

Peak US Societal Wellbeing—There Can Be No Recovery This Time

The prevailing perception among the American public that we are currently experiencing “temporary hard times”; but because our “leaders” are implementing the proper mix of economic and political “fixes”, life will be “back to normal” soon. While this perception is understandable given our historical experience, it is also wrong. There can be no recovery this time.

Nonrenewable Natural Resources—Industrialized Humanity’s Fundamental Enablers

Humanity’s industrial lifestyle paradigm—our “American way of life”—is enabled almost exclusively by enormous and ever-increasing quantities of finite and non-replenishing nonrenewable natural resources (NNRs)—fossil fuels, metals, and nonmetallic minerals.

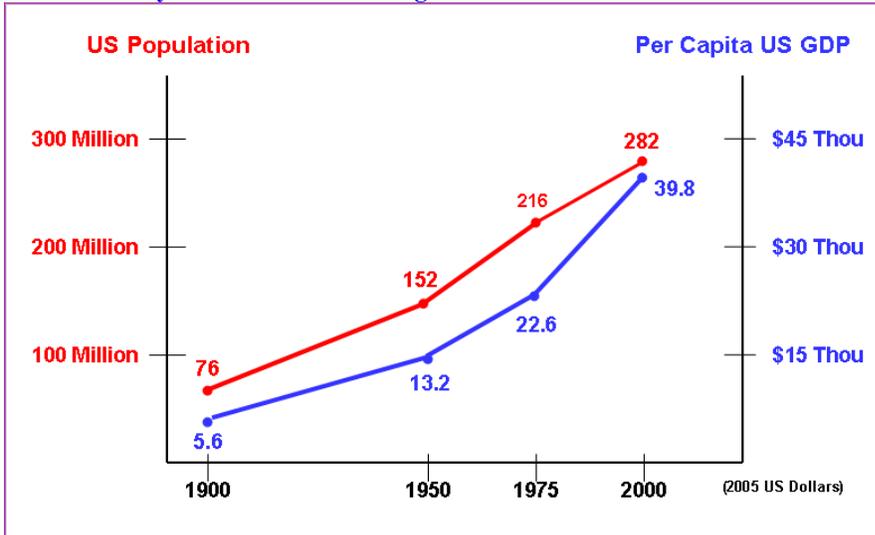
NNRs serve as the raw material inputs to our industrialized economy, as the building blocks that comprise our industrialized infrastructure and support systems, and as the primary energy sources that power our industrialized society.

NNRs comprise approximately 95% of the raw material inputs to the US economy each year. In 2008, we Americans used nearly 6.5 billion tons of newly mined NNRs—an almost incomprehensible 162,000% increase since the year 1800—which equated to approximately 43,000 pounds per US citizen.

Continuously More and More—America’s Historical Reality

Since the inception of our industrial revolution in the early/middle 1800s, but especially during the 20th century, America’s level of societal wellbeing—our population level and material living standards—increased dramatically.

20th Century US Societal Wellbeing

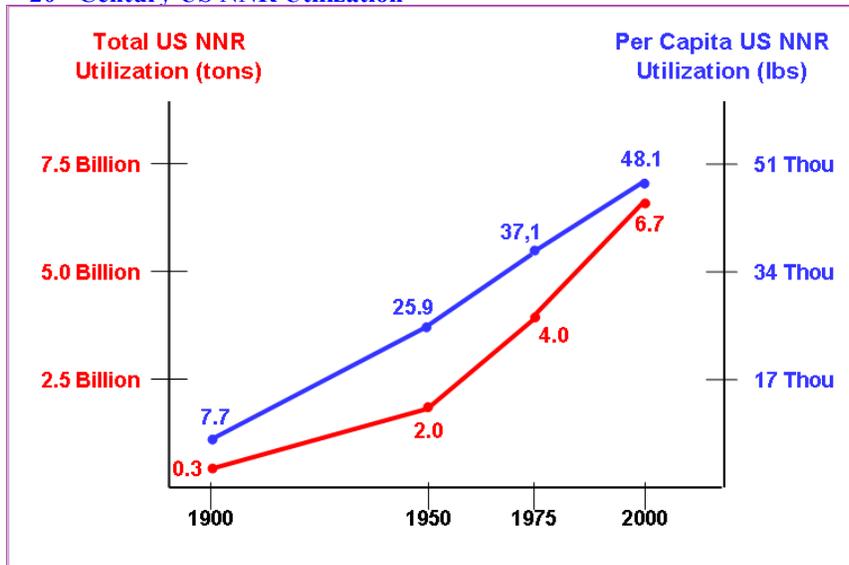


Total US population increased by 270% between the years 1900 and 2000, from approximately 76 million to over 282 million. During the same period, per capita US GDP, a proxy for our average material living standard, increased by 610%, from less than \$6,000 annually to nearly \$40,000 annually.

Data Source: <http://www.measuringworth.com/datasets/usgdp/result.php> - Measuring Worth, “What Was the US GDP Then?”

This historically unprecedented increase in American societal wellbeing was enabled by our ever-increasing utilization of abundant and affordable NNRs.

20th Century US NNR Utilization



Total annual US NNR utilization increased by an extraordinary 2100% between the years 1900 and 2000, from approximately 300,000,000 tons to over 6,700,000,000 tons; while annual per capita US NNR utilization increased by 525% during the same period, from approximately 7,700 pounds to over 48,100 pounds.

Data Source: Mineral Information Institute from USGS data

It is little wonder that our cornucopian worldview became firmly entrenched during the 20th century—i.e., most Americans believe, either explicitly or implicitly, that we can achieve perpetual economic growth, continuous population expansion, and ongoing material living standard improvement through our ever-increasing utilization of the earth's “unlimited” NNR supplies.

For 20th century Americans, “reality” can be summarized as “continuously more and more”:

**Increasing NNR Input → Increasing Economic Output (GDP) →
Increasing Societal Wellbeing (Population Level and Material Living Standards)**

NNR Scarcity

Unfortunately, NNR supplies are not unlimited. NNR supplies are finite; and as their name implies, NNR reserves are not replenished on a time scale that is relevant from the perspective of a human lifespan. More unfortunately, economically viable supplies associated with the vast majority of the NNRs that enable our industrialized American way of life are becoming increasingly scarce, both domestically (US) and globally.

Domestic NNR Scarcity

Domestic NNR scarcity increased throughout the latter half of the 20th century and into the 21st.

By the year 2008, immediately prior to the Great Recession, 68 of the 89 NNRs (76%) that enable our American way of life were scarce domestically; that is, domestically available, economically viable NNR supplies were unable to completely address US requirements. NNRs that were scarce domestically include chromium, cobalt, copper, magnesium, natural gas, oil, potash, silicon, tin, titanium, uranium, and zinc.

Moreover, imported NNRs accounted for 100% of 2008 US supplies in 19 of the 89 cases (21%). NNRs for which the US was totally import-reliant in 2008 include bauxite, graphite, fluorspar, indium, manganese, niobium, quartz crystal, rare earth minerals, tantalum, and vanadium.

Yet while the US has been able to rely increasingly on imported NNRs to offset ever-increasing domestic NNR scarcity, the world has no such “safety net”—there is only one earth.

Global NNR Scarcity

By the year 2008, 63 of the 89 NNRs (71%) that enable our modern industrial existence—including coal, chromium, cobalt, copper, iron/steel, magnesium, manganese, natural gas, oil, phosphate rock, potash, rare earth minerals, titanium, uranium, and zinc—were scarce globally.

Note that global NNR scarcity does not involve “running out” of any NNR, it involves “running short” of many. That is, for an increasing number of NNRs, while there will always be plenty of resources in the ground, there are **not enough economically viable** resources in the ground to perpetuate our industrial lifestyle paradigm going forward.

NNR Scarcity is a Permanent Phenomenon

With the seemingly continuous emergence of newly industrializing nations in Asia, Africa, and Latin America, global NNR requirements have increased meteorically since the beginning of the 21st century. Whereas approximately 1.5 billion people occupied industrialized and industrializing nations in the late 20th century, that number currently exceeds 5 billion, most of whom have yet to even remotely approach their full NNR utilization potential.

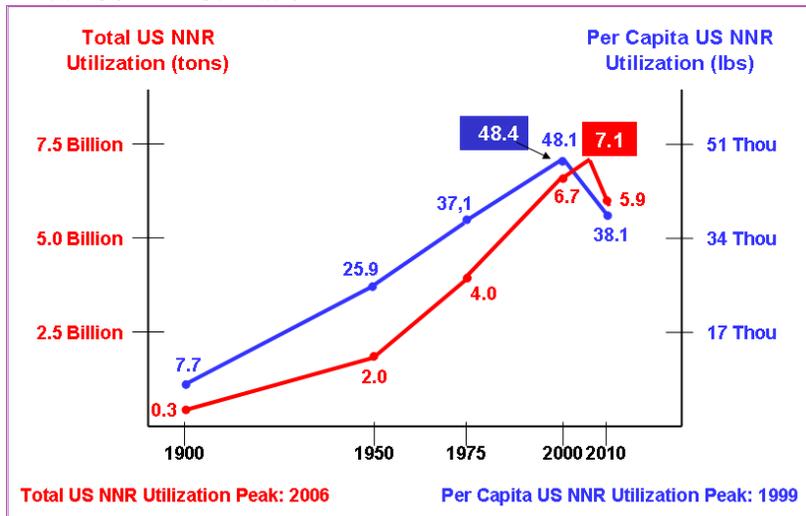
Unfortunately, humanity’s ever-increasing global NNR requirements are manifesting themselves within the context of increasingly-constrained—i.e., increasingly expensive, lower quality—NNR supplies. That is, the cost reductions associated with our ongoing improvements in NNR exploration, extraction, production, and processing technologies are insufficient to offset the cost increases associated with newly discovered NNR deposits, which are fewer, smaller, less accessible, and of lower grade and purity.

The consequence associated with this “demand/supply imbalance” is that the earth cannot physically support our current—much less continuously increasing—NNR requirements. In fact, NNR scarcity had become sufficiently pervasive by the onset of the Great Recession to permanently depress future economic growth trajectories and societal wellbeing trajectories at both the domestic and global levels.

Continuously Less and Less—America’s New Reality

The episode of epidemic pre-recession NNR scarcity marked a transition point for the United States.

Peak US NNR Utilization

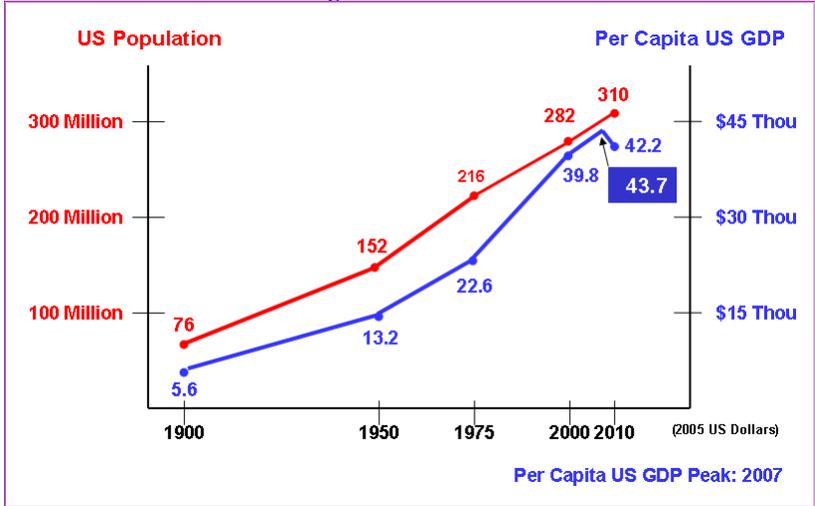


Per capita US nonrenewable natural resource (NNR) utilization peaked (to date) in 1999 at 48,427 pounds per US citizen, while total US NNR utilization peaked (to date) in 2006 at 7,141,465,500 tons.

Data Source: Mineral Information Institute from USGS data

Given the dramatic decreases in both per capita US NNR utilization (17%) and total US NNR utilization (21%) from their pre-recession peaks, it is almost certain that **US societal wellbeing peaked permanently** prior to the Great Recession. That is, our post recession population level and/or average material living standard will decrease going forward. This has, in fact, been the case with respect to US material living standards.

Peak US Societal Wellbeing



The average US material living standard, as proxied by per capita US GDP, peaked (to date) in the year 2007 at \$43,700, and decreased by 3.4% to \$42,200 by 2010.

Total US population increased through 2010, and will likely continue to increase until the general public realizes that with the addition of each new American, their slices of “the American pie” shrink.

Data Source: <http://www.measuringworth.com/datasets/usgdp/result.php> - Measuring Worth, “What Was the US GDP Then?”

Our historical reality of “continuously more and more”—which we in America have experienced since the inception of our industrial revolution and have come to take for granted—is giving way to our new reality of “continuously less and less”, for geological reasons that are totally out of our control and beyond our capacity to “fix”.

Declining NNR Input → Declining Economic Output (GDP) → Declining Societal Wellbeing (Population Level and Material Living Standards)

The perception among the American public regarding current “hard times” is therefore accurate. What the vast majority of Americans have yet to understand, however, is that notwithstanding increasingly anemic transitory boosts from increasingly desperate government and central bank “stimulus” programs, the declining trajectory associated with US societal wellbeing is permanent.

Note: for supporting evidence and references, please request a draft copy of my forthcoming book “Scarcity—Humanity’s Final Chapter?” Contact: coclugston@gmail.com. See also www.wakeupamerika.com.

Chris Clugston Bio

Since 2006, I have conducted extensive independent research into the area of “sustainability”, with a focus on nonrenewable natural resource (NNR) scarcity. NNRs are the fossil fuels, metals, and nonmetallic minerals that enable our modern industrial existence.

I have sought to quantify from a combined ecological and economic perspective the extent to which America and humanity are living unsustainably beyond our means, and to articulate the causes, magnitude, implications, and consequences associated with our “predicament”.

My previous work experience includes thirty years in the high technology electronics industry, primarily with information technology sector companies. I held management level positions in marketing, sales, finance, and M&A, prior to becoming a corporate chief executive and later a management consultant.

I received an AB/Political Science, Magna Cum Laude and Phi Beta Kappa from Penn State University, and an MBA/Finance with High Distinction from Temple University.