

# Research Report

# MUNISH '12



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**Forum:** Special Conference 2

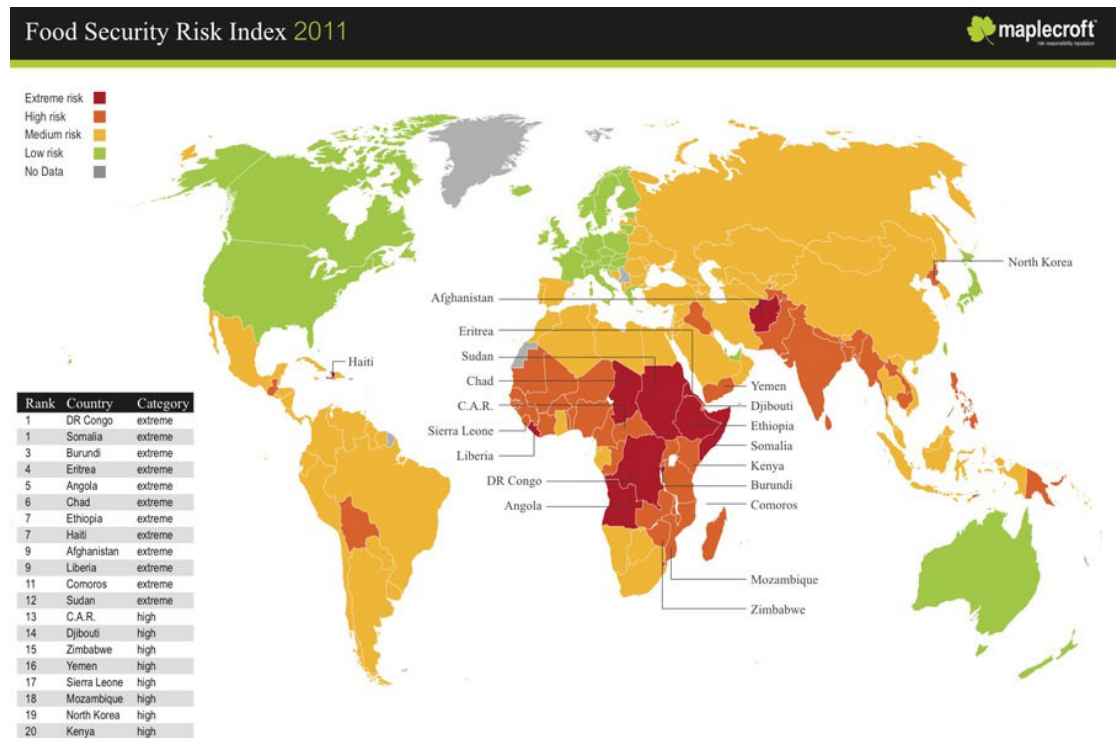
**Issue:** Dealing with food shortages with respect to the rising population

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## Introduction

In the past human population size was controlled by external factors, such as disease. However due to new technology we have developed to counter act these factors, in the last fifty years we have witnessed a steep growth in world population size, from 2.5 billion in 1950 to 7 billion today. Our rising population size will lead to severe shortages of resources in the coming decades, the effects of which can already be seen today in certain places. One of the resources that will be put under the most strain as a result of this growth in population is food. Unless a solution to this problem is found, and a sustainable method of dealing with this problem put into practice, the effects of these food shortages could be catastrophic.



## Definition of Key Terms

### Agriculture

The science of cultivating land, growing crops, raising livestock, farming, or the production of crops or livestock.

### Food Riot

A riot caused by extreme hunger of the general population that results in the public attacking homes, farms, governmental buildings, and shops in search of food.

### Food Insecurity

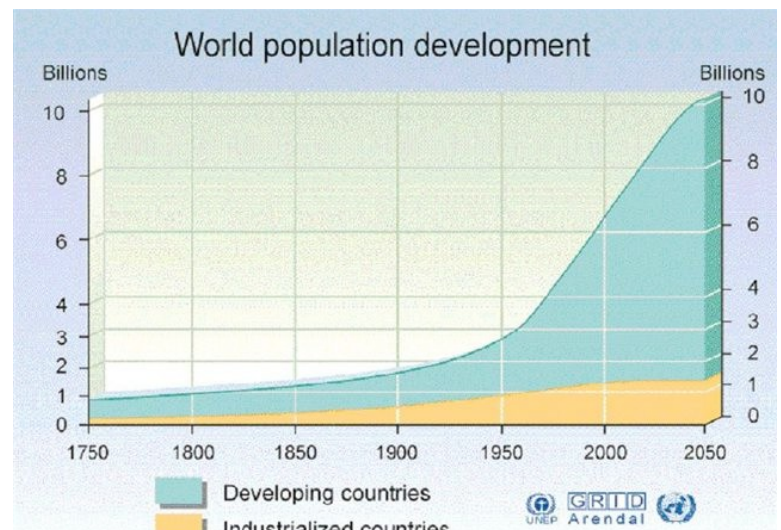
A situation in which people lack access to the necessary amount of food and nutrition to maintain a healthy life.

## General Overview

### A rising population

As aforementioned, the human population has grown steeply within the last fifty years, and looks set to continue this pattern, with an estimated population of 9 billion in 2050. The rising population will undoubtedly place a strain on

resources such as water, energy and food. To accommodate the extra 2 billion humans there will also be an increase in urbanization. This in turn will limit the amount of land available for farming and fishing. It is the combination of the extra need for food and the diminishing land available for producing it that will make providing food for all of the earth's population a challenge for the future. Some land has and will become too polluted to farm on it. In addition to this, the diminishing amount of fossil fuels means that more focus will be placed on bio fuels. This in turn will result in less land designated to producing food. As food comes under greater demand, prices will increase dramatically. This drastic rise in the price of food will affect those living in Less Economically Developed Countries (LEDC's) the most.

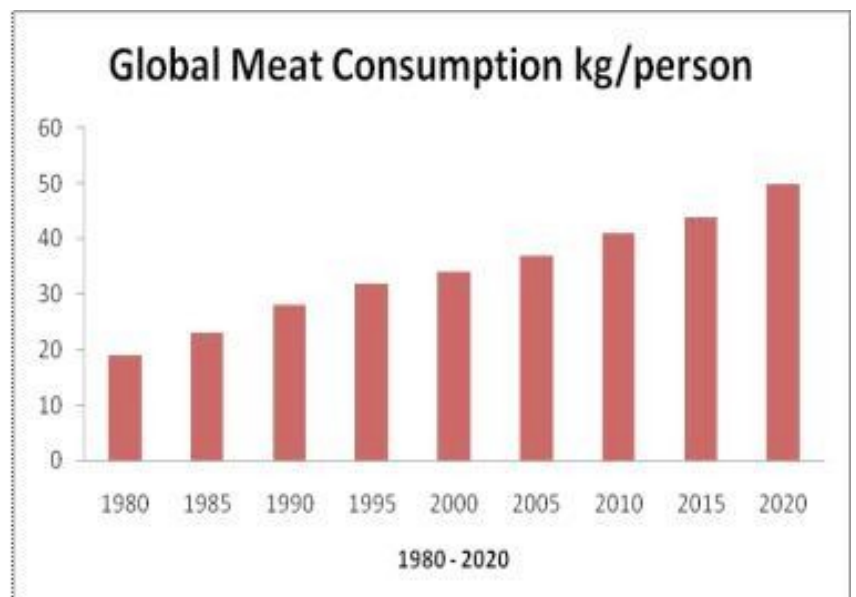


## Distribution of resources

Recently the world witnessed the catastrophic effects of food shortages. The famine in the Horn of Africa was not caused by a global food shortage, but a more localized one. However, while certain places find themselves constantly aware of the value of food, the total amount of food wasted worldwide has been calculated to be equal to the amount of food grown and produced in Sub-Saharan Africa. This situation – that on one side of the world the population starves whilst on the other food is wasted can never be acceptable, but the growing population and the growing demand for food will only exacerbate the effects of this poor distribution of resources. The recent famine made this only more evident. The uneven distribution of food, if not altered could one day be detrimental, especially in the continents of Africa and Asia which are already suffering the effects of bad distribution of food.

## Agricultural advances

As mentioned earlier, the combination of a rising population, increased urbanization and greater focus on bio fuels will result in less land designated to growing food and a greater demand for food. This in turn will place greater pressure on the land designated to growing crops: the pressure to increase crop production in the land available. In the 1960's and 1970's the Green Revolution, orchestrated by Norman Borlaug and his colleagues, did just that. The Green Revolution saved millions from famine by using new mechanical agricultural technology and by developing new disease-resistant forms of wheat. Today we have made even greater advances in the agricultural field. The extra strain placed on existing farming land means that these advances may become even more important to producing the necessary amount of crops.



## A change in diet

Another factor contributing to food shortages is the dietary changes that have been taking place within many More Economically Developed Countries (MEDC's). The past years have seen a rise in the amount of meat consumed within these countries. The effect of this is that because of the large amount of grain needed to raise livestock and produce the meat, especially beef, the need for grain has increased at a time when our ability to produce sufficient grain for the world's population is becoming more doubtful. It is therefore not only important for resources to be better distributed as mentioned earlier, but also for citizens of MEDC's to consider a more ethical diet in light of the growing population.

## Food riots

The food shortages caused by the rising population will not only have disastrous humanitarian consequences, but some countries that will be hardest hit by the food shortages may also suffer political damage and food riots. The rising food prices already played a minor part in the uprisings in the Middle East and Northern African Area. Left unchecked the coming food crisis could plunge the worst hit countries into a state of political instability.

## Major Parties Involved and Their Views

### World Food Programme (WFP)

The WFP is already feeling the strain from the inflation caused by the growing demand for food. It has recently reported that an extra 2.5 million Afghans have required food aid as a result of inflation. The growth in food prices will affect WFP in two ways: there will be more people requiring food aid; the cost of supplying food aid will increase.

### United Nations Food and Agriculture Organization (FAO)

Scientists have been able to forecast this situation for decades. The FAO has been calling for governments to take a more sustainable approach to farming. They have also been working in conjunction with the United Nations Fund for Population Activities (UNFPA) to try and achieve a method of sustainable food production for the growing population.

## Pakistan

According to the WFP, half of Pakistan's population is food insecure. This was a massive increase from only 38% in 2003. The reason for this is the terrible floods that wracked Pakistan and the rising cost of food over the years, as well as a fast population growth. It is speculated that this shortage of food could lead to food riots and political instability within Pakistan in the future. It is therefore crucial to Pakistan to provide a way of providing sufficient food for its citizens. It is one of the most volatile of the 33 nations in danger of succumbing to food related riots.

## The Philippines

The Philippines is another country that has been experiencing exponential growth in recent years. It is estimated that their population has been growing by about 2% per year since the year 2000. In light of the soaring prices of rice due to the Philippines' inability to grow sufficient rice to feed its growing population, there have been more and more people suffering from hunger.

## United States of America (USA)

Although the USA itself is not in danger of extreme food shortages, several of the countries important to US foreign affairs are in danger of succumbing to food shortages due to population growth, such as Iraq. Therefore even the USA itself does not have to worry about food shortages, it, like every country will feel the effects of the food shortages in other countries.

## Timeline of Events

1804	The world's population reaches one billion The UNPFA initiates an international forum: 'The Amsterdam Forum on Population
November 6-9 <sup>th</sup> , 1989	in the Twenty First Century' to discuss the coming resource challenges of the future with respect to population growth. They create the Amsterdam Declaration.
July 3-5 <sup>th</sup> , 1996	FAO/UNFPA Expert Group Meeting on Food Production and Population Growth
1999	The world's population reaches 6 billion
2008	Food prices rise by almost 12% over the course of the year
November 8 <sup>th</sup> 2010	The FAO publish a report on the predicted food crisis
2011	The world's population reaches 7 billion

## UN involvement, Relevant Resolutions, Treaties and Events



- The Rome Declaration on World Food Security, 13-17 November 1996 (Link in Appendix I)
- The Right to Food, 10 March 2010 (**A/RES/64/159**)
- World Summit on Food Security, Rome, 16-18 November 2009 (Link in Appendix II)
- How to Feed the World 2050, High-Level Expert Forum, Issue Briefs, 12-13 October 2009 (Link in Appendix III)
- OECD-FAO Agricultural Outlook 2012-2021 (Link in Appendix IV)

## Evaluation of Previous Attempts to Resolve the Issue

In the past this issue has been addressed from many different directions. In the 1960's and 1970's a similar food crisis (the need to increase crop yields with limited land) was addressed by using new forms of wheat and rice that were more disease resistant and using new mechanical agricultural technology. At the time rice and wheat yield tripled, saving millions from famine. Today we have made even more agricultural advances, including Genetically Modified (GM) crops. However, GM crops remain a highly controversial issue and are still illegal in many countries. In recent years we have also developed highly effective fertilizers, that are specially targeted. Recently these modern fertilizers were used in a trial in the Earth Institute's Millennium Village of Sauri in Kenya, it tripled crop yields by using targeted fertilizers, despite the drought in the area. However, although this was successful, these new technologies remain too expensive for wide spread use.

A great deal of focus has also been placed on publicizing contraception, in the hope that we will be able to diver the growth of the population. In many countries, various Non-Governmental Organizations (NGO's) have organized family planning clinics to teach people about the various methods of contraception. However, providing contraception can be complicated by various reasons, such as economic and cultural reasons. For many families that already struggle to buy food, contraception is simply too expensive. Some countries, due to various cultural beliefs forbid free contraception and sex education at school.

## Possible Solutions

There are two very definite angles of approaching this issue. The first is to try and lower the population, or to try to lower the high population growth rate. The easiest way of doing this would be to raise awareness about family planning. For this to have the wide audience it would require to be effective, it would be necessary for this to be free, as a vast percentage of those in need of family planning help do not have the economic means of paying for it. It would therefore be necessary to provide free family planning and contraception to the public. However, this remains a controversial plan for many nations, for a variety of cultural reasons. It is therefore important to consider all methods of contraception available: both mechanical and natural. While both methods could still be considered unacceptable, and while the natural methods are far less reliable, teaching the public about either method may help in lowering the birth rate.

The second side to this issue is conserving and increasing yields of grain. As mentioned earlier, the change in diet in MEDC's from a grain and rice based diet towards a more meat based diet places greater strains on the grain supply. It takes several pounds of grain to produce just one pound of beef - something many people don't realize. Therefore one method of saving grain could be to encourage citizens to change their diets once more in accord with the possibility of a global food crisis. It will also be necessary for accessibility to food to increase worldwide, to prevent famine.

To try and increase the grain yields we will need to implement the new agricultural advances we have developed. One of these, and possibly the most controversial, is GM crops. Many nations still don't permit the production of GM crops, on the grounds that they will prove to be harmful to those that consume them and the environment in which they are grown. It may therefore prove useful to continue to prove the safety of GM crops that have passed risk assessment tests, and to emphasize the possible advantages of GM crops (greater yields, drought resistant, disease resistant etc.) to the general public in places where the sale and growth of GM crops is permitted.

In cases where GM crops are not permitted, it will be important to implement other agricultural advance, such as the use of targeted fertilizers. The proven success of these fertilizers in, among other places, the Institute's Millennium Village of Sauri in Kenya, indicates that these fertilizers could go as far as to triple crop yields. However the disadvantage to these new fertilizers is that they are expensive, and therefore unavailable to many farmers. However, if these fertilizers could be provided to farmers, the possible result of a greater yield could help to stave off the looming food crisis.





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## Appendix or Appendices

I: <http://www.fao.org/righttofood/KC/downloads/vl/en/details/212325.htm>

II:

[http://www.fao.org/fileadmin/templates/wsfs/Summit/Docs/Final\\_Declaration/WSFS09\\_Declaration.pdf](http://www.fao.org/fileadmin/templates/wsfs/Summit/Docs/Final_Declaration/WSFS09_Declaration.pdf)

III: <http://www.fao.org/wsfs/forum2050/wsfs-background-documents/issues-briefs/en/>

IV: <http://www.oecd.org/site/oecd-faoagriculturaloutlook/Summary%20of%20OECD%20FAO%20Agri%20Outlook%202012.pdf>

