

7 Billion + Population Problem

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This is meant to be an article for activist education and therefore on the one hand it starts with explaining basic concepts; on the other hand it avoids academic references. The population problem is complex and has been debated since Marx's time. In the past leftists maintained that it is not a real problem, but a creation of capitalism. However in the last few decades resource constraints of the planet earth have been recognised and the present population of seven billion appears as a challenge. This article does not give definite ready solutions. It tries to present the problems and looks at possible solutions in a particular region.

Population growth means increase in population which is computed by subtracting total deaths from total births per year. For a specific area or country one has to add total immigration minus total outmigration.

Population grows at a 'compound rate' (like compound interest rate that students learn at school). The doubling of population is a function of growth rate. A simplified (but fairly accurate) formula is $70/\text{growth rate} = \text{No. of years in which the population will double}$. Thus if there is 1 percent growth rate, in 70 years it will double. If there is 2 percent then in 35 years it will double and in 70 years it will be 4 times! If the growth rate is 10 percent it will double in 7 years—like the fixed deposits used to double in 7 years when the interest rates were 10 percent.

Zero Population Growth (ZPG)

Zero population growth rate (ZPG) means the rate of growth is zero or there is a stable population. There may be negative population growth which results in the decline of the population. This happens at some time both in nature and in human history.

In nature sustainable population is based on high child mortality and normal/low longevity. High child mortality occurs because almost all animals have predators, which kill the weak and the slow. Also in nature they don't have 'health care' like humans have today, where the aim is to save every child and achieve as low child mortality as possible. High child mortality ensures lower growth rate and more effective genetic selection and therefore a 'healthier' population. Low longevity occurs because the predators kill the weak and the old because they cannot escape the predators. Animals that do not have predators (the top of the species) die due to inability to hunt or digest. For example, tigers die when they become too weak to hunt whereas elephants die due to losing their teeth.

In early human history human beings were not very different from other animals as shown in the population growth charts. But human history is different because humans can modify the environment to suit themselves to a greater degree than any other species. This ability kept on increasing and it increased by a leap due to industrialisation in the last 200 years. That is the root of the population problem.

The population growth is essentially due to humans' ability to modify the environment to suit their needs. While the invention of fire and other similar inventions were important, a significant change occurred around 12,000 years ago due to introduction and growth of agriculture. Agriculture provided food security by increasing the shelf life of food (mainly grains), made slavery possible and in turn increased population. The figures are well known. Thus :

	World	India
Beginning of agriculture (10000 BC)	1 Million	
Introduction of Iron (500 B.C.)	100 Million	
Beginning of Christian Era	200 Million	
1800 A.D.	1000 Million or 1 Billion	260 Million
1900 A.D.	1.6 Billion	300 Million
1950	2.5 Billion	350 Million
2000	6 Billion	1 Billion
Today	7 Billion +	1.2 Billion

(All figures and dates are approximate)

Agriculture also destroyed forests, grasslands and wetlands endangering the flora and fauna and in the final analysis it can endanger human species too. Agriculture created food security. But it is debatable because it also increased population and created slavery thus creating food insecurity for the slaves. This has happened more dramatically in the 20th century.

The 20th Century

As one sees from the data above, the 20th century was unique. It had the highest population growth rate in history. It was the only century in which the global population doubled and trebled! Several factors contributed to it. The green revolution (chemical fertilisers, pesticides, hybrid seeds, irrigation and mechanisation of agriculture), which was possible due to availability of cheap petroleum products, came only after World War I (in India it came in the 1970s). It contributed significantly to increase production of commodified food, particularly in the US, Canada and Australia and contributed to increase of population all over the world. On the other hand it also increased poverty, hunger and food insecurity for millions of people, especially in the third world.

Secondly increased longevity and decreased child mortality occurred due to dramatic changes in the health care industry. This is opposite to what happens in nature. In the era of cheap oil longevity increases due to 'zoo conditions' of old people - no predators, assured food supply and a high eco foot print of old people due to geriatric health care. In nature, 'zoo conditions' do not prevail and therefore longevity is low.

Thirdly, decrease in the number, intensity and deaths due to famines. So one gets a picture of a 7 billion population with millions of hungry people all around the world, particularly in the third world. The current UN data of hunger is around a thousand million or one billion.

Several other things happened too. A huge meat and poultry industry came up. These animals did not



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eat grass or insects as in the past but were fed agricultural produce (mainly corn in the US). So a greater area came under agriculture, further reducing grassland, wetland and forest. Several commercial crops like tobacco, tea, coffee and sugarcane also took up large agriculture areas. To feed this agriculture other industries and mining also increased. A huge resource drain occurred.

The 21st Century

There is a limit to growth of agriculture. It is limited by land and by input resources. The limit was artificially raised by cheap oil in the 20th century. This has ended in the 21st century. Oil production peaked (2005-2008), and it is now declining, never to rise again. This not only ushered an unending crisis of capitalism, it has also affected food production by increasing the input prices of agriculture. Today a billion people are starving the world over. About half of these starving people, that is, 500 Million are likely to die in this decade. And a half of them, that is, some 250 Million will be Indians. It is difficult to imagine what other things will happen along with this catastrophic event. It is an end of era event—like the Black Death in Medieval Europe.

What else can happen during this period? With the arrival of Peak Oil, the curtain has closed on Act 1 of the drama Petroleum Man. What will happen in Act 2? Chekhov said, 'If there's a gun on the wall at the beginning of the play, by the end it must go off.' In the world's nuclear arsenal there are many guns on the wall. If life copies art, will there be an Act 3 in which the players, having learned their lesson the hard way, live sustainably? So if one does face a nuclear holocaust then one may have a situation when the 'living shall envy the dead'. However as humans, people are optimistic and here are some more optimistic scenarios.

What are the possibilities?

- There are two issues :
- How the current and growing population can feed itself and,
 - How the world can move towards a sustainable population.

In a short term scenario there is going to be a lot of pain and starvation deaths. In the past due to cheap oil one could transport large quantities of food quickly. While it did not stop poverty or starvation, it prevented deaths. This no longer will be possible. These deaths will occur among vulnerable population, the poor and tribals. The sad thing is that these very people have many of the skills needed to sustain the society in a post-oil world. Various scholars have given different figures about reduction of population in the short term. One extreme figure is that the world population will be only two billion by 2050.

In the long term there are some possibilities. With the end of oil-economies will have to grow local because transport costs will be too high. If people do not destroy themselves social changes are bound to occur.

A viable future lies in some kind of non-capitalist social formation which is based on:

1. Equity
2. Scaling down of energy use
3. Local self-sufficiency
4. Eco restoration by using Perma-culture / Agro Ecology

This may ensure enough food for the existing population. Each eco region will have to become self-sufficient. Now different eco regions can support different levels of populations. Deserts and cold countries support smaller populations whereas tropical countries and riverine plains support bigger populations. So over a period the population will have to decline according to carrying capacity of the region. In the final analysis they will have to attain zero population

growth and may even have shrinking of population.

Social Formation

There are two existing models which have tackled the present problems somewhat successfully: the Cuban model after the collapse of Soviet Union and the Transition Town Movement in Europe and USA. The latter has an anarchist kind of social formation.

The erstwhile socialist/communist countries (former Soviet Union, China, Vietnam etc.) may learn from Cuba and have their own version of 'Special Period' and come out of the crisis in 5 years.

The advanced capitalist countries may have some kind of social democracy with strong 'Eco Socialism' inputs and coupled with Transition Town models may also solve the problem within a relatively short period.

The so called 'Third World' countries have limited experience of democracy. While they do have anarchist kind of experiments in pockets, like permaculture communes that are springing up everywhere, they are also facing lot of difficulties because the society at large still has an authoritarian background. So, these countries may have to go through some kind of revolution resulting in a command economy and then follow Cuba kind of 'special period'.

This is an optimistic scenario, but in reality there will be lot of conflict, pain and misery, particularly before and during the revolution. There is also a possibility that some countries may not have revolution and may have a prolonged period of chaos destroying people and resources.

The new social formations coupled with organic farming or agro ecology can certainly feed the present population better. This is due to several factors. Due to relative equitable distribution people will have a little more food. A lot of waste due to wasteful consumption by today's rich, waste due to storage and transport in the present capitalist economy will also be eliminated.

However as the world has seen organic farming fed only about two billion people in 1921. Can it feed 7 billion people today? It is a very difficult proposition. So there will be attempts to limit population growth and take it to zero population growth (ZPG).

The existing models of ZPG are based on urbanisation, nuclear family and increased prosperity. This model cannot be applied to the whole world because there are not enough resources for the whole world to achieve the prosperity that the western countries and some richer people in developing countries have achieved.

However one reason for the above model to work was the security that this model provided. It is possible to provide security at a lower level of consumption if the society is based on equity. So it is possible that in the new social formations ZPG may be achieved.

The sustainable population before agriculture was only one million. What is the desirable level of population that is actually sustainable over a long term? Obviously one million, the natural sustainable population before agriculture, is the lowest limit and mankind may never go down to that level. Various figures have been suggested, most of them are around two billion or less. This figure is arrived at due to the fact that in 1921 when the population was two billion, all agriculture was organic. For India this figure is 350 million (1950) when practically all agriculture was organic. However since then the soil has been degraded and without oil even this population may have difficulties to survive. Will mankind shrink to such a level? And of course the more pressing question is how the present population will face the situation when fossil fuel agriculture comes to an end. There is a possibility of large scale famine killing millions of people.

The Future

Will mankind be able to achieve this reduction of population to two billion? The question poses several issues. Mankind has developed an ethics that values life per se and it is unthinkable to allow child mortal-

ity to increase and have higher number of births. Similarly it is difficult to think of lowering longevity. At best one can think of an option—making euthanasia legal. But it will be exercised by very few. Only future generations will be able to think about it more clearly in changed circumstances. Even if there is negative growth rates, it will take a long time to achieve this kind of reduction. And what is the way to achieve this? If people voluntarily decrease birth rate, they will be saddled with an increasingly aging population, like Japan and France today. So logically nature's way appears to be best. In organic farming one may say that he should follow Nature's way. Why should it not be applicable to human society? It remains a challenge to future generations as to how to achieve this in a humane way.

Think Locally, Act Locally

In the past the slogan, 'Think Globally, Act Locally' was very popular. This article too began looking at the problem globally. But in the future local self-sufficiency will be the order of the day. So one should also be able to think locally and act locally. Below one can look at the Deccan in India as an eco region, look at its problems and try to look at the solutions that are being attempted.

Historically India has been endowed with rich natural resources and the country was self-sufficient most of the time except in times of great political turmoil. Deccan too has been self-sufficient. The last great famines occurred during the closing decades of the 19th century.

Every eco region has specific food practices. In Deccan it has been millets, pulses and ground nut. Agriculture is mainly rain fed with local irrigation from tanks. Some rice was grown in low lying areas with tank irrigation. Cotton was the main cash crop. Rearing of sheep and goats has been an important part of the local economy and meat has been part of the diet. Some amount of fish and poultry has also been part of the food. Some communities also eat pork.

A lot of this changed due to green revolution in other parts of the country and in the Deccan it introduced food insecurity and hunger and in some cases farmer's suicide. How did it come about?

Increases of food production of wheat and rice are concentrated in green revolution areas. This was brought to the Deccan by the government's public distribution system. Popular governments introduced rice at two rupees per kilo for the poor. This made the local millets expensive and people got used to eating rice and wheat. Slowly rice and wheat were introduced as food crops. As these require lot of water, tube well irrigation was introduced and tanks were neglected. Other cash crops like sugar cane, soybean and genetically modified Cotton were also introduced.

This led to a big disaster within 30 years. Water tables fell and there has been a big water scarcity in many regions. Commercial agriculture proved unviable for small and medium farmers and their burden grew to such an extent that several thousands of farmers had to commit suicide. Polished rice and white flour consumption affected the health of local people and possibly caused increased suffering due to diabetes. Hunger and water scarcity stalks the land.

The socialist solution to this situation is a combination of the old traditions and new. The old tradition consists of struggling for security of land ownership or land to the tiller or land reforms. The new is decentralisation, local food security and knowledge based restoration of ecology and agriculture that has been degraded due to the processes mentioned above. Local food security implies growing local foods as per local ecology. In the Deccan it would mean reducing rice and wheat and going back to millets, pulses and ground nut. Again the cash crop of sugar cane and soybean which are popular today will have to be abandoned or reduced drastically and organic cotton will have to be restored. Agro ecology would be the key science of the 21st century and rebuilding local communities would be the key social task.

A large number of social movements coordinated by NAPM (National Alliance of People's Movements), NGOs like Deccan Development Society and several other organisations, small groups, permaculture farms in the region are following this path. While the scale is small and the ruling classes are very powerful, nevertheless they are showing a viable alternative. With larger political changes these policies and experiences will prove useful. It is certainly possible to visualise food self-sufficiency for the Deccan region.

Call to Arms

In the face of such imminent crises there are several people's movements going—the Maoists, the ethnic and regional movements in Kashmir and the North East and scores of movements against large capitalist projects that take away common property resources such as land and water, existing livelihoods of poor people and endanger the environment. However there is a lack of coordination and understanding about the nature of capitalist crisis. The movements mainly oppose the exploitation and oppression and demand either immediate relief or improvement of the system. Many even think that they are fighting a losing battle. They do not realise that the time has come to fight for a win, to change the system. There does not seem to be the necessary urgency in the people's movement. Partly it is inertia; partly it is the phenomenon of the boy crying 'wolf', that is, in the past, so many times, capitalism faced crisis and yet people did not have any revolutionary change in India. So this time around people are tired of responding. Then there is a divergence in various movements—in the issues handled—class, ethnicity or opposition to mega projects. So even though millions of people are actively opposing the present State and capitalism, there is no dialogue or coordination between different groups and movements. It is the need of the hour to have a dialogue, come together for concerted action and avoid the forthcoming disaster as much as possible. This time around the chances are better because the edifice of the enemy is weakened, is crumbling and imploding. Is anyone listening?

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