

The use and potential misuse of the concept of ecosystem services – a critical comment

Professor Jacob Weiner argues that even if there is a risk in assessing ecosystem services using one single currency, be it money, energy, nitrogen or anything else, the concept of ecosystem services is useful because it is quantitative, thus facilitating communication with policy-makers and the public.

Ecosystem services are economic benefits to humans derived from the functioning of local and global ecosystems. Defined this way the concept is useful because it facilitates communication with policymakers and the public using the language of economics. It provides a currency. However, we need to be aware that in ecology currency is a unit of value: it could be energy, nitrogen or something else; while in economics it is used in its more narrow, literal sense: money.

Another reason why ecosystem services is a useful concept is that it is quantitative. We can use it for calculations, for example if we want to reimburse farmers for producing things other than food. Trade-offs, which are a central issue in ecology, can be measured, quantifying benefits and costs and calculating optimal solutions.

Limitations and dangers

However, there are also limitations and, if the concept is taken too far, even dangers in this approach. There is no single measure or scale that can adequately summarise the multiplicity of human values. Ecosystem services is an attempt to do this, taken to its extreme by Björn Lomborg, for example, who in his book *“The true state of the world”* uses a language similar to that of ecosystem services to convert the value of everything into dollars or euros. Needless to say, this is problematic because some things simply cannot be measured this way.

One can draw a parallel to the philosophical discussion of what is ‘good’. There was a Platonic idea that ‘goodness’ was some kind of currency or ultimate measure that all human actions had more or less of, so that they could be calculated or balanced out. The modern view

is that there is no such essence of ‘goodness’ and that different kinds of ‘goods’ can be in conflict. In fact we see these kinds of conflicts all the time in our everyday lives.

Let us look at some examples that may be relevant to ecosystem services. The first concerns the Berte Mill, run by the Stenström family, and the use of methyl bromide. Methyl bromide is a toxic chemical used to kill insects in mills and other places where food is handled and processed. But methyl bromide is also destroying the atmospheric ozone layer and it is much more potent in this respect than the CFC gases. When the Stenström family learned about this they decided to stop using methyl bromide and developed a heat treatment method that could control the insects in a far more environmentally friendly way. The point here is that this decision was not based on calculations of costs of benefits and environmental damages. It was an ethical decision. The use of methyl bromide was simply considered to be unacceptable.

Consider the idea of using slaves in promoting ecosystem services. No doubt many ecosystem services could be promoted with the use of free labour. Of course, no one is willing to accept this. This is another example of ethical constraints, showing the limitations of what should or could be calculated.

What is a wife worth?

To bring the discussion even further into the extreme, consider the question of how much a wife is worth. This has in fact been calculated by feminists trying to illuminate how much work women were doing, by calculating what it would cost to pay employed labour to cook, look after the children, clean the house and so on. This can

be calculated, but still obviously something will be missing in the picture. What about love, family values and so on? It is neither possible nor desirable to put a monetary value on these things.

The use of emergy has been suggested as a currency or single measurement for ecosystem services. The concept should be developed further because emergy may reflect some things better than money does. On the other hand, using emergy as currency, we will lose the ability to communicate with politicians, because they will not understand it. And again, we will not be able to calculate everything in terms of emergy. In her presentation, Professor Falkenmark used water as the currency of ecosystem services and she was able to take this a long way. But still it was not able to cover everything we need to deal with.

Multifunctionality is something else

Multifunctionality is a word that has been used here in connection with ecosystem services. A multifunctional agriculture provides a number of ecosystem services, not just food. Still the concept of multifunctionality is profoundly different from ecosystem services in the respect that it implies different goals. If you are selling chocolate and start selling beer as well, this is not really multifunctionality because you are still selling. Multifunctionality includes the values of nature and therefore it is implicit that there is no single way to measure it. Obviously, the value of a beautiful landscape cannot be measured by calculating the cost of sending people to Tivoli to enjoy themselves, for example, if the countryside is ruined.

An anthropocentric concept

Another important thing to keep in mind is that the concept of ecosystem services is anthropocentric. It is still a radical point of view that nature has value independent of humans, that humans themselves are not the ultimate measure of everything. But values change and a change away from anthropocentric thinking in some form or another may well be underway.

What then is the alternative to the idea of a single currency that has been criticised here? The only alternative is to discuss these issues and to try to work out what is most important. What type of agriculture do we want? What do we want agriculture to do? What environmental costs and risks are we willing to bear? Even though we cannot reduce these questions to calculations we have to make judgement of what the trade-offs are between different types of goods.

We also have to find out what is acceptable and what is not, or in other words: what are the ethical constraints?

The problems are in the process

I am convinced that if we were able make a list of the most important things we want from agriculture, and the ethical constraints that must be respected, it would be possible to design an agricultural system to meet these requirements. The conflicts are not so great. The biggest problems are in the process, in the way policy-making works in practice, including the strong influence of interest groups and other distortions of the democratic process. But the potential is certainly there, because values change.