

Can Agriculture Save the Planet?



Jack A. Bobo | CEO

Thinking Like a Futurist

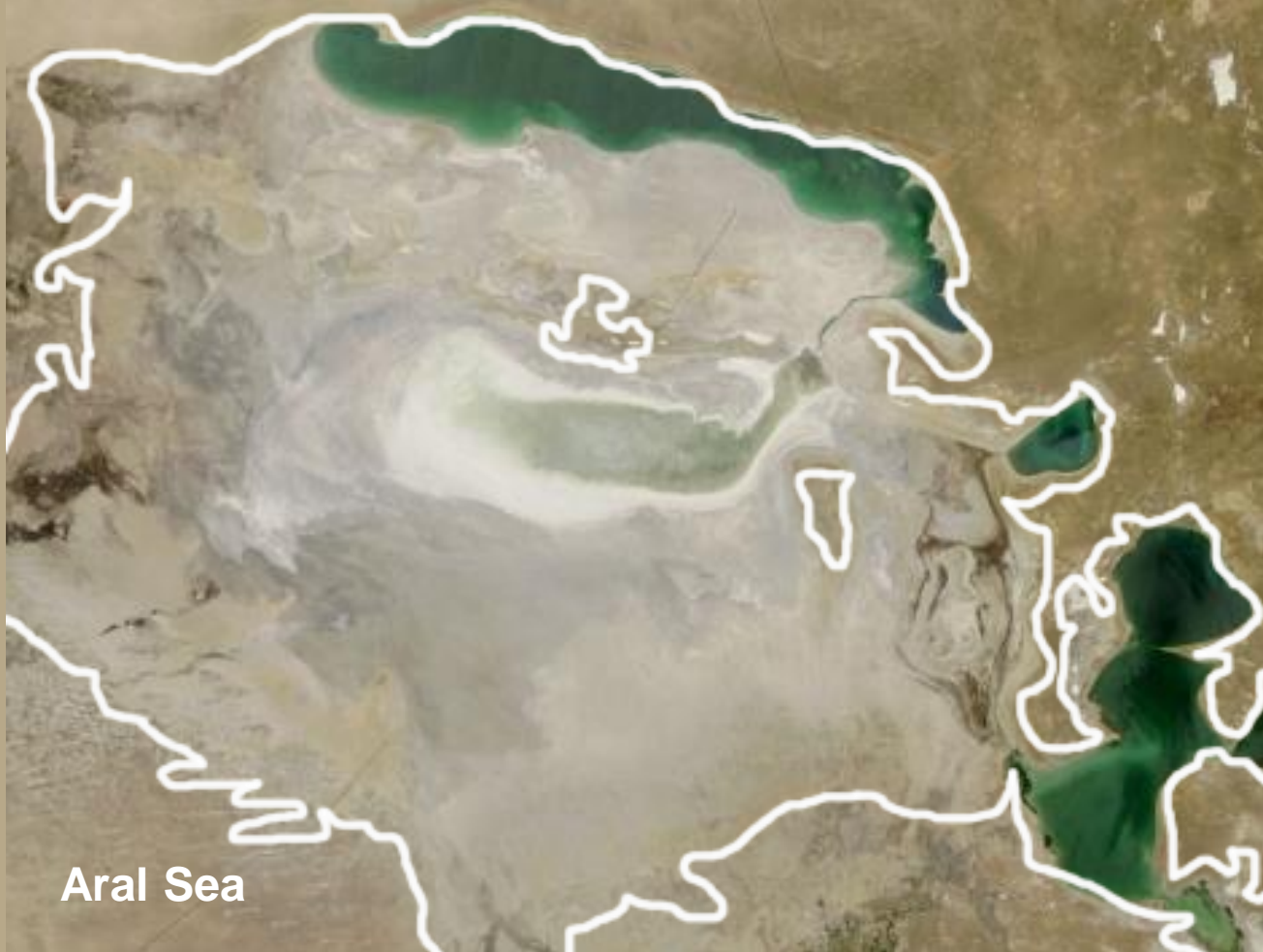




Cropland the size
of South America

Pastureland the
size of Africa

70% of fresh
water used for
agriculture



Aral Sea

Colorado River runs dry



25% of all
greenhouse gases
from agriculture



7B
2015

9B
2050

**800 million people
will go to bed
hungry today**

**9 million will die
of hunger this year**



HIV

1.7 million

**Road
Accidents**

1.2 million

Malaria

650,000

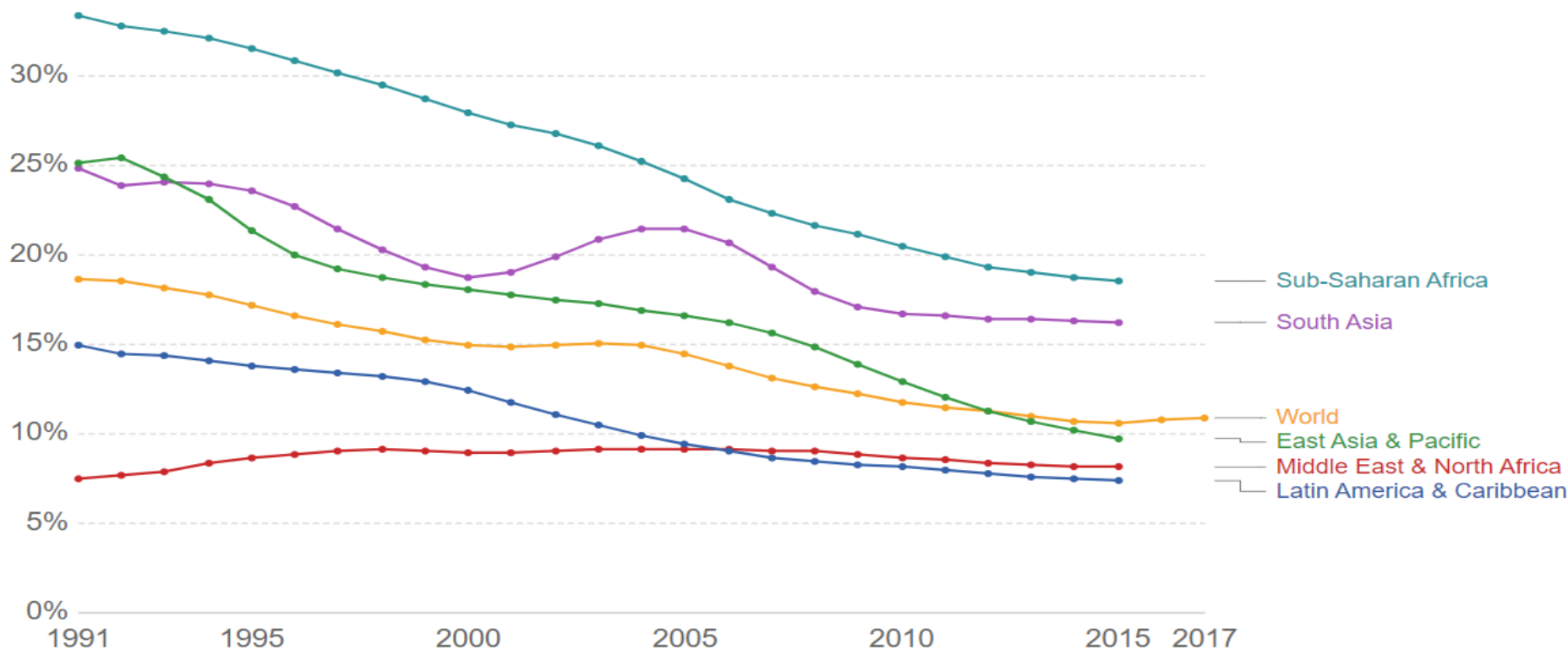




800 Million

Share of the population that is undernourished

This is the main FAO hunger indicator. It measures the share of the population that has a caloric intake which is insufficient to meet the minimum energy requirements necessary for a given individual. Data showing as 5 may signify a prevalence of undernourishment below 5%. Regional aggregations are based on World Bank regions and exclude high-income countries. They may therefore differ from UN FAO regional figures.



Source: UN Food and Agriculture Organization (FAO)

Note: Developed countries are not included in the regional estimates since the prevalence is below 5%.

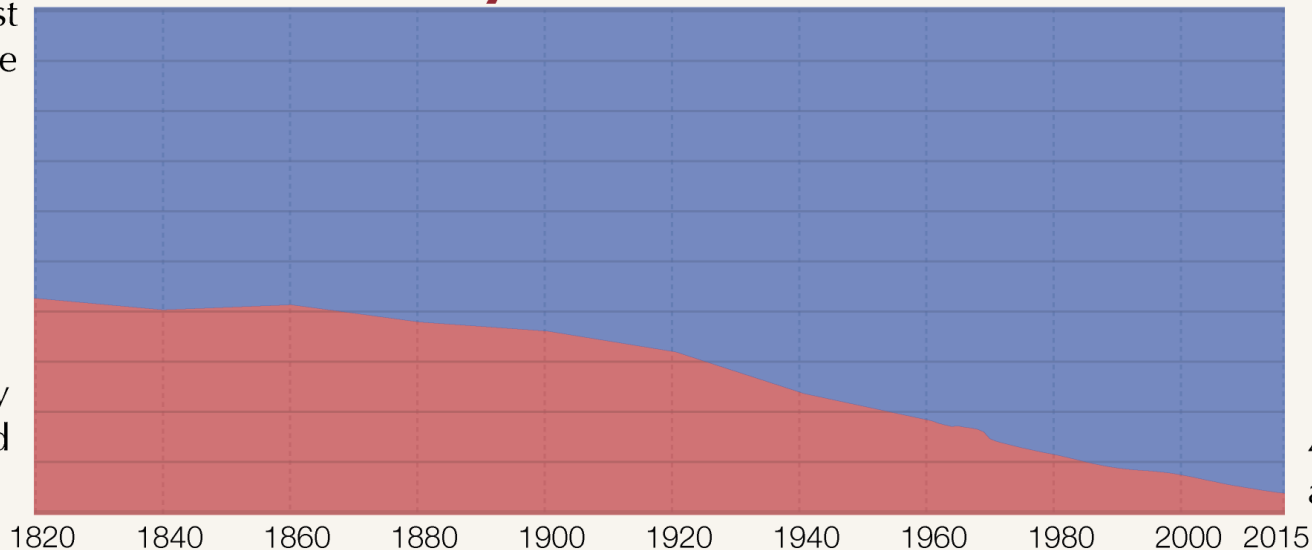
Child Mortality

57 survive the first
5 years of life

96 survive the
first 5 years of life

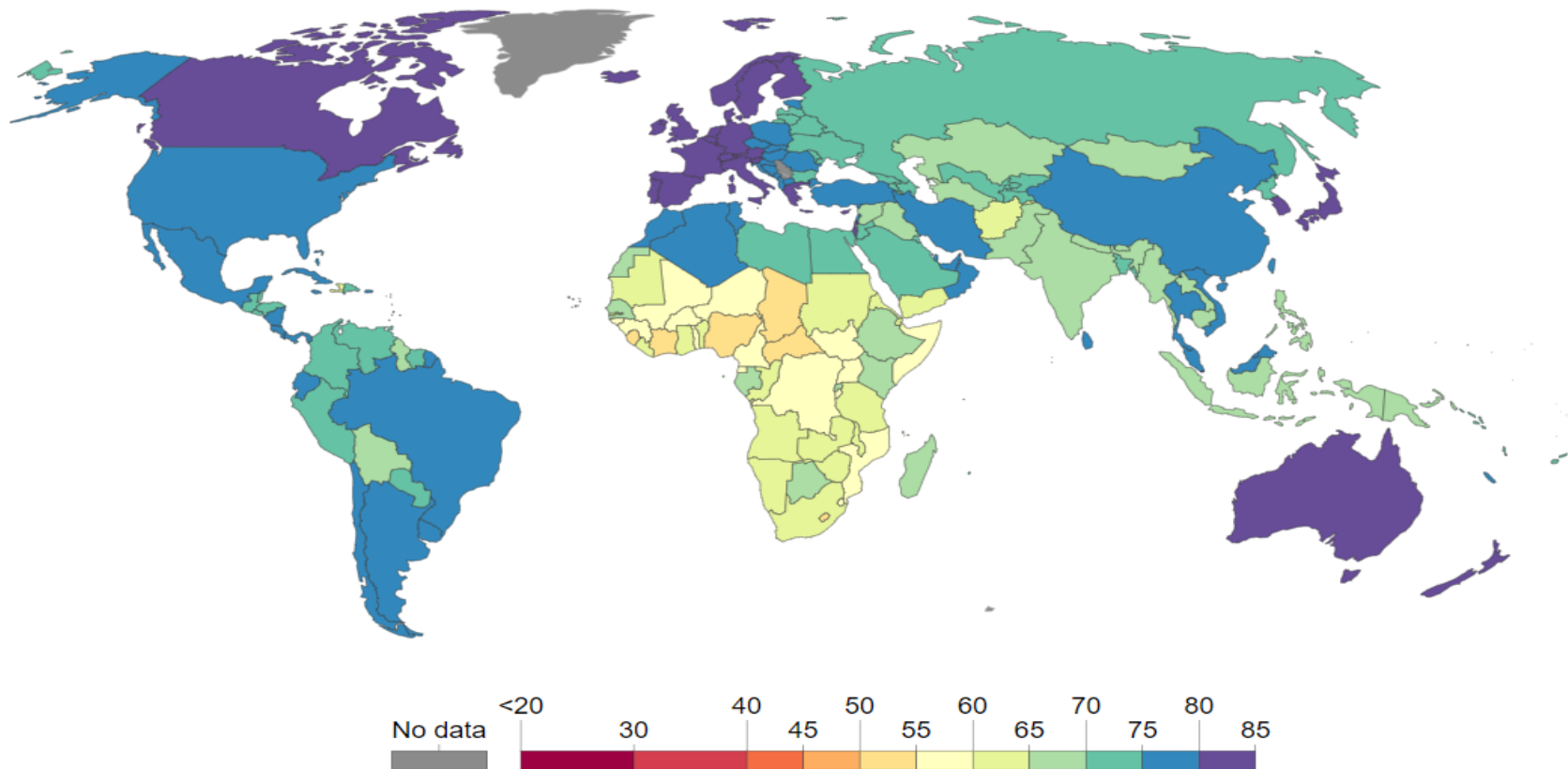
43 die before they
are 5 years old

4 die before they
are 5 years old



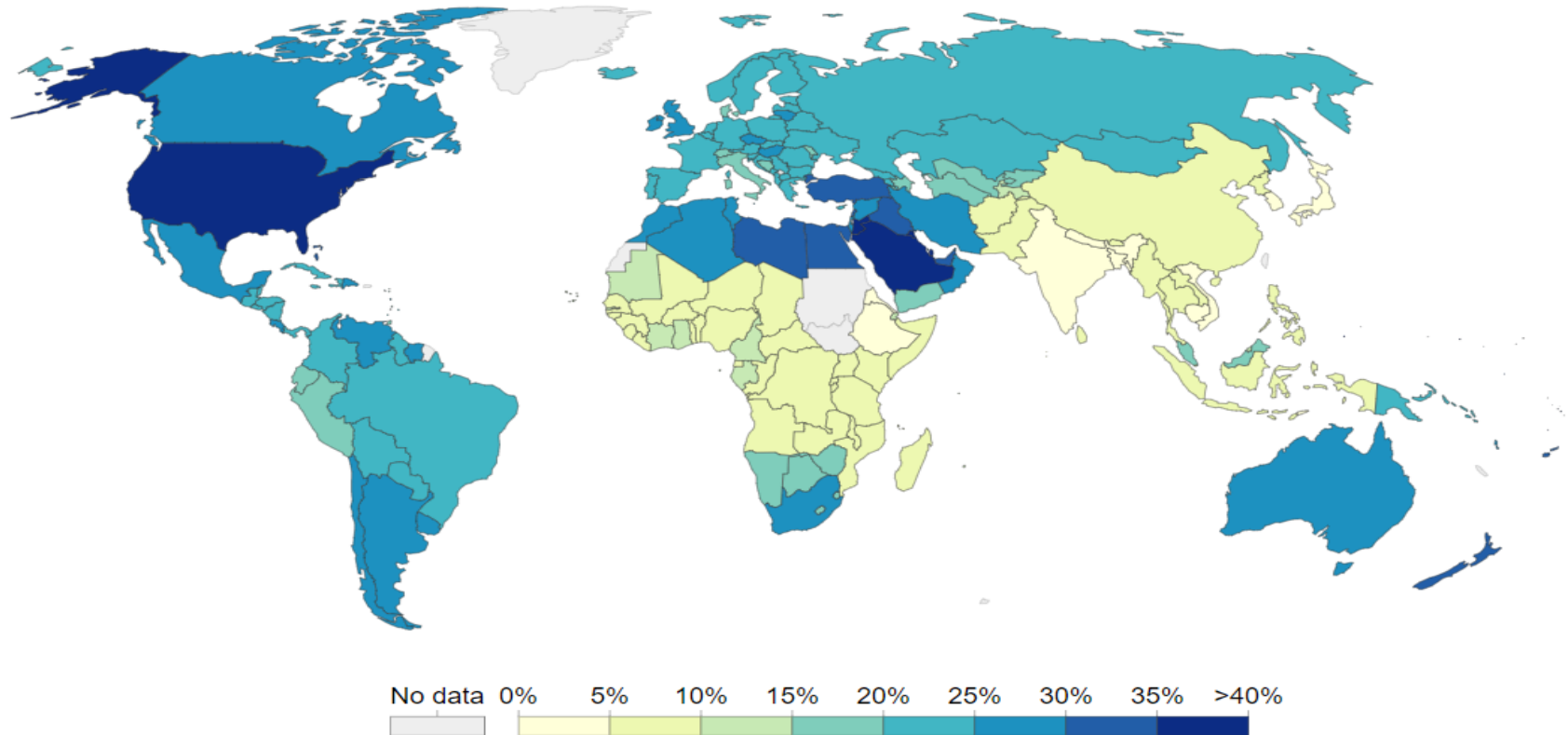
Life expectancy, 2015

Shown is period life expectancy at birth. This corresponds to an estimate of the average number of years a newborn infant would live if prevailing patterns of mortality at the time of its birth were to stay the same throughout its life



Share of adults defined as obese, 2016

Percentage of adults aged 18+ years old who are defined as obese based on their body-mass index (BMI). BMI is a person's weight in kilograms (kg) divided by his or her height in metres squared. A BMI greater than or equal to 30 is defined as obese.



We will need 60-100% more food by 2050



35% Fewer
Greenhouse Gases



Resources Per Bushel of Corn 1980 – 2011



60% Less Erosion



40% Less Land



50% Less Water



40% Less Energy

Choices and Consequences

Farming Area



Europe



Production



Production



Farming Area

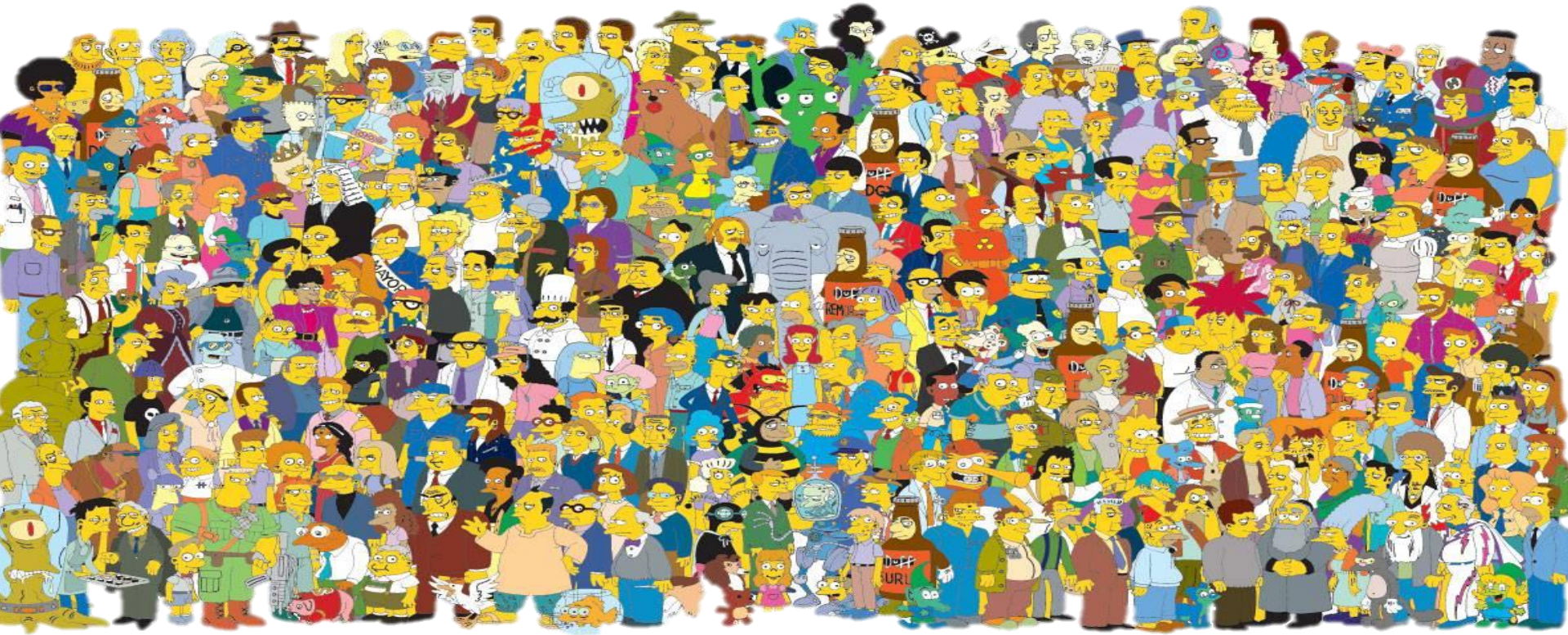
Brazilian production and deforestation driven by demand in primary export market – Europe.

Brazil

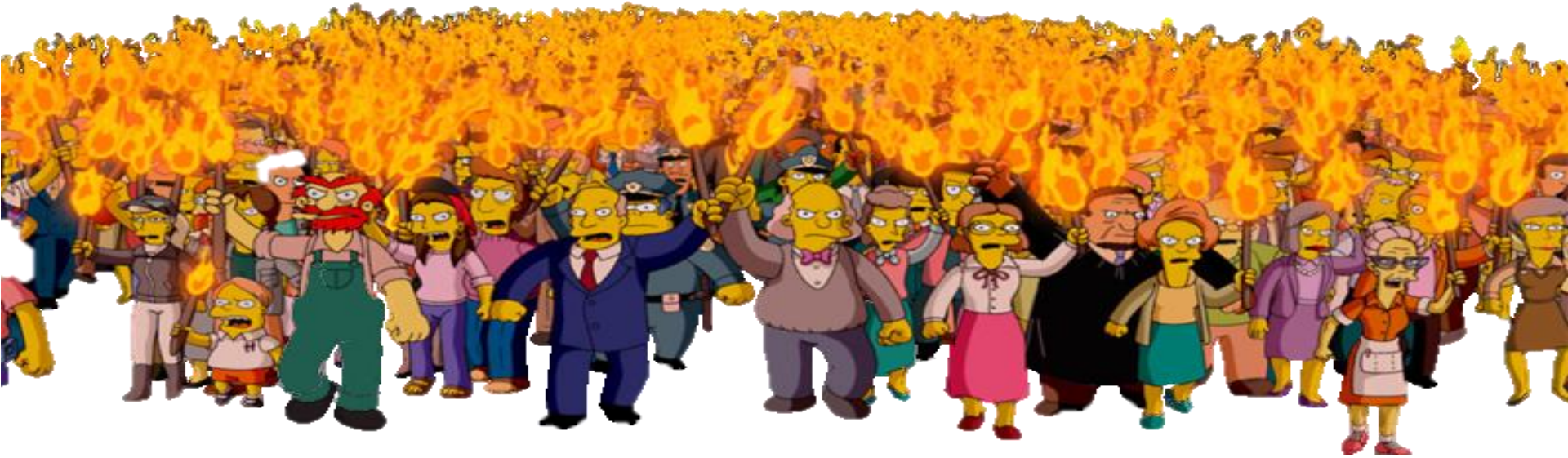
Competing World Views




People love innovation



People love innovation



Almost as much as they despise change



When the public has a false belief
it is more often in the interest of
industry to cater to the belief than
to try eradicate.



zero preservatives
vegan
gluten-free
non-GMO
all natural

Fads

fad

/fad/

noun

an intense and widely shared enthusiasm for something, especially one that is short-lived and without basis in the object's qualities; a craze.



Trends

trend

/trend/

noun

a general direction in which something
is developing or changing.

[illegible]

Age of Progress



1950-1960s

Age of Aspiration



1980-1990s

Age of Conspicuous Production



Today

Purchases as an extension of values

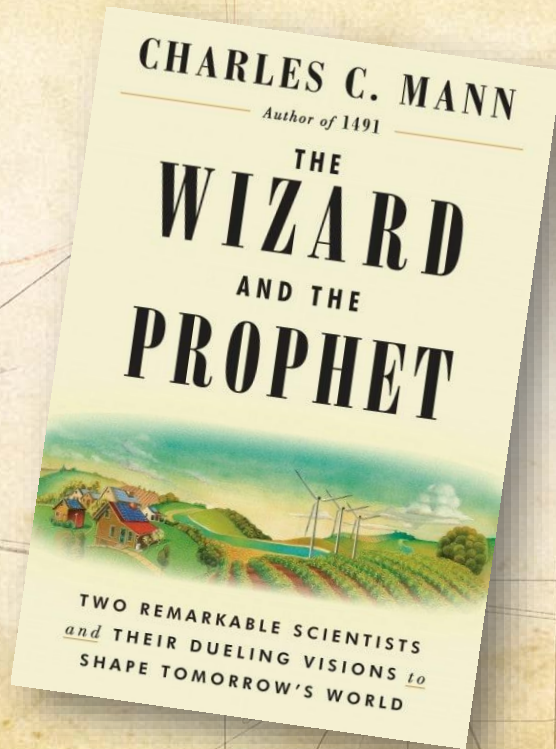


Environmental Sustainability

Social Justice

Animal Welfare

Wizards and Prophets



A straw doll with a straw hat and a stick in its mouth, standing in a desert landscape with a city skyline in the background. The doll is made of woven straw and has a simple, stitched face. It is wearing a green and red striped garment. The background shows a vast, arid landscape with rolling hills and a distant city skyline under a hazy, orange sky.

Consumers have
never cared more,
nor known less,
how their food
was produced

Marketing versus reality



By the way, this is dog food

Skeptical Consumers



HAZARD

VS

RISK

A **HAZARD** is something that has the potential to harm you



RISK is the likelihood of a hazard causing harm



Hazard x Media Exposure = Perception of Risk



The Tweet-ification of Risk

When to communicate?

Risk High



Media Attention Low

Risk Low

**GMO
OMG**

Media Attention High

What to communicate?

Language that turns people off:

Amount is miniscule

Research shows it's safe

Let us feed the world

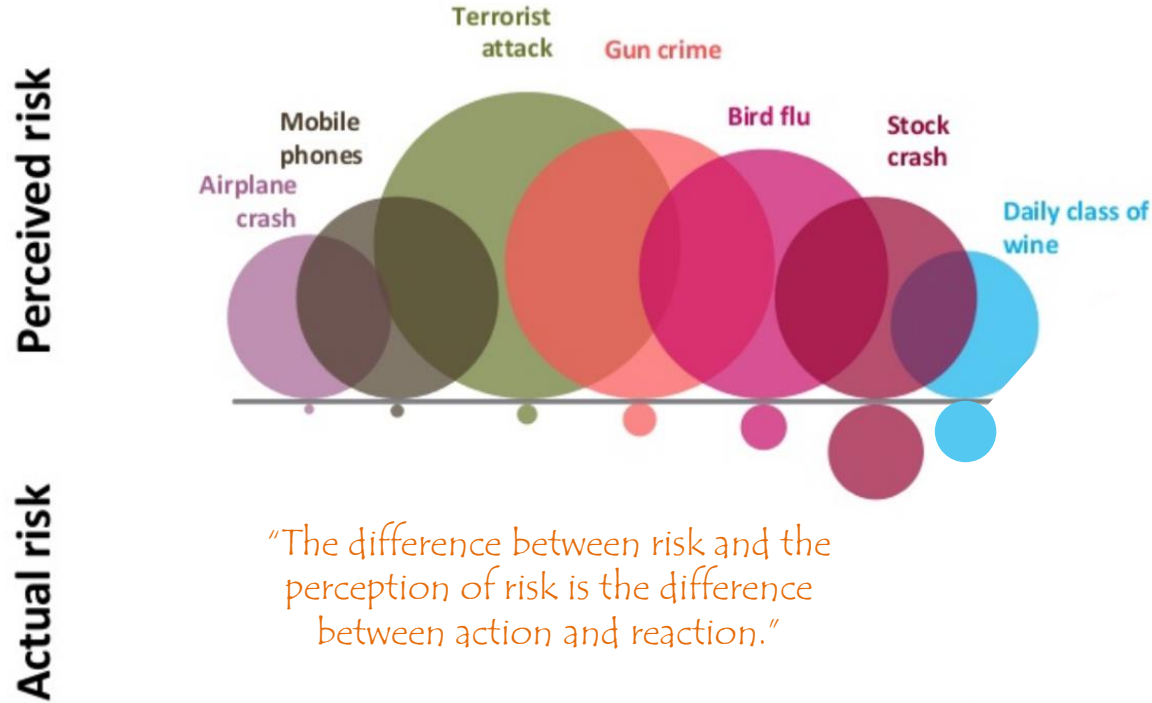
Keeps prices low

Better for the environment

Lesson: If you lead with the science,
you will lose with the science

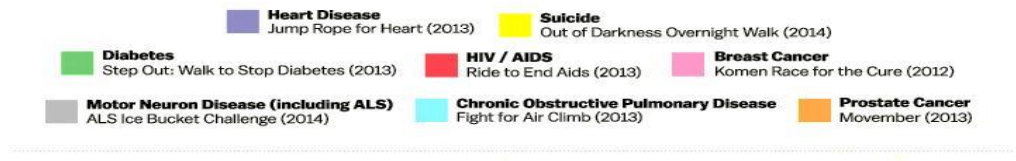


Perception of Risk



Susanna Hertrich, 2008 : "Reality Checking Device"

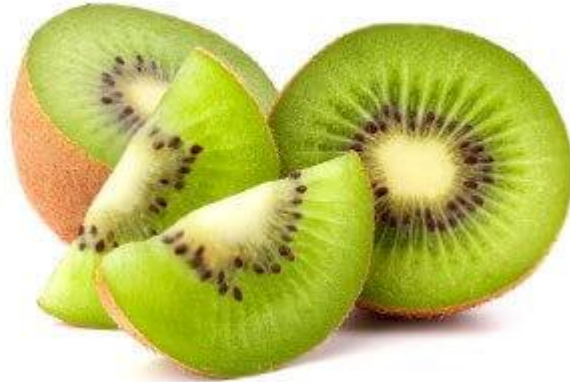
WHERE WE DONATE VS. DISEASES THAT KILL US




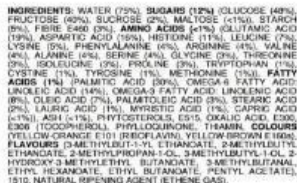
Food doesn't have to be scary



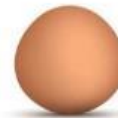
Has anybody eaten a Chinese gooseberry?




AN ALL-NATURAL BANANA



INGREDIENTS OF AN ALL-NATURAL EGG

[illegible]

How do you get a seedless watermelon?



Treat seeds with colchicine
(natural plant extract)

Highly toxic
and mutagenic



Three sets of
chromosomes
Sterile seedless
melon



YOU
HAVE FAILED
ME, BRAIN!

Perception



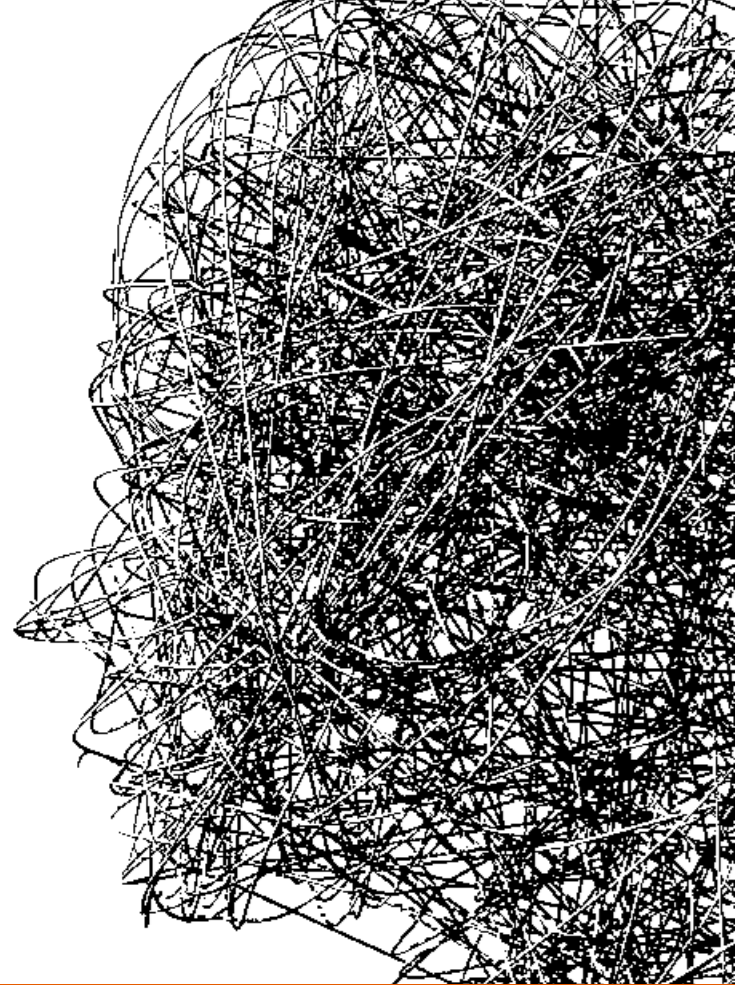
“The eye sees only what the mind is prepared to comprehend.”

— Robertson Davies

Bat and Ball Problem



Mental Shortcuts



Confirmation Bias

The tendency to search for, interpret, focus on and remember information in a way that confirms one's preconceptions.



Availability Heuristic

The tendency to overestimate the likelihood of events with greater "availability" in memory.



Scientist as Storyteller

Personalize
Acknowledge
Connect
Build Trust

Only then can we talk about the science



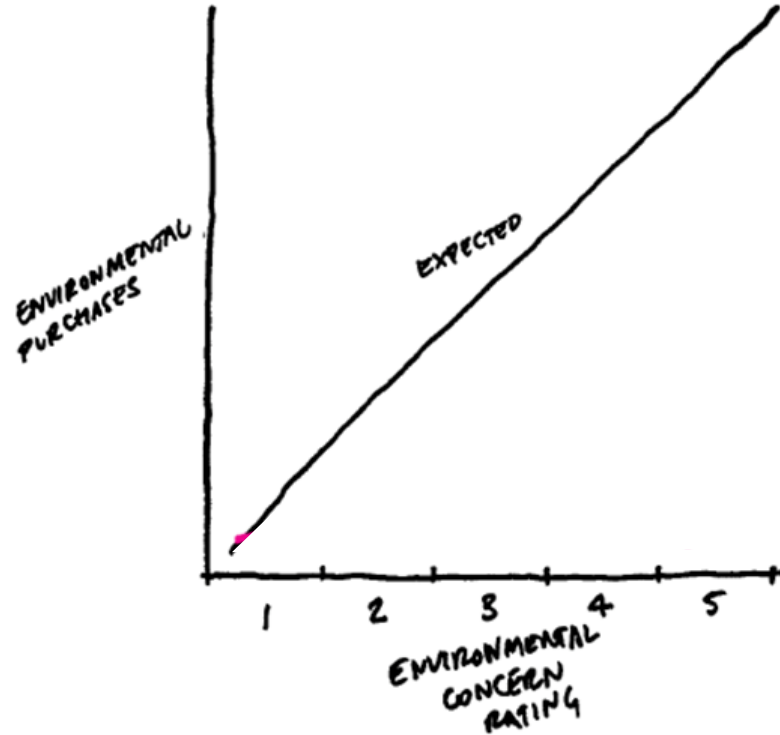
Avoid
linear
thinking



In 2002 food prices were
low and heading lower
for the foreseeable future

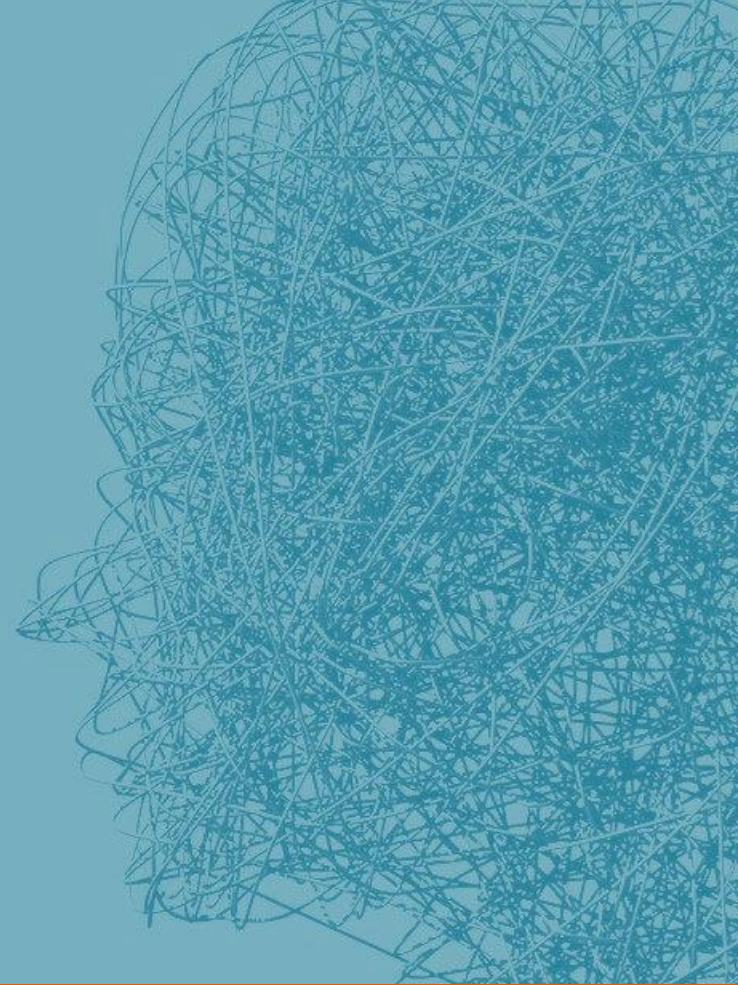
In 2008 food prices were
high and heading higher
for the foreseeable future

Linear Thinking



Artificial Intelligence

AI will be like electricity today – so fundamental to our lives that we won't know it is there, until it isn't





Robots

(AI embodiment)

200 years ago 70% of Americans farmed.
Automation drove that number to 1%.
Robots will drive it even lower.

As manufacturing costs
decline, the cost of
transportation becomes
more important, driving
local production.

Inversion

Economic theory tells us that
when something becomes free
its place in the economic
equation inverts

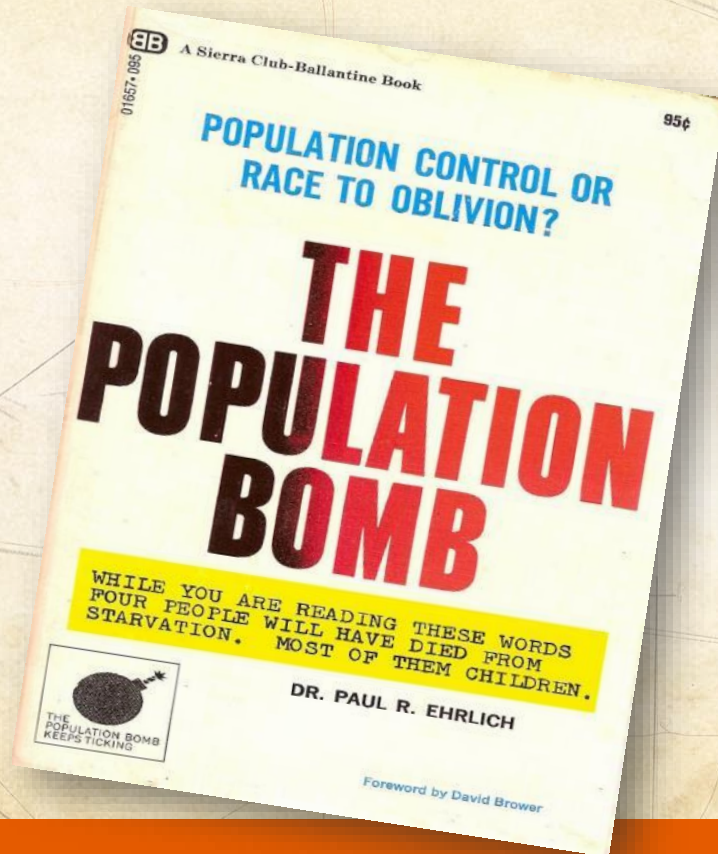
When organic becomes cheap
what will the rich want next?



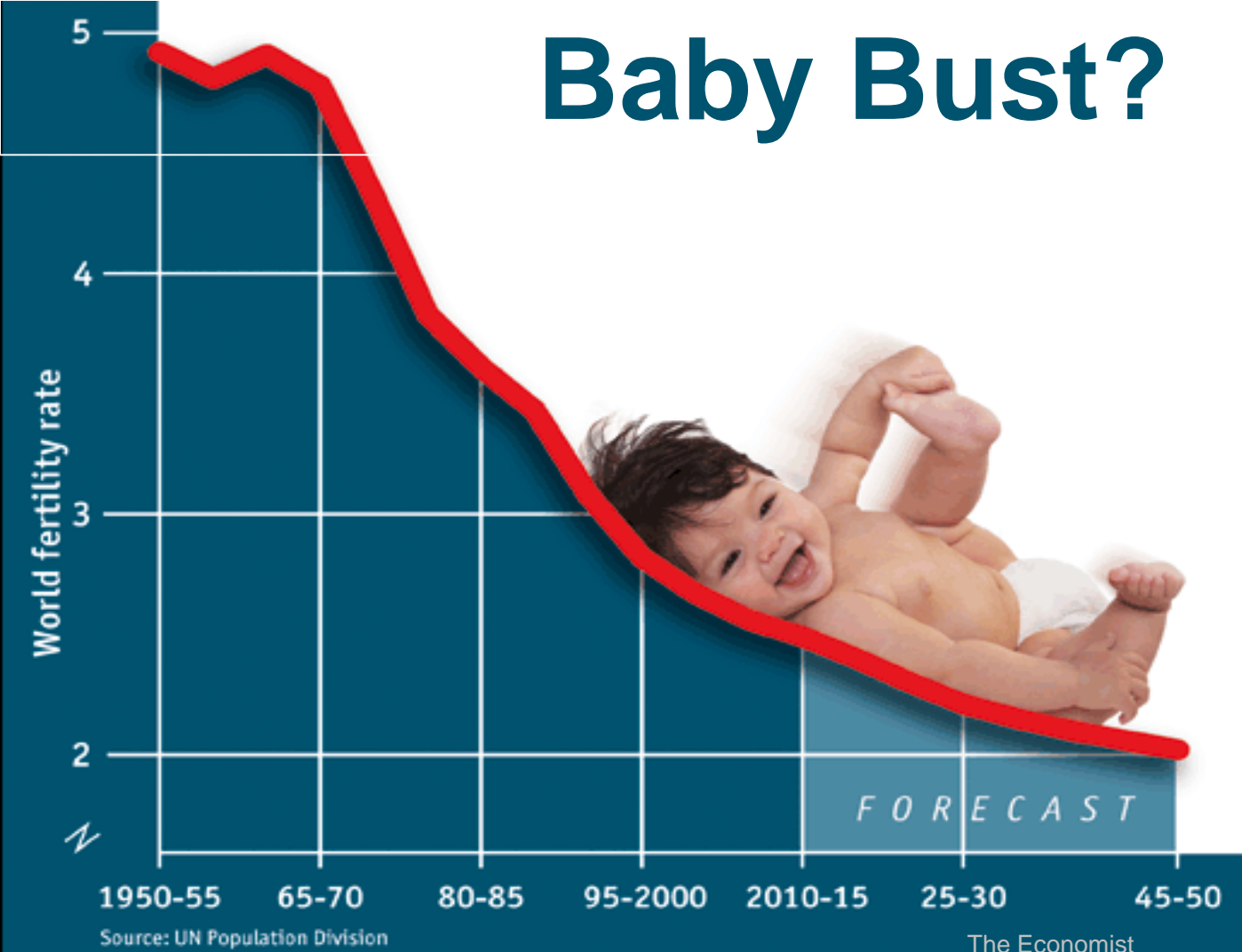
Transparency



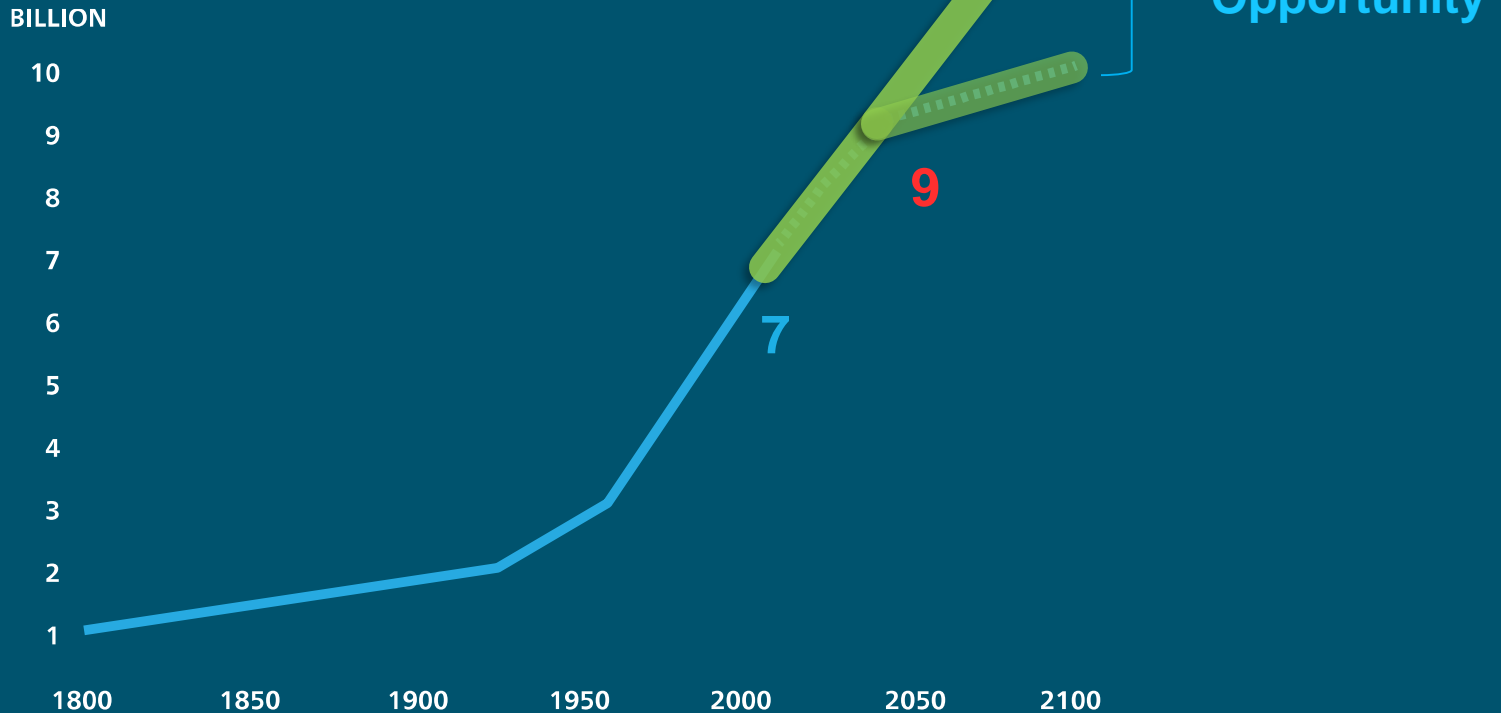
Baby Boom?



Baby Bust?



Why Now Matters



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