

Exploring Sustainable Solutions for the Limits to Growth Archetype

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Abstract. Overshoot and collapse patterns are rampant throughout the Earth's ecosystems as the growth of human population and economic activities have gone beyond the planet's limits. Sustainability has become a critical issue for governments, corporations and citizens, and we need more leverage for this than ever before. Some companies are pursuing environmental efficiency, which only buys time. More integrated companies are deliberately slowing their growth and curbing environmental impacts in absolute terms. "Slow" is increasingly becoming a key concept for companies, grassroots organizations and local governments. Drawing examples from local initiatives and activities, we illustrate places to intervene in economic and social systems.

1. OVERSHOOT AND COLLAPSE

Human activities emit over 7 billion tons-C per year into the atmosphere, about twice as fast as the rate of removal by ecosystems. Global oil production may have peaked in 2006. Some 36 countries worldwide face serious food shortages. By the middle of this century, no fewer than 7 billion in 60 countries may be faced with water scarcity.

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Population and industrial economy are known to be strong reinforcing feedback loops. People give birth, and children born increase the population, which will lead to more births. Industrial capital manufactures goods. Some goods are consumed or designed to provide services such as agriculture, resource extraction, and human services, but others become industrial capital, which will manufacture more goods.

In the past century, we have seen exponential growth of both population and industrial capital. This growth has driven more growth: the consumption of materials and food, the use of energy, water, and chemicals, and emissions of polluted air, water, substances and waste. Their trajectories are all the same: upward.

Can the Earth sustain these activities, and if so, for how long? Many signs around the world are saying no, and we have already gone beyond the limits. A delayed consequence could be the collapse of civilizations.

Swiss scientist Mathis Wackernagel developed an indicator called the Ecological Footprint. It measures the impacts of human activities relative to the Earth's capacity to provide various services such as resources and sinks. According to his analysis, human activities require 1.3 times the capacity of the Earth. But we have only one available.

2. LIMITS TO GROWTH

Sustainability has become a critical issue for governments, corporations and citizens, and we need more leverage for this than ever before. We require a better understanding of the socioeconomic systems we operate in.

When we want to grow something, we make efforts for growth. In business, this might involve investment and marketing. When growth starts, we soon hit limits—manufacturing capacity, service capacity, the size and quality of organizations, and so on. These constraints slow the growth and work as balancing feedback loops. This structure is called "Limits to Growth."

There are two prescriptions for this archetype. The first is to slow down. The second is to release the brakes (the constraints). In a growth-oriented world, we typically try to remove the constraints, and if we succeed in doing so the growth continues. In fact, we have become good at removing the constraints and continuing the growth. Collectively we have come to the point of overshooting our planet's capacity.

But removing the constraints is becoming increasingly

difficult. If we remove one constraint, we soon hit another, one that is harder to remove and requires more resources to solve. This is the treadmill of problem solving, making us running faster and faster as we try to work out a solution.

Some companies and communities are pursuing environmental efficiency. It is a worthy thing to do as it can buy a time, but it won't solve the problem. If resource productivity improves by 100%, then we need only a half the input to produce the same output. But if output growth continues at 2% annually, then in 36 years we will be using the same amount of the materials. We'll be back where we started.

At that point, can we improve efficiency by another 100%? How soon can we achieve it? In the past while we improved efficiency by roughly 1% a year, output growth was three times faster or more. The reinforcing feedback loops still dominate our world.

Indeed, climate change, peak oil, food shortages, water scarcity, and the loss of diversity in ecosystems ... these are not the problems. They are simply symptoms of the fundamental problem that human activities have passed the limits of the Earth's capacity.

A root cause of this problem is that we believe people can grow anything to any size in this finite world. But obviously that is simply impossible now, and it is time to be smarter about this. We need to resort to the other prescription for "Limits to Growth" archetypes: slow down.

3. SLOW OR NEGATIVE GROWTH TARGETS

Let us illustrate some examples from Japan for this alternative approach.

Ina Food Industry, the country's leading agar product (edible gelatin from seaweed) manufacturer, declares that its "Tree Rings" form of management has given it 49 consecutive years of financial growth despite being in a volatile industry. This company never follows the fads, but has focused its innovation on what is really good for customers. The secret of success is that even when it had developed new products, it timed the product launches with the capacity growth of its employees. The company believes that the growth of people and organizations should be just like tree rings: slow and steady.

This type of change in mindset toward growth is steadily taking place in the corporate world. Many business people now ask: How can we incorporate slow-life elements into current business activities, instead of assuming that we must always have

economic growth? Questions like this trigger an awareness that our socioeconomic system must change drastically.

Another such example is Mukouyama Painting, a small paint supply company with about 20 employees. The company's president was a typical business owner until 10 years ago, pushing his people to work hard with slogans like "Boost sales by 20 percent!" But many of his employees left the company and recruiting new workers was difficult, making him stop and wonder about the huge gap between his approach and reality.

He asked himself soul-searching questions. "Who am I?" "What is the company for?" "What should I do?" Influenced by various people, he came to this conclusion: "We live in a capitalist society where people are self-centered, but I really want to live in a world full of love, peace, harmony, cooperation and self-sufficiency." Since then he has carried out various reforms based on this new perspective.

For example, the company measures the success not by the amount of sales or profits, but by what he calls GCH (Gross Company Happiness), namely the total happiness of all employees. He took this idea from Bhutan's GNH (Gross National Happiness) index. In each of the past eight years, he set a sales goal that meant negative growth, say, 92% of the previous year's sales, thinking that aiming to serve customers well rather than to increase sales would be good for the happiness of his employees.

Now the company is known for its commitment to social responsibility and is well received in the community. The turnover rate of employees has dropped to zero. The president is happy, and so are his employees and the community.

An increasing number of companies have decided not to try to expand their business, or adopted a no-growth policy, so as to realize the real happiness that these companies were established to offer.

4. SLOW MOVEMENTS SPREADING IN JAPAN

The desire for slower lifestyles might work as a leverage point to depart from our present growth-oriented society. The structure or mindset of Japanese society has been changing slowly but steadily. Iwate Prefecture announced its "Take-It-Easy Declaration." Minamata City, Kumamoto Prefecture offers "Jimoto-gaku" (community studies). Kakegawa City, Shizuoka Prefecture, has its "Slow Life Declaration."

Here is another example. During the planning stage for the construction of a new condominium, prospective residents had a heated debate on whether or not an elevator should be installed. Some were opposed because once installed it would consume energy, which would mean carbon dioxide emissions. Others were in favor, insisting that elderly people living on the top floors would need it.

How did they solve the problem? A “slow elevator” was their solution. They agreed to install an elevator that moves slowly. Young people don’t want to wait for the elevator, while the elderly can use it if they want to, since they are usually not in a rush. As expected, once installed, the slow elevator is now used only by the elderly, and it consumes much less energy than a conventional elevator.

Another example is a candle night campaign that asks people to turn off the light and to spend time under candle lights on the night of a solstice. Initiated by a handful of people, it has grown into an event with 10 million people participating just in 5 years. With more time on our hands, we can stop and step back to reflect upon what is important in our lives and what is not.

Today it seems that a large part of Japanese society is starting to welcome these shifts toward a slow society. Faced with various problems in the environment, society, education and family, many people now feel the need to slow down to solve these problems.

No one can say at this moment whether or not such developments as described here will lead to a revolutionary change in Japanese society. But we know that we should embrace these activities, as they may well act as a lever against the prevailing growth-oriented economics of “faster, bigger and more” that have caused global environmental destruction and brought risk to civilization.

5. FINAL REMARKS

For many developed nations, “slowing down” is not only effective in changing our “overshoot and collapse” trajectory, but it gives us a chance to stop and see the whole, to ask ourselves what really matters, and to collectively take action toward our shared vision of sustainable society. For developing nations, other considerations are needed, but perhaps they can leapfrog over the struggles with “growth” that most industrial nations have faced. Humanity has been chasing after growth for a long time. Now it’s time to apply what we’ve learned.