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## The Problem Of Overpopulation And Ways To Solve It

Overpopulation is an undesirable condition where the number of existing human population exceeds the carrying capacity of Earth. This scenario can be illustrated in case such as, for example a square feet normally can placed about 7 people, but due to 'overpopulation' factor, the square feet have been congested by 3 to 5 times of normal amount of people. Crowding and overpopulation can be considered as synonym. Crowding has been defined as an increase in the intensity of competition for space (John J. Christian Sc.D, 1963). As stated by Riley E. Dunlap in 2016, 'the environmental problems became recognized as such in the 1960s, and the 1970 Earth Day in the United States and the 1972 United Nations Conference on the Human Environment transformed "environmental quality" into a major social issue both nationally and internationally.' It was until nowadays that overpopulation problem had been a global major problem and the mankind had united and keen toward solving this problem, or at least reducing them.

As per descriptions on overpopulation by William Ryerson on 2015, 'Human numbers and activity are already destroying the planet's ecological integrity like running roughshod over myriad other species.' The percentage of development built was increase linearly to the number of human growth - more human means more development, thus more and more ecosystems are destroyed to make way for human's development activity. Howard Alper and Mohammed H.A Hassan, 2012 stated that ' the unsustainable consumption pattern affect the capacity of the earth to support its natural biodiversity'. They also stated ' the source consumption pattern in high-income countries are gradually destroying natural sources'. These consumption pattern in these statements did not only refer to foods, but also to the environment of this Earth, as we can look now many deforestation happened, especial in advanced countries that want to enlarge their developments.

Overpopulation was caused by an over expanding human population and rising demand for product and services makes humanity's hunger for fossil utterly instable. (William Ryerson, 2015) . As the fossil resources keep depleting over time, we were struggling to live our life basis. According to the research by Ann Hoewel in 2008, 'if population continues to grow at the estimated rate, such rapid growth in India between now and mid-century could lead to overpopulation and an uncertain future for the environment and the people living there'. The rapid growth clearly huge factor that caused overpopulation. Other than that, 'industrialization and its consequent rapid population growth and concentration are the major contributors to environmental problems in both developed and developing countries' (Azuka A. Dike, 1985). It was true that industries and developments were necessary, however these plans supposedly thoroughly executed so that minimum amount of environmental damages happened.

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For better understanding, we consider the effects of overpopulation in global scale for example, according to William Ryerson, 2015 said that 'nearly a billion people go to bed hungry every night'. This was devastated as it meant 1/7 of human population on Earth were sleep in starve every day, wondering whether there will be food or not on the next day. William also predicted that 'demand for water is expected to outstrip supply by 40 percent within the next 20 year'. This would be happened as in future more human need their water supply to sustain their daily life, thus making water as one of supplies that we need to compete, on the other hand forcing poor family or people to live with lack of water. Overpopulation also affect the agricultural field because 'increased management intensity of the agricultural field is one of the main causes of the decline of local species richness. (Frederick Hendrickx, 2007)'.

This paper will discuss about problem cause by overpopulation and ways to overcome those problem. This paper also will focus on 3 main problems such as global hunger, water scarcity and agricultural global demand

According to Scottish Government Publication (2005), the activity needs to be control and plan effectively which is including of handling arrangement for the livestock of human, animal feedstuff, agriculture fuel oil, dirty water, fertiliser, veterinary medicine, chemicals and pesticides at your farm. The land that have been used need to be take cared by the farmer because that is one of their source to keep them alive and others. They need to be more responsible to their important source of life so that it can give more advantage. This is because the farmers seem like does not taken care of the land that they used like a something important. They tend to neglect the land by does not handling the schedule of farming with effectively. The schedule included the management of the fertilizer, the dirty water and others. So, the farmer are the person that are more close to the land and they are more know how to handle the effect of using chemical or fertilizer that can give bad effect to the land. Other than that, according to the Townsend, Mangi and Austin (2006), 'planting perennial crops instead of annual ones in highly sensitive areas, for instance, would retain nitrogen in the soil and greatly reduce the loss of groundwater'. The priority of the farmer is to keep the nitrogen and phosphorus rich nutrients from running off into the water sources near fields and animal farms. Nitrogen can be cycle in the atmosphere by 3 ways which is biological, human and chemical or physical. The cycle of the nitrogen by chemical or physical can happened when the human make the nitrogen to become the fertilizer. The fertilizer used to make the plant to grow in fastest way as increase the nutrient in the plant. But it can have the problem when there is too much the fertilizer, which is known as limiting nutrient and this can be trigger for the algal boom. This is because when the algae keep floating at the top of the place or pool, it can block the sunlight to get through it. When this happen, the ecosystem of the place will reduce and effect the other organism that live in the place. So as a responsible people, we need to know the quantity of the nitrogen or fertilizer so that we can reduce the problem that cause by excessing in using of fertilizer or content of the nitrogen that can increase the number of algae that will affect the other component in the same

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ecosystem.

Next, we need to increase the nutrient management. According to the United State Environmental Protection Agency (2017), applying the right quantity of fertilizer, at the right time and right method can reduce the pollution. So, other than farmer, we as good person with high humanity value, we need to take care of the land either to use it as our source of food or the place that we need to stay at one point. We need to reduce the pollution that can cause the land cannot be used. The farmer also can follow the class that teach student about the way to take care of the farm. They can increase their knowledge and use it in order to make land more effective to be used.

In this new era globalization, water and energy is an important resources which is for the economic and population growth and yet both increasingly scarce (Carillo and Frei, 2009). Every living thing needs water to keep alive. As the growth of population keep increasingly, the water have been limited to overcome the demand by user. Yet this source is one of the renewable resources. User need to use it as efficiently to make it available for all. We can reuse the water back as one of the way to use it in efficiently. Water recycling can be defined as reusing the treated water for the other beneficial use such as industrial process, agricultural and others (Water Reuse, 2018). In industrial, water is one of the important things to keep it working. This is because the water can be used in many ways like to cool down the machine, to wash the product and others. For this process, we can reduce use of clean water by reuse the treated water so that the clean water can be used by the other thing. For the agriculture, using treated water is much better than clean water. This is because it can bring a lot of benefit to the health, environment and economy. One of the benefits using this type of water is to reduce the pressure on freshwater sources (Jaramillo and Restrepo, 2017).

Agriculture section use most of available of water which is total of consume the water about 70% and the treated water can be alternative in order to save using of clean water. Another benefit in using treated water is to reduce cost in extracting groundwater resources. The technologies that need to be used in extracting the clean water are high and involve many authorities to handle this project. This also will consume high cost in build and to keep the maintenance of the technology. This project also can give bad effect which is we will explore more land and cut more tree. This will make the green plant decrease and give another bad effect to the world. To make the entire world have good effect, then use the treated water as much as possible to reduce the problem of lack of clean water.

Other than that, as we move in the millennial era, we have been involved in producing high technology to make better world. Then, there are technology which is will be used to make desalination. Desalination is a process removing salt and other mineral to create fresh and drinkable water. This process always involve by seawater. According to Khawaji, Khutubkhanah

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and Wie (2008), 'a seawater desalination process separates saline seawater into two streams which is a fresh water stream containing a low concentration of dissolved salts and a concentrated brine stream'. This technology is developed for the ship that sails in the sea for a long time which is have limited of clean water. Generally, these technologies suitable for the place that have far away from the land which is have limited clean water like oil rig, ship and others. We also can use this technology at land to reduce in consuming of clean water. The can place the technology near to the sea and pump the seawater as much as possible and convert it to the clean water. This is same concept which is they use wave energy from the sea to convert it into another energy that can we use like electrical energy because the wave energy is one of the renewable energy. Lastly, the product of water treatment can be useful if we use it as maximum as we can because there have a lot of benefit from using it in term of health, environment and economy.

According to the United Nations (2010), around 884 million people in the world, particularly country such as Mozambique, walk more than 1 kilometer to the water source and use less than 5 liters of unsafe water every day. This poor and unclean water makes it difficult especially for children, in Senegal alone, half of the schools had no water and had no sanitation facilities and cause dehydrated and unable to concentrate for students. In water rich country, the consumption of water is 210 liters per capita per day in Malaysia that is 27% higher than water consumption recommended by World Health Organization (WHO) that is only 165 liters per capita per day (Jye, 2017).

The effective water regulation and policy is a big component for health protection. A systematic surveys on the community facilities in the aspect of drinking-water system that should cover the water sources, transmission infrastructure, treatment plants, storage reservoirs and distribution systems. Microbial contamination can threaten public health. So, water suppliers should boil water or do other measures before being distribute to the communities. It is important that water suppliers take full responsibilities at all times for the quality and safety of water that produced, Guidelines for Drinking-water Quality, (n.d.), 2006, p.8-9.

The regulations can solve the water scarcity problems. Aspects that need attention such as water reuse, water resource management, water rights, industrial water use, wetland restoration, domestic water supplies, water pollution, and others. Water management has the capability of addressing human interventions and the various natural events in connection with resources and the long-term water policy decisions on the environment and economy. Water management can only be seen effecting the environment and economy in long-term (Madaan, 2016).

Significant water management have been associated with insufficient plumbing systems within public and private buildings. Millions of liters of water are lost every year due to leakages and

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sewer contamination, creating water shortages. These problems are caused by poor design, incorrect installation, alterations and poor maintenance (Madaan, 2016). A bad plumbing system can lead to huge wasting of water, for example, if the pipes carrying clean water is made from inappropriate materials, it can cause bacterial growth. Leaking pipes and sewage systems also lead to water contamination. To achieve a good plumbing system, the pipes need to be watertight, durable, of smooth and clean interior and protected against anticipated stresses and across connections between the clean water supply and the wastewater removal systems do not occur, Guidelines for Drinking-water Quality, (n.d.), 2006, p.17.

Water conservation is one of the leading ways to solve water scarcity problem. Water conservation is the practice of using water efficiently to reduce unnecessary water usage. Water is a vital element to all of life on earth, from trees to animal to human, especially fresh clean water. To avoid wasting water, one must first be aware of how much of water he or she use. So in making water conservation a success, every individual must be responsible for their water usage. There are many ways to conserve water such as, do not let the water flow while brushing teeth, soaping or shampooing. Collecting rainwater is can be beneficial for outdoor uses such as gardening and washing cars. Even, the usage of low flush toilet for urinals can save up to 30% of water when using toilet (Jye, 2017).

Overpopulation will also cause the increases competitiveness for the resource that will also lead to the growths of crime rates. Country with overpopulation problem usually has high crime rate compare to countries that has balance population, this is because when all the basic necessities are provided there are no reason for crimes. Education does not only equip the individual with knowledge but also make the individual become more patient (Becker, 1997). Individual with a quality education are wiser in decision making, he or she will able to predict what the consequences will be from their criminal activities to their surrounding and themselves (Hjalmarsson, 2012).

Currently, India is the second most populated country in the world after China but it is expected to surpass China by 2022 where the growth rate develop naturally. This is happening because, of the China's most controversial policies in its modern history which is "One-Child Policy" that has been introduced since 1979 and it recently being replace with "Two-Child Policy" in 2015. This "One-Child Policy" help to control and reduce population gradually. It is estimated that around 400 million births were prevented by this policy according to the Chinese government (Gordon, 2016). Birth control is a long term plan which will takes decades to see the result but this is the fastest and the most effective ways to control and limiting the population.

Finally, common related problem to the overpopulation is hunger. This can be proven by rapid population growth at the East Side have caused famine there unavoidable. This statement can be support by 'It's no good blaming climate change or food shortages or political corruption.

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Sorry to be neo-Malthusian about it, but continuing population growth in this region makes periodic famine unavoidable' (Porrit, 2011). These problems cause by lack of food, lack of clean water, invasion of land and other. Growth rate that have been increase through the year is one of the cause to this problem. When the population already exceeds the source of food, there will be more people hunger. This problem can lead to increase in the number of death. For this problem, we can use clean meat to solve rising global demand for protein. Clean meat known as lab grown which is meat that grown in cell culture rather than in an animal body (Cassiday, 2018). This is also one of the technologies that have been developed to carrying the capacity of human through this year. These step to meet with the demanding to the protein which is lead to the hunger problem. There are some of the benefit from doing this activity which is includes sustainability, environment, animal welfare and food safety. According to United State Food and Agriculture Organization (FAO) report that worldwide meet consumption will increase up to 73% . Other than that we can implement a solution would have been in subtitle plant or insect based proteins for human diet. Protein are source that needed by the body of human. It is to gain energy and stay in good health. Protein is important because in order to repair the muscle or skin, this protein will help to recover from the injury in short time. It is also use for hormone production, enzyme and immune function.

Transgenic crops are the future of food. Water is the main issue in crop production, 70% of global fresh water is use in crops, hence it is important in order to develop a higher performance crops. Traditional approaches of growing are limited due to area and water availability, whereas biotechnology crops offers innovation potential. These technologies are efficient as the overpopulation itself have cause water scarcity problem globally. Moreover, these technologies can be implement to countries that in dry climate regions.

In the nutshell, solving overpopulation problem will be much less difficult when we stop increasing the number of people affected by them, in easy way to understand, we have to control our rate of growth. 'We cannot live sustainably with 7.2 billion people, how we are going to support billion more by the end of the century?' (William Ryerson, 2015). Even with our number right now, we face difficulties to sustain lives, imagine if there are larger population, we will at our wits' end. The problem - overpopulation need to be prevent by all kind layers of the community constantly to make it work.

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