

## Food System Challenges - handout<sup>1</sup>

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<sup>1</sup> Based on the article [\*What Challenges in the Food System Are We Facing?\*](#):

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## Group 1:

### Challenge: a growing population

Feeding a growing population and achieving food security has been defined as one of the most significant challenges for the next three decades due to the projected rapid rise in population. By 2050, global food systems will need to feed and nourish more than 9 billion people in a safe, responsible and sustainable way. It has been proposed that global food production will need to increase 50% by 2050 to feed this growing population. As a result there will be an extra 219,000 people to feed each day and we will need to produce more food in the next 50 years than we have ever done before. It is important to ensure this growth is achieved responsibly, without jeopardising the future of our environment and natural resources.

It is evident the challenges facing the food system are enormous. However, where there are challenges, there are also opportunities. The actions of industry, government, academia and consumers now will influence the integrity of the food system for future generations. In particular, science and technology have a role in developing new solutions to replace unsustainable food production methods; to help achieve food quality, safety and authenticity; and to connect consumers with the food system.

- How is your country affected by this challenge?
  - What solutions are there for this challenge?
  - What kind of jobs can help solve this challenge? (have a look at the Food career list, but you can also do some online research)
  - Which of these jobs would you be interested in and why?
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## Group 2

### Challenge: competition for resources

Growing competition for and scarcity of land, water and energy for food production, alongside overexploitation of wild fisheries, will affect our ability to produce food. Currently one third of the world population lives in countries where there is not enough water or its quality has been compromised. It has been estimated that 220% more water and 43% more crop land will be required by 2050 to meet food demand if current dietary trends continue. In parallel, there is an urgent need to reduce the negative effects of agriculture and food production on the environment. For example, forests are cut down to make way for agricultural land, which destroys ecosystems, reduces biodiversity, and increases greenhouse gases and global warming.

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### Group 3

#### **Challenge: the complexity of the global food chain**

Food and drink has become a global industry, bringing many benefits including access, affordability and the wide variety of food on the market. However, the integrity of increasingly complex food supply chains is often compromised. This is because the sourcing and transportation of ingredients and products across a range of countries and supply chain players for raw materials, processing and retail creates difficulties for surveillance and increases the number of opportunities for fraudulent activity.

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#### Group 4

#### Challenge: food Consumption

Overconsumption and food waste put unnecessary pressure on the food system. Around one in three people suffer some form of malnutrition, i.e. undernutrition (wasting, stunting and underweight), micronutrient deficiency, and overweight, obesity and diet-related noncommunicable diseases (such as heart disease, stroke, diabetes and some cancers). In 2016, 1.9 billion adults, 340 million children aged 5-19 years old and 41 million under 5 were overweight or obese. At the same time, 462 million adults were malnourished. Moreover, 1 billion people suffer from 'hidden hunger' whereby they are getting enough calories but not enough micronutrients (vitamins and minerals).

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## Challenge 5

### Challenge: climate change

Climate change is one of the greatest challenges of the 21st century. The atmosphere and oceans are warming, sea levels are rising, there is a strong decline in Arctic sea ice and other climate-related changes are evident. Arguably, the most fundamental impact of global climate change on the human population is its effect on the food production system. The Intergovernmental Panel on Climate Change (IPCC) prepares and publishes reports presenting the latest scientific evidence for observed climate change. The recent report by the International Panel on Climate Change (IPCC) states with high confidence:

*Extreme climate and weather events will reduce food production with far reaching influences on crops, livestock, and fisheries and will change the prevalence of crop pests. These impacts on the food system are expected to be widespread, complex graphically and temporally variable and profoundly influenced by socioeconomic conditions.*

These effects are more severe in poorer countries and result in food crises such as famine and food poverty. Moreover, control measures initiated in response to climate change may generate food safety problems due to the novelty of the climate change-induced issues (e.g. new pest species) and the unfamiliarity of farmers in dealing with them. It is important for the food chain to understand how climate change will affect the provision of safe food and food safety practices. In parallel, food production is a major contributor to greenhouse gas emissions, so we must strive to produce food with a low carbon footprint and impact on the environment.

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