratic approaches. The purpose is to illuminate an issue (rather than point to an optimal solution) with respect to:

- Ideological orientations that appear to be relevant for decision makers and other concerned actors
- Alternatives of choice
- Expected impacts and
- Common interests and conflicts of interest

Ideological orientations, alternatives, expected impacts and judgments about affected interests can then be connected in conditional conclusions; “Ideological orientation II suggests that Alternative 2 is the best alternative while Alternative 1 is second best” *etc.* where II may stand for a specific interpretation of sustainable development. The analyst is a facilitator in a learning process where interested parties and other concerned actors are listened to. By referring to PA as a scheme of analysis, the analyst achieves some integrity but should at the same time be ready to learn from all actors involved in the process.

Among the steps in carrying out a PA study, only some will be touched upon here (Fig. 4).²⁴

Systems thinking is a way of identifying the kind of systems that will be affected differently depending upon which one of the alternatives considered that will be

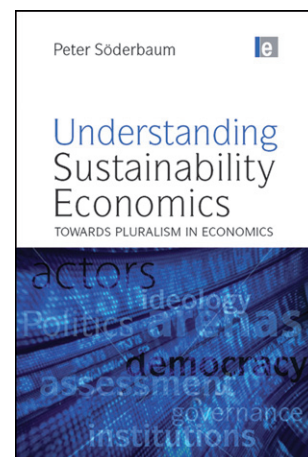


Fig. 4 *Understanding Sustainability Economics* by Peter Söderbaum.

chosen. In the case of road construction, systems for forestry and agriculture may be affected as well as areas for housing and commercial activities. Ecosystems, for instance water systems, such as lakes and groundwater may be affected *etc.* Thinking in terms of systems is also a way of relating a specific decision situation to other decision situations of a more comprehensive kind. A specific road planning issue with its alternatives is part of broader transportation policy options and the choice at the detailed level has to be related to options at the policy level.

Impact studies; systems thinking of the kind indicated is also a way of identifying relevant impacts. How do alternatives differ with respect to impacts? Positional thinking as previously described is part of this attempt to illuminate impacts.

Analysis of common interests and conflicts of interest; While systematically studying a decision situation, the analyst is interacting with interested parties (stakeholders) and other concerned actors. How do they understand problems in relation to their own interests and from a broader public point of view? What are their views about relevant alternatives and expected impacts? The narratives told by specific actors should then in part be literally reproduced to contribute to the richness of the analysis.

The identification of systems that will be differently affected is also a first step towards identification of activities (and thereby interests) that will be differently affected depending upon which one of the alternatives is chosen. In the road planning example above, activities connected with transportation, agriculture, forestry, housing (close to roads where traffic will increase or decrease), commerce (for example supermarkets, petrol stations) are among activities that may be affected. For each activity (often specified for a specific geographical area), a goal direction can be assumed. Activity plus goal direction then represents an 'interest'. Such a goal direction will permit a ranking of the alternatives in relation to each activity. In the case of transportation, the goal direction may refer to 'time saving'. For housing in specific areas, noise and pollution may be relevant variables for assumed goal direction while for commercial activities expected sales can be used for ranking purposes.

Table 4 Analysis of common interests and conflicts of interest

Activity and goal direction:	Alternative 1	Alternative 2	Alternative 3
a	1	2	3
b	3	1	2
c	2	1	3
d	3	2	1

A matrix is then constructed with each considered alternative as a column and each identified activity (with its assumed goal direction) as a row. A ranking can then be attempted (Table 4).

There are of course uncertainties involved in this way of identifying commonality of interests and conflicts of interest. It should be observed for example that the ranking refers to one activity at a time and that the same individual or organization may be affected through more than one activity. The assumption about goal direction can always be challenged *etc.* The idea is however to make conflicts of interest visible rather than hide them behind a singular aggregate number, such as a present value. Those who suffer from a road construction project should at least be able to recognize that they have somehow been considered in the analysis.

Will this analysis of affected interests facilitate choice for politicians or other decision-makers? How can they bring things together and take responsibility for what they are doing?

The idea behind PA is, again, to illuminate an issue for decision-makers and other actors with their specific and different ideological orientations. An ideological orientation is a means-ends philosophy that may inform about interests that are more important and about other interests that are less important for a decision-maker and those that she/he represents. One decision-maker may have a very clear idea about priorities (based for instance on a specific interpretation of sustainable development) and the choice for her/him becomes easy whereas another decision-maker becomes frustrated by all kinds of expected impacts and conflicts of interest. (This decision-maker would perhaps have preferred a more technocratic analysis with clear-cut recommendations to hide behind.)

Two points will be made in relation to this. One is that accepting some degree of complexity is a good idea for learning and to reconsider established ideological patterns. The other point is that methods that attempt to separate analysis and ideology/politics are not very useful in relation to present challenges. Articulation of competing ideological orientations has to be part of any meaningful method. Actually, dialogue about ideological orientations and their articulation is an important step in identifying alternatives compatible with such ideological orientations and making judgments about essential impacts and interests.

Challenging the economic growth ideology

Positivism, neoclassical economics and neo-liberalism tend to point to economic growth in GDP-terms as the overall ideology. Growth in this sense is supposed to solve all kinds of problems. It is clear, however, that economic growth also creates problems by contributing to unsustainable trends.

As already made clear, sustainable development implies a change in focus from monetary to non-monetary indicators. Production and consumption of commodities as well as other activities in society have to be judged on a case-by-case basis. The test to be applied is once more whether a specific commodity or activity will contribute to unsustainable trends in non-monetary positional terms. Focusing now on the ecological or environmental aspect of sustainability and assuming that a distinction can be made between ecologically sustainable and unsustainable commodities (activities) and another distinction between those commodities (activities) that are profitable given present institutional arrangements, we are faced with four categories (Table 5).

Table 5 Commodities (activities) categorized with respect to sustainability and profitability

	Ecologically sustainable	Ecologically unsustainable
Monetarily profitable	'a'	'b'
Monetarily unprofitable	'c'	'd'

There are commodities (activities) that are both profitable and ecologically sustainable (category 'a') and if they are not problematic in relation to other dimensions of sustainability (health, equality, poverty, employment *etc.*), we can live happily with them. Another category of potential commodities are unsustainable and would not be profitable (category 'd') had they existed and we should be happy that we do not need to worry. Similarly, we would like to see more of the commodities in category 'c' (sustainable but under present institutional arrangements unprofitable and therefore not so common). There are also a large number of commodities that are unsustainable and profitable (category 'b') and that contribute significantly to existing unsustainable trends. I think that each one of us can enumerate a number of commodities (activities) that are unsustainable or less sustainable than existing alternatives. Reducing the number of such commodities produced and consumed in the economy will improve performance from a sustainability point of view.

Moving now to the macro level and assuming that technology is given, a higher rate of economic growth in a country for the next year, say 8% rather than 2%, will probably lead to a less favorable position in environmental terms at the end of that year. Thinking in these terms will make us dismiss any view of economic growth as unproblematic. A more humble attitude is called for. The issues faced are complex in the sense that many kinds of uncertainty are involved and also with respect to difficulties to clearly distinguish between that which is sustainable and unsustainable.

The debate will continue

The development dialogue will continue as will the attempt by scholars to find relevant sustainability indicators and ways of assessing alternatives and assisting decision-makers in a meaningful manner. Some contributions will emphasize a macro level, looking for indicators relevant for the whole economy,²⁵ others argue that indicators should rather be adapted to local contexts and emphasize a 'systems approach'.²⁶

In the mentioned work edited by Philip Lawn, a number of ecological economists

have contributed and the book represents in a positive sense the diversity of approaches or the acceptance of pluralism in ecological economics. All authors agree that exclusive reliance on simplistic economic growth measures is not an option. Some look for another one-dimensional measure (*cf.* 'a' in Table 3), others warn against reductionism. In his chapter, Nigel Jollands cites R. Bradbury²⁷ saying: "it is time to learn to approach the complexity, the richness of the world with theory, data, models and tools which honour that richness instead of subverting it, which acknowledge that complexity instead of denying it."²⁸

Students can contribute to the dialogue about economics as witnessed by the French 'post-autistic economics' movement²⁹ and professors can go together and organize conferences as in the case of the International Confederation of Associations for Pluralism in Economics, ICAPE.³⁰ But since the question of how to approach sustainable development is a political issue, actors in other roles can also contribute. Even politicians could leave outdated ideas about a separation between science and ideology behind and intervene. In 2003, the Ministry of Education and Research in the Federal Republic of Germany turned to one of the most respected neoclassical economics research institutes in Berlin, DIW, (Deutsches Institut für Wirtschaftsforschung) arguing that neoclassical economics is inadequate for sustainability issues and that the institute should respond to the new challenge. A series of workshops with ecological economists and other interdisciplinarily oriented scholars was organized.³¹

There are obstacles to a change in mindset and ideology of influential actors. One obstacle is the Bank of Sweden Prize in Economic Sciences in memory of Alfred Nobel. This award is controlled by neoclassical economists and is based upon positivism and traditional ideas about objectivity and value-neutrality. Since the economics prize is not part of the will of Alfred Nobel and for other reasons, it is regarded as controversial in many circles. It can be noted that the Nobel Museum in Stockholm, along with its research secretariat, has arranged seminars for dialogue about the economics prize, most recently at the 40 years anniversary of the prize. One observation from these meetings is

that the economists being members of the committee electing winners each year did not participate in these arrangements. But the dialogue will continue. Economists, whether neoclassical or other, are part of society and have to recognize their democratic responsibilities.

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