

## POPULATION EXPLOSION AND ITS IMPACT

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Volume 9 Issue 2,  
September 2020**Abstract**

*In the last few decades, growth-rate of population is phenomenal and the environment is not in a position to sustain the extra load being imposed on it. Thus the study was conducted to focus on the effect of population explosion on air pollution, water pollution, deforestation, depletion of ozone layer, extinction of different species and global warming. The study comprised of 100 college teachers selected by cluster multistage sampling. Survey was conducted to collect the data by the self-made tools. The data was grouped and analysed by F-test. The paper clarifies the effect of population explosion on air pollution, water pollution, deforestation, depletion of ozone layer, extinction of different species and global warming. The resources of the environment are limited and they are urgently required to be preserved which is not feasible residing in the areas without checking the present growth rate of population.*

**Keywords:** *air pollution, water pollution, deforestation, depletion of ozone layer, extinction of different species, global warming, soil degradation, climate change, pollution, deforestation, birth control, education.*

It is generally thought that rapid growth of population is only one of many factors adversely affecting the environment. If examined minutely it can be found that several other factors negatively affecting the atmosphere and earth's surface are resulting from the limitless rise in the population. It has direct as well as indirect bearing on the ecosystem. The relation between them is often mysterious, interlinked, compound and complex. Besides its undesirable effects on the environment, it also poses a serious threat to the success story of economic planning and development. When environmental ethics and human health are talked about, main attention is focused on the burning issues like industrial pollutants, greenhouse gases, land and soil degradation, global warming, climate change, air pollution, water contamination, deforestation, cycling, recycling, renewable and non-renewable resources, depletion of ozone layer, extinction of species and host of many other impending concerns. But the sources of all these hazards emanate from the disproportionate demands arising out of day to day needs of galloping population. The issue is alarming and needs to be readdressed before the consequences get more and more dismal, disastrous and catastrophic.

Environment is under unbearable pressure of overpopulation. Higher birth rate is the root cause of its degradation. Rise in the population brings more pollution, more toxic wastes and damage to biosphere and ecology. As days pass, the world is running acute shortage of resources for its survival. Resources are limited but demands are leaping. Non-renewable resources are on the verge of depletion. Developing countries make use of all available means of exploiting the atmosphere in order to compete with the developed countries. In fact, both developed and developing countries exploit the climatic conditions. Yet research reveals that air quality of the developed countries is better than most developing countries. As the former use advance technology as means of production while the latter lack such upgraded means.

Population explosion gives rise to a number of social problems too. The rural and urban areas witness top-sided imbalance. People from rural areas migrate to urban

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areas in the search of livelihood, employments, better educations and cozy lives. Such indiscriminate migration causes the growth of slum areas where people have to live in the most unhygienic and insanitary conditions. This puts the urban areas under severe ecological crisis. With the rapid invention of computer, science and technology, the crisis of unemployment is already escalating. Unemployment and poverty lead to desperation, frustration and anger among the both - educated and uneducated people. The rise of population leads to shortage of food, problem of healthcare, lack of public services, overcrowding, pollution and many other day-to-day and long term troubles.

The previous and the present century have witnessed the largest increase of world's population in the history of human. The world has consumed more resources in the last five decades than the whole of humanity before that. As the population increases, more food is required. To meet these demands, intensive farming is required which is achieved by creating new lands through deforestation. To have enough crops, alarming amount of fertilizers and pesticide are used. Some commodities are essential and required to produce for basic requirements and survival. But there are many goods which are produced for the sake of comfortable and cozy life style. Production of such things involves huge amounts of energy and investment and at the same time they also generate excess pollution and waste.

The paper postulates many of the problems that are given birth by the population explosion. These problems unite together and give rise to some other dangers which are hollowing the environment like termites do with wood. The paper thus focusses to find the impact of population explosion on the environment.

**Air Pollution:** Air pollution is caused by solid, liquid and gas particles that are suspended in the air. These suspended particles are called aerosols. These are emitted by exhausts of motor vehicles, chimneys of factories, volcanoes, wildfires and many other sources. Air pollution has long-term and hazardous effects on health which include heart disease, lung cancer, and other respiratory diseases. It can also result in malfunctioning of nerves, brain, kidneys, liver, and other vital organs.

**Water Pollution:** Water bodies are contaminated as a result of various human activities. There are numerous causes of water pollution. Prominent among them are industrial waste, sewage, wastewater, mining works, leakage from sewer lines, accidental fuel leakage, fossil fuels burning, abundant uses of chemical, fertilizers and pesticides.

**Deforestation:** Deforestation is another side-effect of overpopulation. As the number of people increases, their demands for using the timber for fuel, wood products, firewood, agriculture, construction and other works are also proportionately raised. When it comes to talk about it residing in the areas with respect to the environment, it is definitely a big contributor to greenhouse gas emissions and it covers one fourth share of total greenhouse gas production. Forests are supposed to store more than twice amount of carbon dioxide that is found in the atmosphere but due to large scale of deforestation the given ratio keeps on changing and disturbing.

**Depletion of Ozone Layer:** Ozone layer depletion is caused by the reduction of ozone quantity in the atmosphere. Depletion of ozone mainly takes place due to emission of Chlorofluorocarbons (CFCs). Air-conditioners, refrigerators, smoke, dust, pesticides, fire-extinguishers, packing materials, etc are the major sources of CFCs.

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Ozone layer depletion causes harmful Ultra Violet radiation to reach at the Earth's surface. It has frightening effects on human health including skin cancers, eye cataracts, immune deficiency disorders and many other disabilities and diseases.

**Extinction of Species:** Ecosystem remains healthy by its plants and animals. When species get endangered, it is an indication of an ecological imbalance. A well-balanced ecosystem cleanses the environment. It gives fresh air to breathe and pure water to drink. When ecosystem falls ill, our own health is at risk. The loss of one species may result in the loss of others. The saving of scarce species is significant for the survival of humans. When one is saving endangered species, one is finally saving oneself. Some of the major causes of extinction are hunting, habitat loss, pollution, population growth, limitation of expansion of vegetation, international trading of animal body parts and some other kinds of overexploitation of species for human use.

**Global Warming:** Global warming is the gradual rise in the average temperature of the Earth's atmosphere and surface. Global warming occurs when gases in the Earth's atmosphere trap the Sun's heat and this phenomenon is known as the greenhouse effect. The primary sources of greenhouse gases in Earth's atmosphere are water vapor (H<sub>2</sub>O), carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), and ozone (O<sub>3</sub>).

**Miscellaneous Problems:** Besides environmental pollution, overpopulation causes physical, moral and spiritual pollution too. It causes more mouths to feed, lower standard of life, poverty, overcrowded cities. The entire population runs short of qualitative education. Youth suffers from unemployment as a result acts of crime escalate due to unequal distribution of wealth and scarce financial resources. Woods and trees are cut to meet the housing and agricultural requirements of entire population. Life expectancy is reduced due to malnutrition, starvation, unhygienic conditions, sickness and spreading of diseases. The cases of child labor are very common. Rather than sending their children to school, parents force their wards to child labour to sustain the livelihood. All these burning issues have very ill effects on the well beings of the environment.

### **Objective**

To study the effect of population explosion on environment; To study the effect of population explosion on air pollution; To study the effect of population explosion on water pollution; To study the effect of population explosion on deforestation; To study the effect of population explosion on depletion of ozone layer; To study the effect of population explosion on extinction of species; To study the effect of population explosion on global warming.

### **Hypothesis**

H<sub>01</sub> To study levels of air pollution, water pollution, deforestation, depletion of ozone layer, extinction of different species, global warming and population explosion according to the college teachers of Madhya Pradesh.

H<sub>02</sub> There will be no significant difference among the mean scores of environment in the population explosion inventory for the college teachers of Madhya Pradesh with different level of population explosion.

H<sub>03</sub> There will be no significant difference among the mean scores of air pollution in the population explosion inventory for the college teachers of Madhya Pradesh with different level of population explosion.

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Ho<sub>4</sub> There will be no significant difference among the mean scores of water pollution in the population explosion inventory for the college teachers of Madhya Pradesh with different level of population explosion.

Ho<sub>5</sub> There will be no significant difference among the mean scores of deforestation in the population explosion inventory for the college teachers of Madhya Pradesh with different level of population explosion.

Ho<sub>6</sub> There will be no significant difference among the mean scores of depletion of ozone layer in the population explosion inventory for the college teachers of Madhya Pradesh with different level of population explosion.

Ho<sub>7</sub> There will be no significant difference among the mean scores of extinction of different species in the population explosion inventory for the college teachers of Madhya Pradesh with different level of population explosion.

Ho<sub>8</sub> There will be no significant difference among the mean scores of global warming in the population explosion inventory for the college teachers of Madhya Pradesh with different level of population explosion.

### Research Design

The study is limited to college teachers of Madhya Pradesh. In the present research the science, commerce and arts faculty college teachers of Madhya Pradesh form the population of the study and the 100 college teachers selected by cluster multistage sampling form the sample of the study. In the present research, population explosion is the independent variable whereas environment and its factors as such air, water, forests, ozone layer, different species and global warming are dependent variables. To collect the data from the sample the self-made tools were used. Looking to the economy of time, money and energy the survey method was used. The data was collected by pre-decided tools residing in the areas with cautiousness. The data was grouped and analysed by F-test.

### Analysis and Interpretation

#### Results and Discussion

Ho<sub>1</sub> To study levels of air pollution, water pollution, deforestation, depletion of ozone layer, extinction of different species, global warming and population explosion according to the college teachers of Madhya Pradesh.

Table 1

	Air Pollution	Water Pollution	Deforestation	Depletion of Ozone	Extinction of Species	Global Warming	Population Explosion
Mean	15.28	14.94	15.22	14.26	15.63	14.78	90.11
S.D.	5.77	5.84	5.36	4.96	5.92	5.89	30.15

Table 2

	Air Pollution	Water Pollution	Deforestation	Depletion of Ozone	Extinction of Species	Global Warming	Population Explosion
M1	20.83	20.53	19.80	16.77	20.33	19.10	117.37
SD1	2.78	2.54	2.25	2.28	2.75	3.59	7.13
M2	15.13	14.51	15.56	16.03	16.33	15.28	92.85
SD2	2.91	2.40	3.29	3.38	4.34	3.92	14.23
M3	10.10	10.06	10.35	9.61	10.19	9.97	60.29
SD3	5.75	6.56	5.54	5.38	5.60	6.28	31.99

From the table 1 and table 2, it is evident that the mean scores of population explosion inventory of the college teachers of Madhya Pradesh is 90.11. Further the

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mean scores of air pollution, water pollution, deforestation, depletion of ozone layer, extinction of species and global warming is respectively 15.28, 14.94, 15.22, 14.26, 15.63, and 14.78. Table 2 presents the mean scores of air pollution, water pollution, deforestation, depletion of ozone layer, extinction of species and global warming by the teachers from urban area with high population explosion, semi-urban area with medium population explosion and rural area with low population explosion.

Ho<sub>2</sub> There will be no significant difference among the mean scores of air pollution in the population explosion inventory for the college teachers of Madhya Pradesh with different level of population explosion.

**Table 3 ANOVA Table of Population Explosion \* Air Pollution**

			Sum of Squares	df	Mean Square	F	Sig.
Population Explosion * Air Pollution	Between Groups	(Combined)	47.500	20	2.375	13.909	.000
	Within Groups		13.490	79	.171		
	Total		60.990	99			

From table 3, it is evident that the  $F_{cal} = 13.9$  which is significant. Thus it can be said that the hypothesis may be rejected. Thus the hypothesis that there will be no significant difference among the mean scores of air pollution in the population explosion inventory for the college teachers of Madhya Pradesh with different level of population explosion may be rejected.

Ho<sub>3</sub> There will be no significant difference among the mean scores of water pollution in the population explosion inventory for the college teachers of Madhya Pradesh with different level of population explosion.

**Table 4 ANOVA Table Population Explosion \* Water Pollution**

			Sum of Squares	df	Mean Square	F	Sig.
Population Explosion * Water Pollution	Between Groups	(Combined)	45.346	19	2.387	12.204	.000
	Within Groups		15.644	80	.196		
	Total		60.990	99			

From table 4, it is evident that the  $F_{cal} = 12.204$  which is significant. Thus it can be said that the hypothesis may be rejected. Thus the hypothesis that there will be no significant difference among the mean scores of water pollution in the population explosion inventory for the college teachers of Madhya Pradesh with different level of population explosion may be rejected.

Ho<sub>4</sub> There will be no significant difference among the mean scores of deforestation in the population explosion inventory for the college teachers of Madhya Pradesh with different level of population explosion.

**Table 5 ANOVA Table Population Explosion \* Deforestation**

			Sum of Squares	df	Mean Square	F	Sig.
Population Explosion * Deforestation	Between Groups	(Combined)	41.500	20	2.075	8.411	.000
	Within Groups		19.490	79	.247		
	Total		60.990	99			

From table 5, it is evident that the  $F_{cal} = 8.441$  which is significant. Thus it can be said that the hypothesis may be rejected. Thus the hypothesis that there will be no significant difference among the mean scores of deforestation in the population

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explosion inventory for the college teachers of Madhya Pradesh with different level of population explosion may be rejected.

Ho<sub>5</sub> There will be no significant difference among the mean scores of depletion of ozone layer in the population explosion inventory for the college teachers of Madhya Pradesh with different level of population explosion.

**Table 6 ANOVA Table Population Explosion \* Depletion of Ozone**

			Sum of Squares	df	Mean Square	F	Sig.
Population Explosion * Depletion of Ozone	Between Groups	(Combined)	37.517	20	1.876	6.313	.000
	Within Groups		23.473	79	.297		
	Total		60.990	99			

From table 6, it is evident that the  $F_{cal} = 6.313$  which is significant. Thus it can be said that the hypothesis may be rejected. Thus the hypothesis that there will be no significant difference among the mean scores of depletion of ozone layer in the population explosion inventory for the college teachers of Madhya Pradesh with different level of population explosion may be rejected at 0.05 level of significance.

Ho<sub>6</sub> There will be no significant difference among the mean scores of extinction of different species in the population explosion inventory for the college teachers of Madhya Pradesh with different level of population explosion.

**Table 7 ANOVA Table Population Explosion \* Extinction of Species**

			Sum of Squares	df	Mean Square	F	Sig.
Population Explosion * Extinction of Species	Between Groups	(Combined)	38.551	22	1.752	6.013	.000
	Within Groups		22.439	77	.291		
	Total		60.990	99			

From table 7, it is evident that the  $F_{cal} = 6.013$  which is significant. Thus it can be said that the hypothesis may be rejected. Thus the hypothesis that there will be no significant difference among the mean scores of extinction of different species in the population explosion inventory for the college teachers of Madhya Pradesh with different level of population explosion may be rejected at 0.05 level of significance.

Ho<sub>7</sub> There will be no significant difference among the mean scores of global warming in the population explosion inventory for the college teachers of Madhya Pradesh with different level of population explosion.

**Table 8 ANOVA Table Population Explosion \* Global Warming**

			Sum of Squares	df	Mean Square	F	Sig.
Population Explosion * Global Warming	Between Groups	(Combined)	40.027	19	2.107	8.040	.000
	Within Groups		20.963	80	.262		
	Total		60.990	99			

From table 8, it is evident that the  $F_{cal} = 8.040$  which is significant. Thus it can be said that the hypothesis may be rejected. Thus the hypothesis that there will be no significant difference among the mean scores of global warming in the population explosion inventory for the college teachers of Madhya Pradesh with different level of population explosion may be rejected.

### Findings

There exists significant difference among the mean scores of air pollution in the population explosion inventory for the college teachers of Madhya Pradesh with

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different level of population explosion; There exists significant difference among the mean scores of water pollution in the population explosion inventory for the college teachers of Madhya Pradesh with different level of population explosion; There exists significant difference among the mean scores of deforestation in the population explosion inventory for the college teachers of Madhya Pradesh with different level of population explosion; There exists significant difference among the mean scores of depletion of ozone layer in the population explosion inventory for the college teachers of Madhya Pradesh with different level of population explosion; There exists significant difference among the mean scores of extinction of different species in the population explosion inventory for the college teachers of Madhya Pradesh with different level of population explosion; There exists no significant difference among the mean scores of global warming in the population explosion inventory for the college teachers of Madhya Pradesh with different level of population explosion.

### **Discussion**

There exists significant difference among the mean scores of air pollution in the population explosion inventory for the college teachers of Madhya Pradesh with different level of population explosion. This is possible because those who are suffering maybe very concerned about the situation. The urban people suffer of these problems and thus are very much concerned whereas those in the semi urban and rural areas being not much affected by the air pollution are less concerned about it.

There exists significant difference among the mean scores of water pollution in the population explosion inventory for the college teachers of Madhya Pradesh with different level of population explosion. This is possible because those who are suffering maybe very concerned about the situation. The urban people suffer of these problems and thus are very much concerned whereas those in the semi urban and rural areas being not much affected by the water pollution are less concerned about it.

There exists significant difference among the mean scores of deforestation in the population explosion inventory for the college teachers of Madhya Pradesh with different level of population explosion. This is possible because those who are suffering maybe very concerned about the situation. The urban people being aware of these concepts, terms and its impact are very much concerned whereas those in the semi urban and rural areas being not much aware of the impacts of the deforestation are less concerned about it.

There exists significant difference among the mean scores of depletion of ozone layer in the population explosion inventory for the college teachers of Madhya Pradesh with different level of population explosion. This is possible because those who are suffering maybe very concerned about the situation. The urban people being aware of these concepts, terms and its impact are very much concerned whereas those in the semi urban and rural areas being not much aware of the impacts of the depletion of ozone layer are less concerned about it.

There exists significant difference among the mean scores of extinction of different species in the population explosion inventory for the college teachers of Madhya Pradesh with different level of population explosion. This is possible because those who are suffering maybe very concerned about the situation. The urban people being

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aware of these concepts, terms and its impact are very much concerned whereas those in the semi urban and rural areas being not much aware of the impacts of the extinction of different species are less concerned about it.

There exists no significant difference among the mean scores of global warming in the population explosion inventory for the college teachers of Madhya Pradesh with different level of population explosion. This is possible because those who are suffering maybe very concerned about the situation. The urban people being aware of these concepts, terms and its impact are very much concerned whereas those in the semi urban and rural areas being not much aware of the impacts of the global warming are less concerned about it.

### **Some Solutions to population explosion**

Governments too need to instigate shifts in environmental policy to protect and enhance natural areas, reduce CO<sub>2</sub> and other greenhouse gas emissions, invest in renewable energy sources and focus on conservation as priorities.

To enjoy a sound health and clean environment, it is essential to eliminate those hurdles which come in their way. Putting a check on population explosion can be proved a milestone in this regard. Instead of enforcing one or two child legislation as a solution to birth control, all possible measures should be taken to inculcate a sense of awareness among the people. Women should be empowered and educated. They should be given opportunities to participate in social, political and professional life. Boys and girls are encouraged to study about sexual and reproductive healthcare at the primary level.

### **Conclusion**

The paper focusses on the effect of population explosion on air pollution, water pollution, deforestation, depletion of ozone layer, extinction of different species, global warming and population explosion. The resources of the environment are limited and they are urgently required to be preserved which is not feasible residing in the areas without checking the present growth rate of population. The world is in the dire need of taking remedial measures against ongoing global warming, deforestation, pollution, extinction of species, depletion of ozone layer and the air pollution. One or few persons alone cannot control the population and lead the movement of preserving the sanctity of the environment. It demands concerted efforts and should be the responsibility of every person dwelling on this earth. The world has only two ways to control the overpopulation – either people should take adequate actions or let nature takes its own course which may appear to the world in the guise of famines, droughts, flash floods, misery and other natural calamities.

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