



CASSE

Center for the Advancement of the
Steady State Economy

5101 South 11th Street • Arlington, VA 22204 • USA • www.steadystate.org info@steadystate.org • +1 541-602-3097

Stories, Allegories and Analogies for the Steady State Economy

***The Lorax* by Dr. Seuss (limits to growth and excessive use of natural resources)**

The Lorax is a children's book published by Dr. Seuss (Theodor Geisel) in 1971. With beautifully rendered drawings and rhyming verses, it explores the limits (both source and sink) to economic growth. The story also addresses unsustainable use of natural resources and the importance of ecosystem stewardship.

The Adolescent (development instead of growth)

The modern industrial economy is a couple of centuries old. Like a child that has been growing for the first phase of life, it has reached its adolescence. Adolescence is a time of great change and challenge, often fraught with confusion and crisis. But like all adolescents, the economy must stop growing in physical size, and refocus its life on growth in mental, moral, and spiritual capacity.

The Mature Forest (the economy should follow the example of an ecosystem)

A steady state economy is like a mature forest ecosystem. It does not grow in size, but it is a living, evolving system with a startling array of interconnected parts. Growth in one part of the forest is offset by decay and nutrient recycling in another part. Vibrant and remarkably diverse assemblages of species cooperate and compete within the forest, and there are opportunities for new species and ecosystem functions to develop over time.

The Budget (how much should a household or the societies of the planet consume?)

A household budget is fairly easy to understand. The members of a household have a stock of wealth and income. Picture a typical American family - a mom, a dad, and two children. Both mom and dad have jobs and earn wages that put them in the middle class. The family's stock of wealth comes from savings, inheritance, and investments (investments include the family home and some stocks and mutual funds purchased for retirement). Based on their wealth and income, the family

can afford to buy a set of goods and services. This set includes food, transportation, entertainment, clothing, medical services, and quite a few other items. The family uses its budget to help decide how much and what kinds of things to buy. For example, rather than being chauffeured in a limousine, mom drives to work in a 7-year old compact car, and dad takes the bus. For a fun dining experience, the family eats at a reasonably priced diner once every couple of weeks, instead of eating out nightly at the fanciest restaurants in town.

The budget constrains the set of choices available to the family - the amount of stuff the family can purchase in a year is dependent on the amount of their paychecks over the course of that year. In the modern economy, however, they can exceed their budget in a couple of ways. One way is to liquidate some of their wealth. They can sell their investments (e.g., trade stocks for cash or sell their home and rent a cheaper place). They can also take on debt in the short term (e.g., take out a home equity loan or buy stuff using credit cards).

The planet, just like the household, also has a budget. The budget is not counted in money terms, but in terms of energy and materials. Also like a household, the planet has a stock of wealth and income. The wealth exists in the form of non-renewable resources like water, fossil fuels, minerals, and soil (soil is renewable over the long term, but looking at the span of a generation, we can consider it to be non-renewable). Some portion of renewable resources could also be considered wealth. The income consists of the relatively constant flow of energy from the sun and the renewable resources that can be consumed without destroying the resource (for example, a certain amount of trees can be harvested for wood without killing the forest).

This planetary budget constrains the amount of resources and energy we can consume. Just like the household example, we can exceed this budget by liquidating planetary wealth or taking on debt. Liquidation of planetary wealth means using renewable resources faster than they can be regenerated or using non-renewable resources faster than we can find renewable substitutes. Taking on debt means using the planet's future capacity for today's consumption. When a household goes too far in liquidating wealth and taking on debt, rather than living off of income, it eventually collapses - bills go unpaid, the home is repossessed, and the story ends in bankruptcy. When societies go too far in liquidating planetary wealth and taking on debt, rather than living off of planetary income, they eventually collapse as well.

The clear choice for a healthy and sustainable life (for both the household and the planet) is to keep track of income and use it for making decisions about consumption.

Joe the Lifeguard (treat the symptoms or the cause?)

Joe the lifeguard works on a beach where he looks after swimmers. One morning before work, he notices some unusual moles on his chest, so he visits the doctor. He receives a terrifying diagnosis - skin cancer. The doctor tells him that his cancer is treatable, but Joe will need surgery and chemotherapy. The doctor advises him to avoid sun exposure, especially during the brightest times of the day.

Joe wants to take the doctor's advice, but he decides to keep on working as a lifeguard. He knows that exposing himself to the sun each day for work is the cause of his problem (especially with the thinned ozone layer), and continuing to do so will make it worse. But it also provides enough pay and health insurance benefits for him to cover the costs of his cancer treatment. Plus, he has always worked as a lifeguard - the job has provided him several benefits, and it seems natural for him to keep doing it.

Joe would have been better off if he had addressed the cause of the problem. Now he's in a bind. Even after he undergoes the treatment and obtains a clean bill of health, he's still at great risk to relapse. Sure, there are some technological solutions - he can apply sunscreen, wear a hat, or carry around an umbrella, but these are only partial solutions. They can help protect him from the sun, but not fully, and they aren't always appropriate. It would be rather clunky to carry a broad umbrella while patrolling the beach.

The Tortoise and the Bull (tortoise = steady state economy; bull = growth economy)

There once was a rampant bull who bragged about how big he was and how fast he could run. Tired of hearing him boast and seeing all the waste that he generated, Tortoise challenged him to a race. All the animals from the forest, the city, and the farm gathered to watch.

Bull sped out of his pen, trampled some small trees and shrubs, and charged down the road. The forest animals booed him for his recklessness. But cheered on by the city and farm animals, his confidence grew even bigger. He stopped, for just a second, and turned back to look at Tortoise. Bull bellowed in his most mocking voice, "How do you expect to win this race walking at your slow and steady pace?" Bull thought for just another second about relaxing and taking a nap alongside the road, but then reconsidered. He charged ahead deciding that a speedy finish was the best way to show off his prowess.

Tortoise, feeling relaxed and happy with the world, kept on walking toward the finish line at her steady pace. She thought to herself, "Now this is a sustainable pace - I could keep this up all day and all night." The animals from the city and farm began to appreciate her sensible, easy-going approach, and joined the forest animals to cheer her on. All she could see of Bull was a cloud of dust way up ahead in the distance.

Pretty soon, it started to rain just as Bull thought he could see the finish line on the horizon. He kept running and running and running. As the road softened from the rainfall, Bull's fast and heavy footfalls tore up the earth underfoot. His hooves began to slip, so he sped up his pace to keep from falling. It didn't work, and Bull toppled horns over tail, landing in a heap on the side of the road.

Tortoise slowed her pace a tad to navigate the rain-soaked road, but soon enough she passed by Bull's bloated carcass on the side of the road. With a sense of satisfaction tinged with sorrow for Bull, she strolled across the finish line. The denizens of the forest, the city, and the farm alike

applauded her victory, chanting "Slow and steady wins the race!" As the rains lifted, Tortoise and her fans continued to walk down the road toward a bright future.

The Boy Who Grew and Grew (consequences of unmanaged growth)

Robert Wadlow holds the record for the tallest human being in medical history. He reached a height of 8 feet 11 inches (2.72 meters) and weighed 490 pounds (220 kilograms). He suffered from hypertrophy of the pituitary gland, a condition which produces very high levels of human growth hormone. He was still growing at the time of his death.

By the age of 4, he had reached a height of 5 feet 4 inches (1.6 meters). By 10 years of age, he was six feet six inches (2.0 meters). At 7 feet 4 inches (2.2 meters), he gained acclaim as the world's tallest Boy Scout. He had grown to over 8 feet tall (2.4 meters) before his 17th birthday.

It is clear that Robert's phenomenal growth provided benefits. He became quite famous and was in high demand for public appearances. His growth, however, also had serious costs, and it proved to be unsustainable. He needed leg braces to walk, and he often lost feeling in his legs and feet. His circulatory system and other bodily systems had a tough time keeping pace with his growth. He died young at the age of 22 years. During a public appearance at the National Forest Festival, he developed an infected blister on his ankle, caused by irritation from his leg brace. He was treated with a blood transfusion and emergency surgery, but he never recovered.

Understanding that continuous rapid growth is detrimental to a person's long-term wellbeing, today's doctors manage pituitary conditions to prevent people from growing the way Robert Wadlow did. The point is to reach a steady state - a body that stops growing and maintains a healthy and sustainable size. Ironically, the technological solution to the problem of growth (leg braces) proved to be the downfall. Technology can alleviate the symptoms of growth, but it is not a panacea for achieving a sustainable system.

Apollo 13 (creativity with limited throughput)

The most memorable scene in the film Apollo 13 involves a group of engineers trying to figure out how to filter carbon dioxide out of a small space using a limited supply of materials and energy. As the astronauts on Apollo 13 are making their way back to Earth, the concentration of carbon dioxide in the spacecraft begins rising to toxic levels. The engineers face constraints on time, energy, and materials in finding a solution to the problem. In the scene, the supervising engineer and his colleagues dump a few boxes of materials on the table. They are tasked with revamping the CO₂ filter using only these materials and the energy supplied by the spacecraft's fuel cells.

The engineers understand the constraints - they are givens. But they use their training, experience, and (most importantly) creativity to find a solution. They help the astronauts stay healthy and productive without overshooting the material and energy constraints of the spacecraft.

The spacecraft is a useful analogy for the Earth. The supply of materials and energy available in Earth's ecosystems is undeniably large, yet still finite. Human economies can meet the needs of individuals and communities while still respecting the constraints (i.e., the capacity of the planet's ecosystems). Like the engineers working on Apollo 13, economists and policy makers can use creativity to manage societal affairs within given constraints to provide opportunities for healthy and happy lives.

Daly's Helicopter (the steady state economy as a different concept from growth)

Herman Daly frequently states that a steady state economy is not a failed growth economy. He compares the growth economy to an airplane, and the steady state economy to a helicopter, two different vehicles designed for different purposes.

An airplane is designed for forward motion. If it tries to hover it crashes. It is not fruitful to conceive of a helicopter as an airplane that fails to move forward. It is a different thing designed to hover. Likewise a steady state economy is not designed to grow.

Czech's Invisible Hand (wasteful use of resources in pursuit of profits)

Excerpt from *Shoveling Fuel for a Runaway Train* pp. 6-7 (University of California Press).
From Wyoming, I went to work for the National Marine Fisheries Service on the Bering Sea. I had never been at sea, and - wouldn't you know - the worst storm of the winter hit during my first three days out. I was on a fifty-seven-meter Japanese stern trawler, and for three days it went "BAM...BAM...BAM" in ten-second intervals as thirty-foot waves crashed against the hull and swept over the decks. Periodically there was a "BAM...BAM...BA-BoiyoiyoiyoyiyaaAAAang" as the ship got way out of rhythm and got quartersided by a giant concave wall of water. No one could eat or sleep because of the constant, violent movement and booming noise, and even the Japanese who had spent years at sea were vomiting liberally. Worse yet, no one else spoke English, leaving only my imagination to interpret the structural impact of those unsettling hull reverberations.

But then the seas settled, we ate like hell, and fishing commenced. I'll never forget that first catch, the largest of the whole two-month stint. I logged it in at ninety-nine metric tons. We're talking hundreds of thousands of fish, almost all of which were Pollock. I started to wonder how we could stay out very long, because surely the holds couldn't store many catches like this. Then I saw how it worked. Male fish were summarily tossed to the floor, sloshed by the ship's movements into the bilge pumps and back out to sea as a sort of ichthyological hamburger. Females were treated

the same, except that their egg sacs were taken prior to tossing. We had hit the peak of spawning, and while it lasted, supply and demand called for this type of wanton waste. This was my firsthand introduction to the "invisible hand" of the free market. I didn't think of it in those terms yet. I only termed it a hell of a lot of waste and damn sure wrong. But out of sight, out of mind, at least until days of retrospection.