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UK ENGINEERS WITHOUT BORDERS

Efficiency for Access Design Challenge 2022-23
Globally Responsible Design

Tom Whitehead

EWB UK

Nidhi Pant

S4S Technologies

Dr Jonathan Truslove

EWB UK

UKaid from the British people

IKEA Foundation

energy saving trust

Agenda

Engineers Without Borders UK

- The current global situation
- Your important role
- How to develop global responsibility

Nidhi Pant, S4S Technologies

- Globally responsible design in action
- Nidhi's learning journey

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Image: United Nations

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The big picture

Photo by Francisco Moreno on Unsplash

People needs

Image: United Nations

Construction Climate Talks episode 1 – Johan Rockström
Climate change • Climate change refers to long-term shifts in temperatures and...
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People and planet

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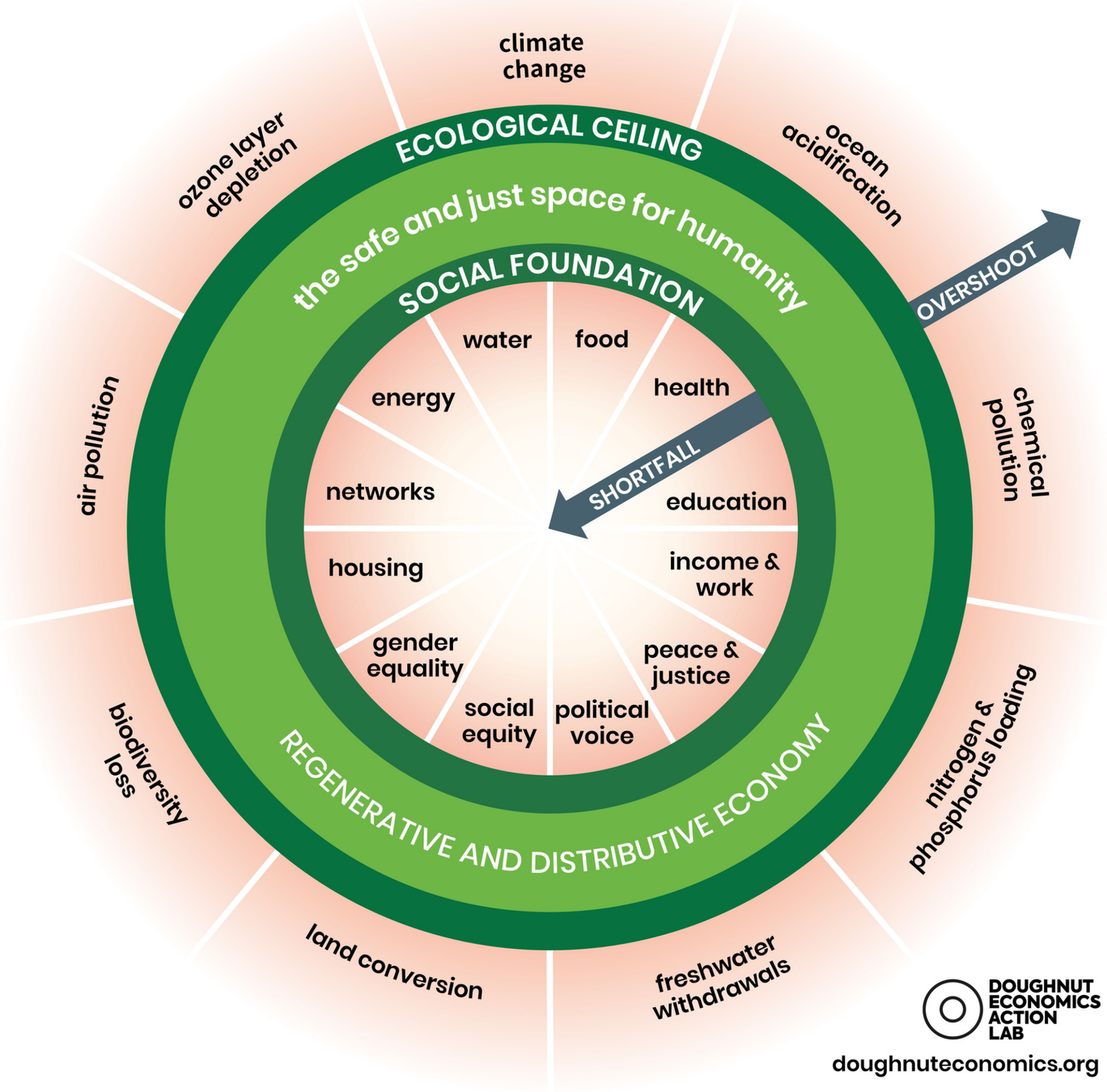
People and planet



DOUGHNUT ECONOMICS ACTION LAB

doughnuteconomics.org

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The world has changed over the last ten years...

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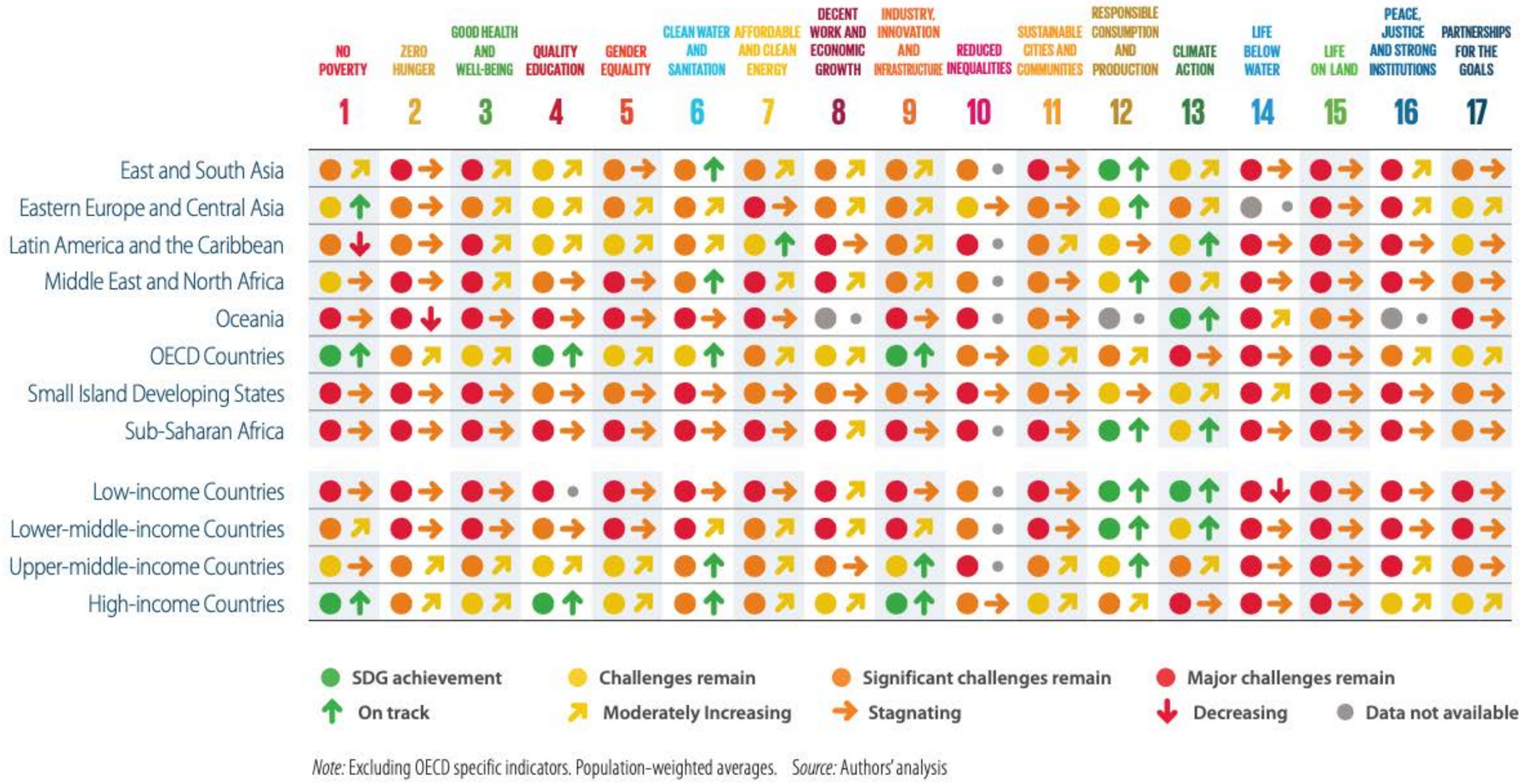
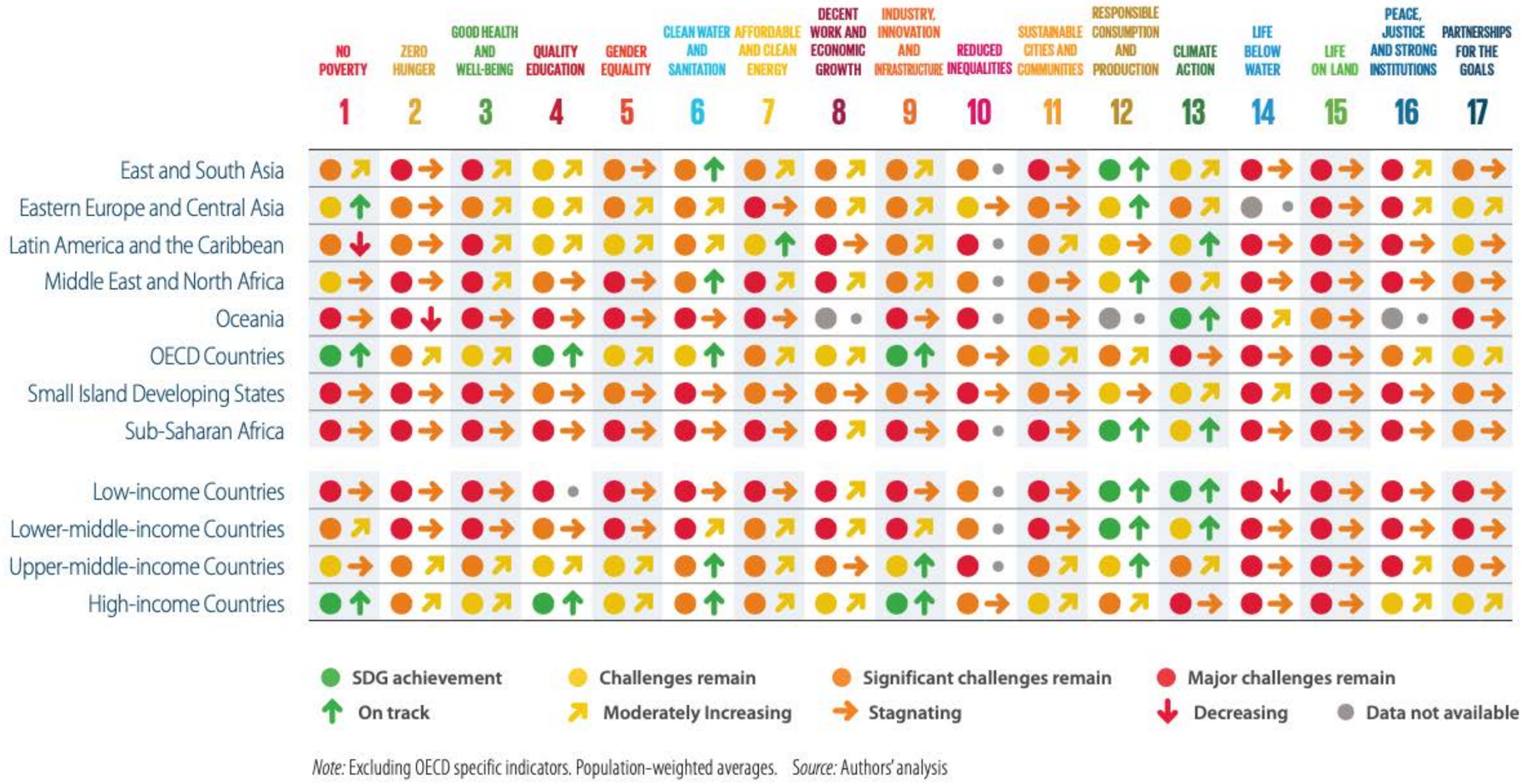
...or has it?



Note: Excluding OECD specific indicators. Population-weighted averages. *Source:* Authors' analysis

Sachs, J., Lafortune, G., Kroll, C., Fuller, G., Woelm, F. (2022). From Crisis to Sustainable Development: the SDGs as Roadmap to 2030 and Beyond. Sustainable Development Report 2022. Cambridge: Cambridge University Press.

No country is on track...



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Global risk horizon

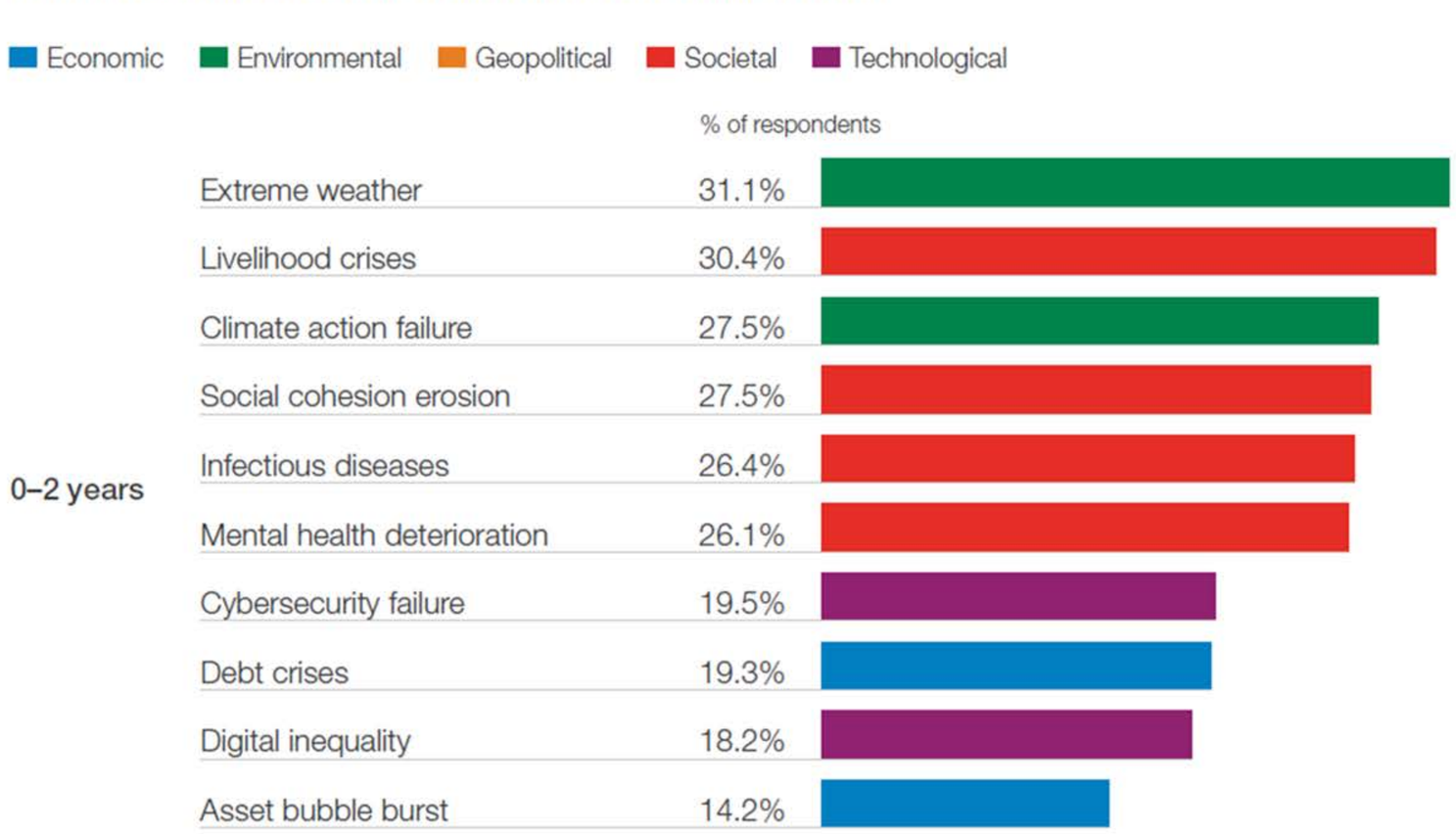
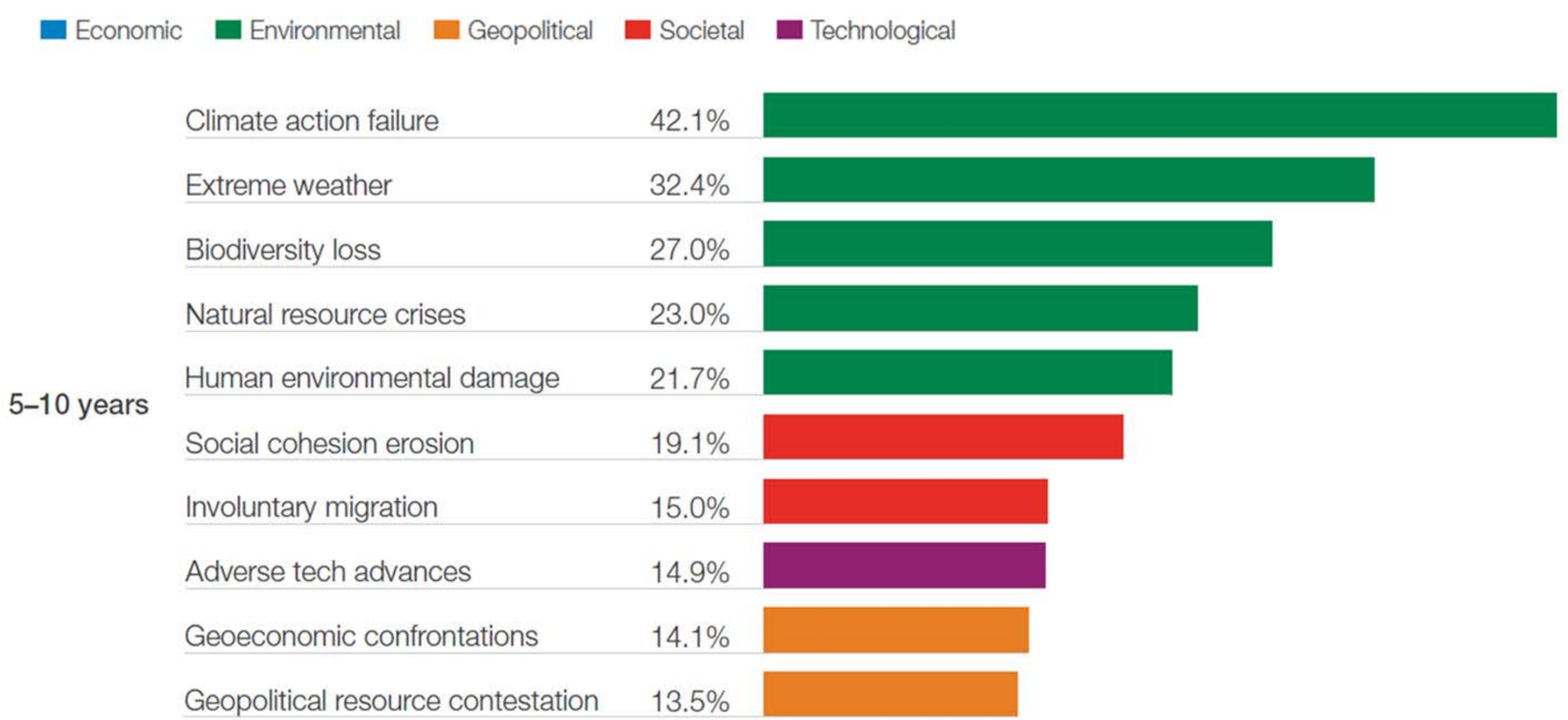


Image: World Economic Forum

Global risk horizon



The Global Risks Report 2022 25

Image: World Economic Forum

The role of engineering

Photo by ThisisEngineering RAEng on Unsplash

Engineering has played a significant role

Both good and bad in getting humankind and the planet to where they are today.

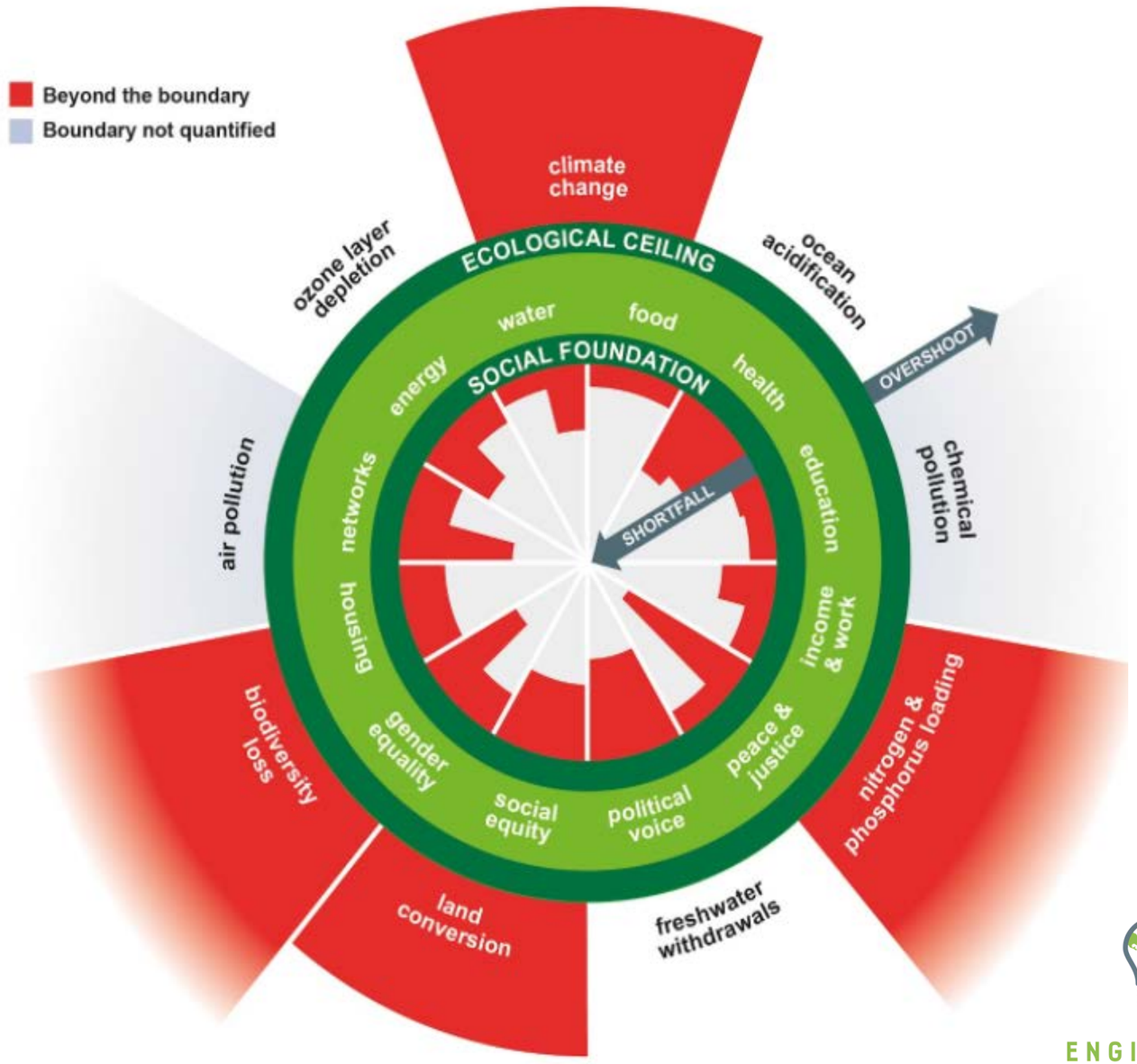


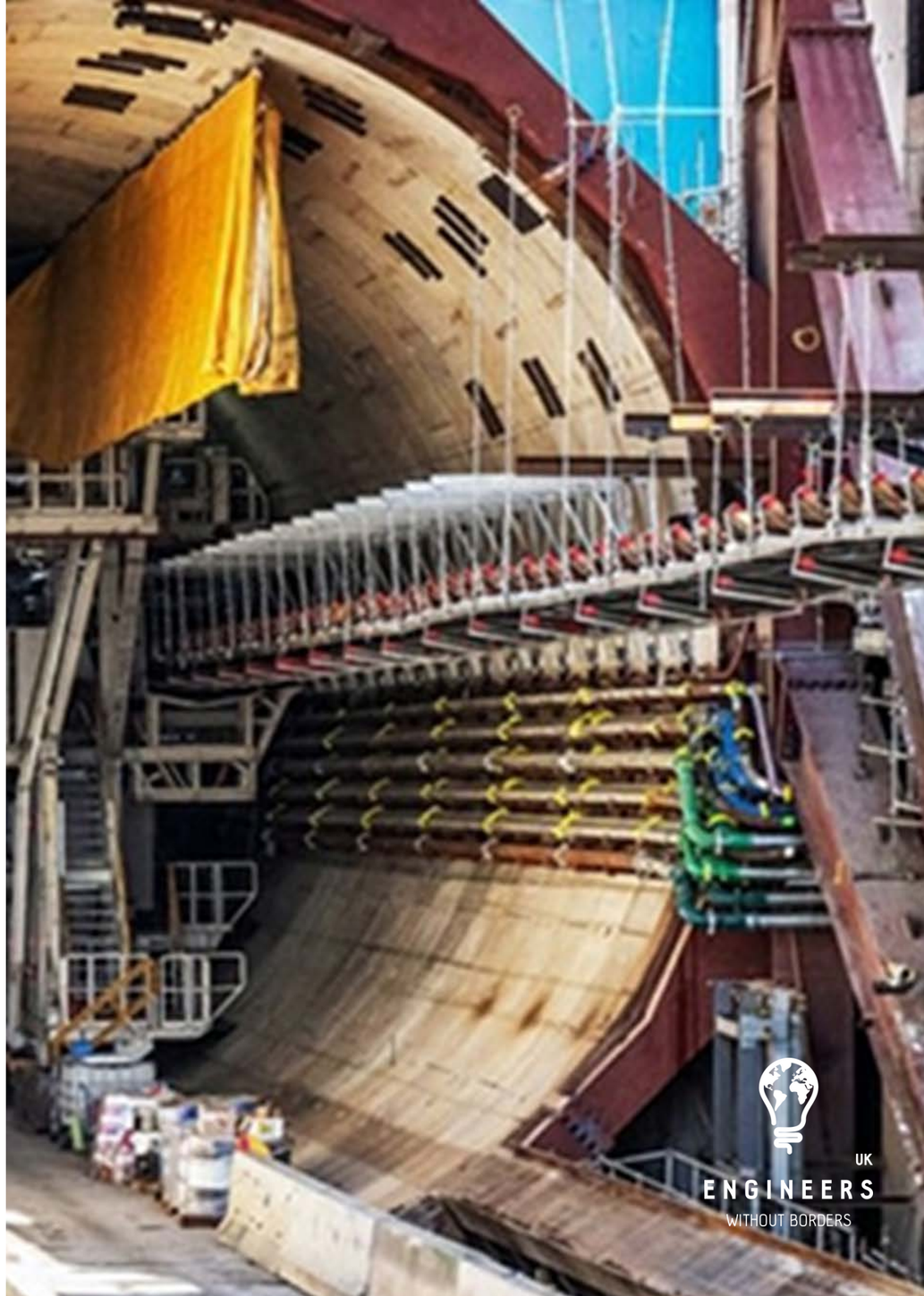
Image: The Doughnut of social and planetary boundaries. Credit: Kate Raworth and Christian Guthier. CC-BY-SA 4.0. Source: Raworth (2017)

Responsibility

- 3 million tonnes of contaminated soil discovered in West Gate Tunnel
- Local communities left out of the conversation

Failure to:

- Provide appropriate information and opportunities for communities to participate



Are we preparing future engineers with the skills to meet 2030...what about the following ten years?

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“

The UK could be sleep-walking towards a net zero skills shortage."

Engineering UK Report 2022

93% of UK engineering companies with a sustainability strategy do not have staff with the skills to fulfil it."

Institute of Engineering Technology

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Top 10 skills for 2025

WORLD ECONOMIC FORUM

Type of skill

- Problem-solving
- Self-management
- Working with people
- Technology use and development

1. Analytical thinking and innovation
2. Active learning and learning strategies
3. Complex problem-solving
4. Critical thinking and analysis
5. Creativity, originality and initiative
6. Leadership and social influence
7. Technology use, monitoring and control
8. Technology design and programming
9. Resilience, stress tolerance and flexibility
10. Reasoning, problem-solving and ideation

Source: Future of Jobs Report 2020, World Economic Forum.

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What does change look like?

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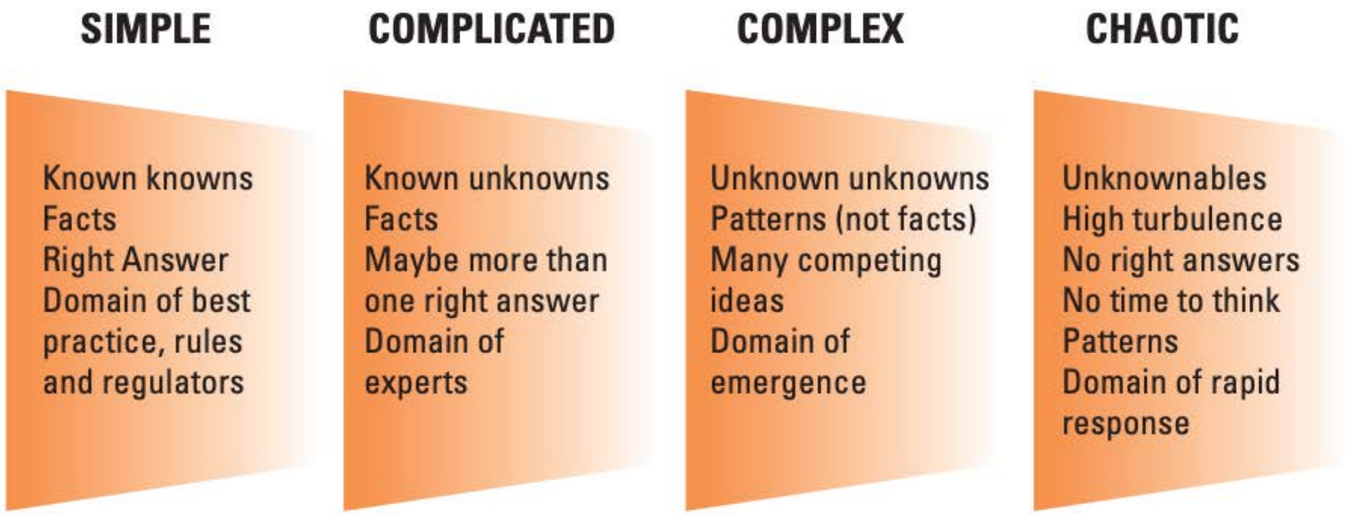
Change in mindset



How-and-When mindset

Rational problem solving
Deep disciplinary knowledge
Analysis, optimisation
Understanding certainty
Developing order
Anticipation

Why-and-What mindset

Problem definition
Holistic thinking
Initiative taking
Self-reliance
Creativity
Handling ambiguity
Correlating chaos
Lifelong learning
Agility

Image: Adapted from Kamp (2020) Navigating the Landscape of Higher Engineering Education Coping with decades of accelerating change ahead

Global responsibility

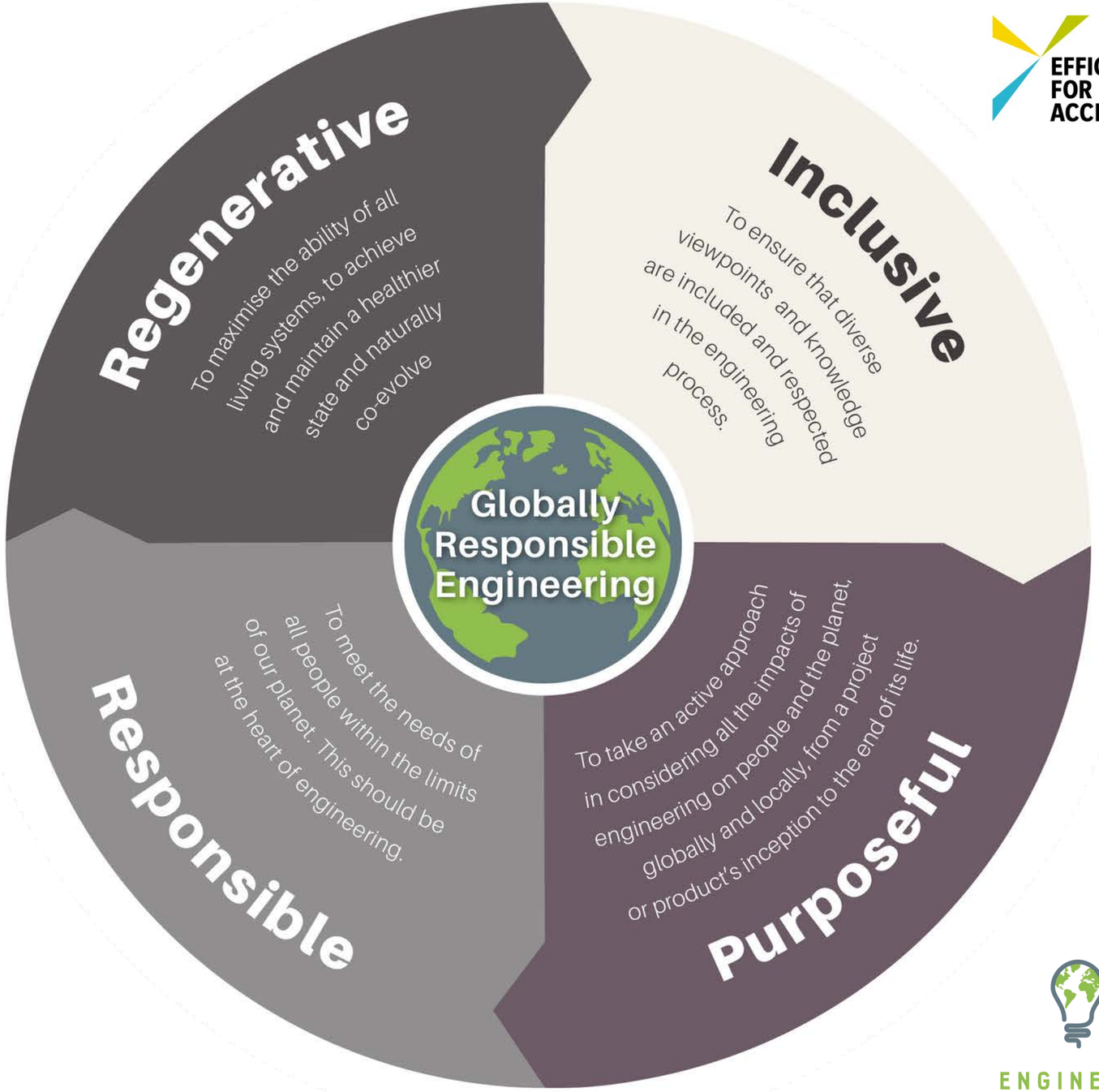


Image: Engineers Without Borders UK

What are the competencies?

Competencies of global responsibility

For example, during the Efficiency for Access Design Challenge:

What are you learning about **diversity, equity and social justice**?

Where are you **navigating complexity and uncertainty**?

Are you approaching teamwork in a **creative and collaborative** way?

Knowledge

Skills

Mindset

Image: Engineers Without Borders UK

Next steps

- Re-read the globally responsible design chapter in the design brief
- Apply the four principles of global responsibility throughout your design
- Work through our Globally Responsible Engineering programme on Forage

Any questions?

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Any questions for Nidhi?

Feedback

bit.ly/eforwebinarfeedback22-23

Thank you

Find out more at www.ewb-uk.org

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