**Natural Capitalism and the New York City water supply.**

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One-hundred and twenty five miles from New York City lies the Catskill/Delaware watershed (Mass, 2013). West of the Hudson River, this area is home to nineteen reservoirs and three controlled lakes; while supplying 90% of New York’s drinking water (Watershed, 2013). The watershed can produce 1.8 billion gallons of water a day. Enough water to provide for one of the worlds most populated cities over the past century. Most impressive of all, this water never passes through a filtration plant. As the precipitation slowly makes it way down to the reservoir, soil and fine roots filter the water, and hidden microorganisms break down contaminants. Plants in streams and creeks can absorb half the surplus nutrients such as nitrogen from automobile emissions and farmers fertilizers. In open wetlands, cattails and other plants take up nutrients while trapping sediment and heavy metals. Dead Algae, floating branches and leaves sink to the bottom of reservoirs and the natural purification process is complete. The water is supplemented with chlorine and fluoride before reaching the tap of ten million New York City residents. This natural, pure water source, is the life giver to one of the largest cities in the world, and yet in the mid 1980’s new developments started threatening the watershed. Privately owned roads, subdivisions and second homes began appearing in the area, and broken sewage systems became a threat. Farming and forestry were also risking the environment with chemicals, fertilizers, pesticides and manure being washed down into the reservoir at alarming rates. In 1989 the problems could no longer be ignored. That year U.S. Congress passed a Safe Drinking Water Act that required a review of the country’s major drinking water sources. This forced the City to make changes to how it managed the watershed. The results of this decision would have global implications, and could be the first step to a new era in our capitalist economy (Ellison, 2002).

The City of New York had to either; construct an artificial filtration plant, or protect the watershed. Lobbying took place on both sides, but eventually the deciding factor was capital. The price of constructing an artificial water filtration plant had been estimated at $6-$8 billion dollars, plus maintenance costs another $500 million annually. Compared to the $1.5 billion it cost to protect the enormous watershed, by buying land as buffers, upgrading polluting sewage treatment plants, restricting new construction and other methods (Ellison, 2002). The decision was finally made and agreed upon in 1997, the State of New York, the City of New York, Environmental Protection Agency, watershed communities and environmental groups came together to sign the NYC Watershed Memorandum Agreement. This removed the barriers stopping the City from launching a watershed protection program. The agreement established land acquisition requirements, set tighter watershed rules and regulations, activated the watershed protection council and other committees, required upgraded wastewater treatment plants, and detailed other watershed protection provisions (EPA, 2013). This was dictated by the fact it was economically beneficial to protect the natural state of the ecosystems, and its’ filtration properties; rather than construct an artificial water filtration plant. Thus, for the first time, big government had given value to the labor of mother-nature, and the natural capital the watershed possessed. The implication of this decision is that it presents the idea; if natural capital was given a value in all economic scenarios, the quest for profit that has destroyed so much of our planet, could actually be used save it.

In modern capitalism it could be said there are four basic types of capital the economy needs to function properly: manufactured capital, human capital, financial capital and natural capital. What some call “industrial capitalism” is what we are seeing today. The first three forms of capital are used to convert the natural capital into the things we use every day; cars, planes, hospitals, schools, roads etc. This in fact is not profit at all, it is just liquidating capital and calling it income. This system does not assign any value to the largest source of capital it has, the natural resources and living systems of Earth. Humankind has inherited a 3.8 billion year store of natural capital, however at present rates it will be near gone by the end of the century (Hawken, 1999). Industrial capitalism does not recognize the critical interdependency between the production and use of human-made capital and the maintenance and supply of natural capital. However, as demonstrated by the city of New York, when the services mother nature provides are assigned value for their life giving effects, natural and financial capital can be preserved.

Purifying water is just one of infinite services provided to us by the natural world. We need these services to survive, yet we do not assign them any value, leaving them to be exploited into scarcity. Something needs to change, and the idea of Natural Capitalism is one way forward. This form of capitalism is based on very different ideals, and focuses on protecting natural capital by giving its services such as purifying air, producing oxygen, producing food and life, a monetary value. Of course, the best long-term environment for commerce is provided by true democratic systems of governance that are based on the needs of people rather than business, but this is just one of many ideals of natural capitalism, as stated by Lovins in her 1999 book “Natural Capitalism: The Next Industrial Revolution” there are more:

* The environment is not a minor factor of production but rather is “an envelope containing, provisioning, and sustaining the entire economy.”
* The limiting factor to future economic development is the availability and functionality of natural capital, in particular, life-supporting services that have no substitutes and currently have no market value.
* Misconceived or badly designed business systems, population growth, and wasteful patterns of consumption are the primary causes of the loss of natural capital, and all three must be addressed to achieve a sustainable economy.
* Future economic progress can best take place in democratic, market-based systems of production and distribution in which all forms of capital are fully valued, including human, manufactured, ﬁnancial, and natural capital.
* One of the keys to the most beneﬁcial employment of people, money, and the environment is radical increases in resource productivity.
* Human welfare is best served by improving the quality and ﬂow of desired services delivered, rather than by merely increasing the total dollar ﬂow.
* Economic and environmental sustainability depends on redressing global inequities of income and material well-being.

The ideals are promising, and it has the advantage of being something that can be transitioned to economically, where as many economic alternatives would require a restructuring of the core of the banking system. Still many challenges exist. Corporations are not likely to want their profit margins to decline, and natural capital is not an easy thing to establish a value for. Often, there is no substitute for the services provided by nature, at any price. To value natural capital is imprecise at best, recent estimates have estimated biological services from natural capital are worth at least $36 trillion annually (Hawken, 1999). Close to the total GDP of the entire world. Natural Capital will become more and more valuable as the environment is damaged. There is no utopian solution, but this has potential to convert capitalism into a tool for environmentalism. Technology cannot replace the planet’s life support systems, and this makes natural capital the most precious form of capital we have. Some cases like the Catskill/Delaware watershed have got people all around the world looking at their cities, their life supporting natural capital and wondering if this is possible for them.

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