

WATER SECURITY



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WATER SECURITY



INTRODUCTION

We do not have enough fresh water for our current population, let alone population growth, because much of the world's water sources are drying up. Already, more than a billion people live with critical water scarcity and 5 billion rely on polluted water.

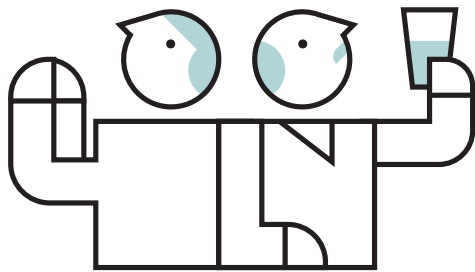
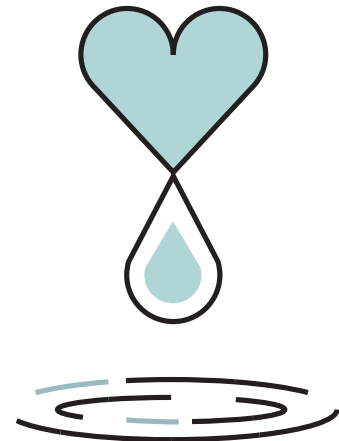
By 2025, two-thirds of the population will face water shortages, unless we take action. Water scarcity has already created millions of climate refugees, heightened international tension and even resulted in armed conflict.

Food production uses most fresh water, with livestock using two-thirds of this. This is mainly because producing animal protein requires 100 times more water than plant protein. Livestock are also the main cause of water pollution, particularly nitrification. Therefore changing to a meat and dairy free vegan diet presents a viable solution to a thirsty world.

WATER = LIFE

“Water is essential for life. No living being on planet Earth can survive without it. It is a prerequisite for human health and well being as well as for the preservation of the environment”

United Nations, 2005



CALIFORNIA HAS ONE YEAR OF WATER SUPPLIES REMAINING

“[California] state has only about one year of water supply left in its reservoirs, and our strategic backup supply, groundwater, is rapidly disappearing. California has no contingency plan for a persistent drought like this one (let alone a 20-plus-year mega-drought), except, apparently, staying in emergency mode and praying for rain”

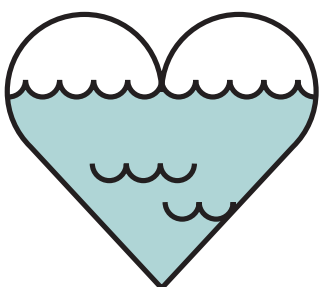
LA Times, 2015



BY 2030 THE WORLD WILL NEED 40% MORE WATER

“The planet is facing a 40% shortfall in water supply by 2030, unless we dramatically improve the management of this precious resource”

United Nations Educational, Scientific and Cultural Organization (UNESCO), 2015



“Thousands have lived without love, not one without water”

W.H. Auden

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Water Security

PROBLEM

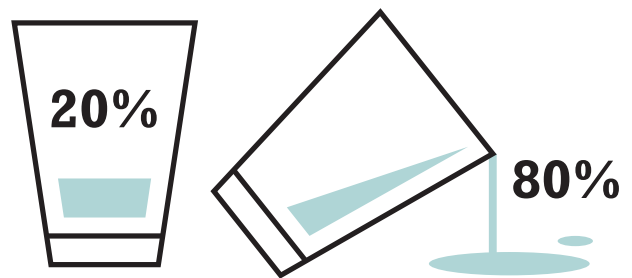
Water scarcity



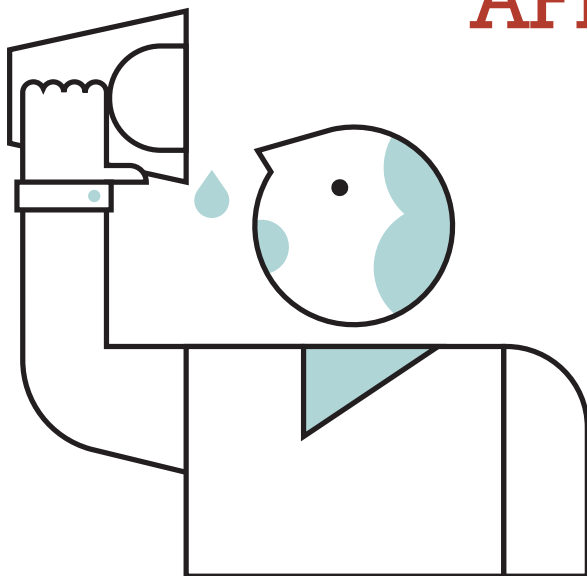
80% OF THE WORLD'S WATER IS NOT SECURE

“80% of the world’s population lives in areas where the fresh water supply is not secure”

Nature Journal, 2010



WATER SCARCITY AFFECTS 1.6 BILLION



“1.6 billion people live in countries with absolute water scarcity”

United Nations, 2006

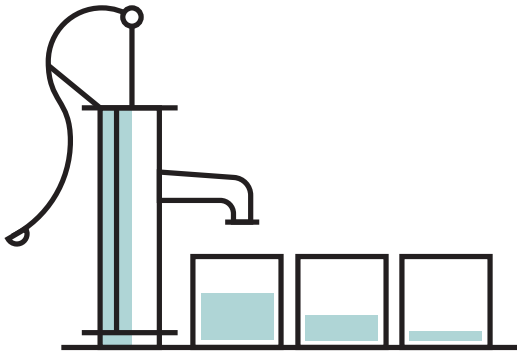
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Water Security

PROBLEM

Unsustainable Withdrawal From Aquifers

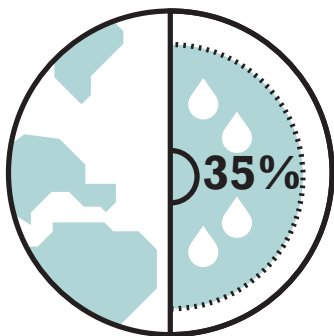




NON-RENEWABLE AQUIFER WATER THREATENS LIFE ON EARTH

“Aquifers provide us with freshwater that makes up for surface water lost from drought-depleted lakes, rivers, and reservoirs. We are drawing down these hidden, mostly non-renewable groundwater supplies at unsustainable rates threatening our very future. These aquifers typically cannot recharge, and once this “fossil” water is gone, it is gone forever potentially changing how and where we live and grow food”

National Geographic, 2014



AQUIFERS SUPPLY 35% OF FRESHWATER DEMANDS

“Underground aquifers supply 35% of the water used by humans worldwide”

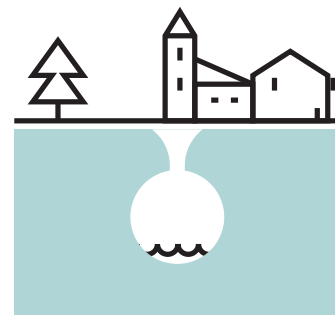
National Post, 2015



97% OF FRESHWATER IS IN AQUIFERS, SOIL, SWAMPS AND PERMAFROST

“30% of the world's freshwater is stored underground in the form of groundwater (shallow and deep groundwater basins up to 2000 metres, soil moisture, swamp water and permafrost). This constitutes about 97% of all the freshwater that is potentially available for human use is stored in aquifers”

United Nations Water



DEPLETED AQUIFERS THREATEN 2 BILLION PEOPLE

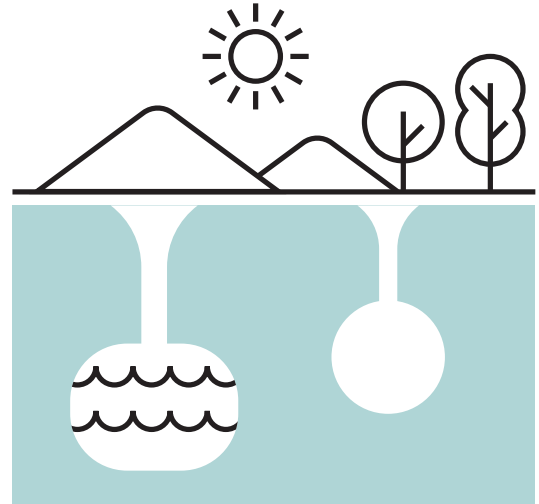
“Almost 2 billion people live in regions where aquifer water is being used up faster than it can be replenished”

Nature Journal, 2012

OVER HALF THE WORLD'S LARGEST AQUIFERS ARE THREATENED

“Of the 37 largest aquifers on Earth, 21 have exceeded sustainability tipping points and are being depleted, and 13 are considered significantly distressed, threatening regional water security and resilience”

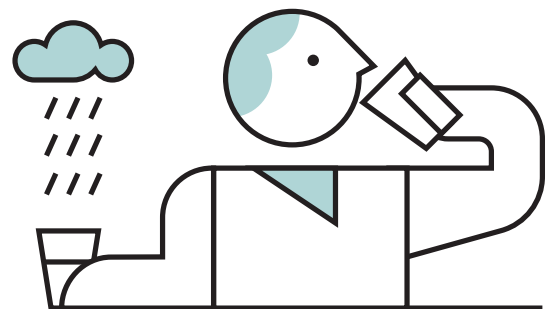
NASA, 2015

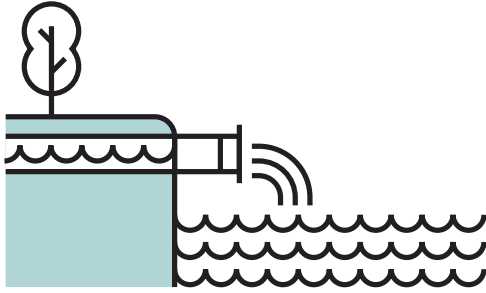


AQUIFERS SUPPLY 50% OF US DRINKING WATER

“Aquifer water provides drinking water for more than one-half of the US population”

United States Geological Survey

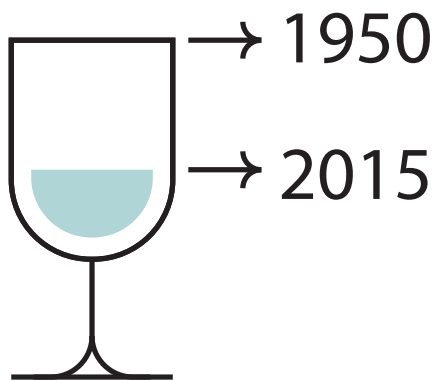




40% OF SEA LEVEL RISE IS FROM DISPLACED AQUIFER WATER

“40% of the observed sea-level rise in recent decades is due to water that has been pumped out of aquifers”

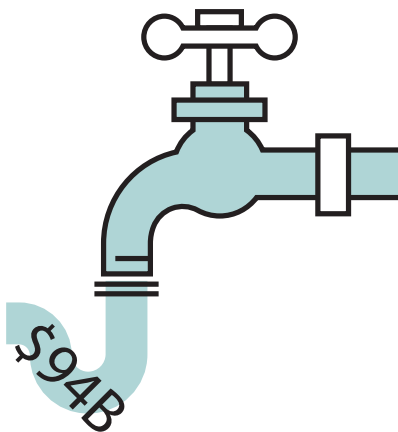
Washington Post, 2015



DRINKING WATER LEVELS FALL BY TWO THIRDS SINCE 1950

“The world’s drinking water supplies have fallen by almost two thirds since 1950”

International Fund for Agricultural Development



WATER INSECURITY COSTS \$94 BILLION ANNUALLY

“In agriculture, water insecurity costs existing irrigators US\$94 billion per year”

Global Water Partnership, 2015

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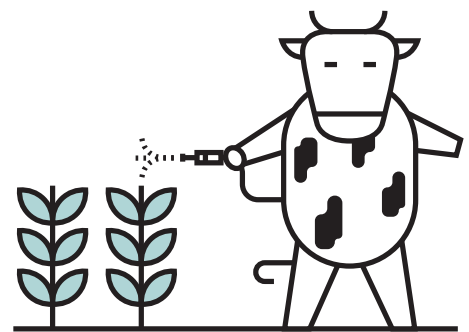
Water Security

CAUSE



AGRICULTURE USES 70% OF WATER WITHDRAWALS, & 90% IN DEVELOPING COUNTRIES

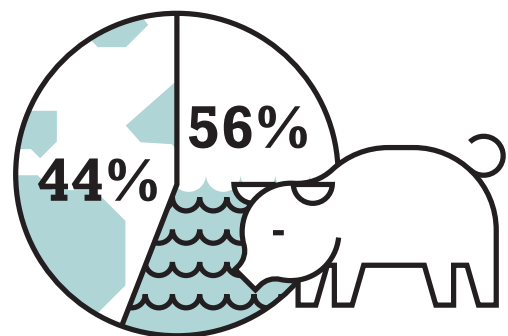
The agricultural sector is already the largest user of water resources, accounting for roughly 70% of all freshwater withdrawals globally, and over 90% in most of the world's least-developed countries



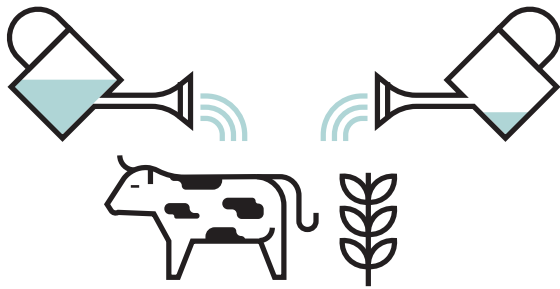
World Water Assessment Program, 2014

LIVESTOCK CONSUMES 56% OF FRESHWATER IN THE US

“Irrigating feed crops and raising livestock consume 56% of all freshwater in the United States. In contrast, domestically all showers taken, toilets flushed, cars washed, glasses drunk, and lawns watered, consume less than one-tenth as much water as agriculture”



Center for Science in the Public Interest, 2006



1KG OF ANIMAL PROTEIN USES 100X THE WATER OF PLANT PROTEIN

“Producing 1 kg of animal protein requires about 100 times more water than producing 1 kg of grain protein”

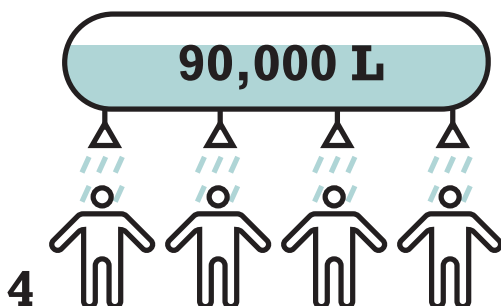
American Journal on Clinical Nutrition, 2003



1KG BEEF USES 43K LITRES OF WATER

“43,000 litres of water is required to produce 1 kg of beef”

Oxford Journals BioScience, 2004



ANNUAL SHOWERS FOR 4 PEOPLE USES 90K LITRES WATER, THE SAME REQUIRED TO PRODUCE 2KG OF BEEF

“The average four-person UK family would use 90,000 litres of water per year for their daily showers”

The Telegraph, 2011

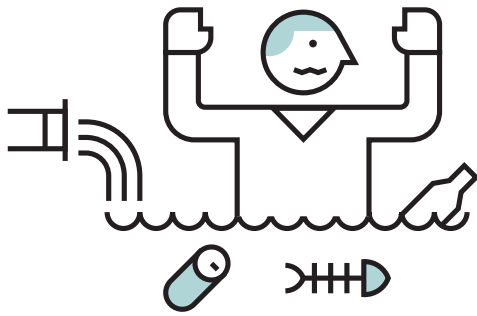
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Water Security

PROBLEM

Polluted Waters

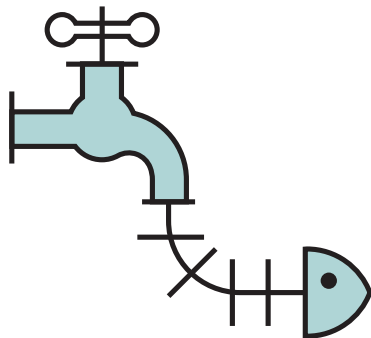




5 BILLION PEOPLE ARE AFFECTED BY WATER POLLUTION

“The world’s rivers are so badly affected by human activity that the water security of almost 5 billion people, and the survival of thousands of aquatic species, are threatened”

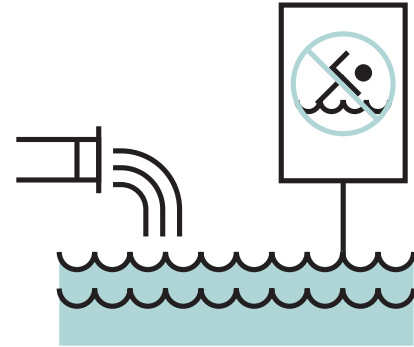
The Guardian, 2010



AGRICULTURAL RUN-OFF FEEDS ALGAL BLOOMS AND SUFFOCATES AQUATIC LIFE

“High levels of nitrate can cause an abundance of algae in water bodies, which in turn robs water of oxygen as bacteria break down the excess organic matter. Fish and other aquatic animals begin to suffocate, and stress is usually evident when oxygen drops below 3 milligrams per litre of water”

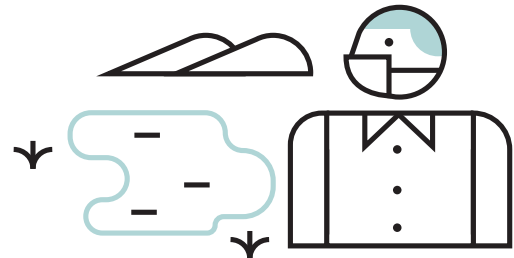
National Geographic, 2013



40% OF US RIVERS TOO POLLUTED FOR SWIMMING

“About 40% of rivers and lakes in the US surveyed by the EPA are too polluted for swimming or fishing”

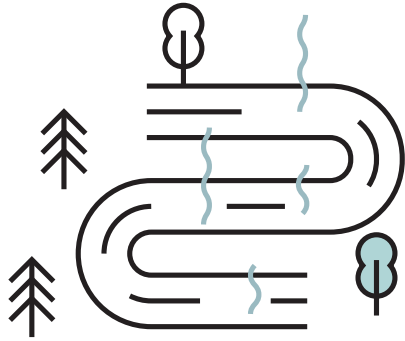
The Nature Conservancy, 2015



WATER FROM A DRYING CALIFORNIA LAKE CAUSING TOXIC AIR POLLUTION

“[California] state’s largest lake, the 350-square-mile Salton Sea, [is] burping up hydrogen sulphide, a gas created by the decaying organic matter trapped beneath the water... The hydrogen sulphide can be smelled as far as 130 miles away in Los Angeles. But the smell is only one small part of a more serious public-health problem, one that has the potential to affect millions of people in southern California and beyond... As the playa is exposed, it dries quickly in the desert heat and sun; desert winds kick up the dust, creating a serious air-pollution problem”

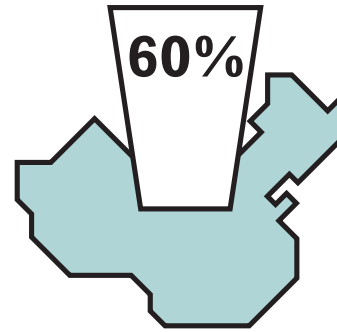
The Atlantic, 2015



50% WORLD'S MAJOR RIVERS POLLUTED OR DEPLETED

“Half the world’s major rivers are being seriously polluted and or depleted”

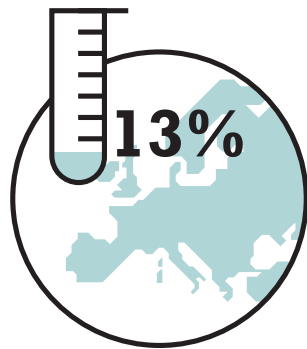
The Nature Conservancy, 2015



60% OF CHINA'S GROUNDWATER IS POLLUTED

“Nearly 60% of China’s ground water is polluted, only 3% of the China’s urban groundwater can be classified as clean”

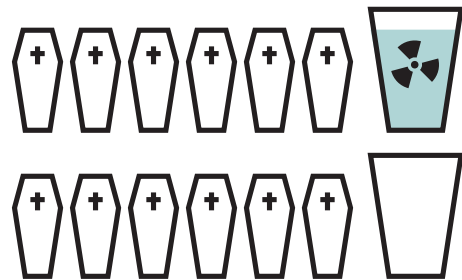
The Guardian, 2014



13% OF EUROPE'S GROUNDWATER IS POLLUTED

“13% of the groundwater monitoring stations across Europe, in 2009, exceed the 50 mg of nitrates per litre limit”

European Commission, 2012



12 MILLION DIE ANNUALLY FROM WATER SHORTAGES /CONTAMINATION

“Every year, 12 million people die as a result of water shortages or contaminated drinking water”

International Fund for Agricultural Development, 2001

1.5 MILLION CHILDREN DIE ANNUALLY FROM WATER SHORTAGES/CONTAMINATION

“UNICEF reports that 1.5 million young children die every year due to lack of safe water and sanitation”

UNICEF, 2006



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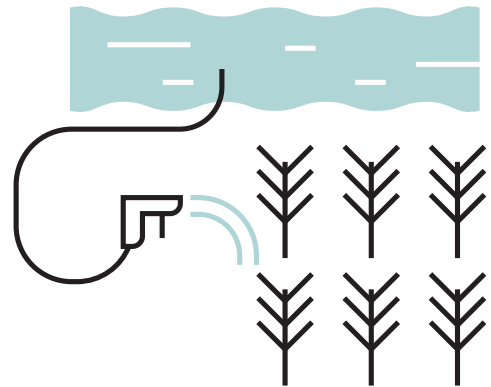
Water Security

CAUSE

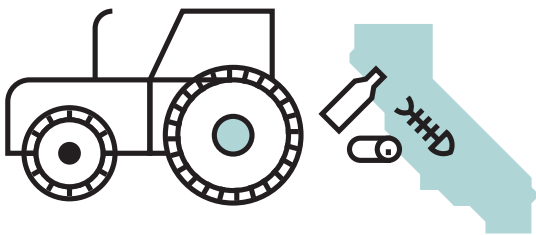


AGRICULTURAL WATER USE CHANGES ECOSYSTEMS, AND COSTS \$20 BILLION TO THE US ANNUALLY

“The way that water is managed in agriculture has caused wide-scale changes in ecosystems and undermined the provision of a wide range of ecosystem services. The external cost of the damage to people and ecosystems, and clean-up processes, from the agricultural sector is significant. In the United States of America the estimated cost is US\$9–20 billion per year”



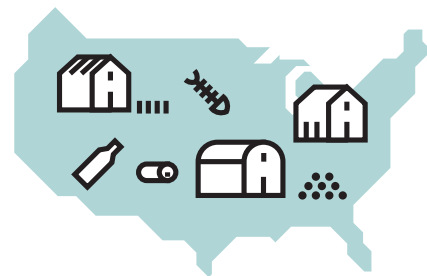
United Nations, 2006



CALIFORNIAN AGRICULTURE CREATES 96% OF NITRATE POLLUTION

“In California agriculture accounts for 96% of total nitrate water contamination, including 54% from synthetic fertilizers and 33% from animal manure”

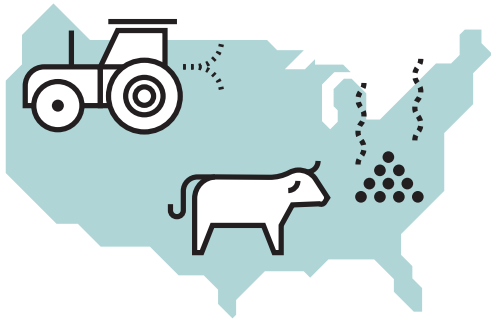
Grace Communications Foundation, 2015



AGRICULTURE IS THE LEADING CAUSE OF WATER POLLUTION IN THE US

“Agriculture is the leading source of pollution in assessed rivers and streams. In the United States it affects 18%, and contributes to 48% of reported water quality in these rivers and streams”

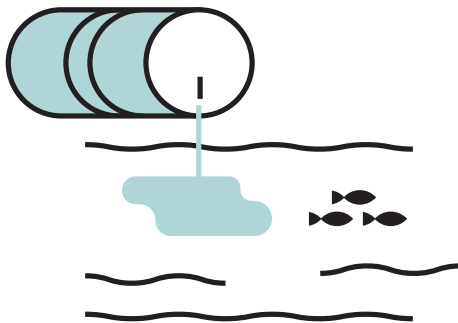
United States Environmental Protection Agency, 2000



AGRICULTURE ACCOUNTS FOR 80% OF US NITROGEN POLLUTION

“Agricultural activities in the United States, primarily row crop and livestock production, account for over 80% of all nitrogen added to the environment”

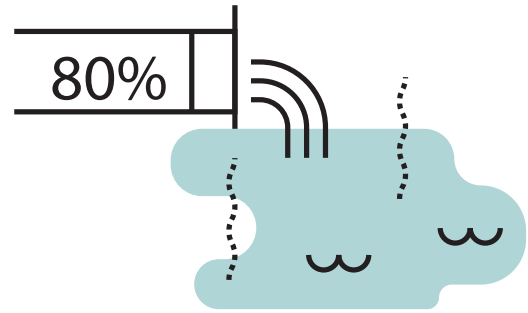
Environmental Working Group, 1996



1M³ WASTEWATER CONTAMINATES OVER 1000M³

“1m³ of non-treated wastewater may spoil over 1000m³ of fresh water for human consumption or other activities”

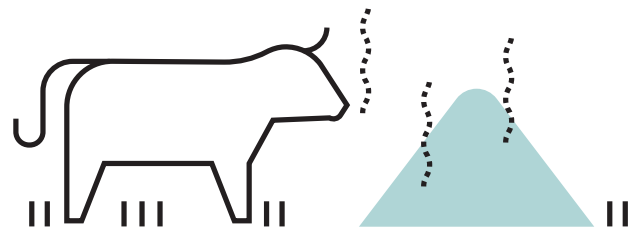
Reuters, 2010



80% OF GLOBAL SEWAGE/AGRICULTURAL WASTE IS UNTREATED

“2 million tonnes of sewage and agricultural waste is put into the world’s waterways every day, more than 80% of this wastewater is untreated”

United Nations Environment Programme, 2010



A COW PRODUCES 120 LBS. OF MANURE DAILY

“According to the EPA, a 2,000-cow dairy generates more than 240,000 pounds of manure daily or nearly 90 million pounds a year”

Yale University, 2014

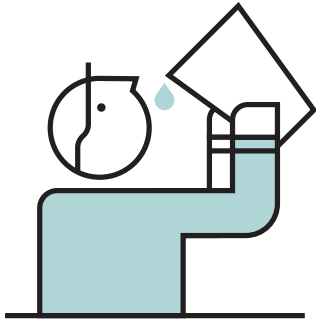
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Water Security

TIMELINE



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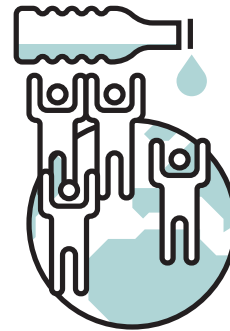


WATER SCARCITY AFFECTS 1.6 BILLION

“1.6 billion people live in countries with absolute water scarcity”

United Nations, 2006

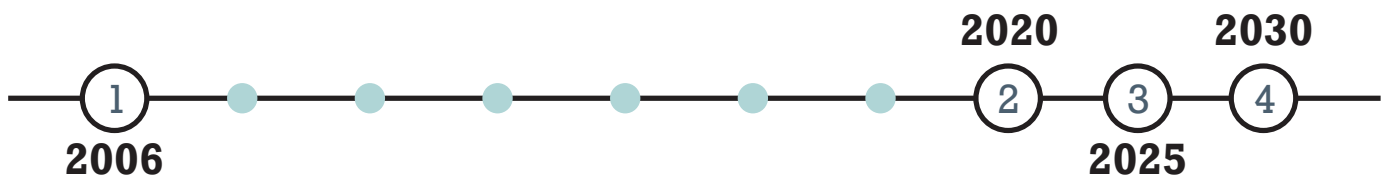
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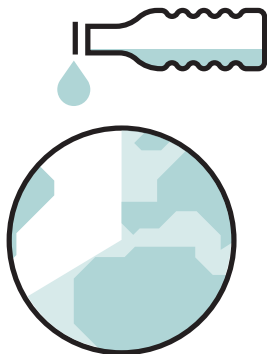
250 MILLION ADDITIONAL PEOPLE TO FACE CLIMATE CHANGE WATER STRESS BY 2020

“By 2020, between 75 and 250 million of people are projected to be exposed to increased water stress due to climate change”

Intergovernmental Panel on Climate Change, 2007



3

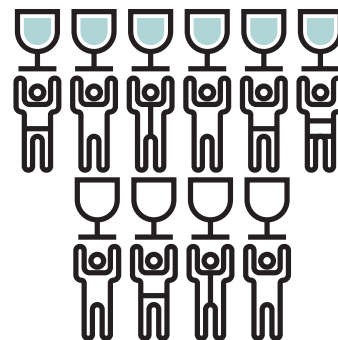


BY 2025 TWO-THIRDS OF THE WORLD WILL FACE WATER SHORTAGES

“At the current consumption rate, this situation will only get worse. By 2025, two-thirds of the world’s population may face water shortages. And ecosystems around the world will suffer even more”

WWF, 2015

4



WORLD WILL HAVE ONLY 60% OF REQUIRED WATER BY 2030

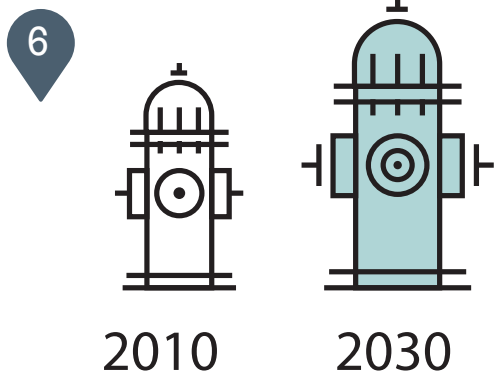
“The world will have only 60% of the water it needs in just 15 years unless countries dramatically change their use of the resource”

International Business Times, 2015

135 MILLION CLIMATE REFUGEES BY 2020

“By 2020 an estimated 60 million people could move from desertified areas of sub-Saharan Africa towards North Africa and Europe, and worldwide, 135 million people could be placed at risk of being uprooted by desertification”

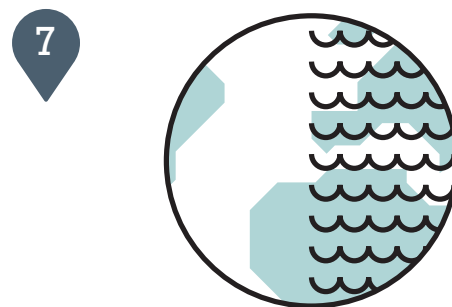
United Nations, 2006



GLOBAL WATER DEMAND TO INCREASE 30% BY 2030

“The world’s demand for fresh water is projected to increase by over 30% by 2030”

WWF, 2010



HALF THE WORLD WILL EXPERIENCE WATER STRESS BY 2030

“By 2030, 47% of the world’s population will be living in areas of high water stress”

United Nations Water, 2012

8



HACKED NESTLE DOCUMENT PROJECTS 1/3 OF THE WORLD TO FACE WATER SCARCITY BY 2025, WITH THE SITUATION TURNING CATASTROPHIC BY 2050

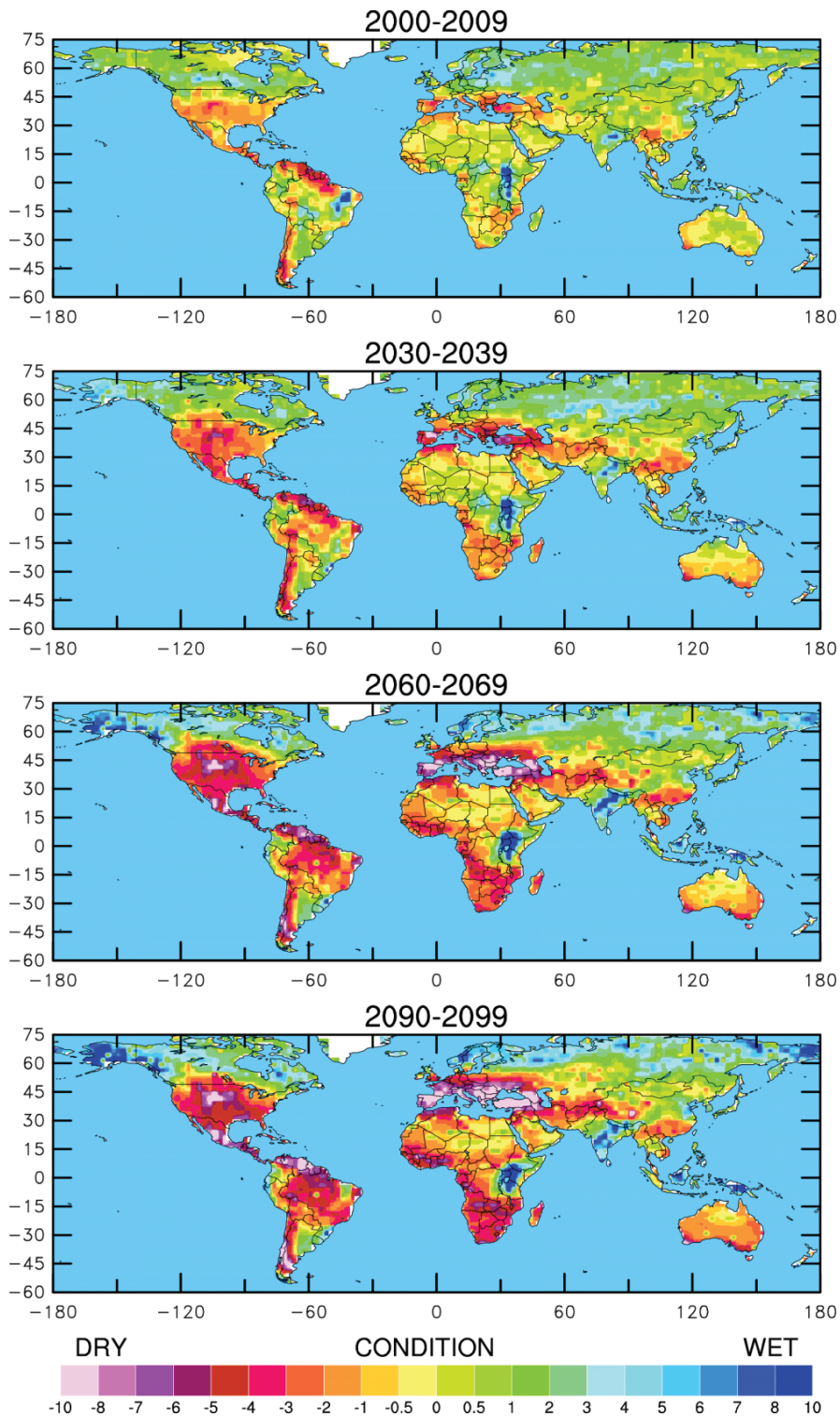
“World on 'catastrophic' path to run out of fresh water, increased meat consumption in the developing world is fast depleting fresh water supplies, according to a secret report first released by WikiLeaks... [The] secret US report titled “Tour D’Horizon with Nestle: Forget the Global Financial Crisis, the World Is Running Out of Fresh Water...Nestle thinks one-third of the world’s population will be affected by fresh water scarcity by 2025, with the situation only becoming more dire thereafter and potentially catastrophic by 2050... In private, Nestle executives told US officials that the world is on a collision course with doom because non-Americans eat too much meat”

United Nations, 2006

WATER PROJECTION MAPS

“Future drought. These four maps illustrate the potential for future drought worldwide over the decades indicated, based on current projections of future greenhouse gas emissions”

University Corporation for Atmospheric Research, 2010

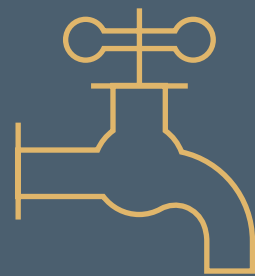


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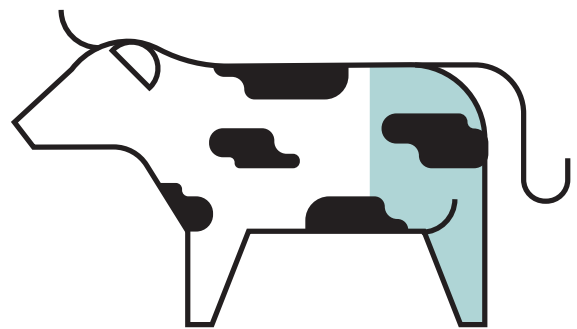
SOLUTION

Change in diet

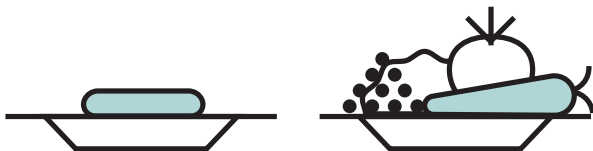


HUMANS WILL SURVIVE ONLY IF WE REDUCE ANIMAL FOODS BY 75% BY 2050

"There will not be enough water available on current croplands to produce food for the expected 9 billion population in 2050 if we follow current trends and changes towards diets common in western nations"



Stockholm International Water Institute (SIWI), 2012



ANIMAL PRODUCTS MUST NOT EXCEED 5% OF GLOBAL CALORIES

"There will be just enough water (by 2050), if the proportion of animal based foods is limited to 5% of total calories"

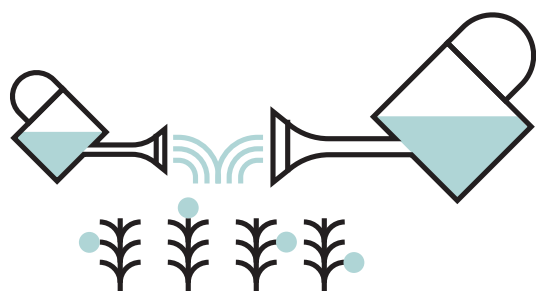
Stockholm International Water Institute (SIWI) 2012



GOING VEGAN SAVES 600 GALLONS DAILY

"A person who doesn't eat meat or dairy, indirectly consumes nearly 600 gallons of water per day less than a person who eats the average American diet"

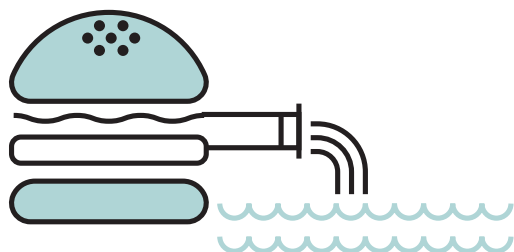
National Geographic, 2015



VEGETARIAN DIET SAVES 1300 LITRES PER DAY

“Water demand is reduced by 36% by eating products of vegetable origin”

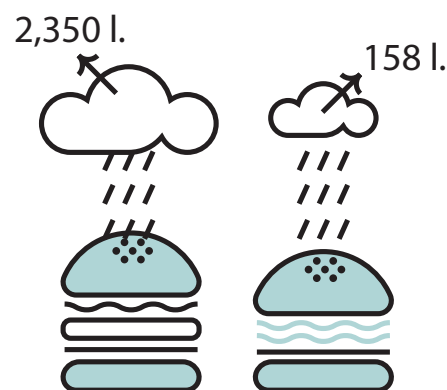
Twente Water Centre, 2012



WORST WATER POLLUTION SOLVED BY NOT EATING MEAT

“The largest challenges are to manage nitrogen better in agriculture and to moderate Europeans’ consumption of animal protein. Amazingly, livestock consume around 85% of the 14 million tonnes of nitrogen in crops harvested or imported into the EU; only 15% is used to feed humans directly. European nitrogen use is therefore not primarily an issue of food security, but one of luxury consumption”

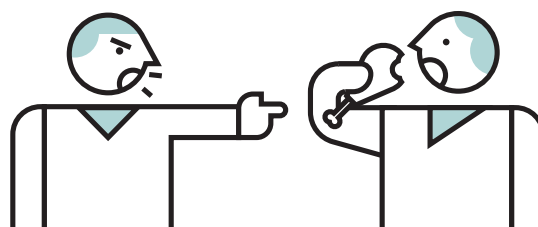
European Nitrogen Assessment, 2011



A SOY BURGER USES 158 LITRES; A BEEF BURGER USES 2,350 LITRES

“Water footprint for 150 gram soy burger in Belgium is 158 litres, vs. a global average of 2350 litres of water for 150 gram beef burger”

UNESCO-IHE, 2011



GO VEGETARIAN TO AVOID CATASTROPHIC WATER SHORTAGES

“The world’s population may have to switch almost completely to a vegetarian diet over the next 40 years to avoid catastrophic [water] shortages. Humans derive about 20% of their protein from animal-based products now, but this may need to drop to just 5% to feed the extra 2 billion people expected to be alive by 2050”

The Guardian, 2012



www.worldpreservationfoundation.com