

7 Factors Impacting Food Safety over Next 7 Years

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Driven to Discover®

Food Security

“When all people at all times have access to sufficient, safe, nutritious food to maintain a healthy and active life”.

World Health Organization



North American and World Population

NORTH AMERICAN POPULATION

2050 435 million

2100 500 million

WORLD POPULATION

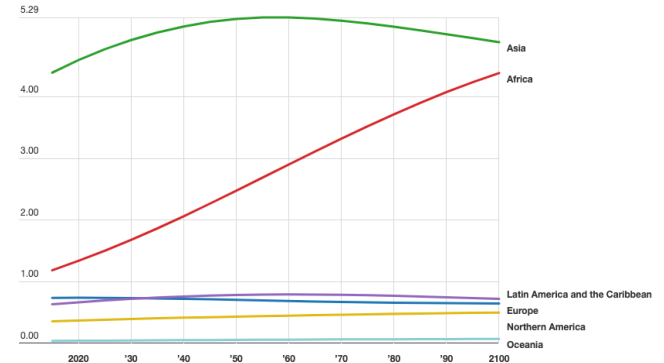
2050 9.8 billion

2100 11.2 billion

United Nations



UN Regional Population Projections (Billions, 2015 - 2100)



Washington Post



Food Security

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Food Safety

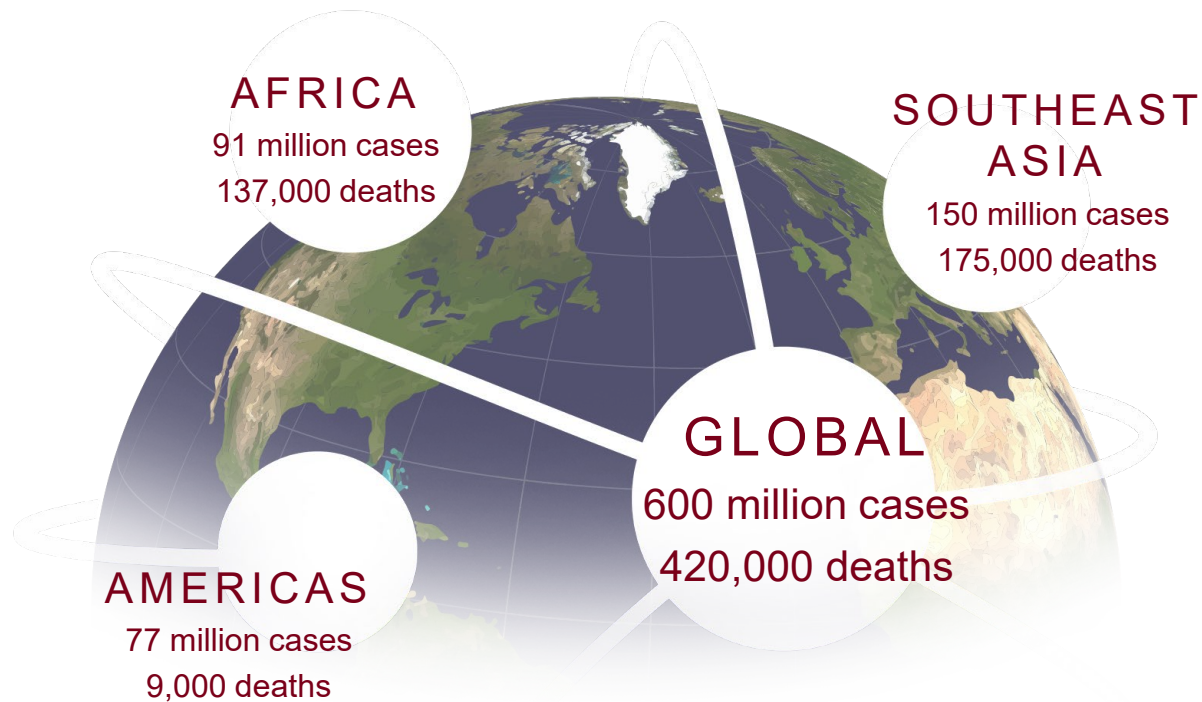
SYSTEM RELIABILITY

Reducing Exposure To Natural
Hazards/Errors/Failures

- Regular incidents
 - Standard processes exist to keep food safe
 - Regulation exists
 - Globally recognized
-



Global Burden of Foodborne Illness



Courtesy of WHO Estimates of the Global Burden of Foodborne Diseases, WHO 2015



Food Safety Today

Global
food
system

5 foci

Listeriosis
Campylobacter
E. coli
Salmonella
Botulism

WHO

Paper-
based
records



Reactive

Regulation

Hygiene

FDA
Recalls
5 yr low

*Gottlieb,
Feb 7, 2019*



What got us here...

Won't get us there



Factors Impacting the Global Food Safety

Environment



Technology



Labor



Media



Consumers



Policy



Logistics

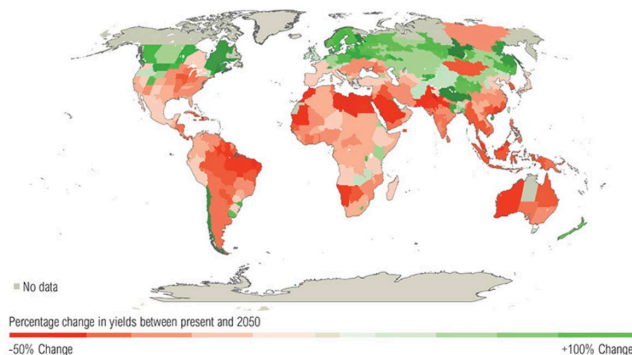
Factors Impacting the Global Food Safety

Environment



Extreme Weather Events
Global Warming

Most studies now project adverse impacts on crop yields due to climate change (3°C warmer world)

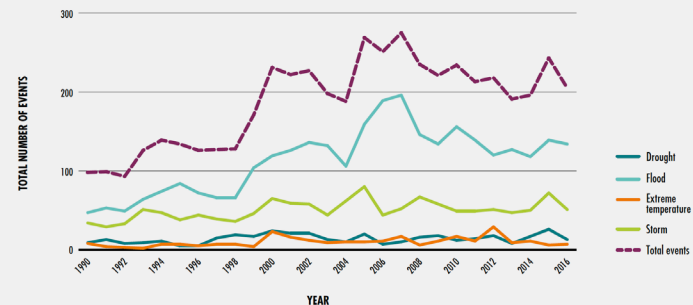


WORLD RESOURCES INSTITUTE

Sources: <http://ow.ly/rpIMH>

Crop yield impact of climate change

FIGURE 15
INCREASING NUMBER OF EXTREME CLIMATE-RELATED DISASTERS, 1990–2016



NOTE: Total number of natural disasters that occurred in low- and middle-income countries by region and during the period 1990–2016. Disasters are defined as medium- and large-scale disasters that exceed the thresholds set for registration on the EM-DAT international disaster database. See Annex 2 for the full definition of EM-DAT disasters.
SOURCE: FAO elaboration based on data from Emergency Events Database (EM-DAT), 2009. EM-DAT [online] Brussels: www.emdat.be

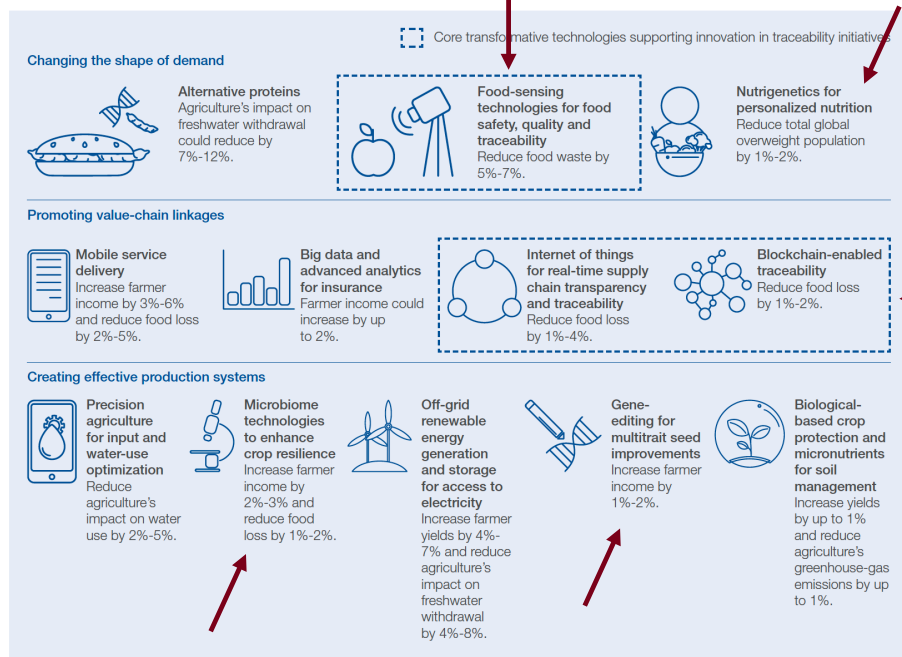
>80% of all major internationally reported disasters are climate related

FAO



Factors Impacting the Global Food Safety

Figure 4: The "Transformative Twelve" technologies affecting food systems, if scaled, could deliver significant impact by 2030.²⁶



Biotechnology
Digitalization



Technology

GLOBAL
FORUM FOR FOOD &
AGRICULTURE

Global Forum for Food and Agriculture

Communiqué 2019

"Agriculture Goes Digital – Smart Solutions for Future Farming"

- electronic phytosanitary certification data, to facilitate agri-food trade and regulatory cooperation
- strengthen animal health and animal welfare, foster prudent and responsible use of antimicrobials
- improve resilience to crises, outbreaks of diseases
- improve consumer guidance
- reduce food loss and waste



Factors Impacting the Global Food Safety



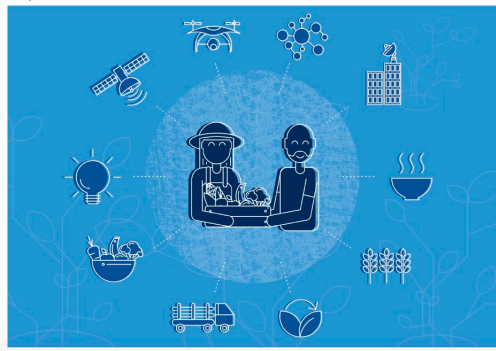
COMMITTED TO
IMPROVING THE STATE
OF THE WORLD

System Initiative on Shaping the Future of Food

Innovation with a Purpose: Improving Traceability in Food Value Chains through Technology Innovations

In collaboration with McKinsey & Company

January 2019



Traceability

Good product traceability throughout the supply chain is central to the speed and scope of the response to food safety incidents. As also noted in the government discussions, there are, however, several factors challenging traceability and supply chain integrity in the fresh produce industry:

Food Loss
Traceability



Logistics

Image Credits: <http://www.a2bwl.com>; FAO; FSANZ Strawberry Tampering Report to Government; World Economic Forum, 2019



Factors Impacting the Global Food Safety

World's food waste could feed 2 billion people



Food Waste
Responsibility

Consumers in rich
countries waste
**almost as much
food as the
entire net food
production of
sub-Saharan
Africa** each year.
FAO



Consumers



Factors Impacting the Global Food Safety



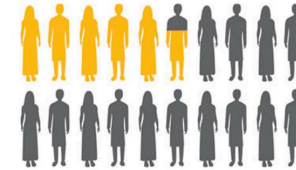
Labor

Unemployment
Training



Unemployment Dips To 3.7 Percent

CIVILIAN UNEMPLOYMENT RATE



28% Global population directly or indirectly employed by agriculture

 WORLD RESOURCES INSTITUTE

Sources: <http://ow.ly/rp1mN>



Factors Impacting the Global Food Safety



New food safety regulations in
Canada, EU, China, Aus/NZ

**FDA FOOD SAFETY
MODERNIZATION ACT**

THE FUTURE IS NOW



Policy

**FSMA
Immigration**

**Trump again
endorses
immigration
changes for
seasonal migrant
farm workers**

'You need people to help you,' he says. 'I'm not going to rule that out'



Farmland is watered by a large irrigation sprinkler in the desert near Palmdale, California, in May. President Donald Trump wants changes to make it easier for seasonal migrant farm workers to enter the country. (Bill Clark/CG Roll Call file photo)

**60% of farm workers
are undocumented**
Southern Poverty Law Center, 2010



Factors Impacting the Global Food Safety

Environment



Extreme Weather Events
Global Warming

Biotechnology
Digitalization



Technology



Labor

Unemployment
Training



Media
Fake News

Food Waste
Responsibility



Consumers



Policy

FSMA
Immigration

Food Loss
Traceability



Logistics



Factors Impacting the Global Food Safety

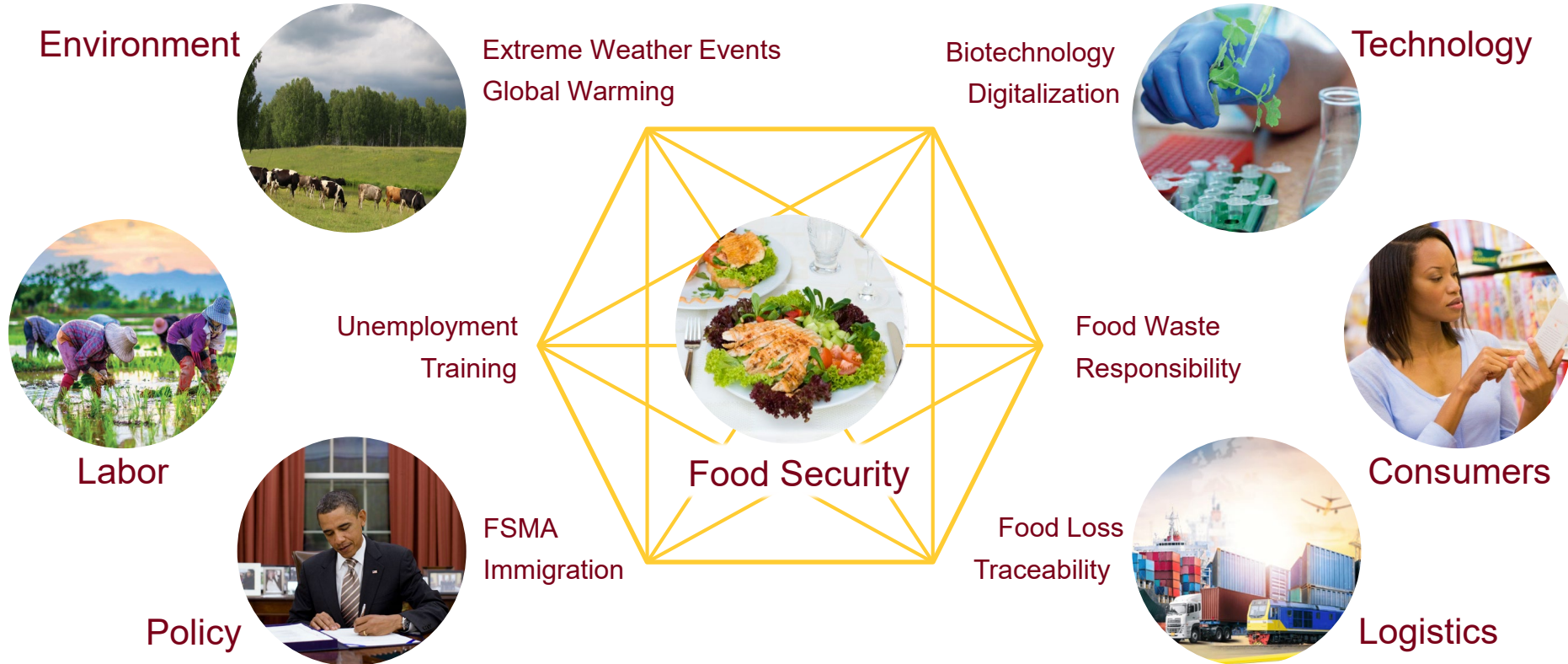


Image Credits: World Population Prospects The 2017 Revision, United Nations; <http://www.a2bwl.com.au>; Pete Souza



Factors Impacting the Global Food Safety

Shifting global pressures and their interrelationships will drive change in food system practices.

We need to begin sowing the seeds of interdisciplinary food system collaboration to assure we are all ready.



Integrated Food System Competency



Farm

to

Fork

Image Credit: <https://www.tyentusa.com/blog/health-tips-lifestyle-hacks/>





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Driven to DiscoverSM

Growing Leaders to Feed the Future

Fostering leadership, collaboration, and innovation across the food system



Integrated Food Systems
Leadership Program