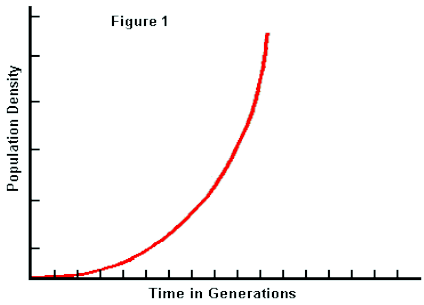
Population Explosion and Population Crash

The sharp increase in population over the last few decades can be seen in the exponential graph Fig. 1. Clearly, this is unsustainable. It is easy to understand why this has come about. Many advances in human technology, from improved agriculture to strides in medical and pharmaceutical sciences have allowed human beings to increase in numbers never imagined in the time of Rev. Malthus, a mere two hundred and fifty years ago.



Many do not see any hope or solution for this problem of "over population". They see doomsday just around the corner and expect a population crash. They point to several 'tipping points' that have already taken place in the earth, which they say are 'irreversible'. Many seem to have lost all hope that any solution can be found. They tell us 'Mankind is doomed to perish of hunger or drown in his own waste'.

As human population continues to grow, unless a new breakthrough comes about to reverse the dwindling resources of the planet and curb the greed with which the few at the top of the pyramid seem to grab the bulk of the earth's wealth, the human species seems to be heading towards the edge of a precipice that stares at an abyss or a black hole, known as the population crash, shown in Fig. 2.

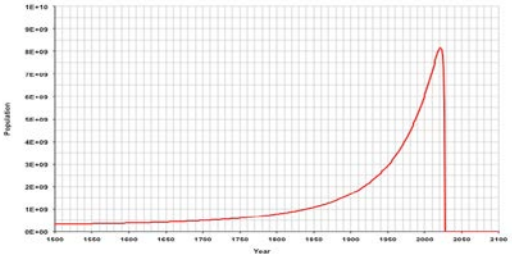


Fig. 2

In the Stone Age, before the discovery of fire, our hunter-gatherer ancestors must have stood on the edge of such a precipice several times as their numbers increased and decreased until they discovered fire. Once human beings learned to make, control, and cook with fire, so many leaves and plants, inedible before, became edible. It must have brought about a reprieve until a similar precipice was encountered before the age of farming could come about.

With farming and new ways of storing food, human population increased again exponentially until the next cliff was encountered and overcome by the Industrial Revolution which gave mankind another reprieve – thanks to Technology. It was at that time that Malthus observed the phenomenon that has been going on throughout many millions of years of evolution.

Every advance and human progress seems to bring about an associated exponential increase in population. So, the graphs of Fig. 1 and 2 give an incomplete story. The true picture is more likely to resemble this graph, (Fig. 3) shown with a continuous increase, perhaps some small crashes here and there represented by the jagged lines, until a new breakthrough is discovered ushering a new era of plenty associated with the next rise in population.

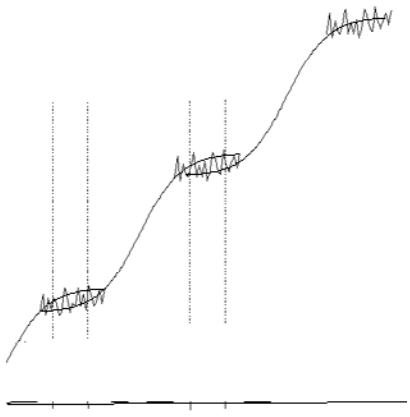


Fig. 3

That means, the present exponential increase in population is not a cause for throwing our arms up in the air and giving up in panic to wait for an imminent population crash, but a time for reflection, serious thought, and contemplation, and a search for new vista to the next cascade upstream. That is the challenge we face today.

The question then is how to increase food as that is the key population factor. We are told that the oceans have been exhausted or near exhaustion, and fish stock depleted beyond recovery. So many species have gone extinct, while so many are listed in danger of extinction. The earth is polluted with chemical waste, plastics, and the various toxic chemicals in the atmosphere have created a hole in the Ozone Layer, allowing more radiation to come through causing the earth's temperature to rise, which melts the ice caps, and… and… and… Doomsday is just around the corner. If we ever needed a prophet or a seer to show us the next breakthrough, the time is now.

In the late 60's and 70's the Green Revolution of Dr. Borlaug and his followers brought about a substantial food increased by the introduction of high yield and disease resistant seeds, improved farm mechanization, fertilizers, pesticides, insecticides, etc., coupled with advances in medicine and the control of Malaria and various epidemics and the next cascade was climbed, resulting in the present population increase from some three billion to the current seven billion, and the edge of the cliff we face today. Now, what next?

Some are looking to the stars and proposing to send human beings to space and are eyeing Mars and Venus as the next planets to colonize. That is a bold plan, but we have not fully exhausted this earth, and we need to look more carefully at what we have right here at our disposal before we look elsewhere for solution. We need to organize the resources of the earth better and keep the population stabilized until we get to the next cascade. Yes, we will get to the next cascade!

And what does stabilize mean? Population can be stabilized by positive rewards to families who will have only one or two children. This will reduce the rate of growth as seen in China over the last fifty years. Simultaneously, there should be fair and equitable sharing of resources to make sure there is minimum subsistence food for the poorest of the poor to avoid mass starvation.

And where do we look for the next cascade to come from? The first may be better organization of existing foods and cutting waste. There are various meats that currently are not eaten due to cultural taboos. In many parts of the world due to religious or ethnic biases people do not eat horses, cats, dogs, donkeys, mules… etc. Among fish too, there are fishes that are eaten only partially, e.g. the fins of sharks are harvested and the rest of the body discarded.

All food is a form of energy packed in one form or other and eaten, digested, and the energy used by the body. All or almost all the energy we consume as food comes from sunlight which is first stored as chlorophyll in grass and leaves. Some of the energy from the sun stored in greens like lettuce, cabbage, spinach, broccoli, may be consumed directly while other greens like grass and leaves are first eaten by cows, goats, and other animals, and we eat the meat of these animals to transfer the energy into our body.

Here is one area to look into in order to find the stepping stone for the next cascade. There are so many leaves of various shrubs and trees that we need to explore as food. Many leaves may be poisonous to eat, or may contain some toxicity that the human stomach cannot break down and digest. Well, that is where research needs to focus.

If we can figure out what forms of bile and enzymes and in what quantity and sequence the animal stomach converts grass and leaves into edible product, we might be able to replicate the animal stomach with factories that take in grass and leaves that we now cut and throw away or use as mulch, and produce boxes of cereals or similar food products that we can enjoy to eat, coming out at the other end. This does not require the human stomach to do anything different from what is does now, but for factories to predigest these new foods and act as animals.

One thing we need to notice is how these cascade steps seem to get shorter and shorter as the steps rise higher. That means it must have taken much shorter time to transit from agricultural stage to the technological stage than from Stone Age to the discovery of fire, thus we have a much shorter time now to solve our problems and find solution. With that in mind, we should know that we will have a pretty short time to consume leaves and grass before the population ‘explodes’ again and we reach the limit of that cascade.

But by then we hope our technology, and the knowledge and understanding of our earth to have reached a high enough degree where we are able to think ahead and figure out how to jump to the next cascade, and the next, and the next, and so on, or find an optimum size of population that can peacefully coexist in equilibrium with all living things on this planet indefinitely.

Does this sound far-fetched, or a pipe dream? It may appear to be so now, as did human flight and so many seemingly “impossible” things that have become possible, that we take them for granted today. But we need to dream now so that our dreams can be turned into reality by future generations. Without dreams reality would be impossible.

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