

Ian Davies MEIANZ CEnvP

Davies Environmental Group

Presentation

Exploring the Past to Understand the Present and Shape the Future

Biography

Ian holds a BSc(Hons) in Environmental [Earth] Science and undertook Masters studies in Biotechnology and Environmental Engineering Project Management.

Having practiced as a hydrogeologist in the UK and Middle East, he moved into environmental impact assessment in the resources sector and was part of specialist multi-disciplinary teams involved with significant resource projects in a number of countries. He managed Carter Holt Harvey's 'contaminated land management' program for 12 years.

Ian established his own company in 2005, and has been variously based in Adelaide, Brisbane, and Melbourne working in the area of waste management, including hazardous waste management and related innovative technologies; contaminated land; and environmental and social impact assessment related to resource development. And, in more recent years, in the areas of sustainability and corporate social responsibility. He has completed the Certified Global Reporting Initiative (GRI) G4 Sustainability Reporting Program.

During the course of his career, Ian has practiced widely in the fields of Environmental Impact Assessment and Contaminated Land Management and observed how these topics have matured, developed and become integral parts of the continuum of environmental disciplines. Ian is now practicing in the field of Sustainability and keenly observes its development and progression as it too heads towards becoming an integrated and mature discipline. He considers himself fortunate to have been provided with the opportunity to ride a 'third wave' of specialization within the 'environmental' profession.

Abstract

Sometimes we dismiss the 'past' and either don't give it any attention or feel that it is not important to our 'now' let alone what happens 'next'.

During his career, the author has been privileged to have been 'in' at the early stage of adoption of Environmental Impact Assessment and was subsequently an active participant in the Contaminated Land 'wave' and its trajectory to maturity. He is now part of a 'third wave', Sustainability, as it heads towards becoming an integrated and mature discipline in many aspects of business and enterprise.

The author will not present as an apologist for his generation. Rather, he will advocate that we must support the endeavours of our young career professionals and students

who have so much invested in future change. The environmental movement takes the long view.

So too, our young environmental practitioners: they are serious; they 'get it'... and they rightly demand change from their elders to endeavor to ensure that their future doesn't get screwed up.

The present represents the accumulation of events, plans and decisions done in the past. And so to really understand where we are at, it is important to know what our predecessors did, and why.

From Silent Spring to COP21 in Paris, this paper will take a retrospective on the trends and actions undertaken over the past 30 years or so, and consider current initiatives such as David Suzuki Foundation's Blue Dot movement which started in 2014 and which embodies the right of every Canadian to live in a healthy environment - and to continue to enjoy clean air, clean water, and clean soil, and to maintain an environment for photosynthesis so that future generations may enjoy safe food and a stable climate.

Riding the Wave

Exploring the Past to Understand the Present and Shape the Future

Ian Davies CEnvP MEIANZ

Victorian Division

Vice President & Secretary



Sustainability

Environmental science • technology • engineering

Commercial advisory

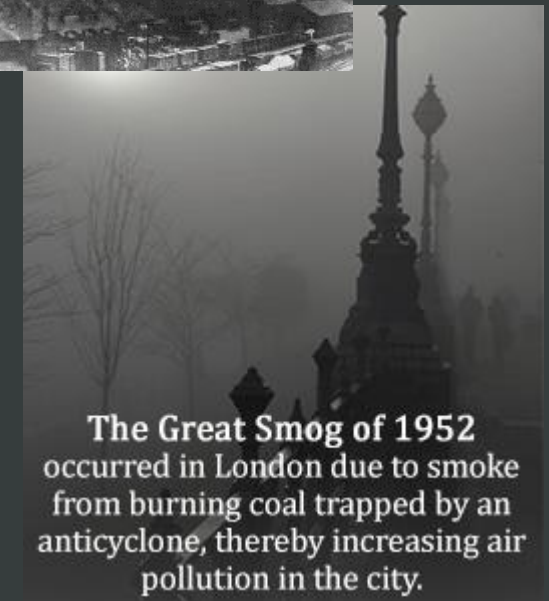
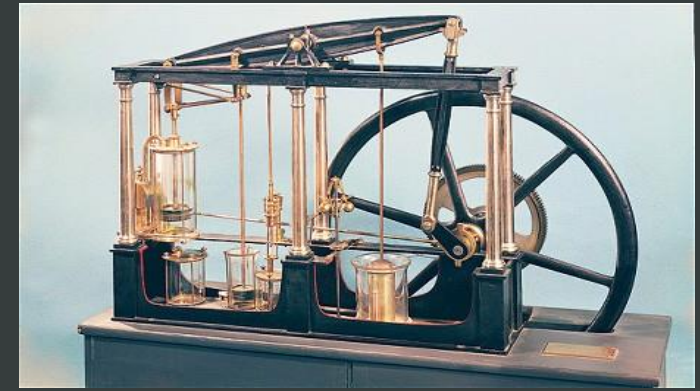
EIANZ Annual Conference: Foundations for tomorrow

3-4 November 2016

Sofitel, Brisbane

The Anthropocene

- James Watt steam engine 1784
- 1830s to 2nd WW and post industrial burning of fossil fuels, coal, oil
- The Clean Air Act 1956 was passed in response to London's Great Smog of 1952. The Act introduced a number of measures to reduce air pollution, especially by introducing 'smoke control areas' in some towns and cities in which only smokeless fuels could be burned., it reduced the amount of smoke pollution and sulphur dioxide from household fires.
- The Act was an important milestone in the development of a legal framework to protect the environment.



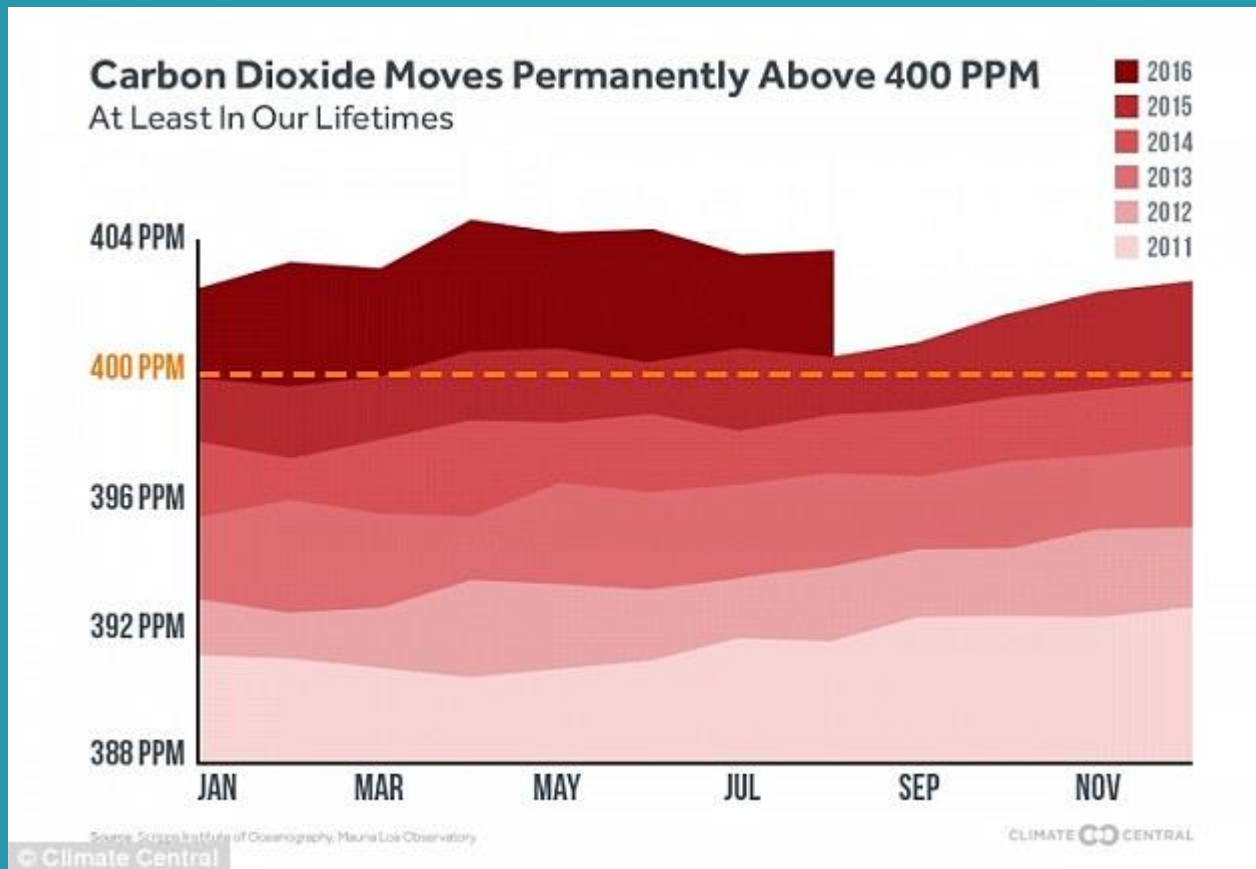
The Great Smog of 1952
occurred in London due to smoke from burning coal trapped by an anticyclone, thereby increasing air pollution in the city.

CONTEXT 2016+

- To stay below 1.5°C threshold by 2100 we can put no more than 650 billion tonnes of carbon into the atmosphere
- Since mid-1800s we have put 550 billion tonnes into the atmosphere
- Which leaves a residual balance of 100 billion tonnes, and we are
- Currently emitting 10 billion tonnes a year – therefore our remaining budget all used up in 10 years time (by 2030)

Global warming milestone as scientists warn Earth has passed carbon tipping point 'for good'

29 September 2016

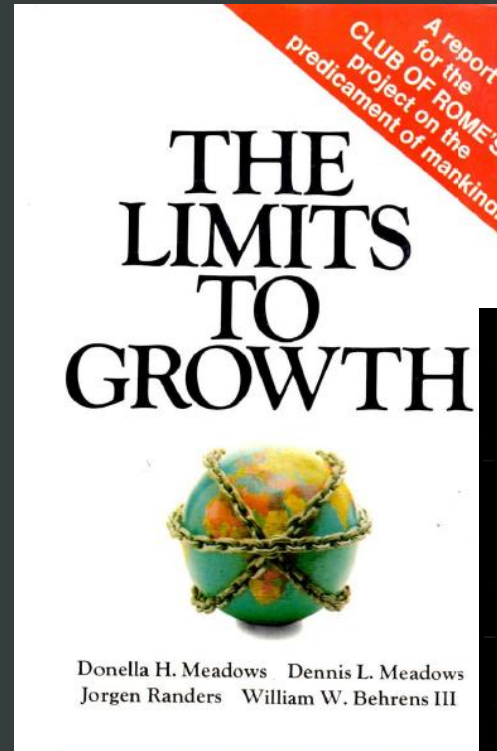


Start of the Journey

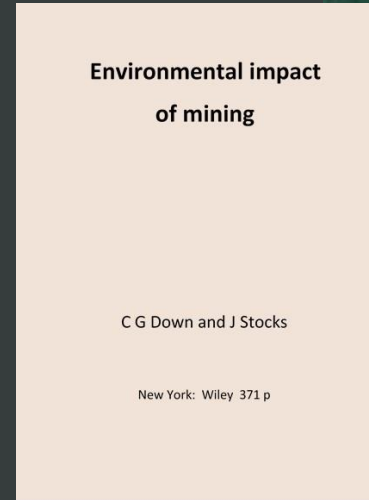
September 1962



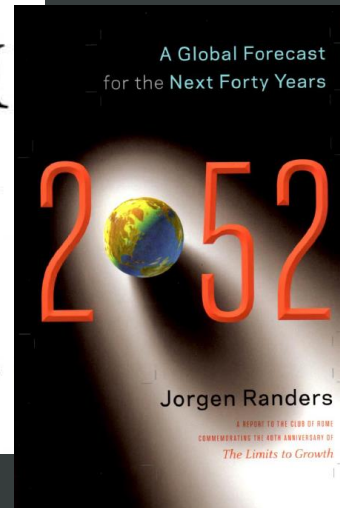
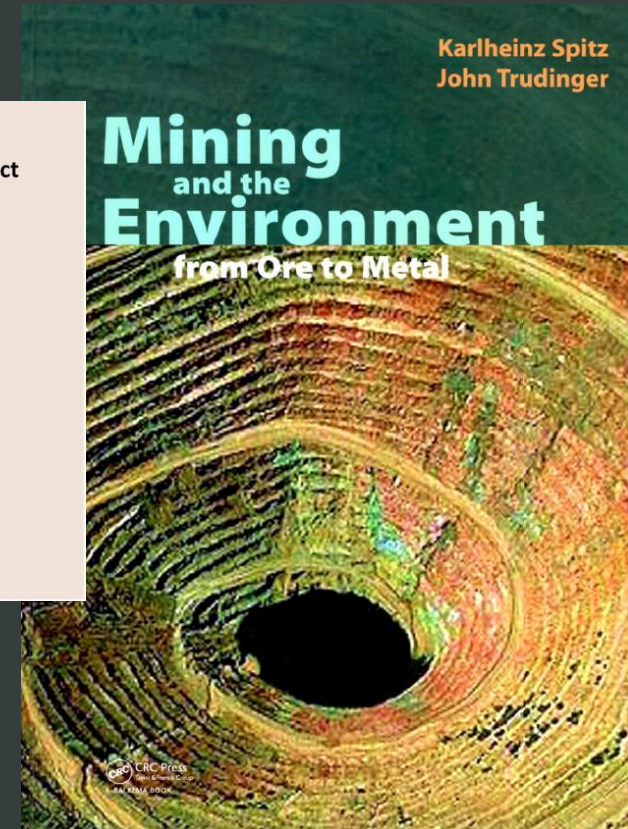
1972



1977



2009



Legislation

United States

- 1969 National Environmental Policy Act
- 1970 Clean Air Act



Australia

- 1970 Environment Protection Act Victoria

was at its inception only the second Act in the world to deal with the whole of the environment in a systematic and integrated way.

The Act is outcome oriented, with a basic philosophy of preventing pollution and environmental damage by setting environmental quality objectives and establishing programs to meet them.

Over the years the Act has evolved to keep pace with the world's best practice in environment protection regulation and to meet the needs of the community.



Back in 70s; when EPA was born it was looking for things to do so they decided to study how much stuff was spewing out of the back of passenger jets.

This was the time before hi-tech when all you have is a slide rule or if you are lucky a battery powered calculator.

An EPA official was charged with finding a car that could sniff the tail of a Boeing 737 travelling at 193 km/h.

The EPA official used to sponsor NASCAR racers and gave a buddy who owned a go-fast engineering shop \$30,00 if he could find a car fast enough to chase a the Boeing down the runway and fill it with scientific equipment to find out what it was emitting.

He bought a second hand Superbird, made it go fast and before you could say *The Jetsons*, the scared scientists were chasing a PAN AM plane down the runway as they were taking off – normal airport, normal takeoff.

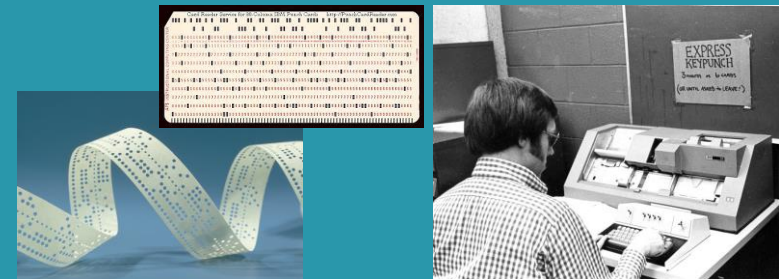
TRUE STORY

1970 EPA Plymouth Superbird
auctioned in Las Vegas last week (October 2016)



1970-01-01

1970 was also the year when
the computer universe started



Regulation

WME 25 YEARS ON

WASTE & RESOURCES ENERGY & CARBON WATER & WASTEWATER SUSTAINABILITY

1989 **1990** **1991** **1992** **1993** **1994** **1995** **1996** **1997** **1998** **1999** **2000** **2001** **2002** **2003** **2004** **2005** **2006** **2007** **2008** **2009** **2010** **2011** **2012** **2013** **2014**

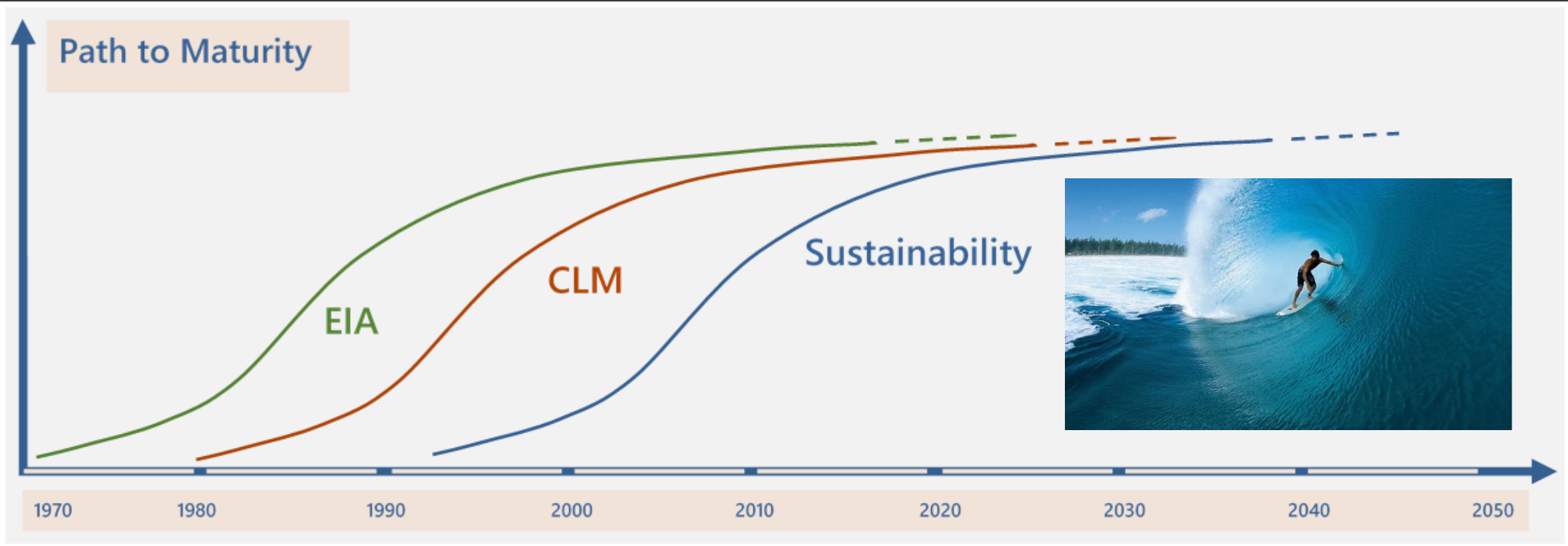
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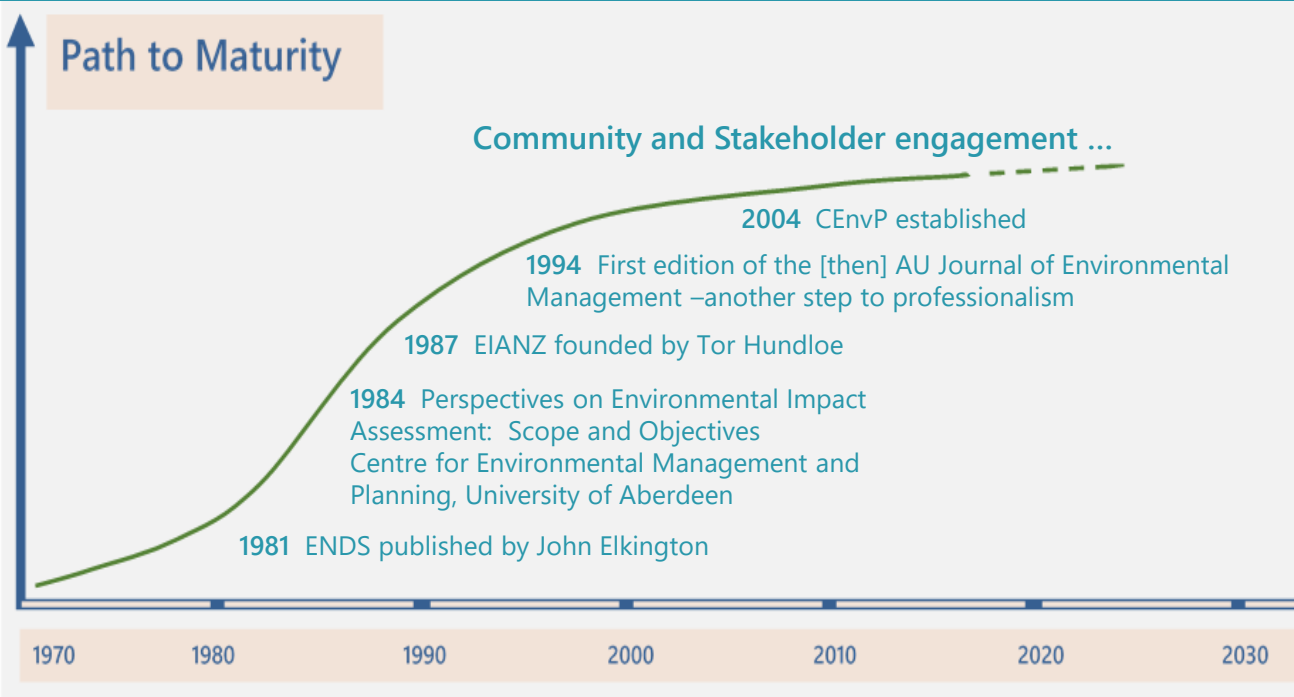
Courtesy: Waste Management and Environment, WME





Environmental Impact Assessment

EIA



.... historically has produced a very one-sided view of the world – usually that of the proponent.

Trending:

- Methodology, metrics – meaningful data
- Engagement through Fun, being easy and quick, enjoyable
- Options to ensure wide engagement

1974 Telex



1978 Fax



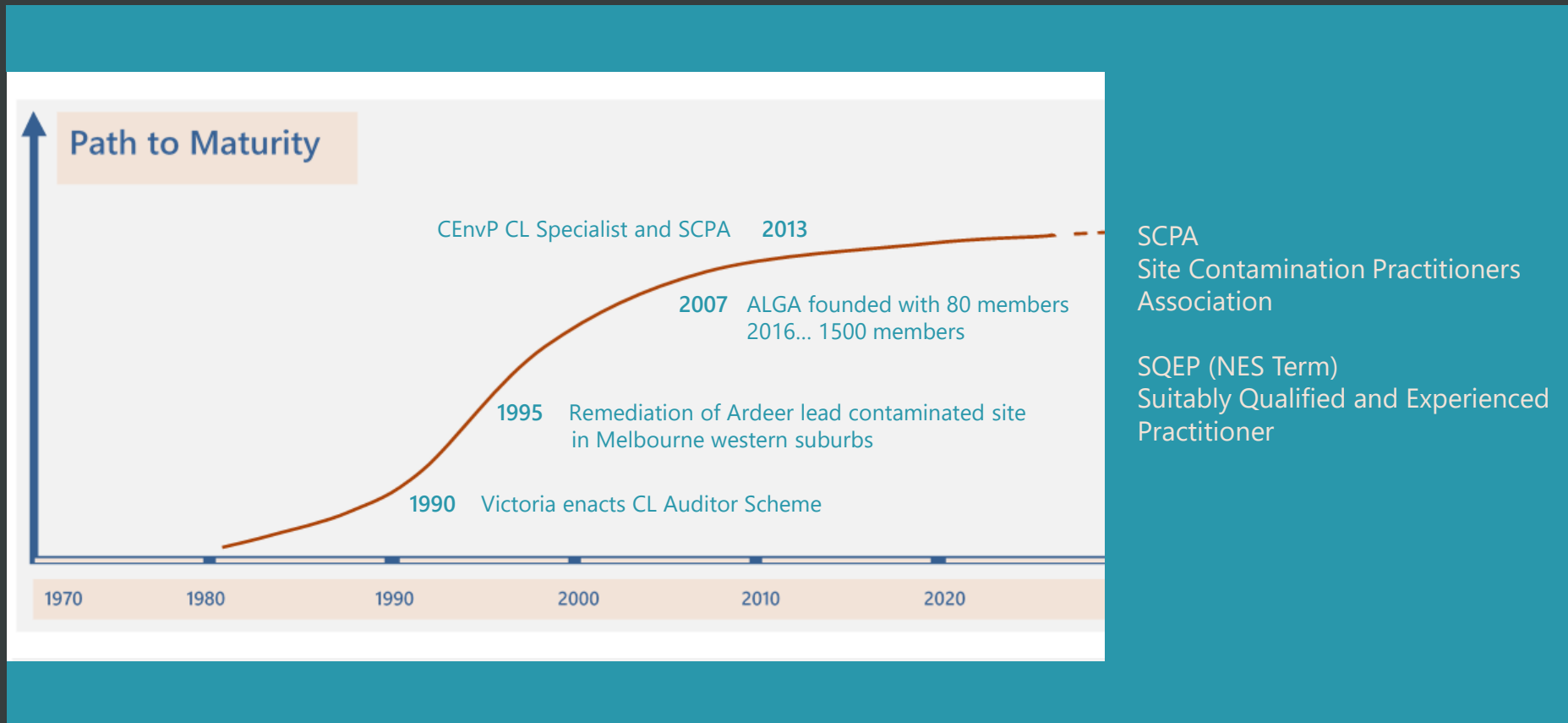
1984 Apple Macintosh



Communication: phone and face to face have given way to on-line technology and email

Contaminated Land Management

CLM



1995 Mobile Phone



1995

CompuServe, America Online, and Prodigy start providing dial-up Internet access.

Sustainable Remediation



Special Interest Groups



Sustainable Remediation: From Ethic to Norm



'Sustainability' practice may be described by paraphrasing a great pragmatist:

'We do the very best we know how - the very best we can; and we mean to keep on doing so until the end' - Abraham Lincoln

By Garry J Smith, Geosyntec Consultants

Boiled down, sustainability and its application to remediation, is about quality in planning and practice. It is something to which we all aspire, and possibly achieve in limited measure for many projects. Sustainable Remediation (SR) practice aims to thoroughly apply planning and new tools to achieve project quality in perpetuity.

(ISO) guidance document on SR is about to be published. SuRF ANZ is the inaugural chair of the new International Sustainable Remediation Alliance (ISRA), a cooperative alliance between national SuRF organisations worldwide.

of the Act include ensuring 'that contaminated land is managed with regards to the principles of ecologically sustainable development'.

- WA DER in December 2014 published Assessment and Management of



What is Sustainable Remediation?
Addressing the Contamination Cycle
Balancing Cost - Environment - Community

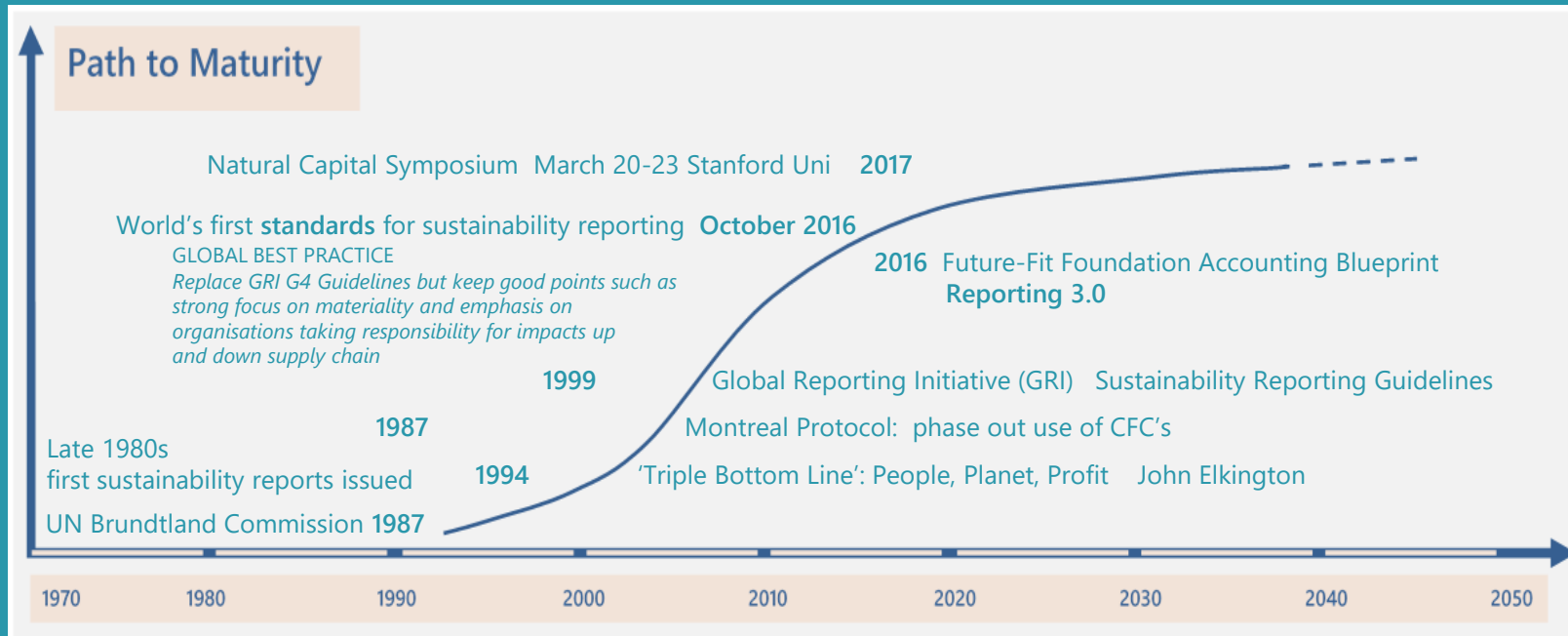
Large Diffuse Plumes

ISRA/PL Source Zone

ISRA/PL Source Zone or Smaller Plumes

Sustainability

Reporting Frameworks



- Carbon Disclosure Project, CDP
- Corporate Social Responsibility, CSR
- Dow Jones Sustainability Index
- Environmental-Economic Accounting (recent EIANZ Webinar)
- Green Bonds – finance commercially viable projects that have a positive effect on sustainable landscape management
- Industrial Ecology
- Natural Capital
- Sustainable development planning
 - Securing freshwater
 - Fostering resilient coastal communities
 - Developing sustainable cities – urban resilience
 - Creating standards for the private sector
- Social Licence
- UN Global Compact
- UN Sustainable Development Goals
- World Bank & IFC Equator Principles

2010 Smartphones

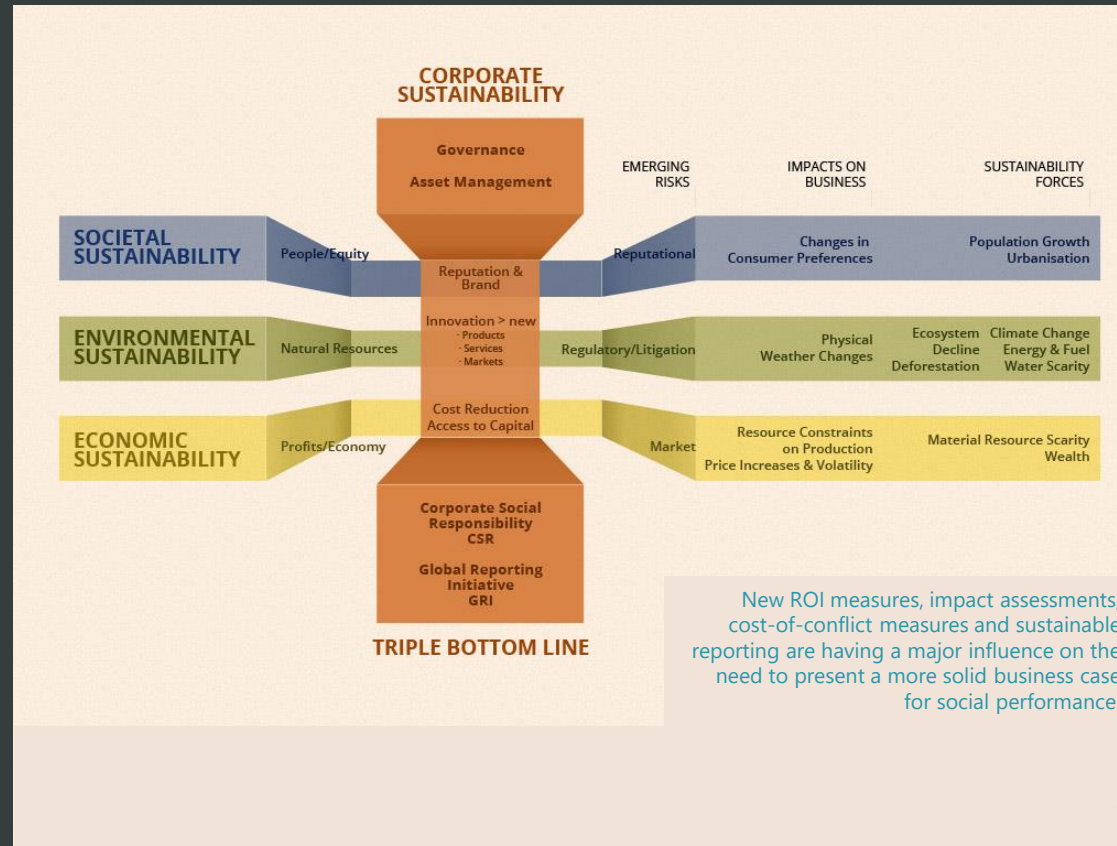


Corporate Social Responsibility CSR

2016

80% of S&P 50 companies provide economic, environmental, and social performance reports

- human rights
- product stewardship
- community relations
- labour work practices



Drivers of social performance ^

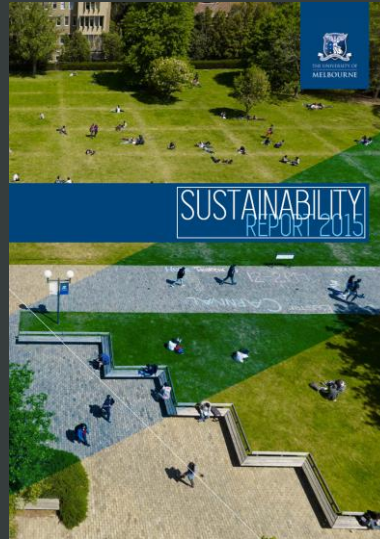
- Peer pressure
- Shared language
- Discipline – both voluntary and mandatory regulation
- Group identity

Magnified by extensive and growing informed stakeholder base with which companies must engage.

^ Dr Sara Bice, Research Fellow at the Melbourne School of Government, University of Melbourne in *AU Resources and Investment* Aug 2016

Sustainability Reports

- Have been derided for having baby bunnies and the CEO and kids on the cover.
- What a company does, the outputs, can be products, services That's the good stuff. That's the benefit.
- The cost could be damage to the environment or human association with the production of every unit.
- The underlying principle is no company is risk free, no company is squeaky clean, and no technology is without impact... so it is naïve to be an impact investor and ignore the costs.



- Since 2014 the ASX and AU Securities and Investments Commission have required listed companies to disclose non-financial and sustainability related risks that may affect financial performance
- Environmental sustainability includes the ability of a listed entity to continue operating in a manner that does not compromise the health of the ecosystems it operates in over the long term.
- Social sustainability is the ability to continue operating in a manner that meets accepted social norms and needs over the long term.
- Who are the investors? ... Pension Funds etc



2017

UBS Global Asset Management will soon unveil tools that measure the impact of a company's activities on public health and the environment, whether a company has + or – to enable performance-driven investors to channel funds into companies that are environmentally and socially sustainable.

Company Response



Carbon Market Institute *2016 AU Climate Policy Survey* 13 October 2016

Survey of 208 senior management and executives from across businesses nationally.

"Our annual survey highlights that business want the upcoming policy review to provide clarity on how Australia's climate and energy policies will evolve to ensure we meet our current and future emissions reduction targets under the Paris Agreement"

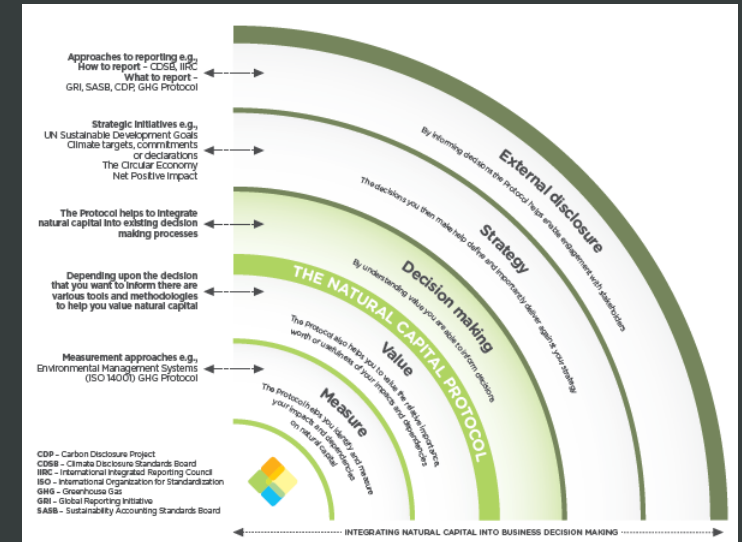
says Peter Castellanos, Chief Executive Officer of the Carbon Market Institute.

- 83% agreed or strongly agreed that baselines under the safeguard mechanism should be set to tighten over time in line with Australia's 2030 emissions reduction target.
- 92% believe that the conditions and criteria for how emissions baselines under the safeguard mechanism will be adjusted in the post 2020 period is an essential component of the upcoming 2017 policy review.
- 73% of respondents working for GHG-emitting companies are factoring in an internal carbon price.
- 85% of respondents indicated Australia should be part of international carbon market developments under the Paris Agreement.
- 83% indicated it is important there are other sources of private sector demand for domestic abatement under the Emissions Reduction Fund.
- 77% respondents said Australia should have a stronger emissions reduction targets, in line with the Climate Change Authority's recommended 40-60 per cent reduction below 2000 levels by 2030.

Natural Capital

2016

“The Natural Capital Protocol is a framework designed to generate trusted, credible, and actionable information for business managers to inform decisions”



Operational <i>Regular business activities, expenditures and processes</i>	<ul style="list-style-type: none"> Reduce raw material costs and risk of interruption to supply from extreme weather, flooding etc. Realize efficiency gains
Legal and regulatory <i>Laws, public policies, and regulations that affect business performance</i>	<ul style="list-style-type: none"> Identify future legislation Reduce compliance costs and risk of fines and penalties
Financing <i>Cost of and access to capital including debt and equity</i>	<ul style="list-style-type: none"> Reduce financing costs and increase margins Improve access to finance - attracting investors
Reputational and marketing <i>Trust and relationship with stakeholders, customers, suppliers and employees</i>	<ul style="list-style-type: none"> Identify new revenue streams and differentiate your products Improve ability to attract and retain employees
Societal <i>Relationships with wider society</i>	<ul style="list-style-type: none"> Identify benefits and negative impacts to local communities through improved natural capital (e.g., water quality) Support a social license to operate

Stage	FRAME Why?		SCOPE What?		MEASURE AND VALUE How?			APPLY What next?	
Step	01 Get started	02 Define the objective	03 Scope the assessment	04 Determine the impacts and/or dependencies	05 Measure impact drivers and/or dependencies	06 Measure changes in the state of natural capital	07 Value impacts and/or dependencies	08 Interpret and test the results	09 Take action
Questions this will answer	Why should you conduct a natural capital assessment?	What is the objective of your assessment?	What is an appropriate scope to meet your objective?	Which impacts and/or dependencies are material?	How can your impact drivers and/or dependencies be measured?	What are the changes in the state and trends of natural capital related to your business impacts and/or dependencies?	What is the value of your natural capital impacts and/or dependencies?	How can you interpret, validate and verify your assessment process and your results?	How will you apply your results and integrate natural capital into existing processes?

PRINCIPLES: Relevance, Rigor, Replicability, Consistency



Towards 2030

'Identifying mega trends'

May 2016

CSIRO Futures report *Australia 2030: Navigating Our Uncertain Future*

Mega trends include:

- **More for Less**
through innovations in science, technology
- **Planetary pushback**
how changes in Earth systems will affect us
- **The silk highway**
growth in emerging countries, particularly in Asia
- **Forever young**
the impact of the ageing population
- **Digital immersion**
possibilities from exponential growth in computing power and connectivity

Overall, the report was optimistic with three of four scenarios derived from these mega trends indicating positive outcomes.



- The fourth scenario - 'Weathering the Storm' suggested a pessimistic outcome and potentially negative future with:
 - *global geopolitical instability increasing driven by climate change and with*
 - *regional conflicts occurring over access to land, food , and water.*
 - *Tensions destabilising trade alliances and disrupting global supply chains, leading to*
 - *prolonged global economic stagnation.*

The Silk Highway

Everything is big in **China** – geography, reach, population, buildings, vaulting ambition

Underdeveloped backwater to emerging superpower

Leading or aspiring in just about every imaginable sphere from economic and geopolitical to the technological and educational

Investing enormous resources in the enabling techs of 21st Century

Information and communications tech, healthcare, pharmaceuticals but also agricultural and energy technologies, natural resources and advanced materials and manufacturing technology

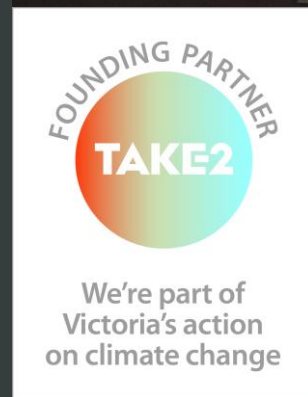
Recently strategic milestones – first quantum satellite in August 2016 (in pursuit of unhackable encryption technology)



Towards 2030

'Room for Optimism'

June 2016



Victoria's collective climate change pledge to reach net zero emissions by 2050 and keep the global temperature rise to under 2°

July 2016

Federal Government announces the appointment of Josh Frydenberg to the position of Environment and Energy Minister, aligning Australia with best practice in Europe. Now under one banner we have:

- The Renewable Energy Target
- The Emissions Reduction Fund
- The National Energy Productivity Plan
- Agencies such as
 - ARENA (AU Renewable Energy Agency)
 - Clean Energy Finance Corporation
 - the Clean Energy Regulator, and
 - the Climate Change Authority.

Towards 2050

Planet

2016	4 billion people in cities
2050	Another 2.5 billion
2050	Male life expectancy 88, Females 90

Queensland

In past 2 weeks the QLD govt has released its draft 50 year plan for a sustainable SEQ – a 50 year roadmap to ensure the region can provide affordable living, protect its natural assets and generate jobs in new and emerging industries.

Melbourne

2016	6 million
2016 - 2026	100,000 additional each year
2050	10 million



The [Paris Agreement](#) committed to:

Holding the increase in the global average temperature to well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels, recognising that this would significantly reduce the risks and impacts of climate change."

December 2015

General consensus is that COP21 was an extraordinary event and though the difference between 2° and 1.5° doesn't sound very much, the difference is massive – for the first time world leaders seriously got their heads around the threat of runaway climate change

The need for every country to do everything in its power to limit the average tempo increase by 2100 to no or than 2° and to maim for an even lower threshold of 1.5°

Towards a Sustainable World

So instead of portraying Earth in 2050 as a polluted, overpopulated hellhole lets envision and create a place we would like to live. A place which is ...

- Exciting
- Aspirational
- High-tech
- Fair
- And hopeful

looking back from 2050

Consider the retrospective view of history teacher Alex McKay as she looks back from 2050 and reflects that:

- 90% of energy comes from renewable sources and 30% of electricity from solar power.
- Standard technology devices are computing at the same rate as the human brain.
- Nanotechnology, 3-D printing and biomimicry have transformed the world of manufacturing.
- Personal genomics allow everyone to manage their own health, live longer and healthier lives, and die when they want to.
- There are still rich and poor but the rich are poorer but happier and the poor are richer in so many ways

From *The World We Made* by Jonathon Porritt Founder
Director of Forum for the Future



Hope ... Optimism



President Obama

We are the first generation to experience climate change and the first to be able to do something about it – let's not squander the opportunity.

Canadian Prime Minister Justin Trudeau

Who was able to provide an impromptu enunciation of the workings of quantum computers

David Suzuki who established the [Blue Dot Foundation](#) in 2014 proclaiming that it was the right of every Canadian to live in a healthy environment and to agitate for a grass roots movement to continue to enjoy:

Clean air

Clean water

Clean soil



... And so maintain an environment that will support **photosynthesis** so that future generations may enjoy **safe food** and a **stable climate**.

The enemy of hope is not despair but indifference



What can be

We all have a vested interest in making sure Planet Earth can continue to support life

And leave an inhabitable world for future generations



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Thank you for your time