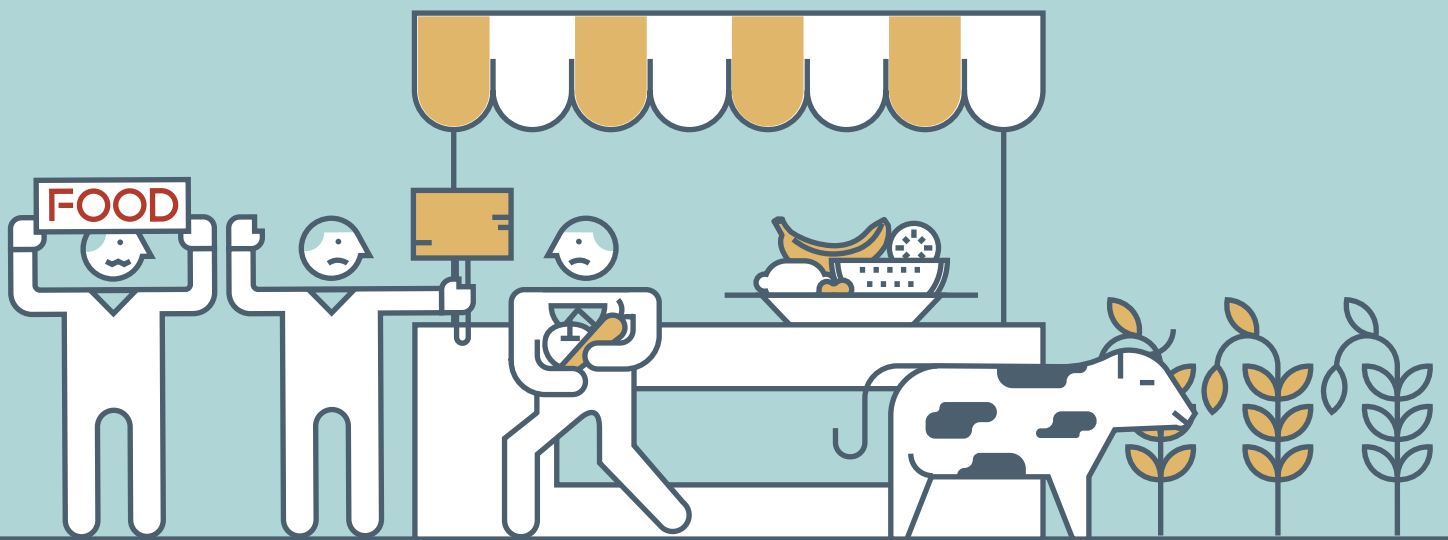
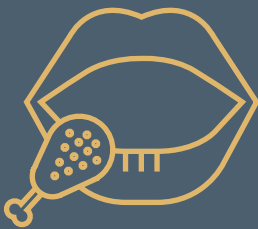


FOOD SECURITY



– 3 –

FOOD SECURITY



INTRODUCTION

Food for a growing world is facing a 'perfect storm' of declining yields, land degradation, water availability, land availability, climate change and exploding livestock numbers. Producing twice the amount of food by 2050 is simply not possible without a major change in diet. Our world cannot support both the projected human population and current or future growth in livestock population.

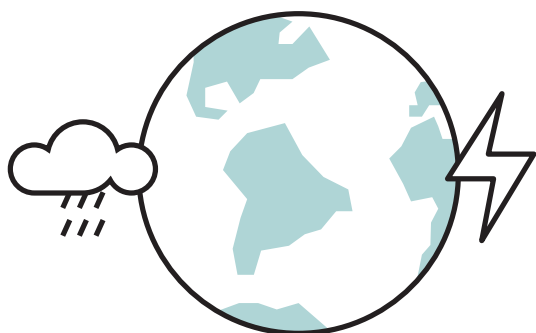
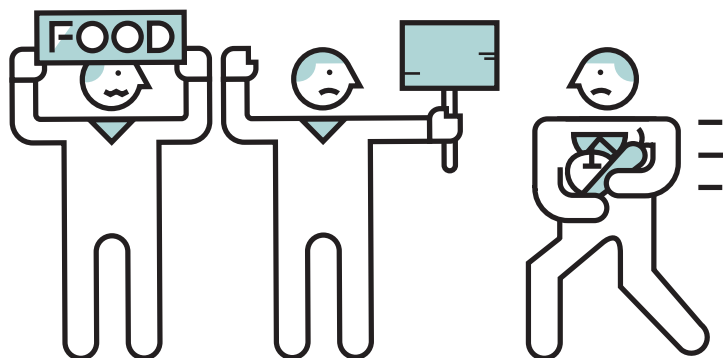
Food insecurity leads to displacement of people creating refugees; causes political unrest and can lead to riots and armed conflict. Society collapse is projected by 2040 if we pursue business as usual.

The solution is radical but simple: by switching to a plant-based diet our world can easily sustain the projected population increase.

FOOD SECURITY THREATENED

“The ability of the global food system to achieve food security is under significant pressure”

Lloyds, 2015



EXTREME WEATHER EVENTS THREATEN GLOBAL FOOD PRODUCTION

“Increases in the intensity and frequency of extreme weather events such as floods, droughts and wildfires, coupled with a rise in conditions amenable to the spread and persistence of agricultural pests and diseases, are expected to have a destabilising effect on world food production. This is further exacerbated by the growing issue of water scarcity, which is accelerating at such a pace that two-thirds of the world’s population could live under water stress conditions by 2025”

Lloyds, 2015



WORLD NEEDS TO DOUBLE FOOD PRODUCTION BY 2050, BUT CROP YIELDS ARE FALLING

“The world needs to produce at least 50% more food to feed 9 billion people by 2050. But climate change could cut crop yields by more than 25%. The land, biodiversity, oceans, forests, and other forms of natural capital are being depleted at unprecedented rates. Unless we change how we grow our food and manage our natural capital, food security, especially for the world’s poorest, will be at risk”

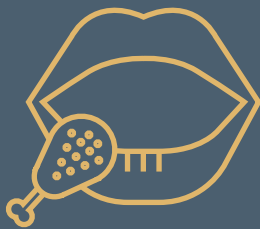
World Bank, 2015

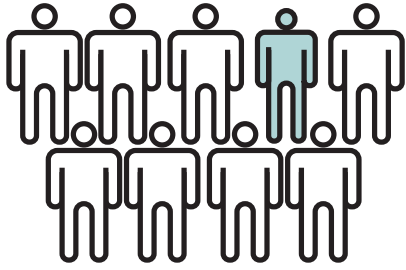
– 3 –

Food Security

PROBLEM

World Hunger





1 IN 9 ARE HUNGRY

“There are 795 million undernourished people in the world today. That means one in nine people do not get enough food to be healthy and lead an active life”

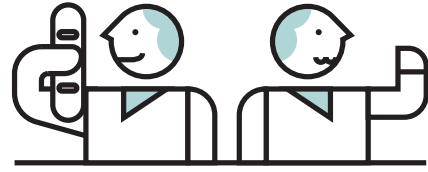
World Food Programme, 2015



2.6 MILLION CHILDREN DIE FROM HUNGER ANNUALLY

“Each year 2.6 million children die as a result of hunger related causes”

Save the Children, 2012



14% OF US HOUSEHOLDS ARE FOOD INSECURE

“In 2013, 14.3% of US households (17.5 million households) were food insecure”

World Hunger Education Service (WHES), 2015



CAUSES OF FOOD INSECURITY

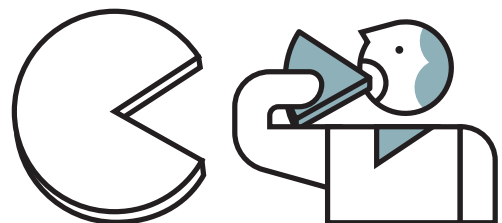
“Conflict, political instability or natural disasters have resulted in protracted crises, adding to vulnerability and food insecurity”

FAO, World Food Programme, 2015

30% OF THE GLOBAL POPULATION IS OBESE

“2.1 billion people, nearly 30% of the global population, are overweight or obese. That is nearly two and a half times the number of adults and children who are undernourished. This crisis is not just a pressing health concern; it is also a threat to the global economy. The total economic impact of obesity is about \$2 trillion a year, or 2.8% of world GDP, roughly equivalent to the economic damage caused by smoking or armed violence, war, and terrorism”

McKinsey Global Institute, 2015

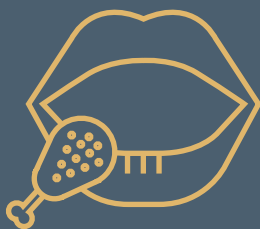


– 3 –

Food Security

PROBLEM

Food price hyper-volatility





FOOD COMMODITY PRICES THREATEN MILLIONS

“Global food markets, where we observe strong spikes in corn, wheat and soybean prices, is rousing fears of a duplication of the 2007-2008 food crisis. Immediate action is needed to prevent these price shocks from leading to a disaster affecting tens of millions people in the coming months”

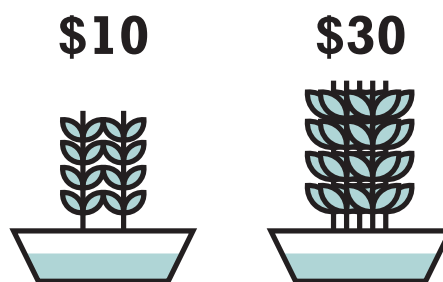
MOMAGRI, 2015



THE POOR SPEND 80% OF THEIR INCOME ON FOOD

“Those already undernourished or living in poverty are spending 70% - 80% of their daily income on food”

GRID Arendal / United Nations Environment Programme, 2009



FOOD PRICES JUMP 200%

“The surge in food prices in the last years has resulted in a 50% - 200% increase in selected food-commodity prices, driven 110 million people into poverty and added 44 million more to the undernourished”

GRID Arendal / United Nations Environment Programme, 2009



FOOD PRICE RIOTS THREATEN SOCIAL STABILITY

“As the prices of food and energy soared to new heights between 2007 and 2008, many countries were confronted with major social and political crises. Food riots and protests threatened Governments as well as social stability in Africa, Asia, the Middle East and Latin America and the Caribbean”

United Nations, 2011



FOOD PRICE SPIKES CAUSED BY EXTREME WEATHER EVENTS

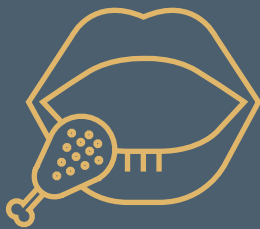
“The world has experienced three international food price spikes in the past five years. Weather has been among the drivers for each. Droughts in some parts of the world have impaired global grain production practically every other year since 2007. Elsewhere, major floods also created severe damages to crops. The increased diversion of food crops for biofuels and the financial speculation have played a decisive role in rising prices and volatility”

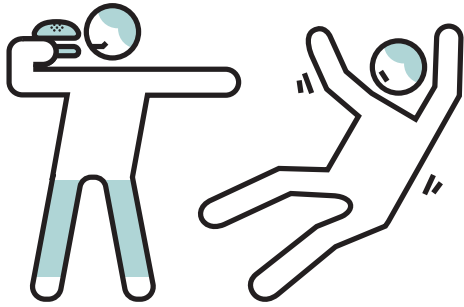
MOMAGRI, 2015

– 3 –

Food Security

CAUSE

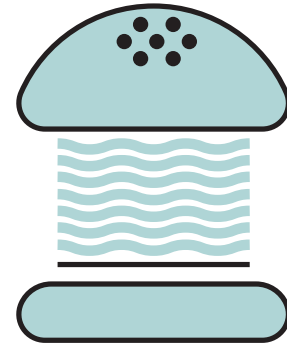




2 BILLION CARNIVORES TAKING THE RESOURCES OF 4 BILLION VEGETARIANS

“Worldwide, an estimated 2 billion people live primarily on a meat-based diet, and an estimated 4 billion live primarily on a plant-based diet. The US food production system uses about 50% of the total US land area, 80% of the fresh water, and 17% of the fossil energy used in the country”

American Journal of Clinical Nutrition, 2003



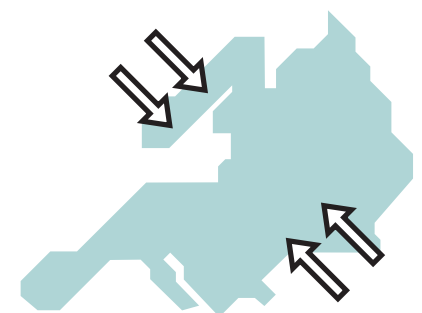
RICH COUNTRIES EAT 750% MORE MEAT

“The surge in food prices in the last years has resulted in a 50% - 200% increase in selected food-commodity prices, driven 110 million people into poverty and added 44 million more to the undernourished”

Nature Journal, 2014

80% OF EUROPE'S LIVESTOCK FEED IS IMPORTED, EXPLOITING DEVELOPING COUNTRIES

“Only 20% of the proteins that are fed to animals originate in Europe. The missing amount is imported from other countries, including developing ones, playing an important role in the further impoverishment of these countries and in the exploitation of their environmental resources”

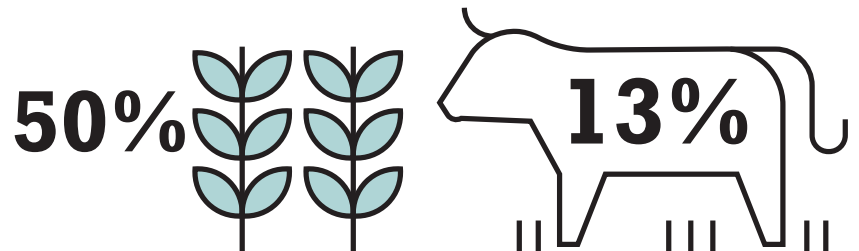


European Journal of Clinical Nutrition, 2006

LIVESTOCK CONSUMES 50% OF THE WORLDS GRAIN TO PROVIDE 13% OF THE WORLDS CALORIES

“Livestock supply 13% of energy to the world’s diet but consume one-half the world’s production of grains to do so”

*Animal Frontiers
Magazine, 2013*



80% OF SOY AND 50% OF CORN IS FED TO LIVESTOCK

“80% of the global soybean crop and 40% to 50% of the annual corn crop are fed to cattle, pigs, chickens, and other animals used in agriculture”

*Humane Society Interna-
tional, 2011*

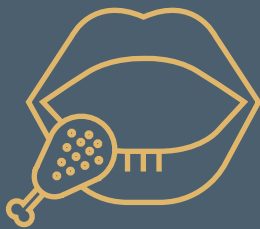


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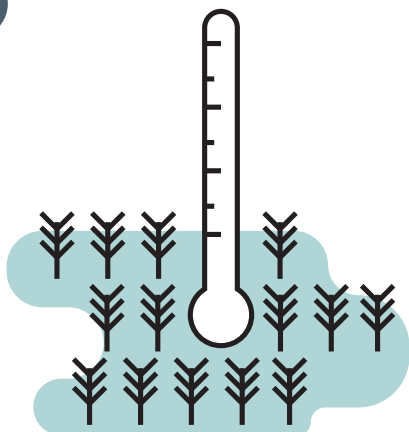
Food Security

TIMELINE

Food price hyper-volatility



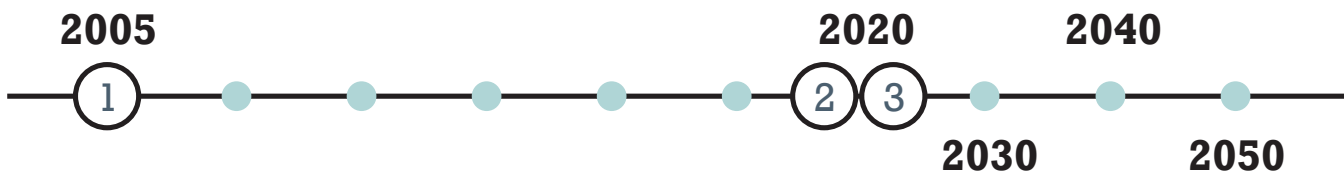
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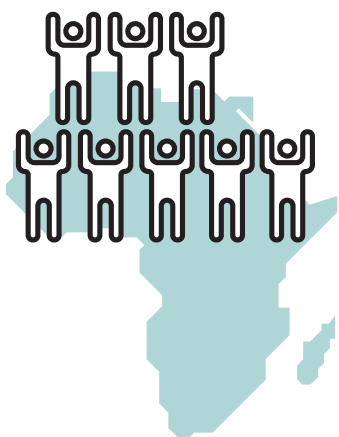
RISING TEMPERATURES DESTROY CROP YIELDS

“The International Rice Research Institute in Manila has found that damage to the world’s major grain crops begins when temperatures climb above 30°C during flowering. At about 40°C, yields are reduced to zero. “In rice, wheat, and maize, grain yields are likely to decline by 10% for every 1°C increase --over 30°C. We are already at or close to this threshold”

Worldwatch Institute, 2005



2



BY 2020 AFRICAN CROP YIELDS COULD FALL BY 50%

“By 2020, in some African countries, yields from rain-fed agriculture could be reduced by up to 50%. Agricultural production, including access to food, is projected to be severely compromised. This would further adversely affect food security and exacerbate malnutrition”

Intergovernmental Panel on Climate Change, 2007

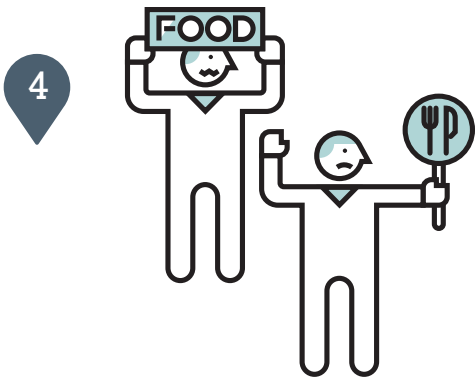
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FOOD PRICES TO INCREASE BY 30% TO 50%

“The world price of food is estimated to become 30% to 50% higher in coming decades and have greater volatility”

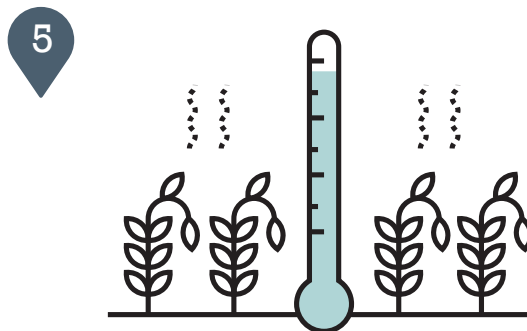
GRID Arendal / United Nations Environment Programme, 2009



BY 2040 FOOD SHORTAGES WILL LEAD TO THE COLLAPSE OF SOCIETY

“Society will collapse by 2040 due to catastrophic food shortages... based on plausible climate trends, and a total failure to change course, the global food supply system would face catastrophic losses, and an unprecedented epidemic of food riots... In this scenario, global society essentially collapses as food production falls permanently short of consumption”

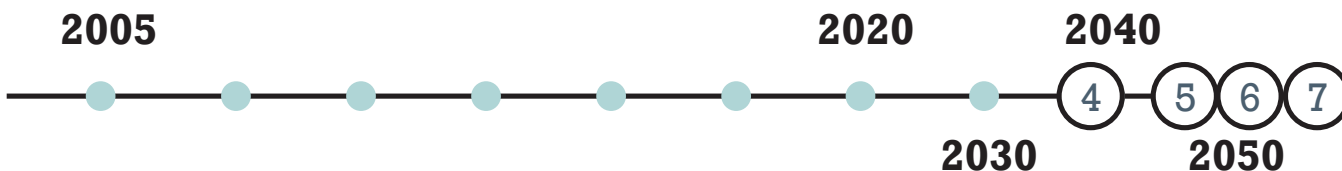
The Independent, 2015



GLOBAL CROP YIELDS WILL FALL BY 30% FROM WARMING TEMPERATURES

“By 2050 climate change will have a negative impact on agriculture and human well being. Irrigated wheat yields will fall by about 30% and irrigated rice yields by about 15% in developing countries”

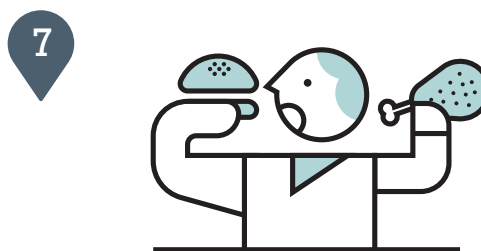
European Commission, 2009



BY 2050 DEMAND FOR FOOD WILL INCREASE BY 70%

“By 2050 it is predicted that demand for food could increase by 70%”

WWF, 2010



MEAT CONSUMPTION TO INCREASE 75% BY 2050

“Shifting diets, coupled with a growing population, would see global [meat] consumption increase by more than 75% by 2050”

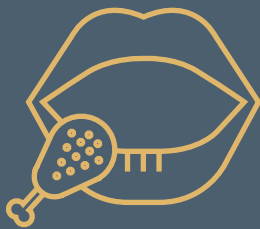
BBC, 2015

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Food Security

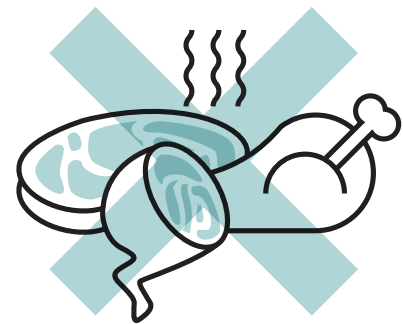
SOLUTION

Change in Diet

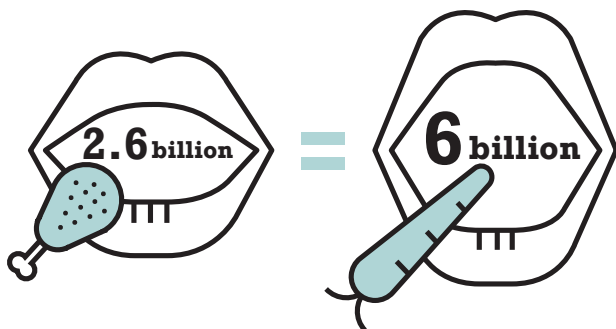


WITHOUT LIVESTOCK THE WORLD COULD FEED AN ADDITIONAL 4 BILLION PEOPLE

“Shifting crops away from animal feed and biofuels to growing food exclusively for human consumption would increase global calorie availability by as much as 70%, and we could feed an additional 4 Billion people”



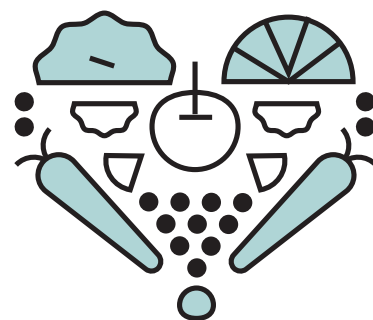
Scientific American, 2013



VEGETARIAN DIET CAN FEED 6 BILLION

“The World Hunger Program at Brown University calculated that recent world harvests, if equitably distributed with no diversion of grain to feeding livestock, could provide a vegetarian diet to 6 billion people, whereas a meat rich diet like that of people in the wealthier nations could support only 2.6 billion”

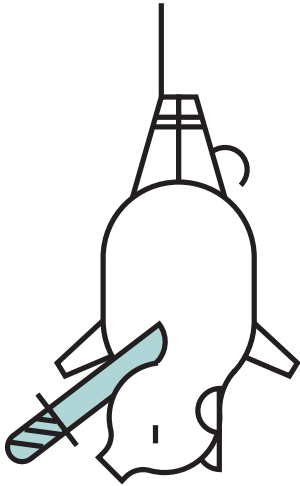
UNFAO, 2015



PLANT BASED DIETS ARE SUSTAINABLE

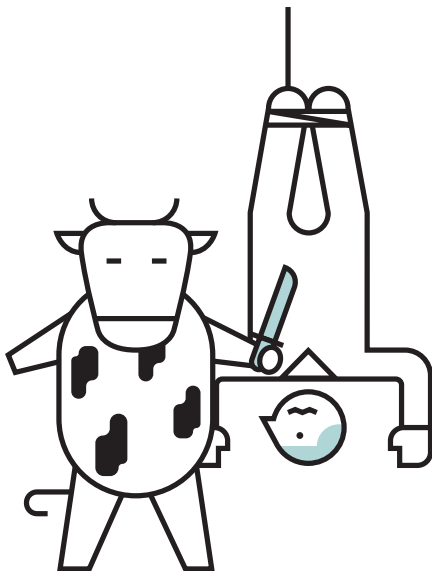
“Change in diet key to UN plan to end hunger by 2030... the shift must apply to both wealthy and developing nations, where consumption of ecologically unfriendly foods is growing fastest... sustainable and healthy diets will require a move towards a mostly plant-based diet”

UNFAO, 2015



“CAN WE JUSTIFY KILLING ANIMALS FOR FOOD?”

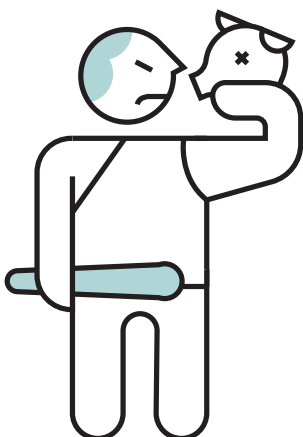
BBC, 2015



DOES ANIMAL-SUFFERING MATTER?

“Cows have a moral interest in continuing to live... you don't have to think about humans in exactly the same way that you think about cows. But you've got to explain why you think it's permissible to do to an animal what you think it would be impermissible to do to a human being. In the case of people their suffering matters, but their happiness also matters. The same should be true in the case of animals”

Jeff MacMahan, Professor of Moral Philosophy, University of Oxford-BBC, 2015



“OUR FUTURE SELVES WILL CONSIDER MEAT EATING TO BE BARBARIC”

Peter Singer, Professor of Bioethics at Princeton University-BBC, 2015



www.worldpreservationfoundation.com