

ECOLOGICAL CHANGE - WHAT'S IT WORTH?

BY MURRAY RUDD

To some people the very thought of putting a price on nature – seas, forests, wild rivers, wetlands, the air we breathe – may seem, at best, frivolous and, at worst, dangerous and offensive. Surely nature is ‘priceless’, providing society with a wide range of benefits that should not need to be quantified. For better or worse, however, we do live in a world where economics plays an important role in policy and resource allocation decisions. When public goods that provide important benefits to society as a whole are ‘free’ to anybody that wants to use them, they will be over-exploited. Using prices to attach a financial value to nature can help to bolster the ‘business case’ for nature conservation, making conservation activities such as research, monitoring, and enforcement more ‘competitive’ with other uses of scarce public funds. Pricing nature may also help us see nature through new eyes, identifying innovative ways to generate wealth from society’s ‘passive use’ of Newfoundland and Labrador’s rich natural (and cultural) resources.

The environment is an asset, a stock of ‘natural capital’, in the same way that money in a bank account is a stock of financial capital. The flow of resources from the stock of natural capital is analogous to the flow of interest from a bank account. If a person draws down his bank account, then there will be a reduced flow of interest available in the future and his purchasing power will be eroded. Similarly, over-harvesting renewable natural resources or damaging the environment erodes the stock of natural capital and impairs the productive capacity of the system, reducing sustainable yields (and resilience) in the future.

Economists have traditionally tended to examine only a subset of the capital assets that define the true wealth of society, focusing on manufactured (human-made equipment, technology and infrastructure), human and financial capital while largely ignoring natural,

social and cultural capital. Recently, environmental and ecological economists have come to recognize that natural capital assets generate four types of goods and services that are critical to human well-being: (1) life support services; (2) source services (i.e., natural resources such as fish, timber and minerals that humans extract from the environment); (3) sink services (i.e., waste assimilation); and (4) human amenities. The fourth category, human amenities, can refer to both activities that require people to come in direct contact with nature (‘non-extractive direct use’ activities such as nature-based tourism or viewing scenic vistas) and broader ‘non-use’ or ‘passive use’ values (e.g., simply knowing that an area of wilderness is protected for current and future generations). The key point is that a person who holds passive use values for nature will be willing to pay real money to protect natural capital, irrespective of whether she will ever personally visit or ‘use’ it.

Why would people be willing to pay for something they will never use? One reason is that they may be altruistic, deriving well-being just from knowing that nature will be available for others to use now or in the future. There is also a more subtle reason for this willingness to pay: contributing to conservation efforts may help a person define who they are and increase their self esteem. For instance, a person may be willing to pay to help fund programs that protect polar bears in Labrador even though he may never want to visit the area or have a personal encounter with a polar bear. Paying for conservation may help that person say to himself (and others) that “I am the type of person who cares about polar bear conservation and am willing to pay my share for the common good”.

The challenge for economists trying to put a price on passive use values is to develop proxies for market prices for ecosystem goods and services that, by definition, will never be seen or directly used by the public. While this may seem

odd to non-economists, it is important to consider that market prices are simply a reflection, using a common metric of money, of people's willingness to make trade-offs between different goods and services. Any compromise a person is willing to make is a function of personal beliefs, values, ethics, and the worldview that person holds (and is immersed within).

Environmental valuation research involves creating hypothetical markets for natural capital. Without going into the underlying theory, consider the general rationale for environmental valuation. The objective is to understand the trade-offs that people are willing to make between natural and financial capital. For instance, people who are cash-rich but live in a crowded, degraded urban environment may be willing to give up substantial amounts of financial capital for relatively small improvements in environmental quality or for vacations that provide a respite from the city environment. People who are cash-poor but living in a pristine environment, on the other hand, may be willing to accept substantial environmental degradation if it improves their financial situation only marginally.

Now, what if an organization proposed an initiative that would improve environmental quality? For instance, suppose a program was proposed that would double the population of the endangered North Atlantic right whale. Such a program would increase the well-being of a person if she held passive use values for right whales. In theory, it should be possible to charge some sort of a fee for the conservation program and set the fee such that a person would be indifferent between the lower number of right whales and her original, higher income, and the higher number of right whales and her new, lower level of income (i.e., her previous income less the fee). Conversely, that person should be willing to pay (WTP) any amount up to, and including, that fee to get up to the new, higher population abundance that increases her well being. It is this measure – WTP – that environmental economists seek by using surveys

Why would people be willing to pay for something they will never use?

that query people about preferred 'consumption' choices for scenarios that conserve or enhance natural capital.

Any divergence of fundamental preferences and worldviews within society can, of course, cause conflict. The fur seal industry provides an example. In Newfoundland and Labrador, the prevailing worldview appears to be that seals are a resource that can, and should, be harvested. That is, the natural capital (the seal population) produces an annual flow of resources (a sustainable Total Allowable Catch or TAC) that is valuable for its extractive use (i.e., the seal population is a type of natural capital providing a 'source' service).

As North American and European markets for seal fur have contracted over time, new markets in China and Russia have been developed, bolstering demand, albeit with fairly volatile price fluctuations from year to year. Each year, animal welfare, other non-governmental organizations, and/or some European politicians call for the closure of the seal hunt, the boycotting of Canadian products, or other sanctions designed to increase pressure on Canada to end the harvest. The vocal protesters are likely only the 'tip of the iceberg', representing a tiny proportion of citizens in North America and Europe who are also opposed to the hunt.

Irrespective of arguments based on the apparent abundance of seals in waters off Newfoundland and Labrador or the humaneness of shooting, rather than clubbing, seals, it is unlikely that 'awareness building' campaigns will have any real impact on most people opposed to the hunt. These people appear to hold fundamental preferences for not harvesting seals (i.e., the seal population is a type of natural capital providing an amenity service). One cannot say that one person's preferences are right and another person's preferences are wrong; preferences are preferences, whatever their source. Those truly opposed to the hunt are better off, deriving a higher level of utility from simply knowing that seals are not being harvested.

It is important for residents of Newfoundland and Labrador to recognize the nature and source

of 'conservationist' values and to be aware that market and political pressures for an end to the hunt are only likely to get stronger over time. This raises an important question as to whether it may be possible, in the face of a seemingly inevitable trend to more and more pressure to curtail the seal harvest, to capture some of the passive use values that conservationists in Canada and other countries might hold for seals. That is, would it be possible to generate real financial wealth in the province by *not* harvesting seals? Or put another way, is a live seal worth more than a dead one? From a business perspective, it may actually make financial sense to "lease" live seals to a very large market of committed conservationists rather than sell seal pelts to a relatively small and fickle market that is prone to changing fashion trends and market price volatility.

Consider the following scenario. What if the seal hunt was changed from a competitive harvest to a harvest based on individual quotas (IQs), where each harvester was allocated a portion of the TAC? Further, assume that each quota was transferable, not just between harvesters but between harvesters and non-harvesters. Imagine what might happen if, for instance, a seal harvester was able to auction his IQ rights to harvest 500 seal pelts on eBay. It is quite conceivable that the harvester might be able to make more money (at less risk to themselves, their vessels, and their finances) by simply leasing their annual IQ allocation to a conservationist.

Implementing a real tradable quota system would, of course, be complicated but the basic rationale would remain the same. If conservationists really care about seals, they should be willing to pay real money to the harvesters, who have the legal and traditional right to harvest seals, to forego their hunting activities. Harvesters would not, of course, be obligated to accept any financial offer, as there always needs to be two willing parties to engage in market transactions.

At a broader level, beyond the seal harvest controversy, there is a larger question of what types of key strengths and competitive advantages Newfoundland and Labrador has in a global marketplace and whether passive use

values might play a role in sustainable economic development. The province has particularly rich endowments of natural capital and cultural capital, which suggests that it may have important competitive strengths relating to these two key assets.

Our stock of natural capital will obviously continue to supply the province with a variety of commodities and services – fish, timber, minerals, petroleum, hydroelectric power – that can be used to generate financial wealth. The rich endowment of natural and cultural capital also means that the tourism industry will likely grow significantly in importance over time. Given tourists' extraordinary willingness to pay for *high quality* experiences, protection of important natural attractions and cultural heritage should be a priority for Newfoundland and Labrador.

Passive use values are rarely considered as a potential contributor to economic development because policy makers are rarely aware of their potential and because it is difficult to create market mechanisms to capture these values. There may, however, be many people from outside of the province willing to pay to preserve and protect its natural and cultural capital even if they never plan on personally visiting the province. Former residents of the province, now settled in other parts of the world, may also hold bequest values, a special type of passive use value arising from the desire to conserve natural and cultural heritage for future generations.

Are there innovative market mechanisms that can help Newfoundland and Labrador capture some of the 'resource rents' available from passive use values and generate real financial wealth? Creative financing mechanisms have been developed in other areas (e.g., cap-and-trade carbon credits, conservation easements, inter-sector transferable fisheries quotas), suggesting that passive use values can be captured. Market innovations could open up possibilities for natural and cultural capital to become an important long-term "export" for the province, generating new wealth while protecting the very assets that residents value most. A serious exploration of the possibilities is warranted. 

Dr. Murray Rudd is the Canada Research Chair in Ecological Economics at Sir Wilfred Grenfell College.