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Agricultural developmental, economic and industrial policies

Which strategies and techniques are needed to feed the future world population? Focus will be on agricultural developmental, economic and industrial policies

Global demand for agricultural commodities especially food continues to surge driven primarily by emerging and developing economies and human population growth. Well, this can be very good news for countries with abundant land and water because it provides considerable potential for economic growth and poverty alleviation. At the same time it can be very worrisome for those who need to purchase food especially in south Asia and in Africa because high demands attract high prices. To feed the future world population therefore, various techniques and strategies should be put into play; such techniques and strategies include:

Preserving, taking care and using sustainably the food basket that we currently have and avoid any forms of activities that will depreciate the basket. We can not think of the future yet if we currently have nothing completely at hand. This is because the future depends on today hence if there is nothing to look at today then we can never think about the future. Therefore it is best for us to conserve what we have at hand so that as we think of the future, we have something to refer to no matter how little it may seem. One of the strategies that can be used to preserve and to take care of what we currently have is through Sustainable use of resources. Sustainable use means to use environmental resources to meet the needs of the present generation without jeopardizing or compromising the ability of the future generation to meet its own needs. Therefore natural resources such as water and land are important for our present day survival as well as for the future generation. Keeping this in mind will help the present generation to preserve what is available today.

Human population growth control is also a technique that is needed to feed the future world population. The enormous increase in human population is making the future of humans insecure because with growing population, there is an increase in the requirement for food, shelter and space which exerts enormous pressure on the environment. The main cause of unsustainability is in the ever increasing human population and overexploitation of resources. The increasing human population has led to clearing of forests for settlement and cultivation to grow more food. Hence is a major factor which further contributes to lack of rainfall due to the destruction of forests. Forests are the major wa-

ter catchment areas thus sources of streams and rivers; trees also attract rainfall and they are therefore sources of water for food production. The rise in human population has also led to overabstruction of water sources such as rivers and lakes that could be used for irrigation to increase food production. Currently water withdrawal exceeds beyond the rate of replenishment of the ground water table, resulting in drying out of many wells and receding water table. Land is a scarce resource hence clearance of land for settlement by the increasing human population is a threat to the future generation. This is so because such land could be used for agricultural purposes to increase food production instead of being used for human settlement. Therefore, it is very necessary to use the technique of controlling human population before it becomes too late for us to be able to take care of the future world population.

Environmental conservation is another strategy that is needed to feed the future world population. This is a wide area of thought as it entails various ways of conservation of the environment such as: air, water and land conservation of which they all directly or indirectly influence food production. To begin with, sources of water such as lakes, rivers, springs and streams should be conserved. These water sources can be used artificially for irrigation to boost food production or naturally by completing the hydrological cycle which brings forth rainfall that is also a major factor in farming. Therefore overexploitation of the water sources leads to depletion of underground water, drying of streams and rivers leading to water scarcity hence, no crop can thrive without water since it is required for transportation of food and nutrients in the plant for proper growth of the crop. Therefore, we can not be talking of feeding the future world population if there is water scarcity hence it is mandatory that the water sources are used sustainably so as to avoid their depletion. Through this we can be sure of increasing food production due to availability of water.

The atmosphere is a very key factor for the survival of numerous living things. Plants use carbon dioxide from the atmosphere to manufacture food through the process of photosynthesis. Apart from respiration, the atmosphere is important in some biogeochemical cycles such as the carbon, phosphorous, and nitrogen cycles that provide crops with essential nutrients required for their growth and production at large. Atmospheric pollution, for example, leads to global warming which in turn has adverse effects on the environment such as climate change that leads to change in rainfall patterns, prolonged droughts, melting of ice caps, all which may lead to downstream flooding hence destruction of crops. This affects food production at large leading to increase in food prices especially in developing countries. Therefore, industrialization should be controlled and pollution to be minimized to avoid interference of the atmosphere. Industrialization mostly focuses on agricultural products for the provision of raw materials hence instead of the agricultural products being used for consumption, more of the products are directed to the industries. The technique of controlling industrialization will help to feed the future population in terms of both pollution control and provision of raw materials to the industries.

Creating awareness through education of the public is one of the key strategies to feed the future world population. As it is said, 'education is the key of wisdom' since it eliminates ignorance. Creation of awareness is aimed at producing citizenry that is knowledgeable concerning the whole subject about food and its associated problems, aware of how to solve those problems and to work towards finding a solution. Ignorance itself leads to the 'Tragedy of the Commons'. Tragedy of the commons is the depletion of a shared resource by individuals acting independently and irrationally according to each one's self interests despite their understanding that depleting the common resource is contrary to the group's long term based interests. Commons are natural resources that are communally shared by everybody such as, the atmosphere, lakes and rivers. For example, no body owns the sea and thus everybody has the right to harvest deep sea animals including fish. This leads to overexploitation of fish as fishermen use large trawlers for deep sea fishing to maximize the fish catch. This further leads to catching of the fingerlings hence leading to extinction of fish species. Fish is a major source of protein in food, therefore if exploited, then there will be nothing left for the future to use as source of protein in their food. Tragedy of the commons uses the concept that, resources are freely available to everyone and belongs to no one in particular (everybody's property is nobody's property). Hence one feels that the resource can be damaged, overutilised and degraded at own will. In a nut shell, people generally are careless about resources and do not conserve and maintain them. Therefore through educating them they will have the knowhow and the skills to finding new solutions to problems that lead to low food production.

Embracing modern technology is a very important technique that is needed to feed the future world population. Technology is the advancement of science and knowledge for solving practical problems. Therefore, technology primarily drives towards the increase in food production. Planting of drought resistant crops in dry areas for example is a way of increasing sources of food, for instance starch such as cassava, millet and sorghum. The green house is also a technology used to maximize food production. Use of green houses especially with areas of small lands can be an efficient source of agricultural production of vegetables and tomatoes. Another technology that is needed to feed the future world population is through making use of the rangelands to increase sources of protein. Rangelands are the arid and semi arid lands which have large tracts of lands that are bare. Hence such lands can be used to practice beef farming through ranches. A good example is in Isiolo, Kenya which is completely arid and beef farming is intensively practiced and recently a huge modern slaughter house was being launched. This slaughter house is the largest in Kenya yet found in the arid to boost the source of food protein through beef farming and making good use of the arid lands. Another strategy that can be used by countries experiencing a high population growth to reduce land used for human settlement is by putting up some skyscrapers. This can help to curb pressure on the ever growing population. This will increase the agricultural land hence can be used to increase food production.

In a nut shell, the above strategies and technologies are needed to feed the future world population and if they are put into practice especially by the developing countries, then we can be sure of not being victims of circumstances when it comes to feeding our future population.