

# **ECONOMICS, ECOLOGY AND THE ENVIRONMENT**

**Working Paper No. 41**

**Sustainability:  
The Economic Bottom Line**

**by**

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**Sustainability: The Economic Bottom Line<sup>1</sup>**

**by**

**Clem Tisdell<sup>2</sup>**

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# **SUSTAINABILITY: THE ECONOMIC BOTTOM LINE**

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## **Abstract**

*Points out that sustainability as such does not provide a clearcut guide to policy. First one has to decide what is to be sustained. If this is agreed, it must be in an operational form. However, difficulties may still emerge since opinions may differ about how to achieve. This is illustrated by differences in the views of economists about how sustainable development is to be achieved. Orthodox economists stress the importance of the accumulation of man-made capital to achieve this end whereas neo-Malthusians stress the importance of conserving natural resource and environmental capital. Both take an anthropocentric point of view. For political reasons the neo-Malthusian has had little support but it may eventually turn out to be correct.*

*Economics is concerned with reducing economic scarcity and economists have traditionally suggested four main ways of doing this of which economic growth is one. However, neo-Malthusian economists believe that this may not be a sustainable strategy – it may result in future poverty.*

*It should be noted that economic systems are embedded in social and natural systems and depend on these. Economic sustainability depends on the sustainability of these other systems. So from this point of view, it is just one of several bottom lines.*

*Values must be considered in relation to sustainability. Economics is completely anthropocentric in its approach. Therefore, economic approaches to conservation and sustainability can be at odds with the values of deep ecologists or those willing to accord rights to other sentient beings or ecosystems independent of human wishes, or those who want to make use of value judgments other than those based on the measuring rod of money. Consequently economics evaluation is sometimes ineffective in resolving social conflict, including conflict about what should be sustained. As a rule economics alone should not be the final arbiter of social decisions. It is a part (often an important part) of the social evaluation process but not the bottom line, or just one of many lines.*

# Sustainability: The Economic Bottom Line

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## **1. Introduction**

To many, it will seem obvious that economics must be the bottom line in determining whether sustainability will be achieved in practice. There can be little doubt that in our increasingly market-driven and globalising world, the bulk of individuals and groups act to promote their own economic interest. Economic self-interest is an extremely strong motivator of human actions. When economic self-interest clashes with (social) sustainability goals, these latter goals are unlikely to be met, and some government intervention may be desirable to bring private self-interest into line with the socially perceived interest. Intervention could, for example, take the form of taxes or charges on pollution emissions, or prohibitions on environmental damage backed up by penalties for non-compliance such as might apply to illegal tree-clearing.

But obvious formulation of problems are often deceptive. For example, the economic bottom line for business or individual may be different to that for a society. Questions may also be raised about the extent to which individuals act in their own selfish economic interest, narrowly conceived, and the extent to which they are influenced by moral dimensions (Etzioni, 1988, 1991; Tisdell, 1997). The basis of human action is quite complex.

However, before giving some further attention to this matter, the meaning, desirability and possibility of achieving sustainability is considered and an opinion is given as to whether the goal of sustainability is a useful guide to human action and public policy. Then attention turns to the sense (s) in which economics is the bottom line for sustainability, and how the economic bottom line(s) is (are) related to social and environmental bottom lines. Finally relationships between values and sustainability are explored before providing a concluding assessment.

## **2. Sustainability: An Enigma or a Clearcut Guide to Policy?**

Many individuals think it is desirable that policies be devised to achieve sustainability. But this objective is meaningless unless one specifies what should be sustained. Is it development which should be sustained, is it biodiversity or something else? In order to have any policy relevance, one must specify what is to be sustained, what is the object of the sustainability.

Even then, one is not necessarily out of the woods because the object may not be stated in a precise or operational manner. For example, views differ about what constitutes development so different views can exist about what aspects of development should be sustained. Clearer definitions are possible but these definitions will not satisfy everybody. For example, some economists (e.g. Tietenberg, 1988, p.33) define sustainable development as development that ensures the income of future generations is not less than that of current generations. But this will not satisfy individuals who believe that development involves broader considerations. For example, if this aim of achieving non-declining incomes is met at

the expense of personal freedom, reduced social cohesion or increasing personal stress and tension, many would not regard it as development at all. So one has to define terms carefully to avoid vagueness and misunderstanding.

It has become fashionable to consider 'sustainability' as being desirable, in some general way. But sustainability of many things is undesirable. Few would want to sustain injustice, poverty and involuntary unemployment. Sustainability in itself is not a virtue, although there are several things that do seem worth sustaining such as our relatively liberal society.

Having clearly defined the object to be sustained and having obtained agreement about this end, the next matter is to consider whether the purpose can be achieved and how can it be achieved. It is possible that what one wants to maintain cannot be sustained because of the operation of natural or social principles. For example, given the entropy principle, it may be impossible to sustain global economic growth in material production forever, even though by careful choices we may sustain it for longer than otherwise.

A further problem is that if sustainability of several attributes is desired, it may be impossible to achieve this simultaneously. Sustainability of one attribute may have to be forgone to achieve sustainability of another. For example, some loss in biodiversity may be needed to sustain incomes. Trade-off between sustainability objectives is often necessary.

A question which has exercised the mind of some economists is how do we achieve sustainable development in the relatively narrow economic sense of ensuring that the

income of future generations is not less than that of present generations. Orthodox economists and neo-Malthusians give different answers to this question of how, but all agree that it depends on current generations leaving a suitable bequest for future generations. The difference of opinion is about what constitutes a suitable bequest.

Orthodox economists have generally seen the provision of man-made capital as the most suitable bequest for future generations. This capital is defined as the produced means of future production and consists of such items as factory machinery, tractors, dams, buildings, infrastructure and even education, although the material forms of capital until the 1950s tended to be stressed to the relative neglect of human capital. Karl Marx fervently believed that capital accumulation was the key to improving economic welfare. He was strongly in favour of the accumulation of capital, a message not lost on Stalin and Mao Zedong, but Marx objected to the capitalist market system on moral grounds.

In stark contrast to orthodox economists, neo-Malthusians believe that continued capital accumulation while it might initially increase material welfare, is an unsustainable strategy because in the long term is likely to impoverish humans. There are several ways this can occur. One is from the pollution generated by the transformation of natural and environmental resources into material commodities, including capital. The second is by the depletion of non-renewable resources used in the transformation process so production suffers from shortages of natural resource inputs in the future. Third, natural and environmental resources may be damaged or diminished by the economic transformation process to such an extent that they can no longer complement economic production, or do so in a much reduced way.



Therefore economic production or productivity falls. Neo-Malthusians argue that the sustainability of future economic production and welfare depends increasingly on stocks of natural resources and environmental factors being sustained. Consequently, according to neo-Malthusians, it is becoming more important for the welfare of future generations to conserve natural and environmental resources rather than further accumulate man-made capital. This is especially so because the accumulation of man-made capital transforms and depletes natural resources and this capital lasts for a relatively short period, often not for the whole life of one generation of humans but at most usually for a few generations. While the relatively unrestrained conversion or transformation of natural resources to man-made capital may have been justified in the past, it is becoming increasingly inappropriate due to the continuing depletion of natural and environmental stocks (cf. Tisdell, 1999a).

So it can be seen that 'orthodox' economists and neo-Malthusians believe that a different economic bottom line applies today from the point of view of achieving sustainable development. But because economic production, consumption and capital accumulation are the life-blood of the capitalist system, the orthodox position prevails rather than the neo-Malthusian. Furthermore, because the employment of labour in the capitalist system depends on the level of economic activity and capital accumulation, and the maintenance of employment usually requires continuing economic growth (to counteract technological or similar unemployment), labour interests also normally reject the neo-Malthusian viewpoint (cf. Tisdell, 1999b, Ch.6). The usually short-sighted nature of politics adds to this lack of support for the

neo-Malthusian position. Despite this, the neo-Malthusian position, if not extremely interpreted, may well be correct.

### **3. What is Economics and is it the Bottom Line for Sustainability or Just One Consideration?**

Views about what economics is vary somewhat. But basically economics arises from the fact that human desires exceed the means or resources available to satisfy these and consequently relative scarcity exists. This relative scarcity calls for economising. Dealing with the problem of scarcity involves both private decision-making and social issues. The effectiveness with which societies meet the challenge of scarcity depends on the effectiveness with which individuals make their economic decisions, and the adequacy of the social mechanisms which govern the use of the limited resources available to society. The market mechanism is just one of these social mechanisms.

Economics is a social science. It is more concerned with the social implications of individual decisions and those of businesses than with improving those decisions themselves. Detailed studies of decision-making and administration of businesses tend today to be more the concern of the fields of management and commerce than economics.

Nevertheless, given an economic perspective, economists would argue that any sustainability policies are unlikely to be adopted unless they are in the self interest of individual consumers and businesses, assuming that implementation of such policies requires supportive action by these economic agents. Economics and finance

frequently are the bottom line as far as individual economic agents are concerned. Unless the individual self-interest of economic agents are harnessed to implement sustainability objectives, these objectives are unlikely to be achieved.

Much depends on whether one believes that individuals are guided by narrow self-interest or wider dimensions. Most economics since Adam Smith (1776) has been developed on the assumption that businesses basically aim to maximise their own profit and consumers their utility or satisfaction. Thus from this point of view, if a sustainability objective is unprofitable for business, it will not be pursued. Although individual businessmen may agree that the objective is morally desirable, they may be unable to pursue it because doing so may threaten the survival of their business. In a highly competitive world, economic agents may have limited scope for pursuing virtuous ends. However, some economists have argued that in a competitive economic system, pursuit of self-interest will promote the collective good. This incidentally is not a view that I share – social intervention is required to ameliorate some of the worst features and failures of the market system.

Traditionally economists have argued that there are four ways to deal with economic scarcity:

- 1) increase economic efficiency of resource use;
- 2) ensure full employment (that is the absence of involuntary unemployment);
- 3) promote economic growth and

4) to the extent that the distribution of income and opportunity is considered inequitable, alter this to change the burden of scarcity as between individuals, and promote social justice.

Today's economic rationalists are particularly keen on objectives (1) and (3) but more muted in relation to considerations (2) and (4). But the blind pursuit of objectives (1) and (3) only can add to social injustice. These objectives should be pursued as a whole package rather than individually if social justice is to be promoted.

Note that traditional objective (3) now worries neo-Malthusians. They argue that unless we are careful the economic growth promoted by present generations, is not sustainable. It may become unsustainable if it undermines the natural resource and environmental base on which the maintenance of economic activity depends. Thus today's economic growth could impoverish further generations. It may be incompatible with sustainable development.

Economic systems are embedded in social and natural systems and depend on these. Thus the sustainability of economic development (to the extent that it can be achieved) depends on a suitable degree of sustainability in social and biophysical systems. Government may be regarded as part of the social system and, as Adam Smith observed, law, order and good government are essential for economic progress. They are equally important for the achievement of sustainable economic development. So from this point of view, there are several bottom lines to be fulfilled to achieve sustainable development.

An additional consideration is that individuals might want to sustain attributes other than economic welfare. An enormous range of possibilities exist. Some may want to sustain particular cultures, others may wish to maintain biodiversity, or particular political systems and so on. But there may be no solutions which achieve all these aims simultaneously and intense social conflict may arise about their desirability. Not everyone is agreed that sustainability is good, or possible, and some of those who consider sustainability good cannot agree about what ought to be sustained. There is no escaping the centrality of values in social decision-making.

#### **4. Values and Sustainability**

One's approach to valuing sustainability depends on the values to which one subscribes. Economists are anthropocentric in their value systems. In terms of the meaning of 'anthropocentric' given in The Macquarie Dictionary, economists view and interpret "everything in terms of human experience and values". Economics assumes "man to be the final aim and end of the universe".

Furthermore, the English liberal tradition, which dominates modern economics, assumes that the wishes of all individuals (humankind only) should count and that the role of economics is to suggest ways in which these wishes can be most fully satisfied given the limited resources available to satisfy these wishes. It involves humanism insofar as human interests predominate and appears to be based on the ethical doctrine of humanitarianism, "the doctrine that man's obligations are concerned wholly with the welfare of the human race" (The Macquarie Dictionary, 1981, p.863).

It follows that modern economics only pays attention to the conservation of other species and to maintaining ecological systems and nature inasmuch as individual humans value this. There is no moral obligation independent of human wishes to conserve nature.

This does not mean that no account will be taken of nature by economists in conservation decisions. However, the only weight given to nature is bestowed on it by individual human wishes. Thus if enough individuals want whales to continue to exist and not be harvested, economists would take this into account as an economic value. But whales and other species have no rights independent of human wishes to exist.

Values influencing sustainability are to a large extent culturally determined and this is true in our society. It is also true for economic approaches, although proponents of valuation methods often fail to see how culturally influenced their techniques are.

For example, consider a common economic approach to determining whether a natural area or ecosystem should be protected or sustained. Economists might try to find out how much all individuals are willing to pay to conserve it. This is relatively democratic in that everyone counts. However, the playing field is usually not completely level because those who feel strongly in favour of its conservation may have little money and be able to pay little. Future generations are, furthermore, not directly represented. And not all individuals may be well-informed about the value of conserving an ecosystem. Money sums are the arbiter in this situation involving willingness to pay.

This anthropocentric approach, however, will be alien to individuals with ecocentric values (sometimes called ‘deep ecologists’) who believe that there is a case for avoiding the destruction of species and ecosystems independently of human wishes. Such a view is involved in the ‘land ethic’ of Aldo Leopold (1966) or the view that humankind has a stewardship role in relation to nature (Passmore, 1974). This view rejects democracy as the sole arbiter of values, that is popular opinions which run counter to these views. In fact, our society rejects popular opinion as an arbiter of social decision-making in a number of circumstances e.g. when it is likely to infringe on fundamental human rights. So popular opinion should not be regarded as sacrosanct. Social values are complex and economic valuation fails to capture their full variation and nuances.

In the above cases, deep ecologists will be angry and disillusioned if the ecosystem under consideration for preservation contains unique species but its destruction occurs sanctioned by economic evaluation which indicates that development is the ‘best’ option because the net economic return from development exceeds the total willingness of individuals to pay for conservation of the ecosystem.

In cases such as this, while economic evaluation may identify the best economic outcome, the economic solution may fail to settle social conflict effectively. When social conflict exists about a sustainability objective (that is about what ought to be retained) economics is limited in its ability to bring about conflict resolution. The economic input or bottom line will need to be subjugated in such cases to political input, or to arbitration and conciliation in which members of the legal profession are usually skilled.

## **5. Concluding Comments**

From some points of view, economics does provide the bottom line in determining whether policies for achieving sustainability will be adopted. In dealing with sustainability, it is however important to know what one wants to sustain and to decide just how worthwhile it is sustaining. An influential body of economists believes that sustainable development is worthwhile achieving but are divided about the best way of achieving this. Orthodox economists believe that only weak conditions need to be imposed on the conservation of natural and environmental resources whereas neo-Malthusians believe that strong conditions need to be imposed if sustainable development is to be achieved.

While economics is concerned with problems arising from resource scarcity and is a social science, it alone cannot provide solutions to sustainability issues. Economic systems are imbedded in social and biophysical systems. Lack of sustainability in social and biophysical systems can imperil the sustainability of economic systems. So from this point of view economics is just one of several bottom lines for sustainability.

Social values are to a large extent culturally determined. Orthodox economics is anthropocentric and encapsulates a particular set of 'liberal' values. It uses



democratic-style methods for the purposes of social evaluation of conservation possibilities and rejects other types of evaluation, such as those favoured by deep ecologists, to justify conservation of biodiversity or ecological sustainability. In such circumstances, economics can only play a limited role in social conflict resolution - a wider perspective is needed which to some extent might be provided by members of the legal profession, politicians and social philosophers. As pointed out by the wise British economists, Arthur Pigou in the early part of the 20<sup>th</sup> century, economics is only a part of the process of social assessment. It is not the final arbiter (Pigou, 1932). So from this point of view, it is a part of the social evaluation process but not the bottom line, or just one of many bottom lines.

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# **APPENDIX**

**COPY OF ILLUSTRATIVE OVERHEADS USED**

# **Sustainability: The Economic Bottom Line**

- 1. Introduction**
- 2. Sustainability: An Enigma or a Clearcut Guide to Policy?**
- 3. Sustainability: A New Paradigm?**
- 4. Sustainability: A New Paradigm?**
- 5. Sustainability: A New Paradigm?**
- 6. Sustainability: A New Paradigm?**
- 7. What is Economics and is it the Bottom Line for Sustainability or Just One Consideration?**
- 8. Values and Sustainability**
- 9. Concluding Comments**

Sustainable Development is development, according to a common economic definition, which ensures that the income of future generations is not lower than that of present generations.

## ECONOMIC CONDITIONS FOR ACHIEVING SUSTAINABLE DEVELOPMENT

| <b>Weak Conditions<br/>(Orthodox Economists)</b>   | <b>Strong Conditions<br/>(Neo-Malthusians)</b>  |
|--|---|
| <ul style="list-style-type: none"> <li>• Accumulation of man-made capital is to be encouraged because it provides a suitable productive bequest for future generations.</li> <li>• One can be optimistic about future prospects given the promise of technological progress</li> </ul> | <ul style="list-style-type: none"> <li>• Natural and environmental resources need to be conserved as a suitable bequest to future generations.</li> <li>• Conversion of these resources to man-made capital or their use for consumption may diminish the welfare of future generations.</li> <li>• Caution is needed.</li> </ul> |

## TRADITIONAL ECONOMIC METHODS FOR REDUCING ECONOMIC SCARCITY

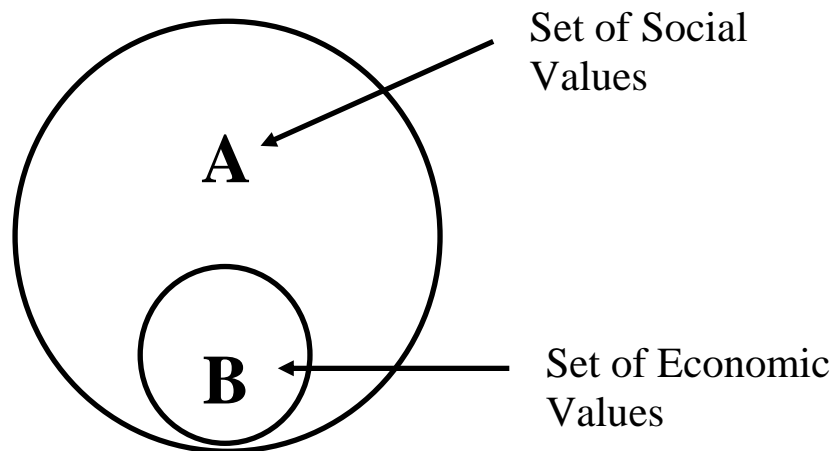
- ❖ increase economic efficiency of resource use;
- ❖ ensure full employment (that is the absence of involuntary unemployment);
- ❖ promote economic growth\* and
- ❖ to the extent that the distribution of income and opportunity is considered inequitable, alter this to change the burden of scarcity as between individuals, and promote social justice.

\* Neo-Malthusians argue that in the long-term this can increase scarcity rather than reduce it unless care is taken.

**Values must be considered**

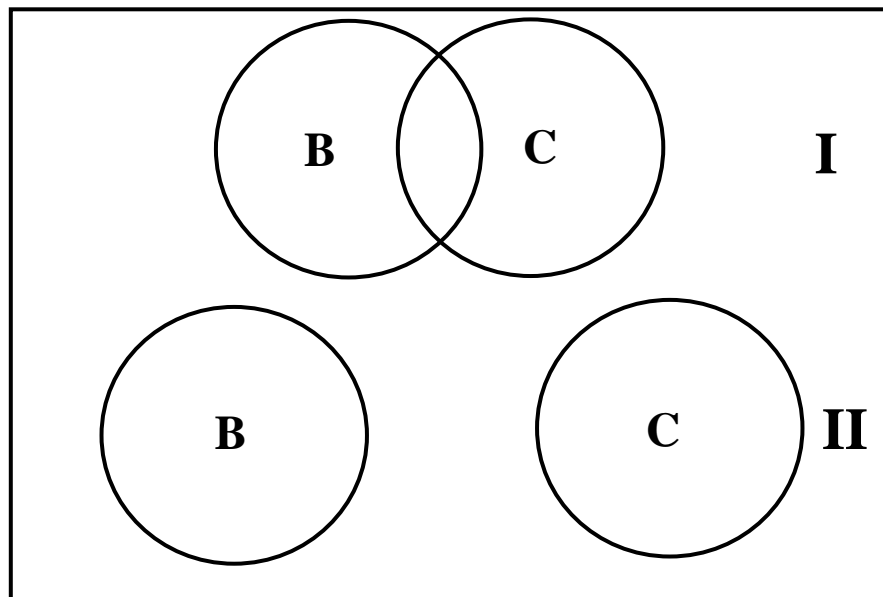
Not everyone is agreed that sustainability is good, or possible, and some of those who consider sustainability good cannot agree about what ought to be sustained. There is no escaping the centrality of values in social decision-making.

**Economic Values are Anthropocentric and a Subset of Social Values**



**Economic Values Are Likely to be in P  
with Values of Deep Ecologists**

**ct**



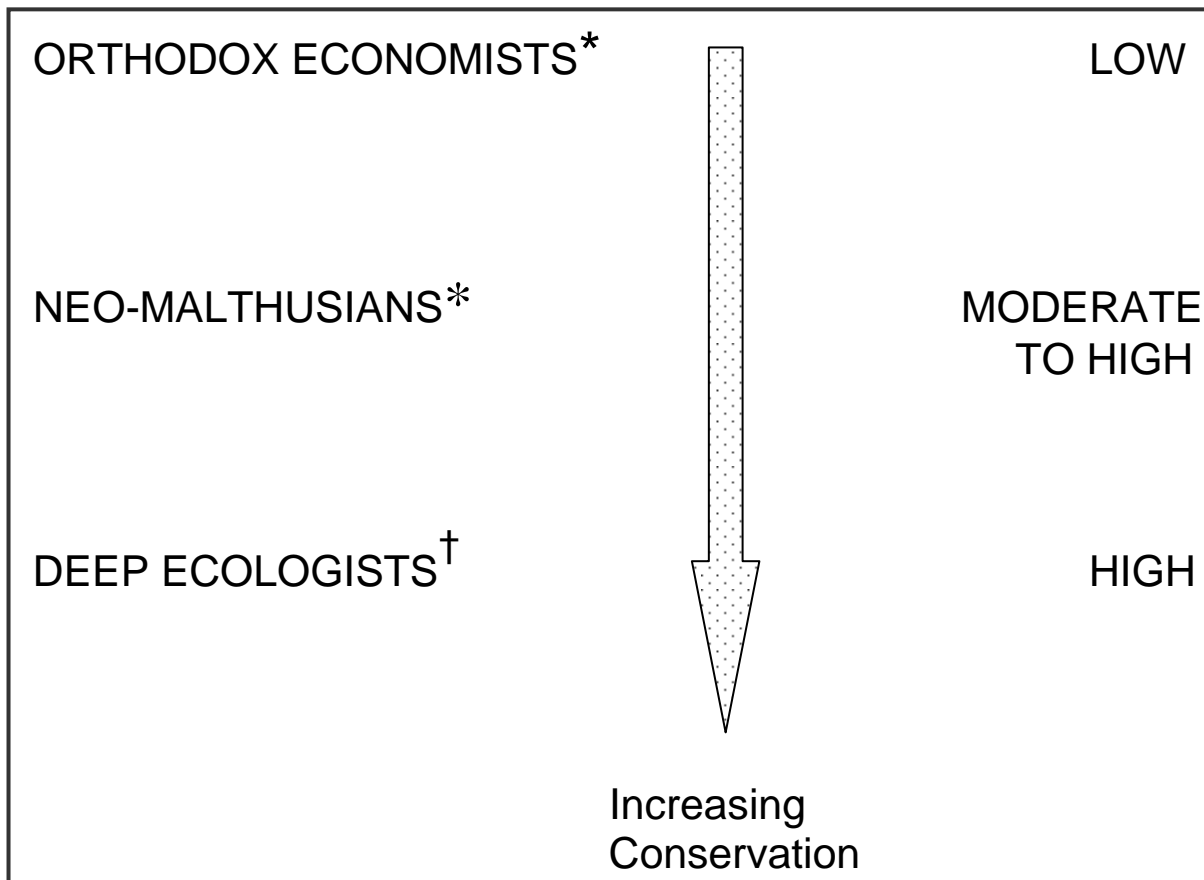
**B:** Values of economists  
**C:** Values of deep ecologists

**I** – B and C in partial but possibly irreconcilable conflict

**II** – B and C in complete conflict



SPECTRUM OF EMPHASIS ON NATURAL RESOURCE AND ENVIRONMENTAL CONSERVATION



\* Values are anthropocentric

† Values not purely anthropocentric, includes ecocentric values

Note: Strategies for Ecologically Sustainable Development (ESD) are likely to be towards the lower portion of the above spectrum.

## **A CONCLUSION ON BOTTOM LINES**

While economics is concerned with problems arising from resource scarcity and is a social science, it alone cannot provide solutions to sustainability issues. Economic systems are imbedded in social and biophysical systems. Lack of sustainability in social and biophysical systems can imperil the sustainability of economic systems. So from this point of view, economics is just one of several bottom lines for sustainability.

Social values are to a large extent culturally determined. Orthodox economics is anthropocentric and encapsulates a particular set of 'liberal' values. It uses democratic-style methods for the purposes of social evaluation of conservation possibilities and rejects other types of evaluation, such as those favoured by deep ecologists, to justify conservation of biodiversity or ecological sustainability. In such circumstances, economics can only play a limited role in social conflict resolution – a wider perspective is needed which, to some extent, might be provided by members of the legal profession, politicians and social philosophers. Economics is only a part of the process of social assessment. It is not the final arbiter (Pigou, 1932). So from this point of view, it is part of the social evaluation process but not the bottom line, or it is just one of many bottom lines.

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