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The Sustainability Conundrum

Richard Hampton

Science is telling us that our world is in trouble. We have too many people consuming too much stuff. There is hope however, as humanity is slowly demonstrating a spontaneous propensity towards developing the behavioral adaptations necessary to reach a sustainable population and a respect for nature that could enable human civilization to persist.

Of course failure to change humanity's dominant behavior and adapt would result in an irreversible depletion of non-renewable resources and fouling of the biosphere with our waste. Even worse, population would continue to expand and consumption would continue to grow exponentially. The outlook is bleak if the forces of human population and consumption continue unchecked. Extinctions will increase to massive proportions, eliminating many of the creatures with whom we share this planet and by extension humanity itself.

We know that with sufficient, non-coercive incentives (e.g., education of women, contraception) that birthrates and thus population can be reduced; however, an unfortunate side-effect of this is that affluence rises, which entails more consumption. This paper considers the “too many people, too much consumption” conundrum.

Impacts, such as those mentioned above, have been represented by the formula:

$$I = PAT. ^1$$

where P = Population, A = Affluence or per-capita consumption and T = Technology as applied to the production of goods consumed.

If humanity is to mitigate the threatening impacts of civilization on the Earth, we must deal with the PAT side of the equation.

Consider first that technology is a subset of affluence in that technologies are developed in response to demand or opportunity. Technology can be employed to either increase or reduce both population and/or per-capita consumption and is therefore of secondary importance in the equation. So technology will not be discussed further in this context.

However, if we are to succeed in reducing our impacts and avert some of the worst consequences of those impacts, it is imperative we address both population and affluence with its attendant over-consumption, by reducing both to a sustainable level within a time frame that avoids catastrophe.

Human population level is a consequence of both biological drives and cultural memes. Birth rate, survival to reproductive age and longevity are the determinant factors for population growth, shrinkage or stability. Throughout much of human history birth rate, as expressed by the number of successful pregnancies per female, was largely unconstrained by cultural forces. To state this in simpler terms, each woman may have had seven children on average but only two would survive childhood to reach reproductive age. Thus the apparently high birthrate resulted in replacement only, without population growth. For much of human history population growth was minimal. With the development of better technologies, improved childhood survival and longevity transformed stability into exponential population growth, especially over the last two centuries of the industrial revolution. High birthrates coupled with high survival rates have become prime drivers of population growth, which have brought us to our current population of over seven billion people.

Fortunately there is hope for humanity to bring birthrates under control. As documented by Alan Weisman² and Hans Rosling³, the basics for reducing birthrates are well understood and can be applied to any society that is willing: education for women, available and affordable (free or subsidized) birth control and safe abortions. Given those means, women appear to limit fertility on their own; they do not want to be baby-making machines. Generally, reproduction is reduced to replacement levels or less. This proposition is well supported by actual birthrates currently experienced in much of the world including Europe, North and South America, China and India. One remarkable example, reported by Weisman, is that of Iran which reduced its fertility rate from a world-leading nine births per woman to less than two in a period of just twenty years, all done without coercion.

What we are seeing appears to be the fulfillment of Demographic Transition Theory⁴ developed in 1929 by demographer Warren Thompson (1887 – 1973). The theory proposes a natural balancing of birth and death rates as societies transition from pre-industrial to post-industrial conditions. First, technical and cultural changes contribute to a declining death rate with rapid population growth, which is followed by declining birth rates to a point of balance between the two.

There is a fundamental reason why women can and will control their fertility: it is in their own self-interest. The benefits are personal, immediate and easily understood. According to Rosling, this

phenomena is happening quite spontaneously in most of the world today. Exceptions exist in those social contexts where the basics of education and the means to control fertility are withheld for political, religious or cultural reasons, usually within male dominated societies.

Rosling, a statistician, projects that world population will stabilize spontaneously at replacement level by the end of this century. While stabilization is a promising trend, the suspected leveling at eleven billion may not be enough, soon enough. However there is one strong example that may provide an additional impetus toward actual population reduction. With a fertility rate of just over one child per woman, Japan has entered a phase of population decline. If the whole world emulated Japan's current trend, the world's population would be reduced to about one half within a century.

What has led Japan to such a low birth rate? Two factors seem to be at work: the high cost of raising a child coupled with a desire for greater affluence. Indeed, one of the key benefits that women realize from low fertility is increased affluence. And there's the conundrum. One of the key drivers of population control, the opportunity to increase affluence, exacerbates the greater problem of the impact of humanity on the biosphere.

So, if we understand and achieve the basics of population control, we are confronted with the confounding issue of controlling affluence. Population goes down but affluence goes up.

Affluence, that ubiquitous and uniquely modern human cultural trait of wanting more — more possessions, more property, more power, more wealth — more of everything that feeds the ego's unquenchable desire to grow stronger. It is the driving force of modern economics, industrial action, social interaction, politics and the excesses of marketing to convince us that more is better. It powers the growth paradigm, which is pervasive throughout the “civilized” world. Affluence is the other prime factor in the impact of humanity on this planet, our one and only home.

The problem with affluence is that it leads to over-consumption. It is the consumption of nature's bounty in the form of non-renewable resources and the over-consumption of renewable resources, which results in the destruction of biodiversity and the loss of ecosystem services on which our survival depends. Humans have become a species that is destroying its very life-support system in its voracious quest for self-indulgence which in truth serves no logical purpose. Our genius for exploiting the natural world to feed our short term need to gratify unnecessary purposes is truly maladaptive and if left unchecked will surely become a fatal flaw.

But it wasn't always this way. In primitive hunter-gatherer societies, humans showed little inclination towards self-indulgence with material possessions and personal importance. This is borne out by several anthropological studies that looked at human behavior prior to about 4000 BCE as well as studies of the few remaining contemporary hunter gatherers. This view is well summarized by Steve Taylor⁵. Taylor proposes that as a general condition prehistoric humans, even after the first agricultural societies formed, were essentially egalitarian with assets held in common and shared equally within the community. It was only after around 4000 BCE that the concepts of private wealth and power emerged. The ego appeared as the dominant and controlling factor in personal lives, on up

to the concepts and structures of governance, economies, cultures and even religions. It was the beginning of inequality.

According to Taylor, ideas such as collective rights and democratic principles began to emerge as far back as the ancient Greeks. These ideas have gained strength and taken hold in more recent times with the arrival of democratic institutions and governments to the point where today a majority of states have democratically elected governments. In parallel, there has been a growth in constituted rights and freedoms which have transformed much of the world's communities in the direction of mutual caring and collective responsibility. One of the extensions of this transition includes the growing environmental movements in which some humans are extending the concepts of empathy towards the whole of our natural environment, such as *The Rights of Nature* adopted by Ecuador. All this may suggest that humanity is moving toward displacing our dominant ego with empathy for others and the world we share. Could this become the established order of human existence? There is much evidence that such a spontaneous evolutionary process is underway.

So, although humanity may be in the process of transitioning from a growing population with an insatiable lust for consumption, towards a declining population holding an empathetic worldview favoring sustainability, there is an urgent need to speed up the process. The required shift in human behavior—the root cause of our problems—must be understood and accepted on a large scale before acceleration will occur on both the population and consumption fronts. Reducing fertility would appear to be feasible, primarily because it is in the immediate personal self-interest of women. We are then faced with the task of framing and selling the idea of reduced consumption as also being in the immediate self-interest of individuals. The good news is that the transition may already be underway. The challenge is to determine how we make the behavioral changes sufficient in scope and soon enough in time to save civilization from collapse.

Are we up to the challenge? For humanity's sake let's hope we are.

¹ Ehrlich, Paul R.; Holdren, John P.; Barry Commoner (May 1972). "A Bulletin Dialogue: on "The Closing Circle" - Response". *Bulletin of the Atomic Scientists*: 17–56.

² Alan Weisman; <http://www.littlebrown.com/countdown.html>

³ Hans Rosling; <http://www.gapminder.org/videos/dont-panic-the-facts-about-population/>

⁴ Demographic Transition Theory: http://en.wikipedia.org/wiki/Demographic_transition/

⁵ *The Fall*: www.stevenmtaylor.com/books/the-fall/

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