

A Sustainable Environment: Our Obligation to Protect God's Gift

by
George P. Nassos

Let's Benefit From Nature Rather Than Destroying It

Have you ever wondered what the earth was like before humans inhabited it and started to change it? The earth consisted of trees, flowers, fruits, vegetables, birds, animals, soil, water and fish. The trees produce thousands of blossoms in order to bear fruits. The blossoms will eventually fall to the ground and enrich the soil. The birds can eat the fruit and the seeds fall to the ground to produce more trees. Animals eat the plants and other smaller animals, and when they die they become food for another animal or deteriorate and fertilize the soil. Basically, God designed nature to sustain itself without producing any waste. It is a great precedent of the circular economy that we are trying to emulate.

There are two great books about this phenomena. One is "Cradle to Cradle" by Bill McDonough and Michael Braungart where they describe how everything that is taken from the earth should be returned to the earth, thus the title of the book. Another classic is "Biomimicry" by Janine Benyus where she presents biological concepts that are available to us for adoption. Basically the book is about learning from nature and how to adopt these sciences for a better environment.

What are some ways we can benefit from nature? We are already taking advantage of the sun to generate solar energy but it has really taken off only in the last two decades even though it has been available for over 60 years. The photovoltaic cell was discovered accidentally by Bell Labs around 1954, but I recall seeing solar water heating on a home in Greece 10 years later. The great impetus, however, has been primarily due to the huge decrease in the cost of solar panels such as the period from 1980 to 2012 when the cost of panels decreased 97%. Due to the current problem with supply chains, the cost may increase somewhat. In any event, we should continue taking advantage of this free fuel that will help save the environment.

Geothermal is another excellent source of energy for heating and cooling. In any geographical area of the earth, the temperature of the subsurface, say 8 to 10 feet down, is relatively constant all year long. If you are in an area where this temperature is 55°F., pipes can be inserted in the ground to this level through which air can be passed and cooled to this temperature in the summer. This cooler air can then be used in place of an air-conditioner to cool your home. In the winter, the same system can be used to provide 55°F. air for the heating furnace. The cold outside air would be preheated before passing through the furnace. This would make the heating system much more efficient rather than heating outside air at a much lower temperature.

A major cost of this system depends on the land area available for inserting the pipes below the ground. If the property is sufficiently large, the pipes can be installed horizontally at the 10 foot depth. If the property is too small, then the pipes would have to be installed

vertically at a depth much below the 10 feet so the processed air can be sufficiently cooled or heated.

Another natural science that has not been used very much for producing energy is the common tidal wave. This is a shallow water wave caused by the gravitational interactions between the sun, moon and earth. In areas where there is a significant tidal range, which is the difference between high tide and low tide, there are opportunities to generate electricity. This form of renewable energy is still very new with no tidal power plants operating in the U.S. The first one was located in La Rance, France while the largest in the world is in South Korea. Some of the negatives for this technology to move forward include legal issues about the land ownership, improving the generator technology, and improving the economics. In any event, this is another example of using nature rather than degrading it.

Geothermal and tidal wave energy are two nature-sourced examples that would probably be used by developed countries. What can developing countries do to make use of nature? They can adopt some of the systems being used by Gaviotas, a small village in Colombia that was created about 50 years ago. To control the amount of water used for agricultural plants, they made use of a clay-like soil. The watering tube was inserted through a porous shell containing the clay. If there was sufficient water, it would expand the clay which would pinch close the watering tube. The village also built a watering tank for the cattle that was surrounded by a sloping cement floor. As cattle were brought to drink, their cow pies slid down the floor to a gutter. This cattle manure was subsequently converted to compost, and the released methane was captured to fuel stove burners at their hospital.

The engineers in Gaviotas also developed a children's seesaw that would drive a water pump. Another idea was for drying hospital linens after they were washed. To dry them rapidly because of a small supply, they built a convex parabola out of clear plastic. This would concentrate the sun's rays inside a small building which became similar to a greenhouse with a temperature of 130°F., basically creating a solar dryer. This small village can be an inspiration to many other villages in the developing countries.

With a combination of a population explosion of human mankind along with greed, we have found many ways to destroy the planet earth that was provided to us. We now must continue to develop ways that we can protect the earth while providing the needs of all living beings. Expanding our understanding and research of biomimicry may be a great way to help improve our environment.