Jamaica's Next City

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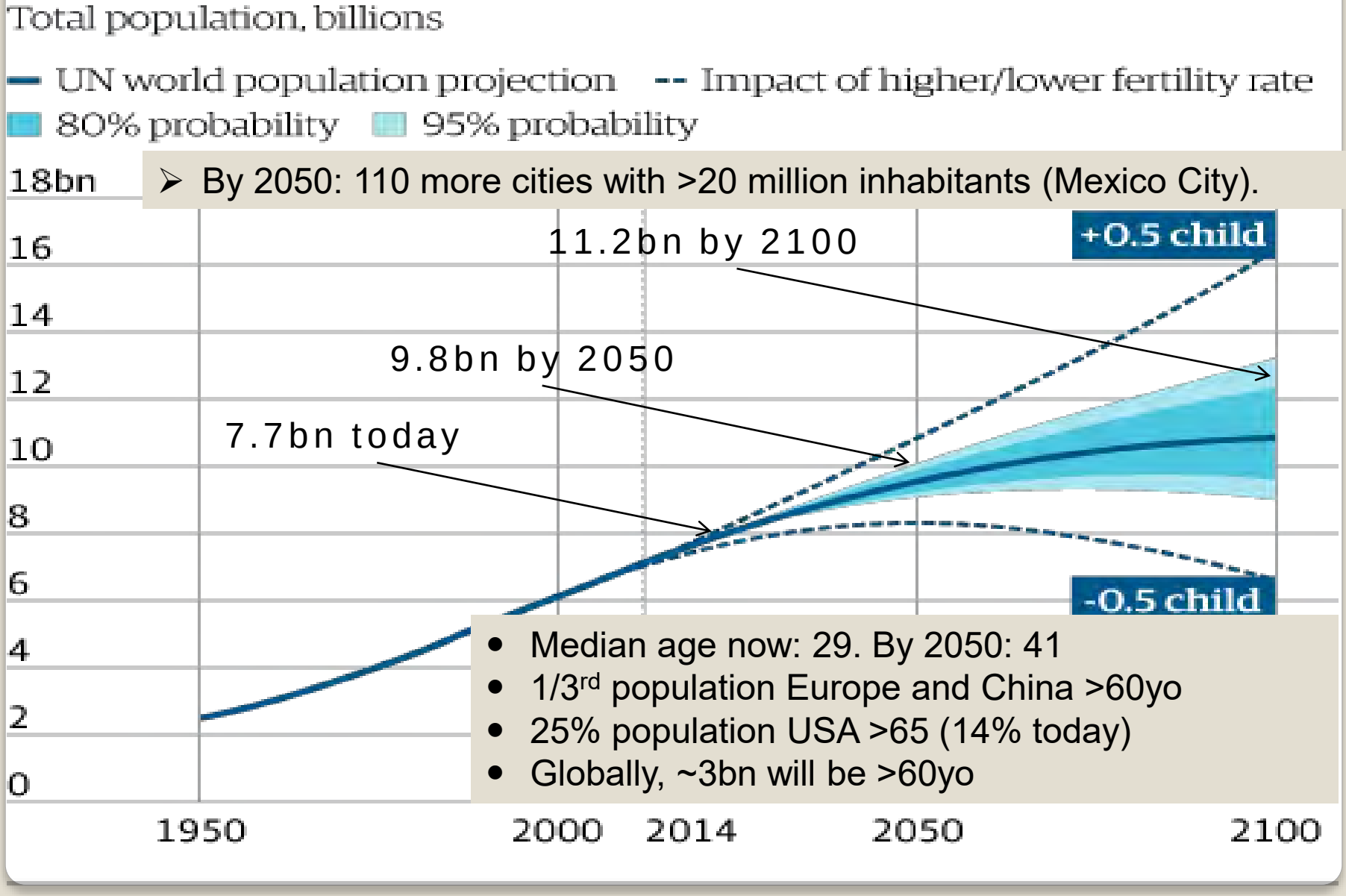
Population 2.7m

Background

- Jamaica has two cities, Kingston and Montego Bay. Kingston is located in an earthquake-prone area, Montego Bay will be at risk from rising sea levels, so the Government of Jamaica is identifying sites for the 'next city' for Jamaica.
- The Government wants to ensure that the city will serve for generations to come, so it must support future patterns of living, learning, working, social behaviour and economic development.
- Stage 1: Geophysical mapping, hazard assessment.
- Stage 2: Delphi exercise to think about the future of cities to 2050 and 2100.

World population projection

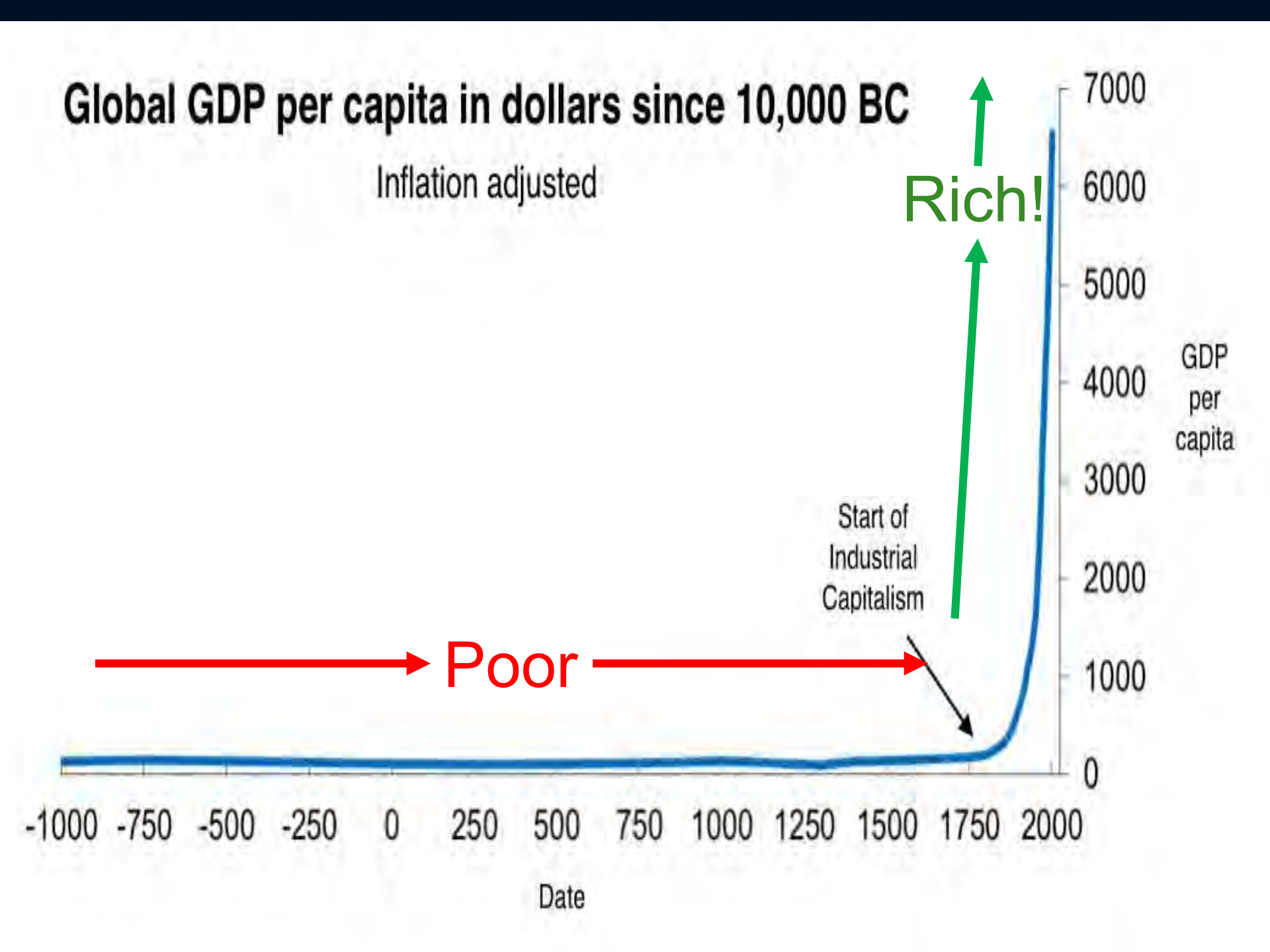


- By 2050: 110 more cities with >20 million inhabitants (Mexico City).

- Median age now: 29. By 2050: 41
- 1/3rd population Europe and China >60yo
- 25% population USA >65 (14% today)
- Globally, ~3bn will be >60yo

GUARDIAN GRAPHIC

SOURCE: SCIENCE


Global GDP per capita in dollars since 10,000 BC
Inflation adjusted
Rich!
Start of Industrial Capitalism
Poor
7000
6000
5000
4000
3000
2000
1000
0
GDP per capita
-1000
-750
-500
-250
0
250
500
750
1000
1250
1500
1750
2000
Date

The implications for consumption

Today, world uses >100bn tonnes material/year

- 51bn tonnes minerals (sand, clay, gravel and cement)
- 25bn tonnes crops and trees (food, fuel and construction)
- 15bn tonnes fossil fuels (coal, oil, gas)
- 10bn tonnes metals

Used for:

- Housing: 39bn tonnes
- Food: 21bn tonnes
- Services: 10bn tonnes
- Healthcare: 9bn tonnes
- Transport: 9bn tonnes
- Consumer goods: 7bn tonnes
- Communication: 6bn tonnes

After one year:

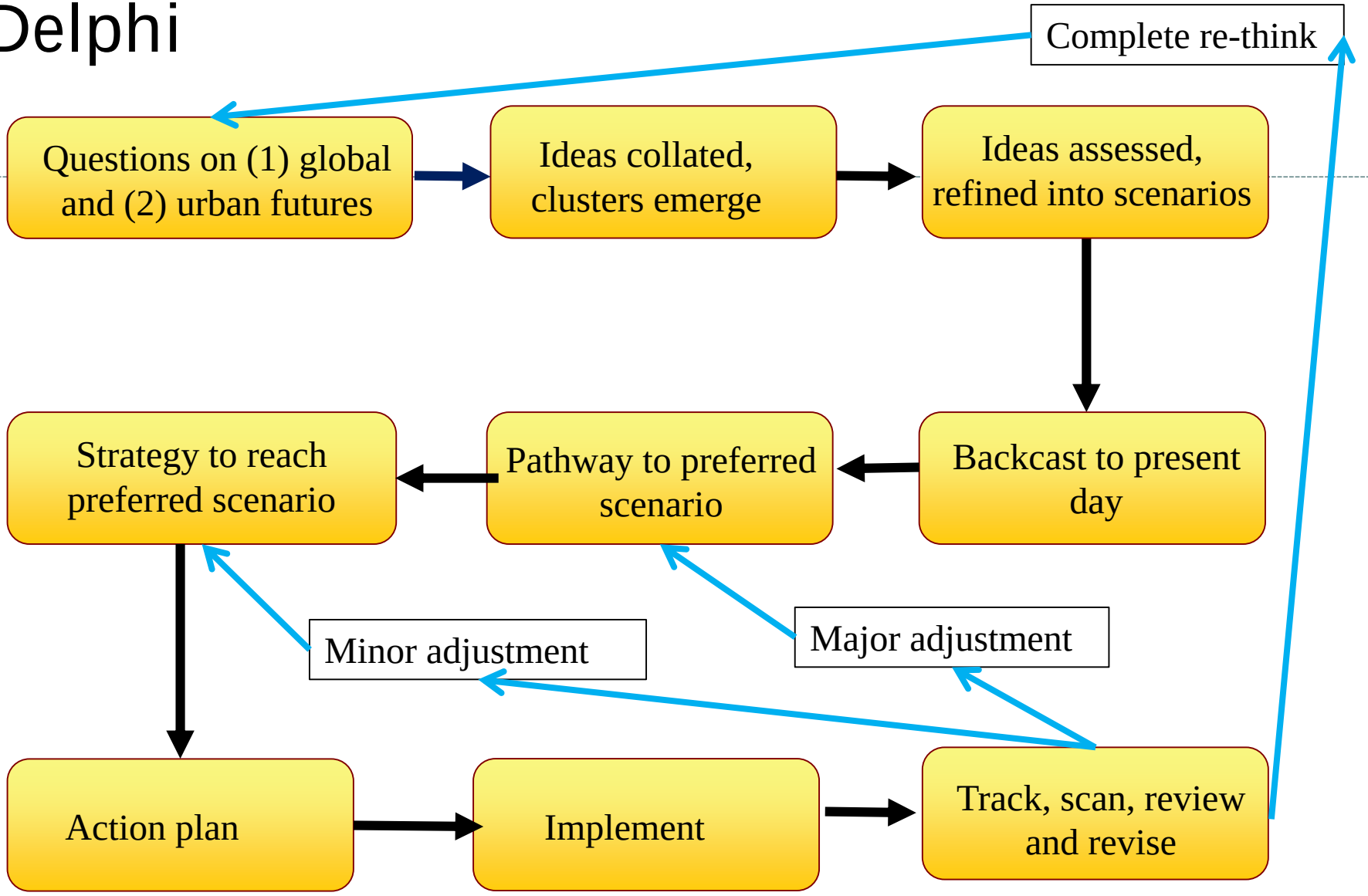
- ~1/3rd remains in use
- ~1/3rd goes to spoil/landfill
- ~1/5th thrown away (e.g. plastics in oceans)
- ~1/6th emitted to atmosphere
- ~1/12th recycled

https://www.theguardian.com/environment/2020/jan/22/worlds-consumption-of-materials-hits-record-100bn-tonnes-a-year

- World population will be larger, older, richer, urban.
- By 2050 >50% of world population in Asia, ~25% Africa.
- By 2050 about 70% of world population will be in cities (50% in 2010).
- By 2100 will be 2.5–5.3bn more people than now, could be ~90% urban.
- Will need a lot more food, water, energy and materials.
- But by 2030 over 50% population will live in water-stressed areas.
- Climate change: 2-7C above pre-industrial level by 2100.

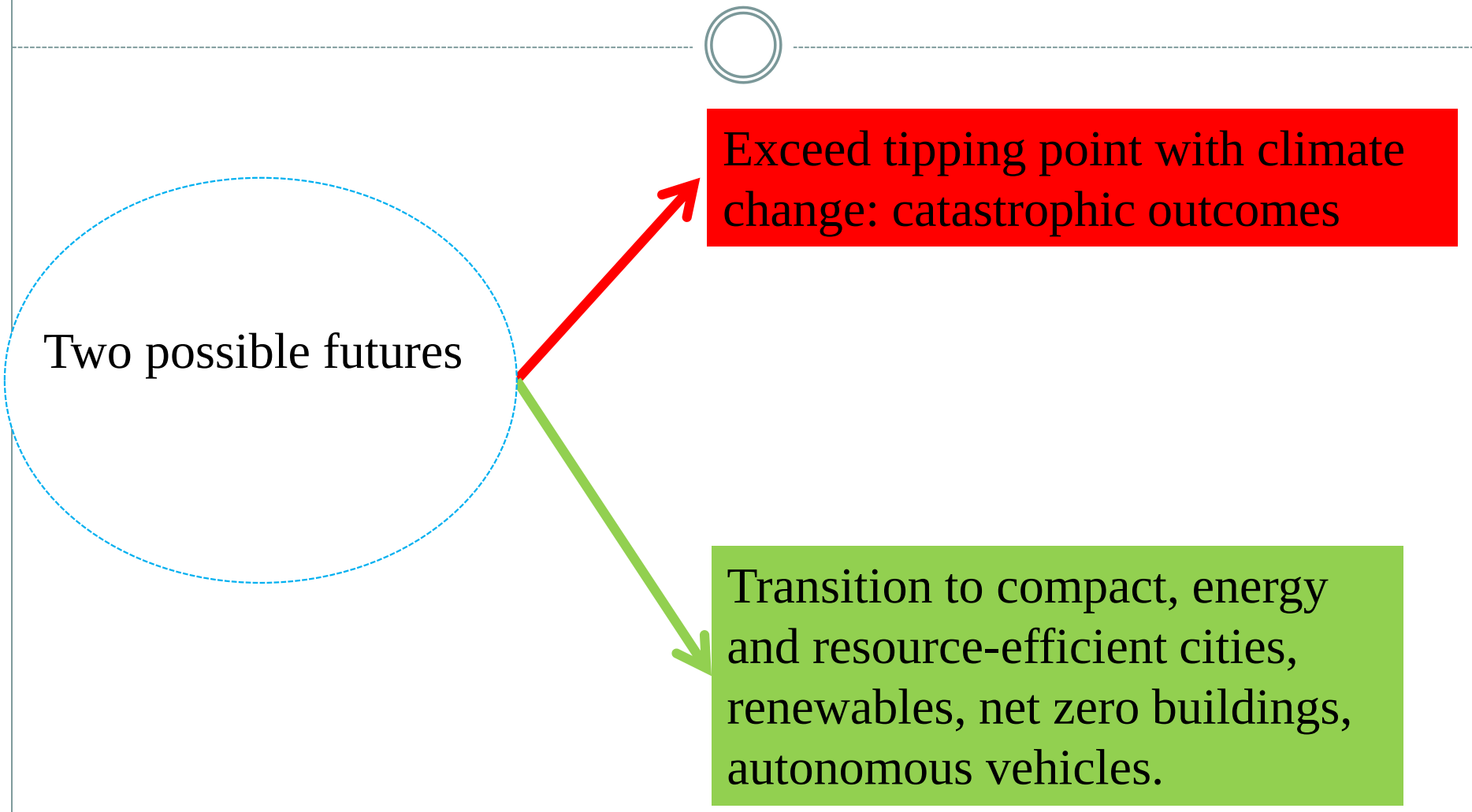
- Increase efficiency (food, energy, water, waste, transport etc.)
- Transition to low carbon energy supplies.
- Adjust to ageing society (e.g. biomedical science, robotics)
- Find new solutions for urban living (construction, work, transport etc.)

Delphi

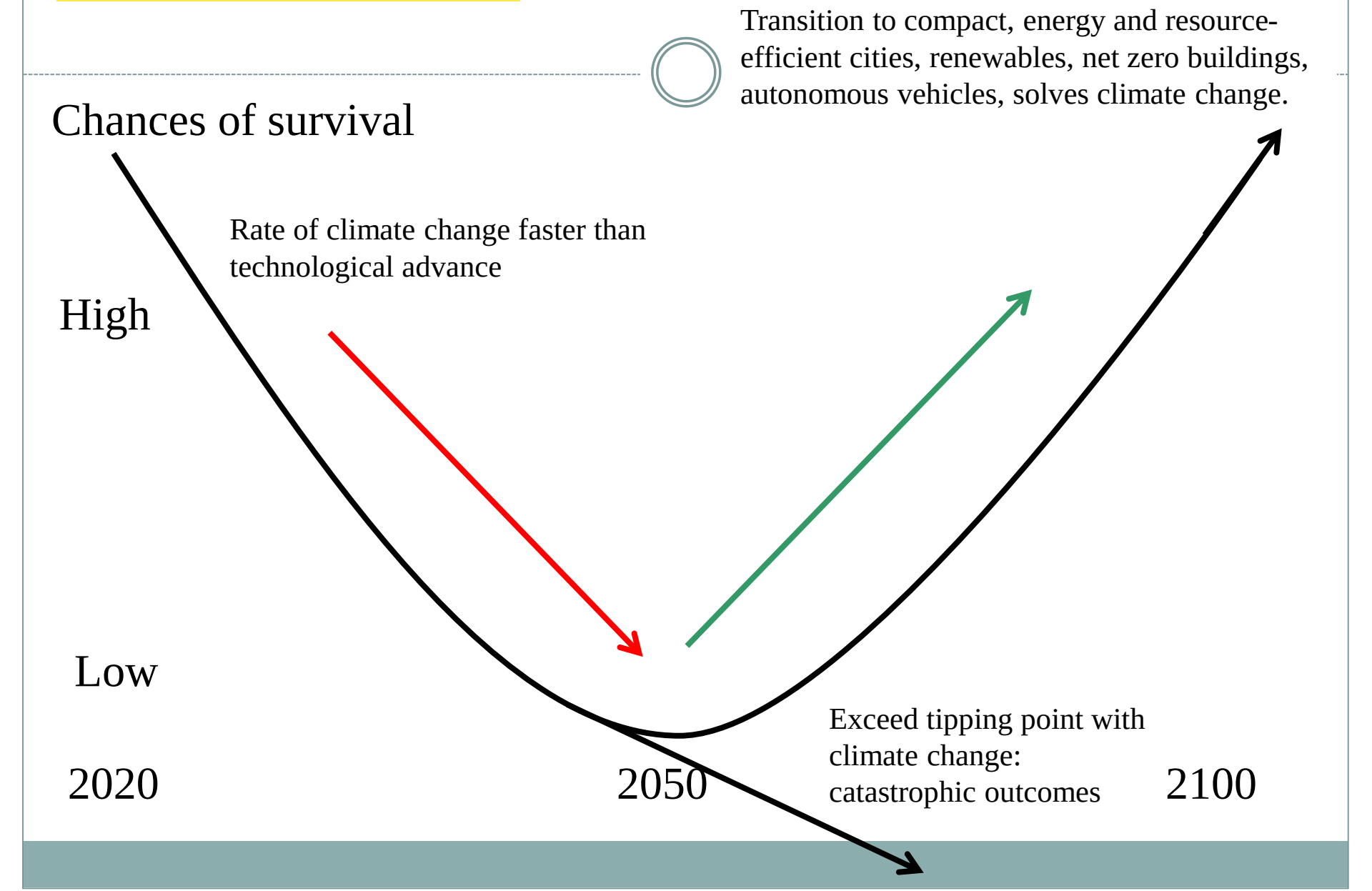


Delphi panel: 30 experts, based in the USA, Canada, Mexico, the UK, The Netherlands, Austria, Spain, Malaysia, Kenya, India, Pakistan, Vietnam, Australia, Trinidad and Tobago and Jamaica

Two highly divergent outcomes



U-shaped transitional period



Conclusions to date

- With extreme climate change, no point in building Next City.
- The Next City is part of Jamaica's transition to a very different world.
- The Next City needs:

➢ Strong regulation to prevent environmental damage and informal settlements; high environmental quality, standard of living, quality of amenities, standards of energy and water efficiency of buildings; waste recovery loops, vertical agriculture, 3D manufacturing.

➢ Excellent ICT infrastructure, multi-modal transport links, links to logistics hubs, sea and airports.

➢ Planned to ensure safety and security, unimpeded sight-lines, good lighting and visibility, dedicated policing.

➢ Designed to attract investment, oriented towards next-generation businesses; recruit universities and research institutes.

➢ Good governance, less hierarchical, future-oriented planning and decision-making process.

Net Zero Energy Building: Bullitt Center, Seattle

- Building uses ~230,000 KWH per year (typical office building same size uses 1,077,000 KWH).
- 570 solar panels generate 230,000 KWH per year.
- If all new buildings like this: reduce world energy demand by 1/3rd.
- Demands for: new building technologies, smart grid, energy storage.

First Net Zero Energy Building in the Caribbean

UWI
MONA CAMPUS
JAMAICA, WEST INDIES

gef

UNEP

Thank you !