IX Conferencia IUS América

Centro Universitário Salesiano - UniSales

Vitória (ES), Brasil, 20 al 23 de septiembre de 2022

Medio Ambiente y Sostenibilidad en la Enseñanza Superior

Ing. Juan Francisco Sifontes

Universidad Don Bosco

El Salvador, Centro América

22 de Septiembre 2022

Salesian Institutions of Higher Education

KEYNOTE SPEAKER
JUAN FRANCISCO SIFONTES

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AMBITO LABORAL EN EL SALVADOR

Presidente El Salvador Green Building Council

Miembro del Consejo Superior of Universidad Don Bosco, El Salvador

Miembro de la Junta Directiva de ISEADE-FEPADE, El Salvador

Profesor de LEED Lab en Universidad Don Bosco de El Salvador

EDUCACION

Electrical Engineering, LSU EEUU

Master of Science in Manufacturing Engineering and Automation, LSU EEUU

Master of Science in Maintenance Management – BITS Royal Institute Tec., Estocolomo Suecia

AGENDA

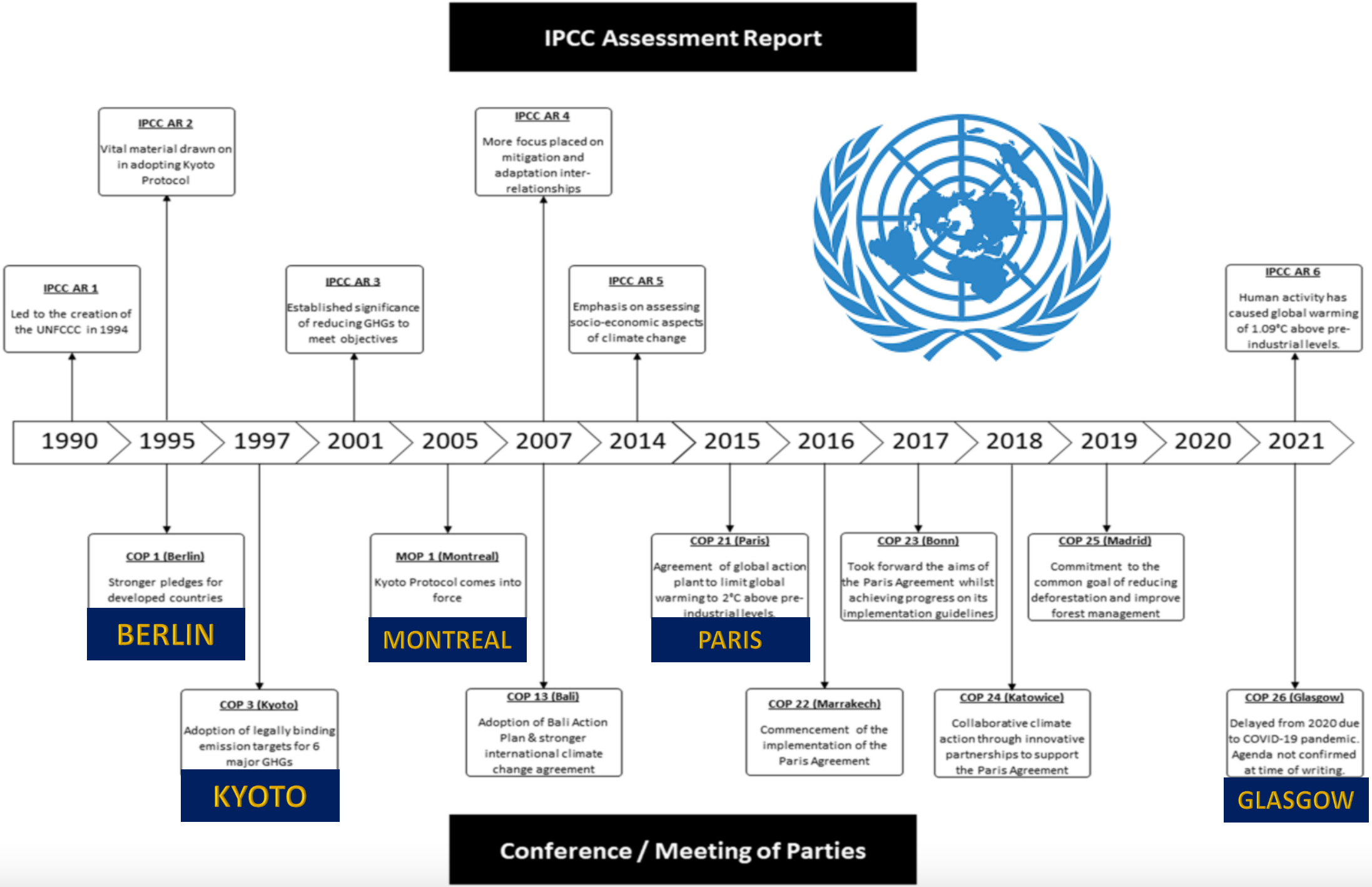
- Terminología y Definiciones relacionadas a Cambio Climático
- Consecuencias de Cambio Climático
- Llamado a la Acción
- Casos de Estudio
  - Tecnológico de Monterrey
  - Universidad Don Bosco en El Salvador

¿Porqué se está calentando el Planeta Tierra?

QUE SON LAS COPs

NDCs
INDCs
ODSs
IPCC
UN
Agenda 2030
Carbon Footprint
Race to Zero
Desarrollo Sostenible
CO2
NH4
Decarbonización
Plan de Carbón
Sustentabilidad
Triple Bottom Line
1.5 C
Sea Level Rise
Energías Renovables
Econnomís Circular
Reclaje
Decada Verde
Greta Thumberg

QUE SON LAS COPs


IPCC Assessment Report
IPCC AR 1
Led to the creation of the UNFCCC in 1994
IPCC AR 2
Vital material drawn on in adopting Kyoto Protocol
IPCC AR 3
Established significance of reducing GHGs to meet objectives
IPCC AR 4
More focus placed on mitigation and adaptation inter-relationships
IPCC AR 5
Emphasis on assessing socio-economic aspects of climate change
IPCC AR 6
Human activity has caused global warming of 1.09°C above pre-industrial levels.
1990
1995
1997
2001
2005
2007
2014
2015
2016
2017
2018
2019
2020
2021
COP 1 (Berlin)
Stronger pledges for developed countries
BERLIN
COP 3 (Kyoto)
Adoption of legally binding emission targets for 6 major GHGs
KYOTO
MOP 1 (Montreal)
Kyoto Protocol comes into force
MONTREAL
COP 13 (Bali)
Adoption of Bali Action Plan & stronger international climate change agreement
COP 21 (Paris)
Agreement of global action plant to limit global warming to 2°C above pre-industrial levels
PARIS
COP 22 (Marrakech)
Commencement of the implementation of the Paris Agreement
COP 23 (Bonn)
Took forward the aims of the Paris Agreement whilst achieving progress on its implementation guidelines
COP 24 (Katowice)
Collaborative climate action through innovative partnerships to support the Paris Agreement
COP 25 (Madrid)
Commitment to the common goal of reducing deforestation and improve forest management
COP 26 (Glasgow)
Delayed from 2020 due to COVID-19 pandemic. Agenda not confirmed at time of writing.
GLASGOW
Conference / Meeting of Parties

Fifth Assessment Report
Intergovernmental Panel on Climate Change
(IPCC) 2013/2014

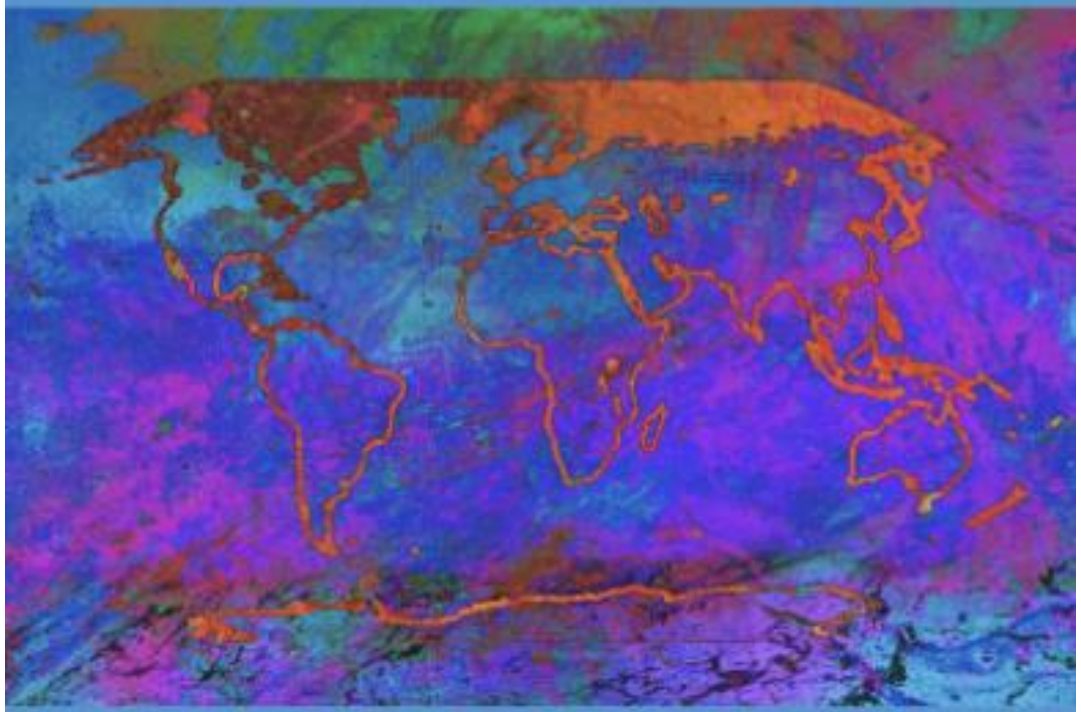

''Warming of the climate system is unequivocal'' and
''a settle fact''
IPCC (2007 United Nations Intergovernmental Panel On Climate Change)

ipcc

INTERGOVERNMENTAL PANEL ON climate change

Climate Change 2021

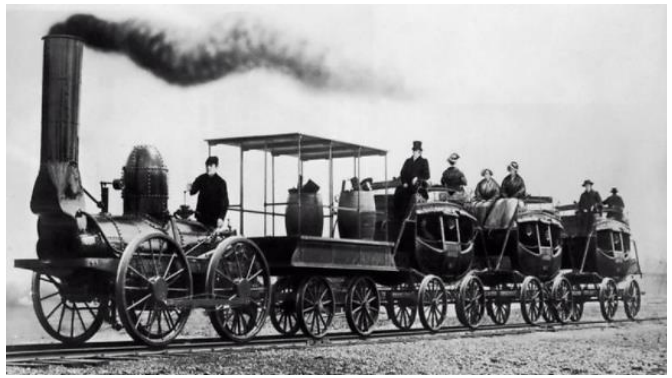
The Physical Science Basis

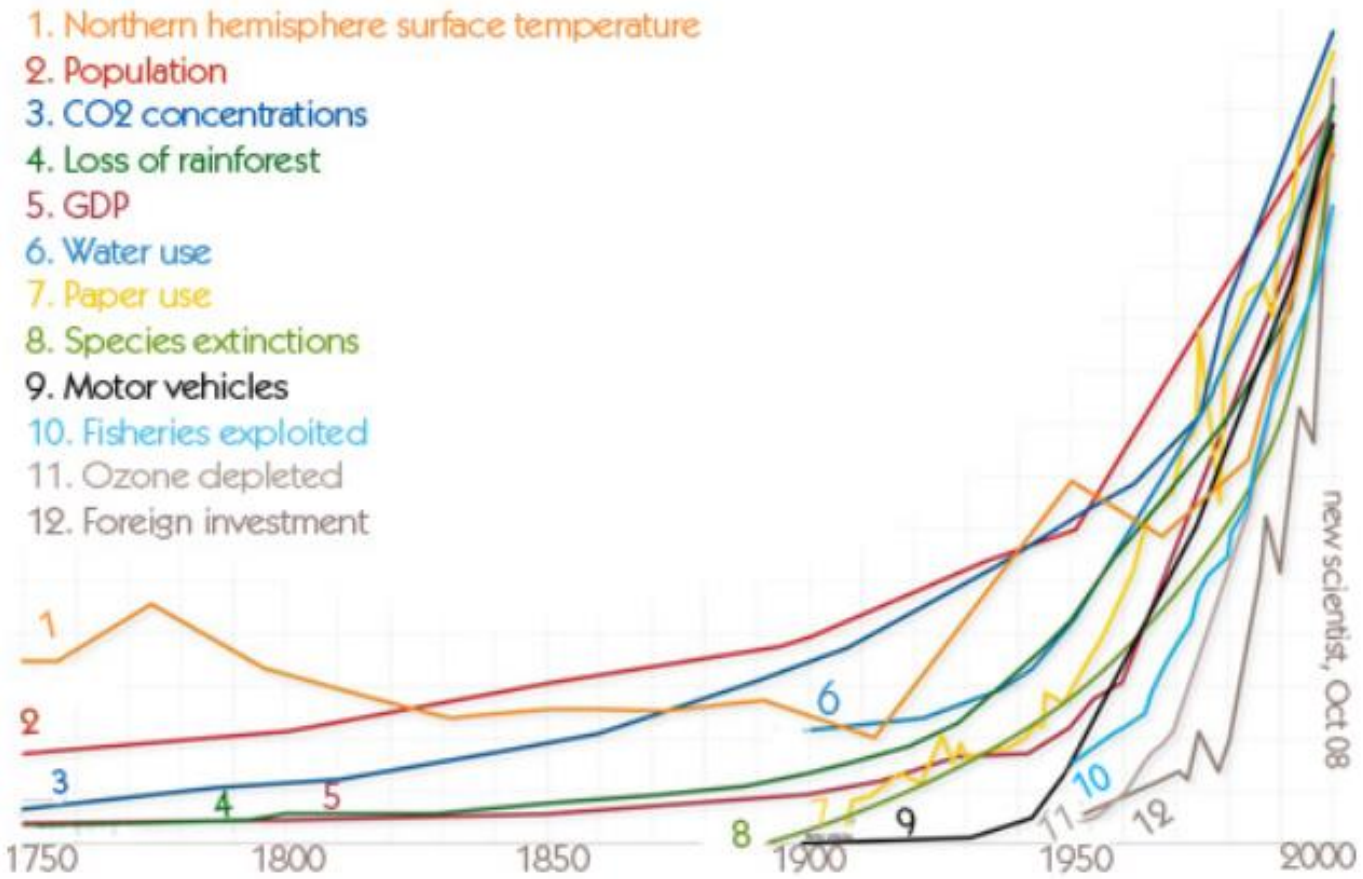


WGI

Working Group I contribution to the
Sixth Assessment Report of the
Intergovernmental Panel on Climate Change

WMO UNEP

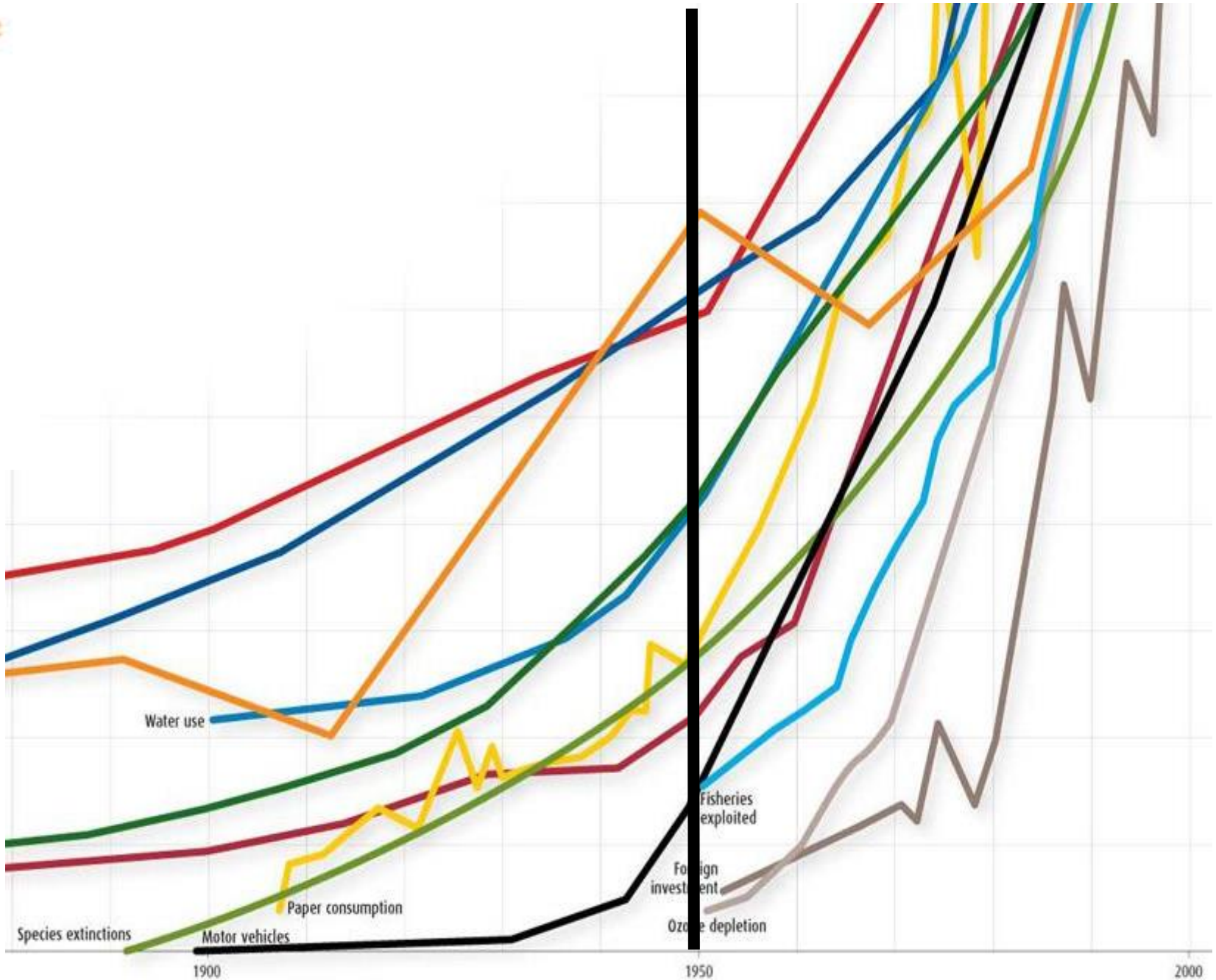




The economy doesn't exist in a vacuum. It is, in Herman Daly's words, "a subsystem of the finite biosphere that supports it." As the graph above shows, (**more detailed version here**) global GDP has not risen in isolation. Water use, deforestation, and species loss have all soared with it. The earth's fresh water, forests, oil deposits, atmosphere and so on are very real constraints to growth. Some of them are renewable, and some of them are finite. Let's look at each of those in turn.

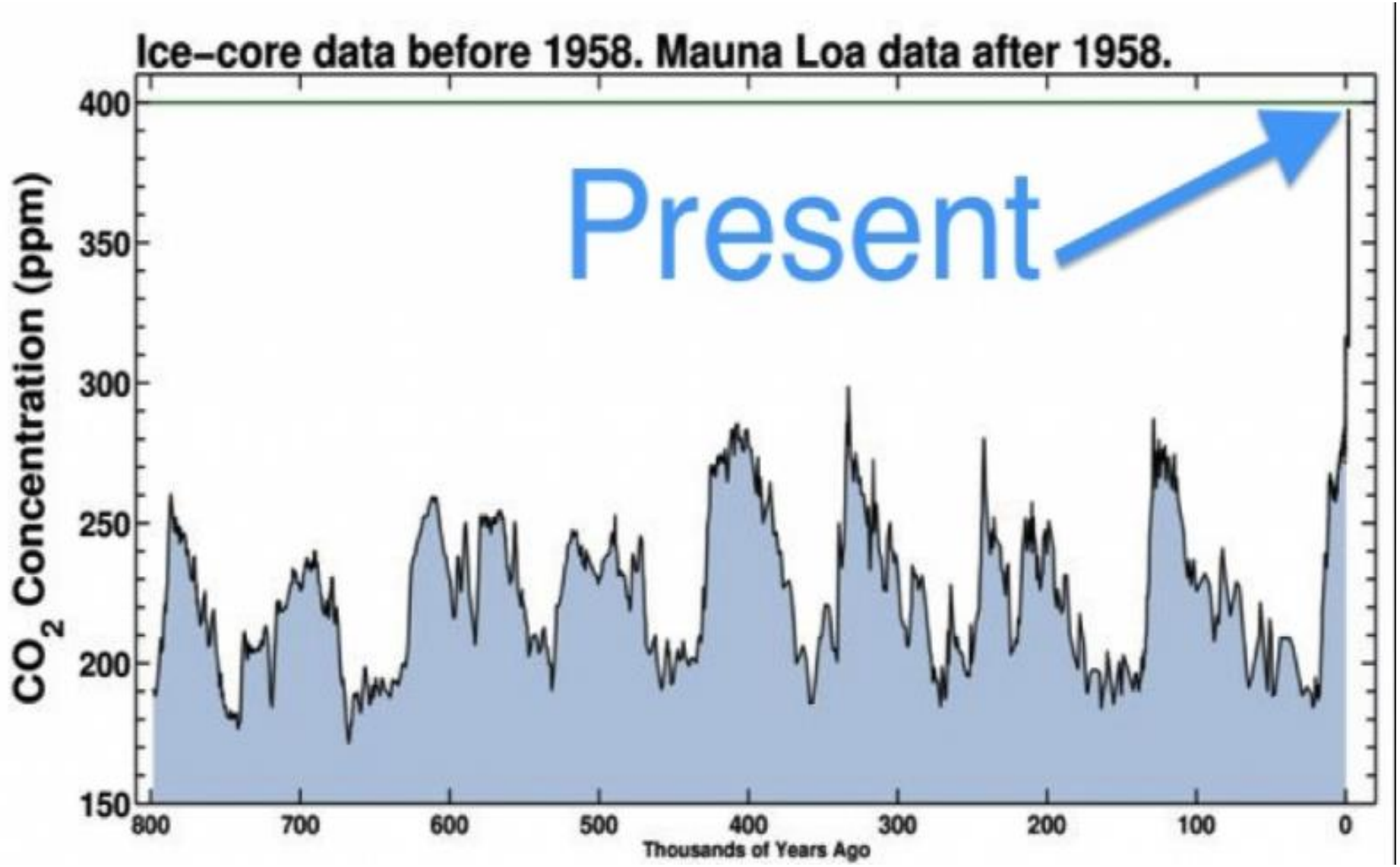
https://beyondgrowth.co.uk/problems/limits/

1. Northern hemisphere surface temperature
2. Population
3. CO2 concentrations
4. Loss of rainforest
5. GDP
6. Water use
7. Paper use
8. Species extinctions
9. Motor vehicles
10. Fisheries exploited
11. Ozone depleted
12. Foreign investment

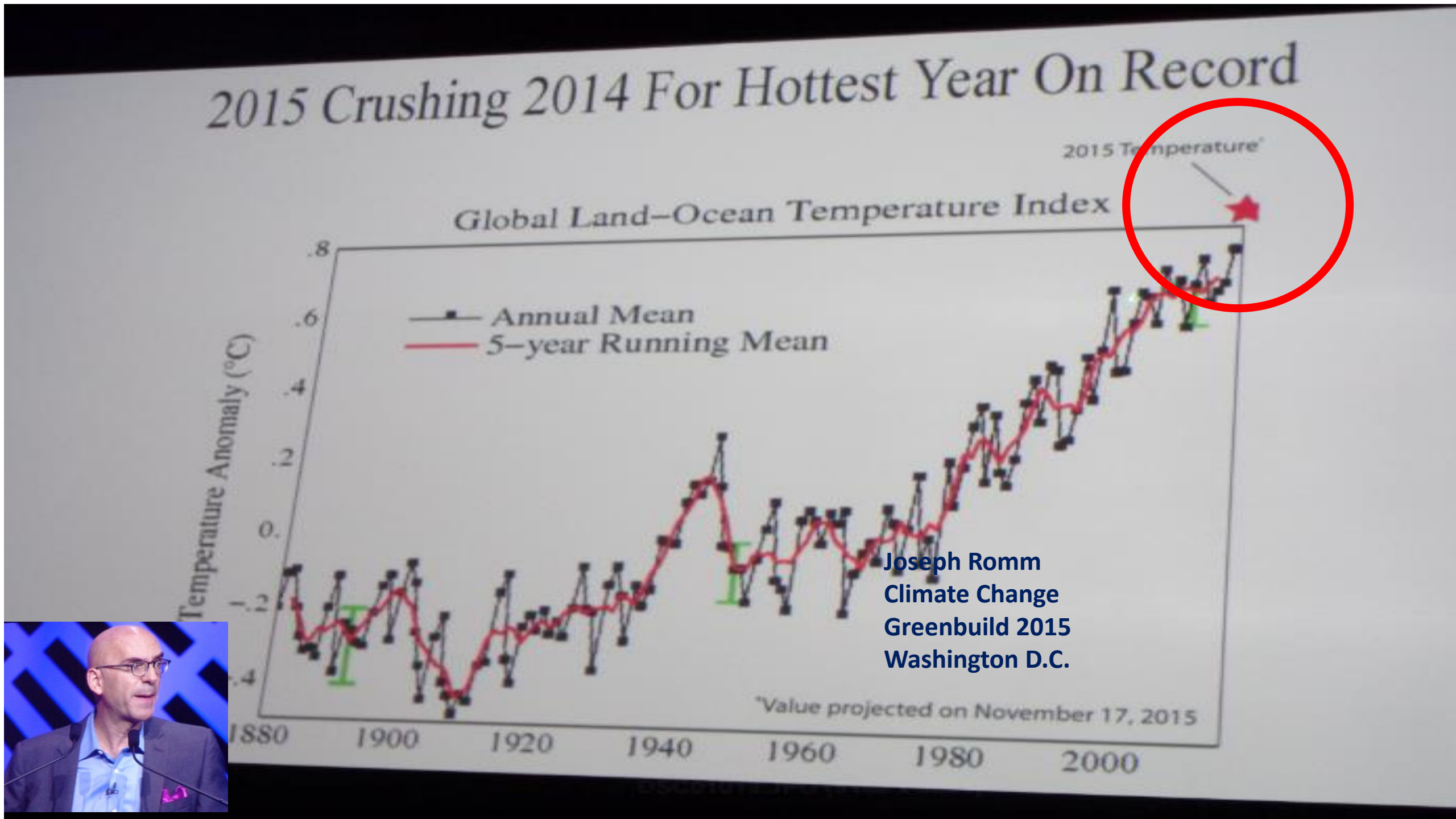


Concentraciones Inéditas de CO2

(1 Millón de Años de Historia del CO2)



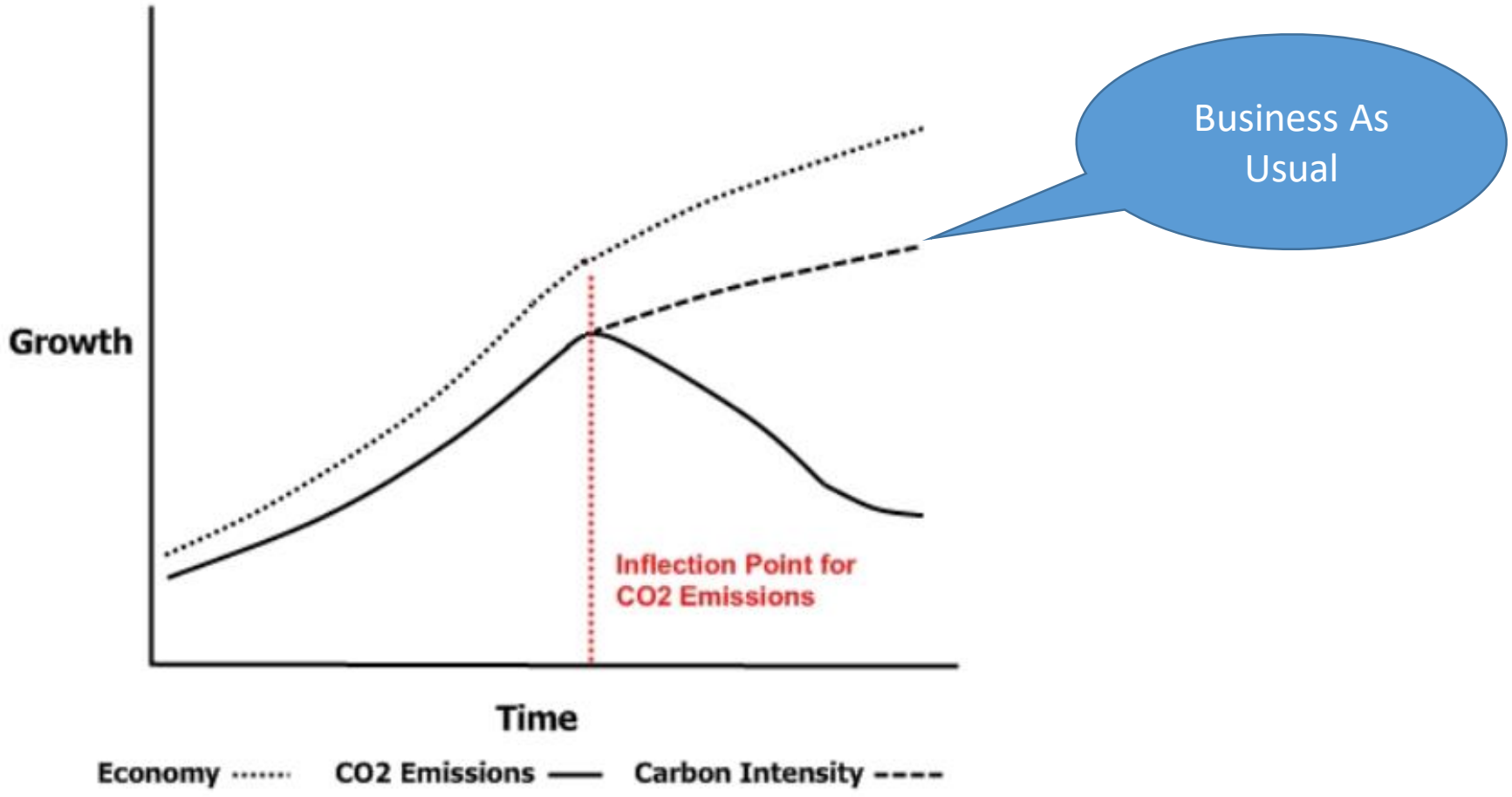
2015 Crushing 2014 For Hottest Year On Record



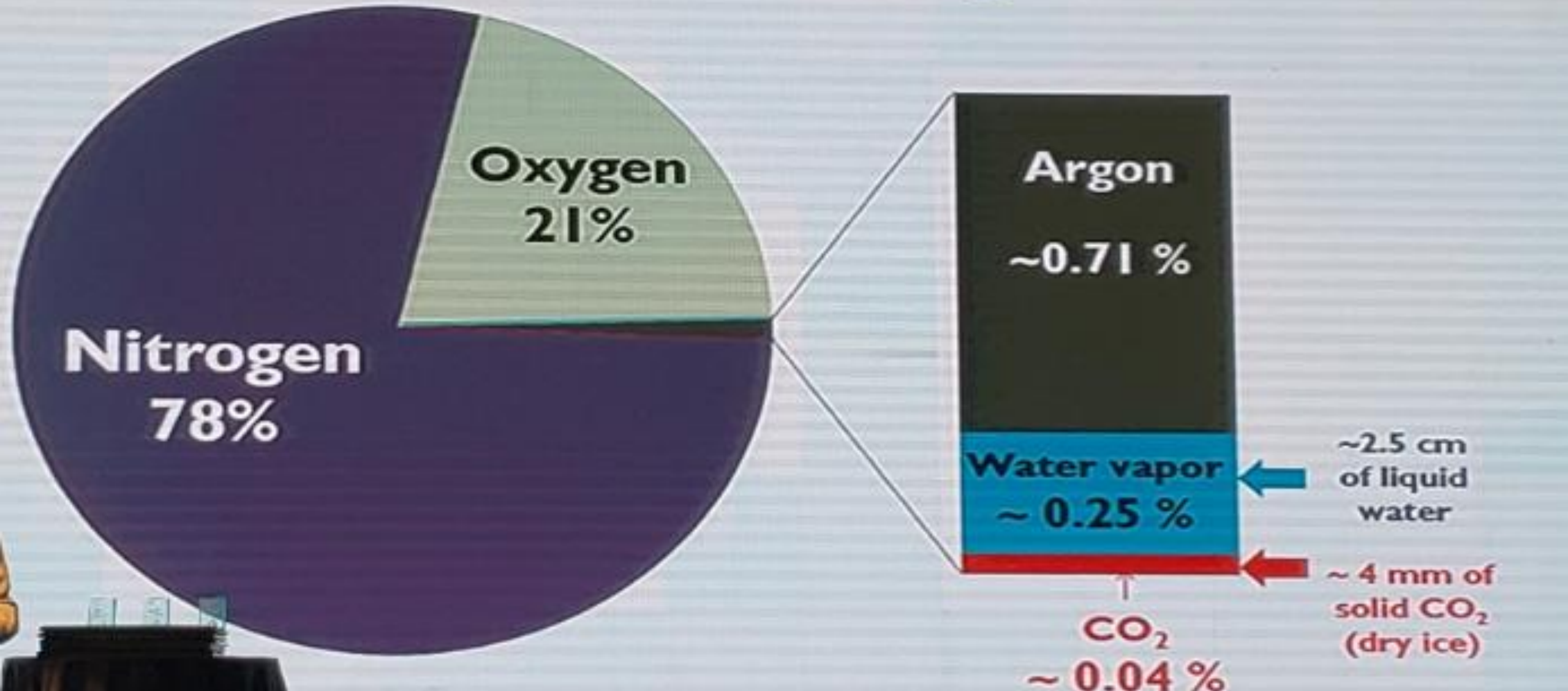
Joseph Romm
Climate Change
Greenbuild 2015
Washington D.C.

Crecimiento Económico es un modelo de producción lineal NO SOSTENIBLE

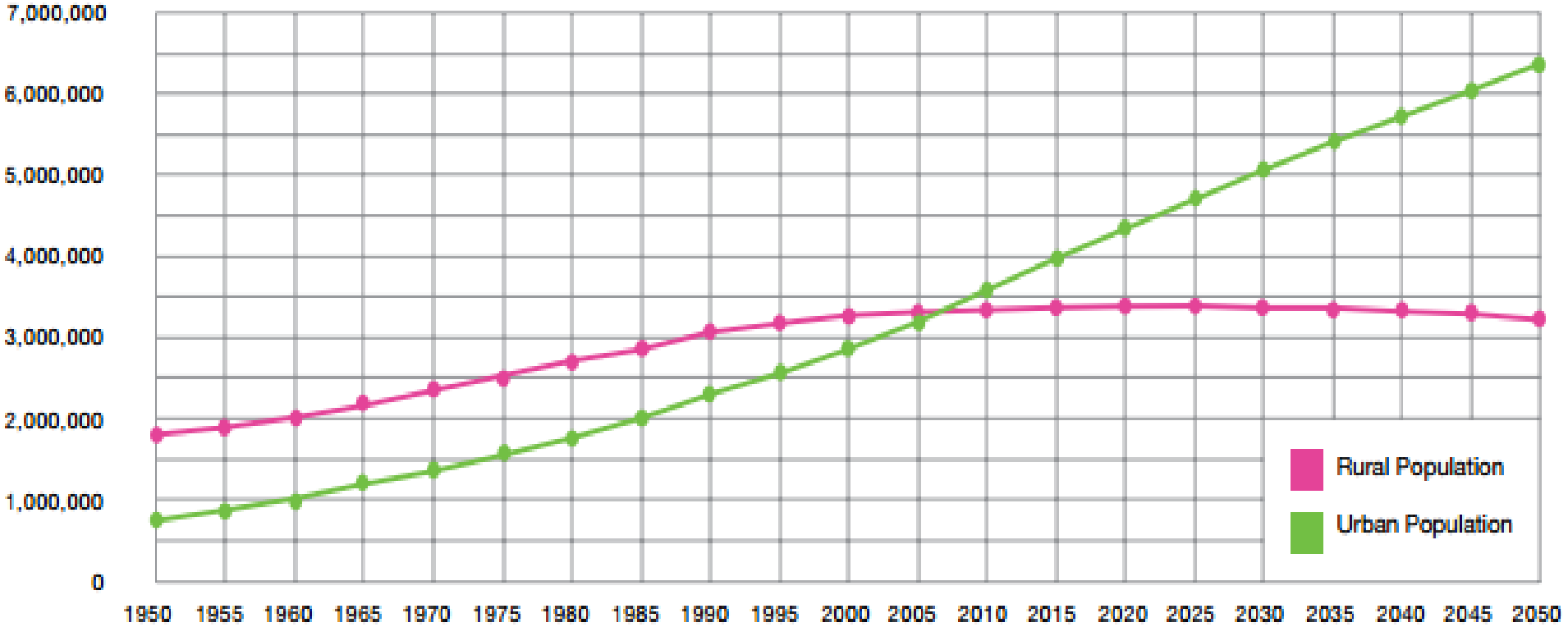
Desarrollo Sostenible = Desacoplar las curvas de GDP con la generación de CO2



Chemical Composition of Earth's Atmosphere



World urban and rural population, 1950–2050



United Nations Department of Economic and Social Affairs–Population Division

Years		People	Goods
	Growth	1.02	1.04
1	1000	1,020	1,040
2		1,040	1,082
3		1,061	1,125
4		1,082	1,170
5		1,104	1,217
6		1,126	1,265
7		1,149	1,316
8		1,172	1,369
9		1,195	1,423
10		1,219	1,480
11		1,243	1,539
12		1,268	1,601
13		1,294	1,665
14		1,319	1,732
15		1,346	1,801
16		1,373	1,873
17		1,400	1,948
18		1,428	2,026
19		1,457	2,107
20		1,486	2,191
21		1,516	2,279
22		1,546	2,370
23		1,577	2,465
24		1,608	2,563
25		1,641	2,666
26		1,673	2,772
27		1,707	2,883
28		1,741	2,999
29		1,776	3,119
30		1,811	3,243
31		1,848	3,373
32		1,885	3,508
33		1,922	3,648
34		1,961	3,794
35		2,000	3,946

¿Qué mas hay en agenda de Cambio Climático?

- The Brundtland statement:
  - "Humanity has the ability to make development sustainable - to ensure that it meets the needs of the present without compromising the ability of future generations to meet their needs."

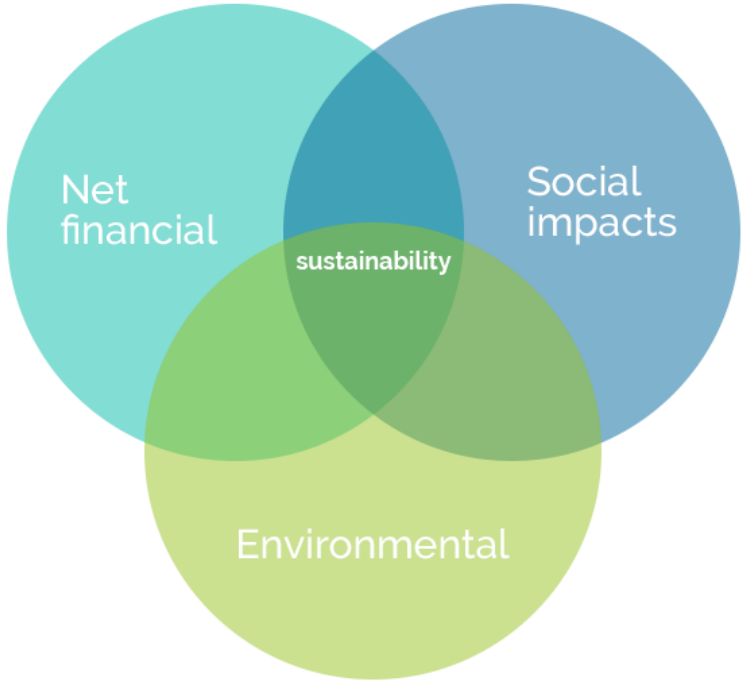
'La humanidad tiene la habilidad de hacer su desarrollo sostenible – para asegurar que cumple sus necesidades presentes sin comprometer la habilidad de futuras generaciones de satisfacer sus necesidades'

1987

Gro Harlem Bundtland

TRIPLE BOTTOM LINE

build COMPETITIVE ADVANTAGE
across three areas of your organization



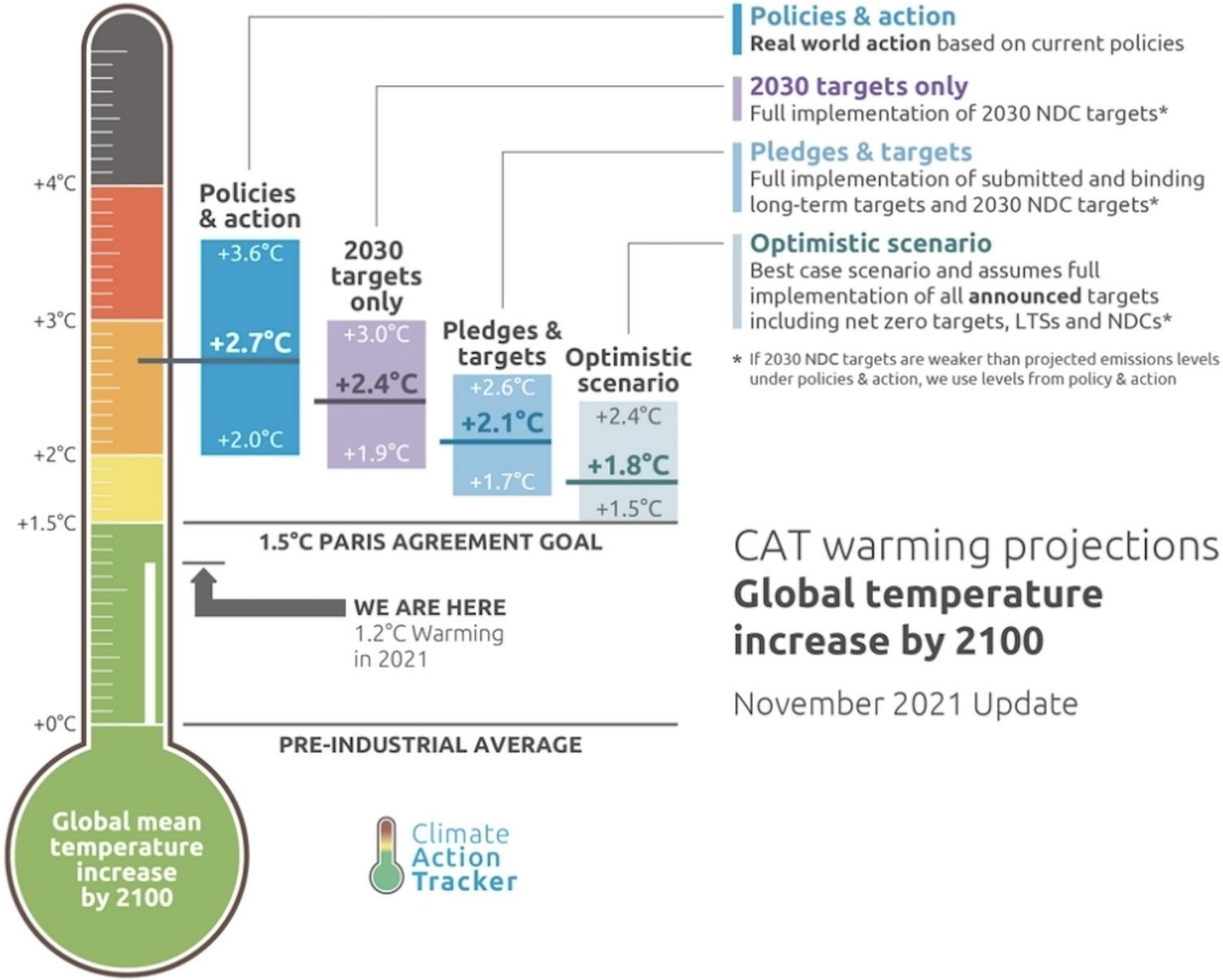
Recalling the **Triple Bottom Line**

Today you would be hard-pushed to find a large company not reporting on at least some elements of its non-financial performance. In the 25 years since the Triple Bottom Line was introduced there has been a proliferation of frameworks and approaches – from ESG and Impact Investment, to Integrated Reporting and Shared Value.

We celebrate companies that put their greenest, cleanest and fairest feet forward, but the sum total of all this activity is yet to shift us from a degenerative to a regenerative economy. Our climate, water resources, oceans, forests, soils, biodiversity – even our democracies – are all increasingly threatened.

COP21 PARIS 2015


INDC
NDC



CAT warming projections
Global temperature increase by 2100

November 2021 Update

OBJETIVOS DE DESARROLLO SOSTENIBLE


1 NO POVERTY
2 ZERO HUNGER
3 GOOD HEALTH AND WELL-BEING
4 QUALITY EDUCATION
5 GENDER EQUALITY
6 CLEAN WATER AND SANITATION
7 AFFORDABLE AND CLEAN ENERGY
8 DECENT WORK AND ECONOMIC GROWTH
9 INDUSTRY, INNOVATION AND INFRASTRUCTURE
10 REDUCCIÓN DE LAS DESIGUALDADES
11 SUSTAINABLE CITIES AND COMMUNITIES
12 RESPONSIBLE CONSUMPTION AND PRODUCTION
13 CLIMATE ACTION
14 LIFE BELOW WATER
15 LIFE ON LAND
16 PEACE, JUSTICE AND STRONG INSTITUTIONS
17 PARTNERSHIPS FOR THE GOALS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7 AFFORDABLE AND CLEAN ENERGY
ADAPTACION

1. En 2015 todos los países del mundo por primera vez en la historia fueron azotados por desastres naturales provocados por Cambio Climatico. Ya no hay dudas sobre los impactos del mismo.

2. Sustento Científico de Calentamiento Global.

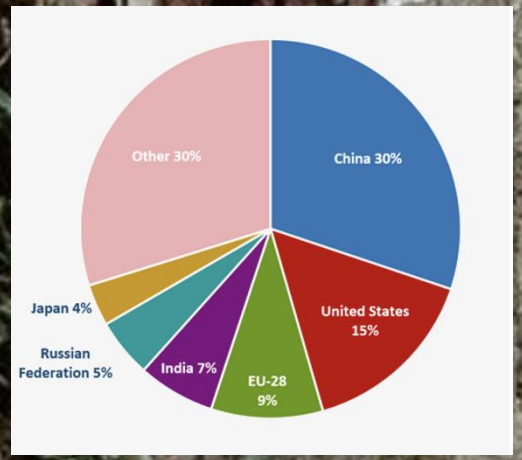
3. El avance y costo de la enegía renovable ya es un hecho.

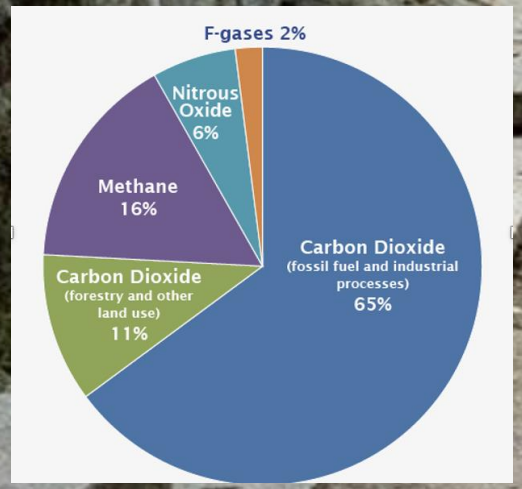
4. Buena intensión política.

5. Apoyos financieros a la Descarbonización para naciones en vías en desarrollo.

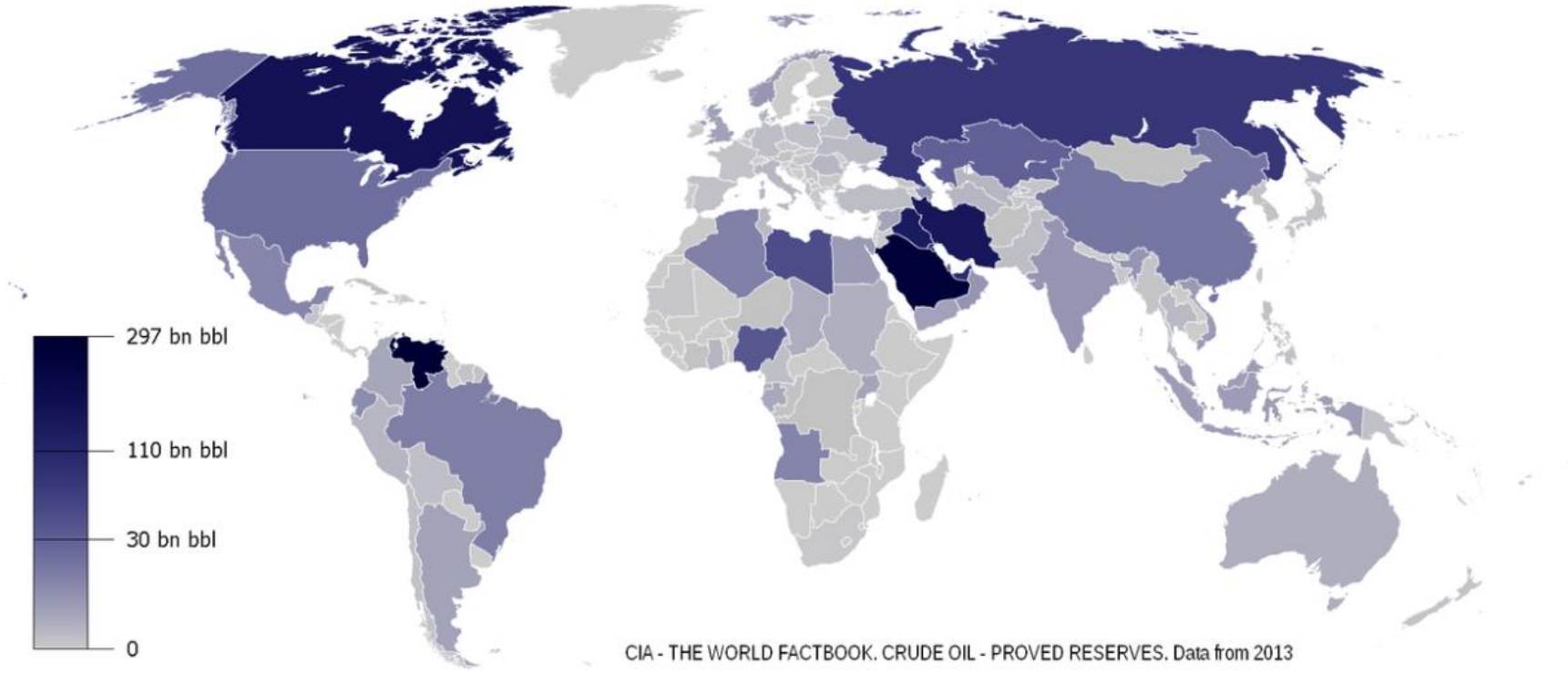
6. Las pequeñas naciones o pequeños emisores podran proponer sus contribuciones y estrategias de descabonización. BOTTOM UP approach.

7. Pasamos de castigos a contribuciones, todos los países incluidos.



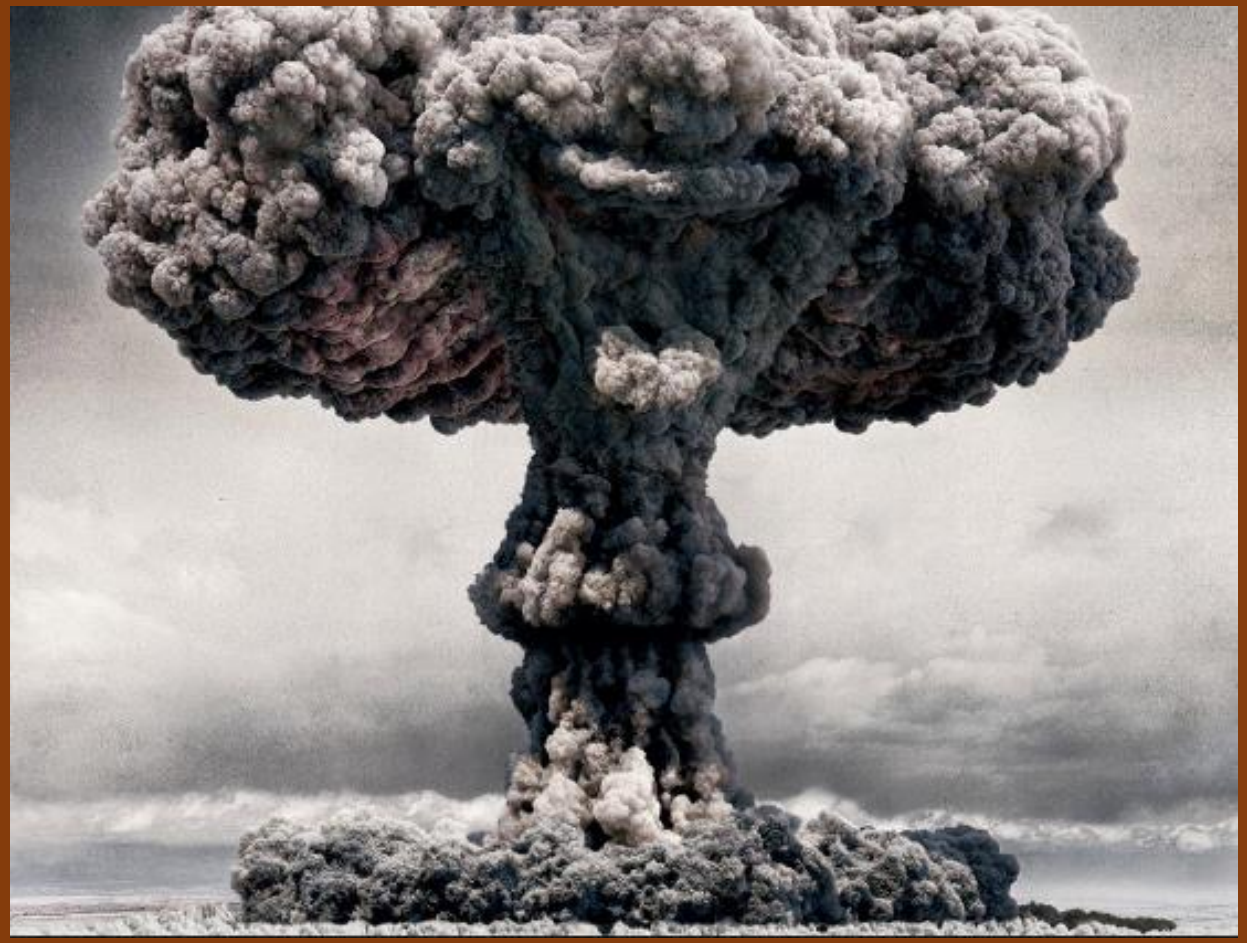


Which countries have fossil oil?



El Mundo Consume 120 Millones de Barriles de Petróleo….. AL DIA.

Calor Inducido por el Hombre

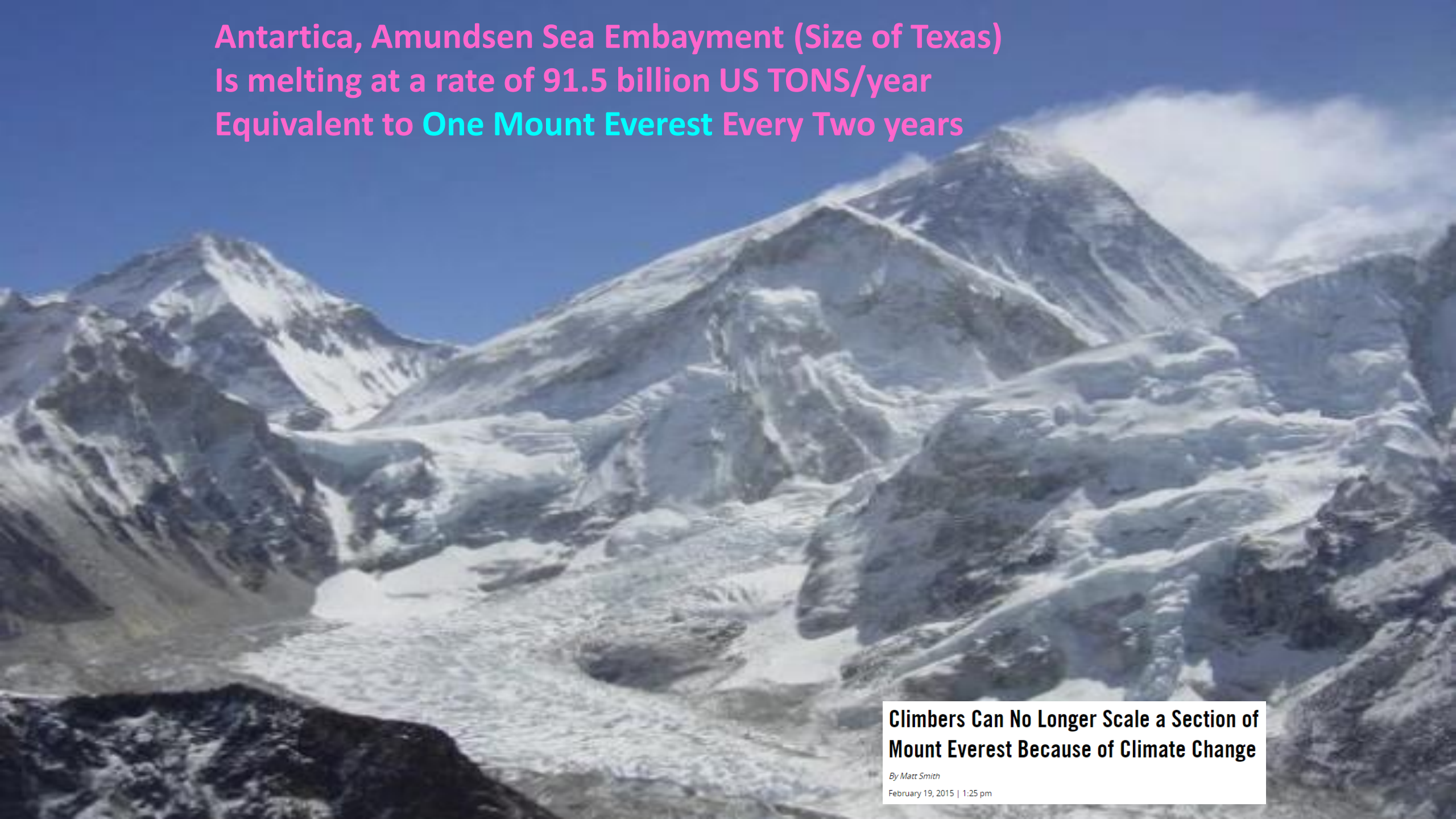


Calentamiento Global Inducido por el ser humano en 2015

400,000 Bombas Atómicas Por DÍA

LUNES 6 DE AGOSTO DE 1945 8:15 am
Murieron 166,000 civiles inocentes

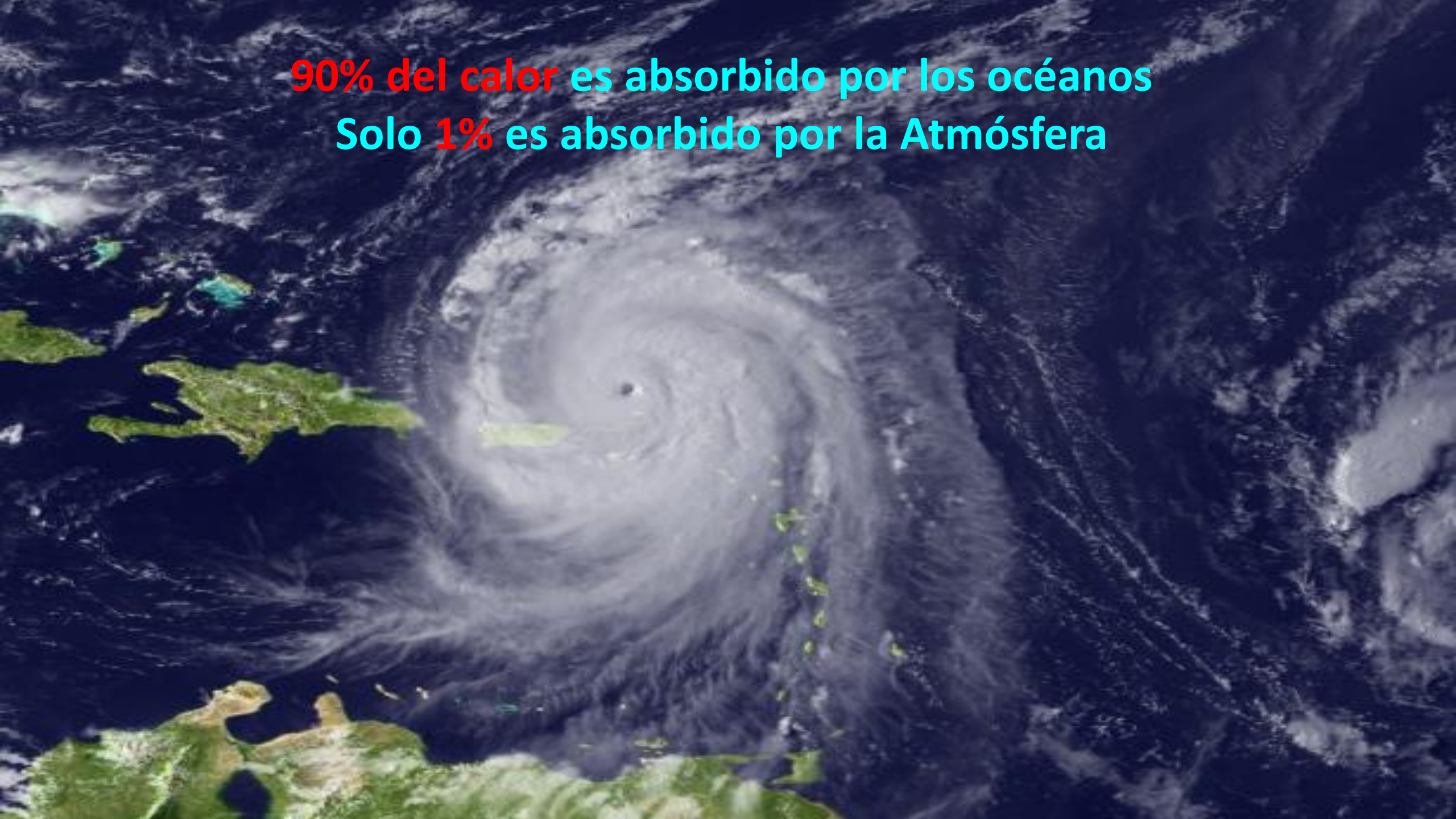
Antartica, Amundsen Sea Embayment (Size of Texas)
Is melting at a rate of 91.5 billion US TONS/year
Equivalent to One Mount Everest Every Two years

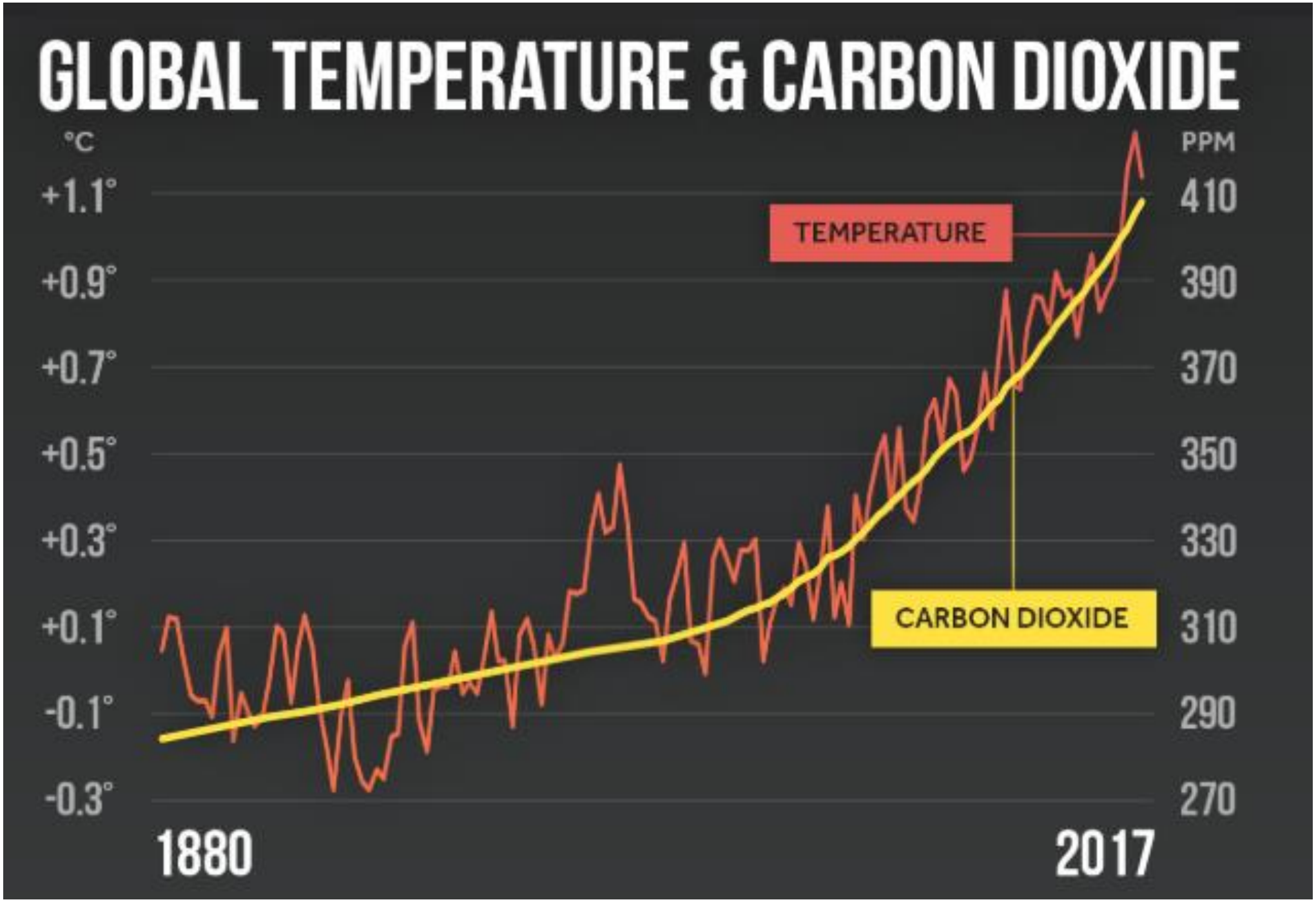


Climbers Can No Longer Scale a Section of Mount Everest Because of Climate Change

By Matt Smith

February 19, 2015 | 1:25 pm


90% del calor es absorbido por los océanos
Solo 1% es absorbido por la Atmósfera


GLOBAL TEMPERATURE & CARBON DIOXIDE
°C
+1.1°
+0.9°
+0.7°
+0.5°
+0.3°
+0.1°
-0.1°
-0.3°
PPM
410
390
370
350
330
310
290
270
TEMPERATURE
CARBON DIOXIDE
1880
2017

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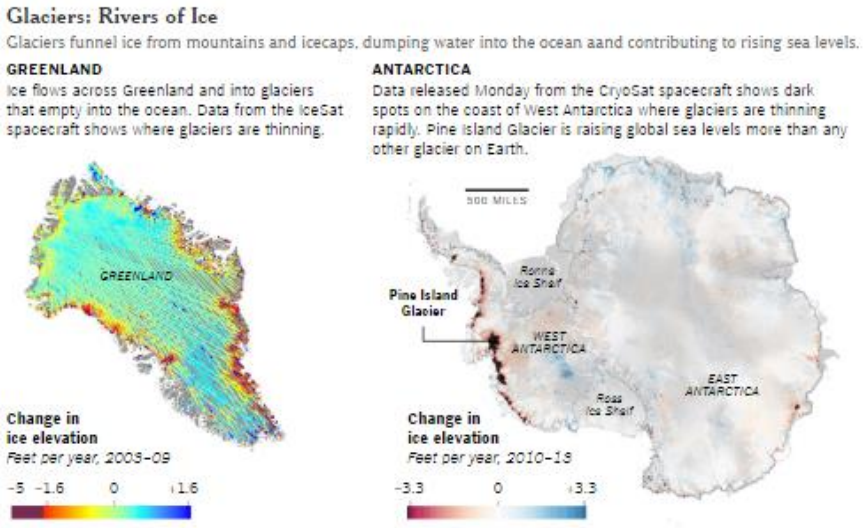
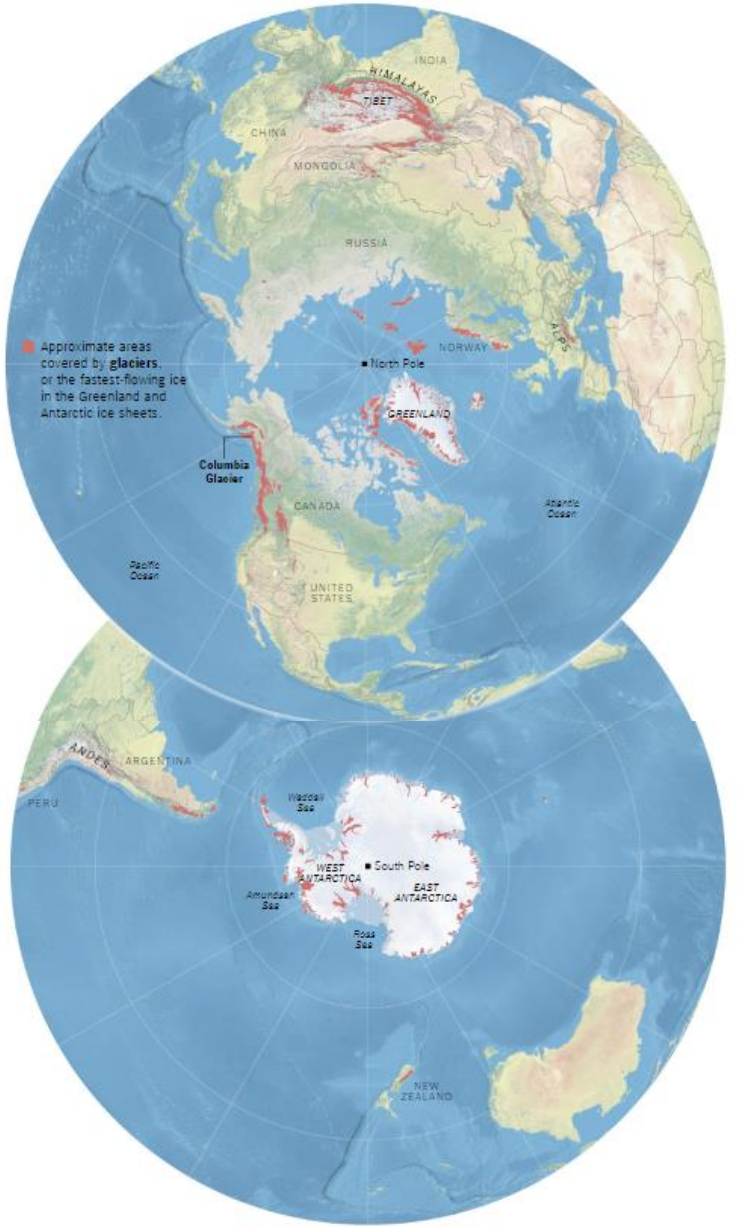
¿Cuál es el riesgo del cambio climático?

(Global Warming)



Rise of Sea Level, 5 Contributions

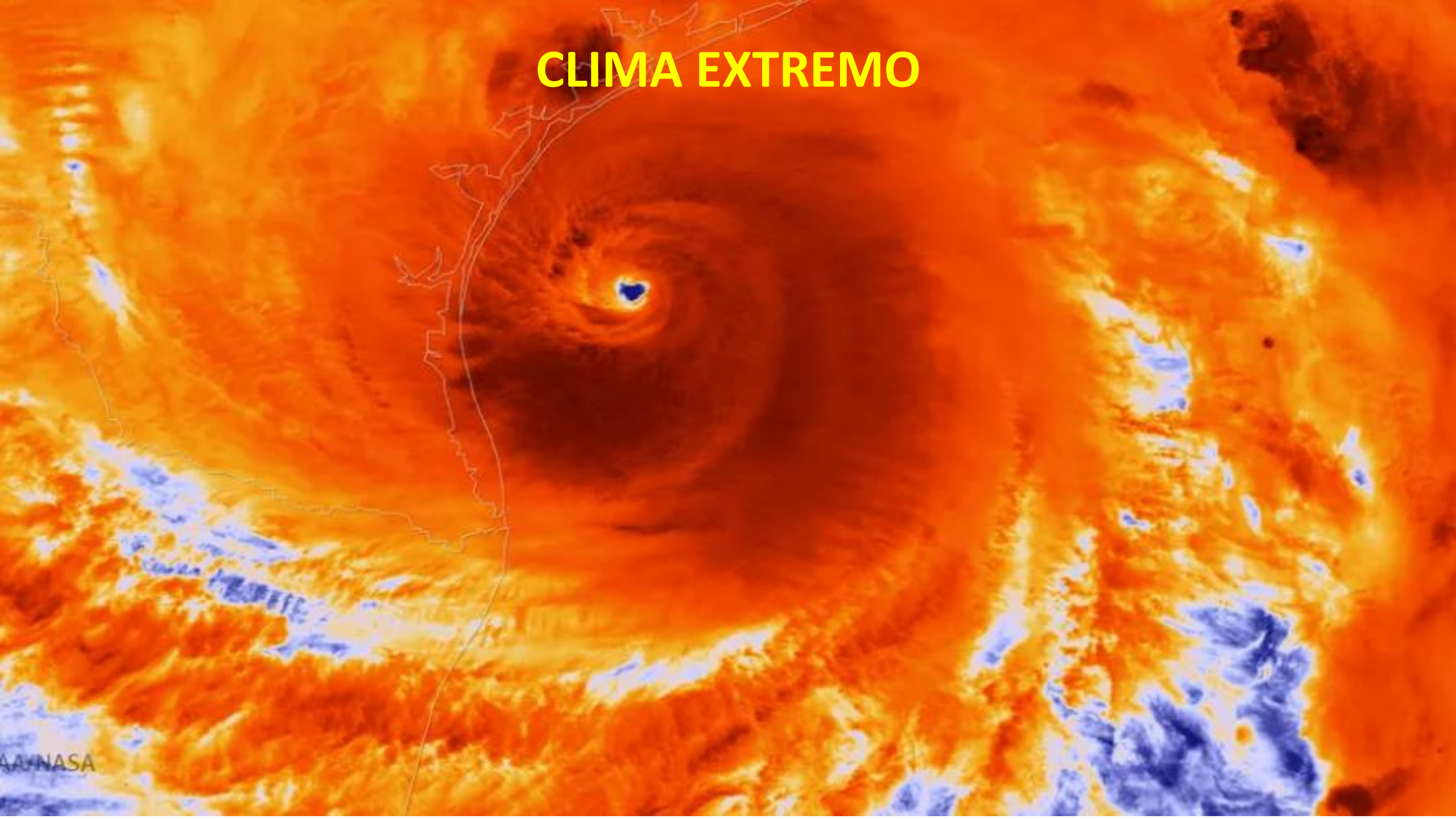
1. Thermal expansion of water
2. Change in Groundwater storage
3. Glacier Ice Loss
4. Greenland ice loss (Size of México-20 feet)
5. Antartic ice loss (Size of US – 200 feet – 90% or earth´s ice)



Sources: National Snow and Ice Data Center; Glims Glacier Database; Randolph Glacier Inventory; Hamish Pritchard, British Antarctic Survey; A Center for Polar Observation and Modeling; E.S.A.; NASA; Nature; Science

By JONATHAN CORUM

CLIMA EXTREMO




SAG
Pizza Hut
KFC


DESERTIFICACIÓN

The bed of the Almaden Reservoir in San Jose was cracked-dry in early February. 100% of the state of California is now in a drought.


© Carlos Echeverria


FUEGOS FORESTALES

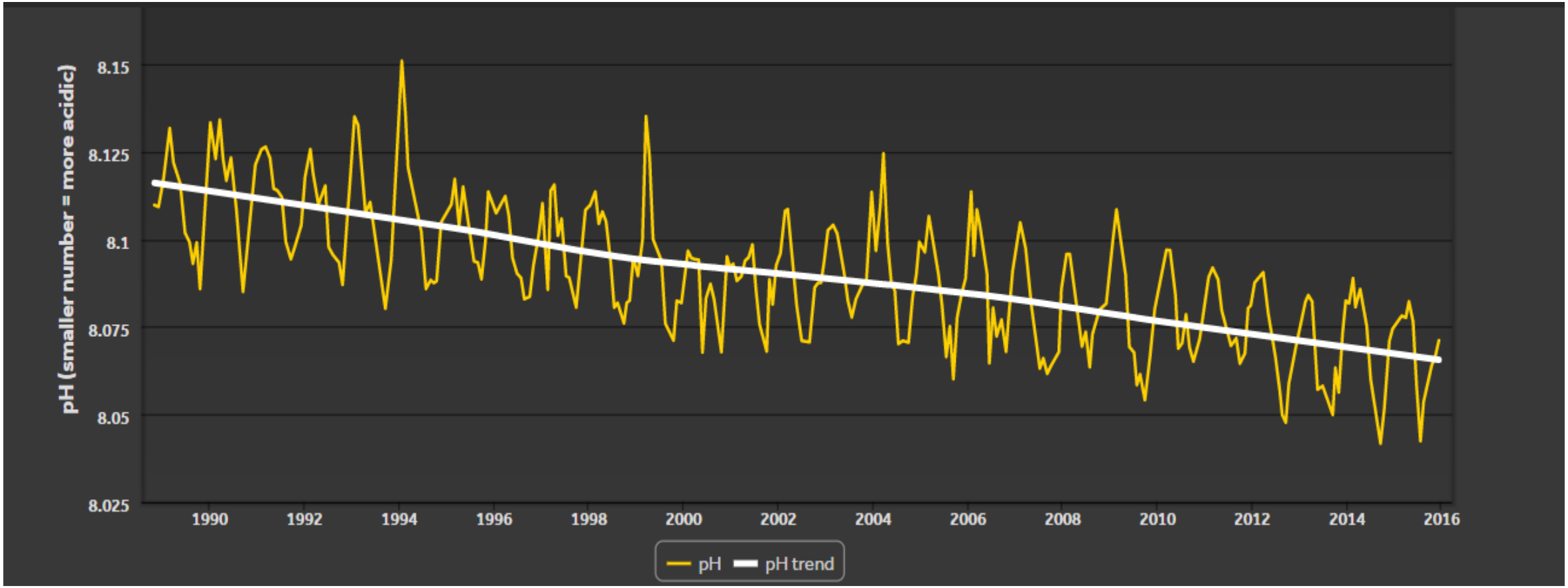

ESPECIES EN EXTINCIÓN
2,000 Especies al Año

Nuevas Epidemias y su Rápida Propagación

OCEAN ACIDIFICATION

Acidez de los Océanos

50% del CO2 es absorbido por los océanos
El mar es 26% más ácido que hace 150 años



DEFORESTACIÓN

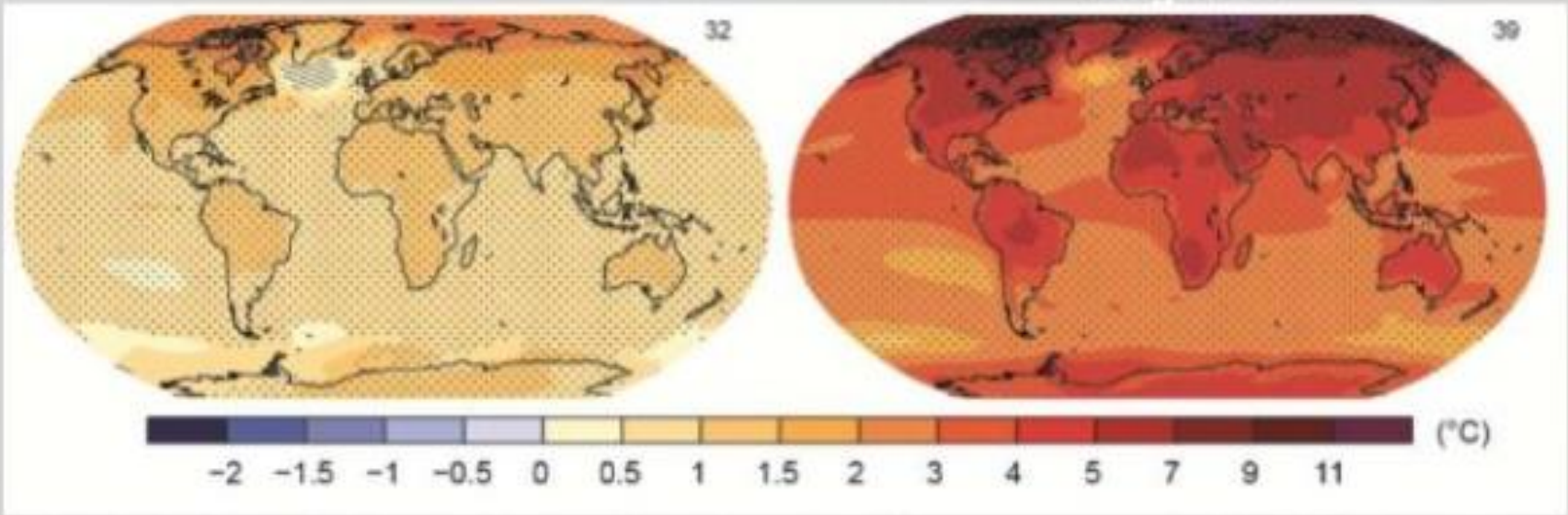
MIGRACIÓN

ICE CAPS AND PERMAFROST MELTING

The Choices We Make Will Create Different Outcomes

With substantial mitigation

Without additional mitigation



Change in average surface temperature (1986–2005 to 2081–2100)

AR5 WGI SPM

Polluted sky in Madrid (Spain). Credit: Sergio Cambelo

¿Qué podemos hacer?

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  - Universidad Don Bosco en El Salvador

''La humanidad aún posee la capacidad de colaborar para construir nuestra casa común. Deseo reconocer, alentar y dar las gracias a todos los que, en los más variados sectores de la actividad humana, están trabajando para garantizar la protección de la casa que compartimos''

Papa Francisco, LAUDATO SI, Sección 13, Mi Llamado

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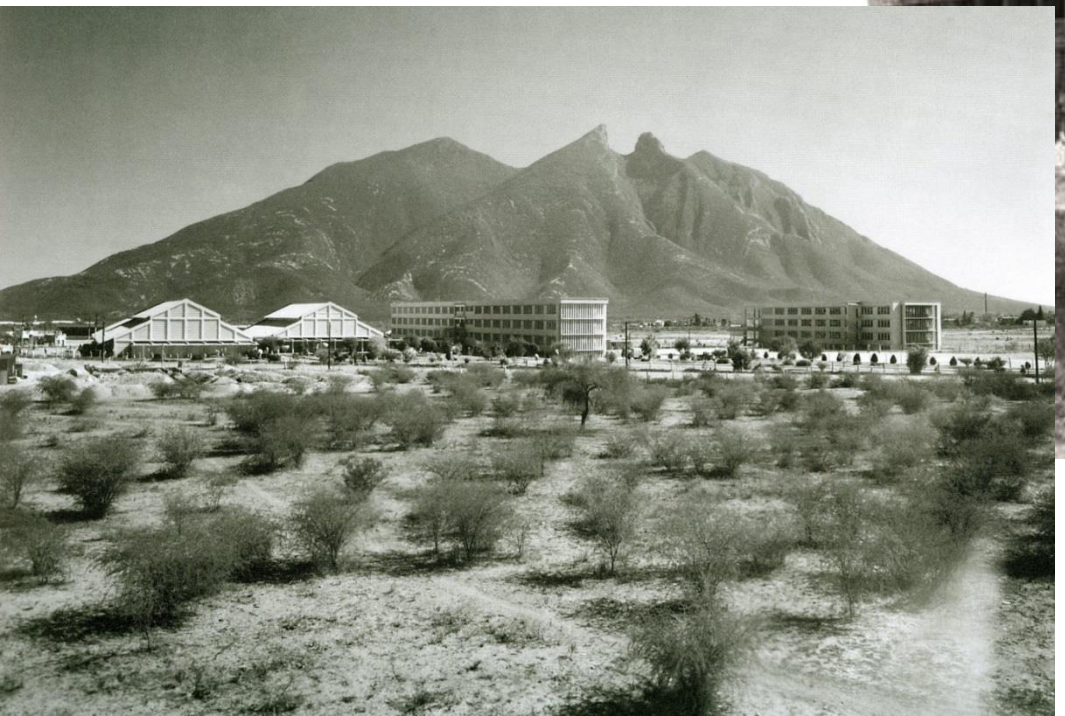
  - **Universidad Don Bosco en El Salvador**

Ejemplos del Contexto en Latinoamérica

Tecnológico de Monterrey



Universidad Tecmilenio

Tecnológico de Monterrey

SORTEOS TEC
TRANSFORMEMOS VIDAS

TecSalud
Sistema de Salud del Tecnológico de Monterrey

NIC MÉXICO

2019 EN CIFRAS

137 mil Alumnos
26 mil Colaboradores

65 Campus
2 Hospitales
+ de 40 sedes

652 edificios

NUESTROS ESPACIOS EDUCATIVOS:

- ✓ Flexibles
- ✓ Interactivos
- ✓ Innovadores
- ✓ Propicien el aprendizaje social: individual y colaborativo

Comunidad

Bienestar humano

Eficiencia y Medio Ambiente

ACCIONES 2017…

Iluminación eficiente

1,357 aulas con iluminación LED y sensores de presencia en TecMilenio.

Más de 6,900 lámparas LED instaladas en ITESM.

Generación de energía renovable en sitio.

1.39 MW de capacidad instalada en tres campus TEC:

Monterrey 0.39 Mw

Guadalajara 0.49 MW

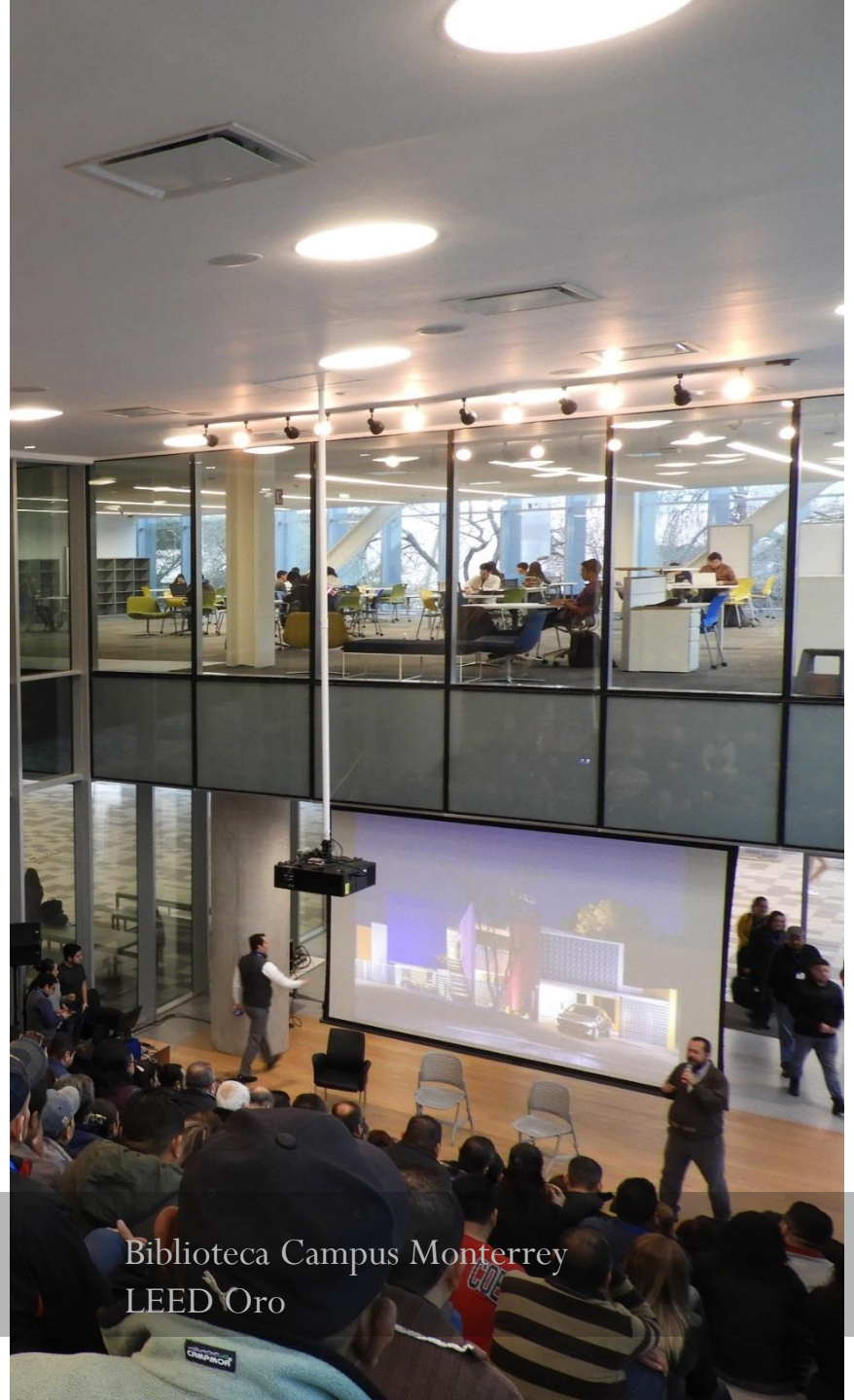
Sonora Norte 0.49 MW

Adquisición de energía renovable.

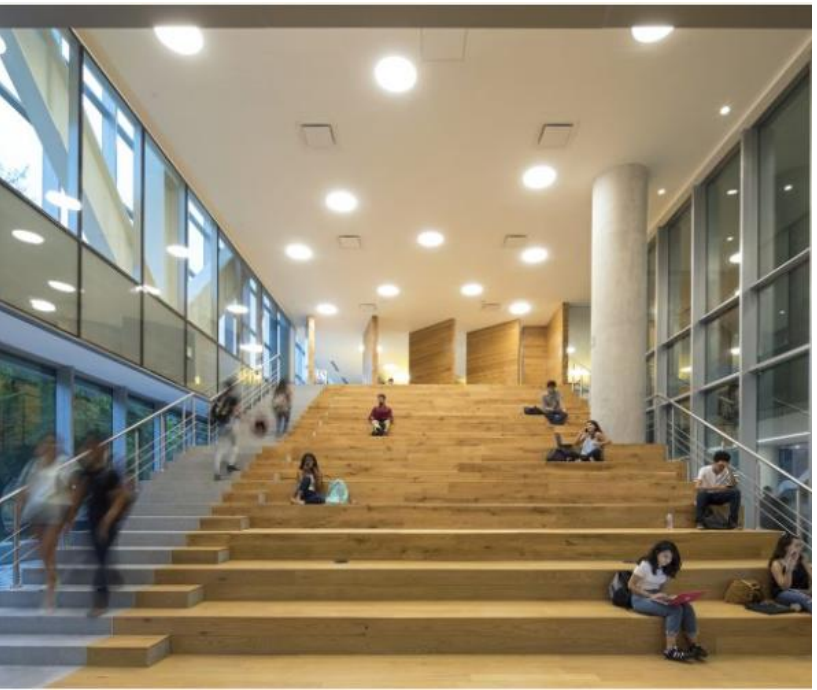
44.9% de la energía es adquirida a un proveedor renovable.

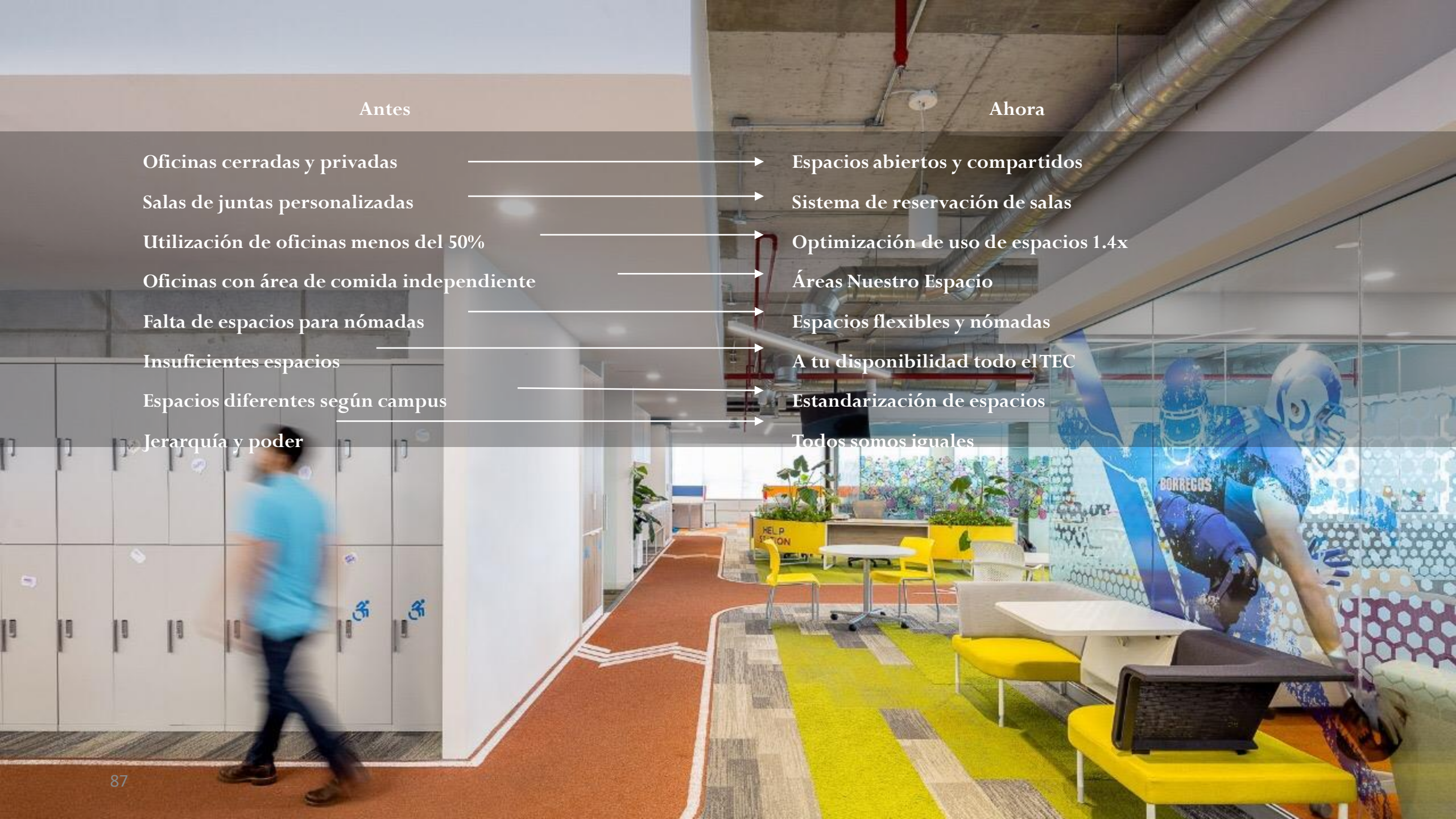
2018: estamos transitando a adquirir un 73% de nuestra energía a proveedores renovables.

Evitaremos 64 mil tCO2e anuales.



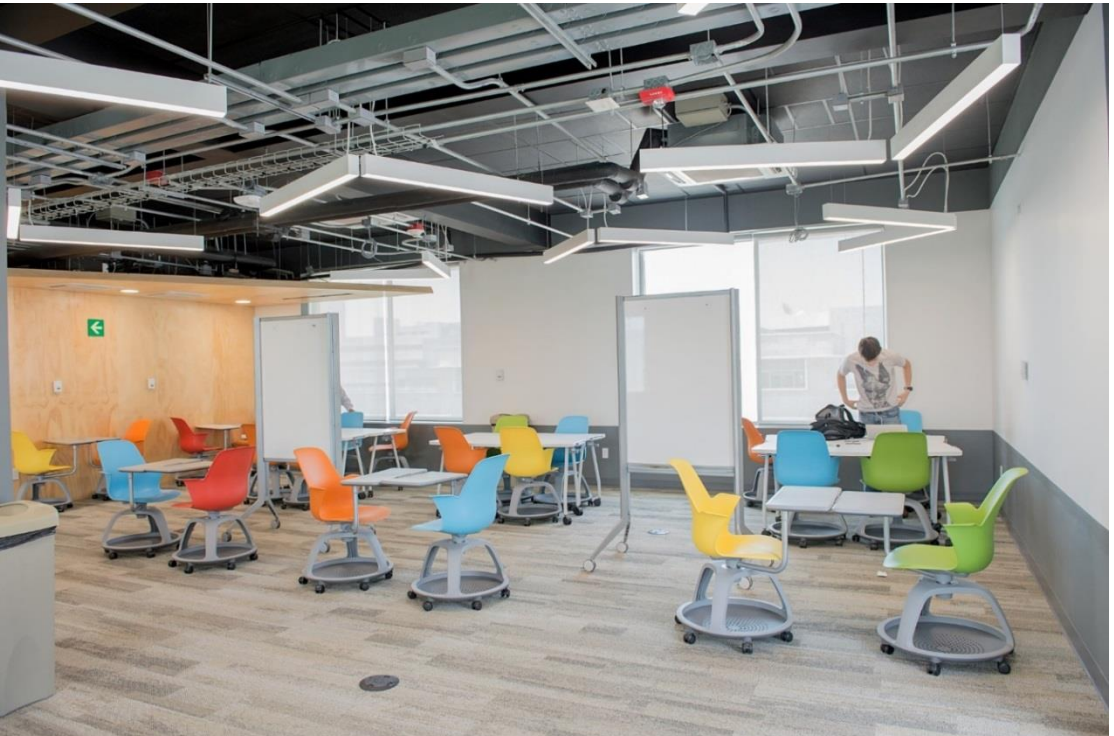
Biblioteca Campus Monterrey
LEED Oro



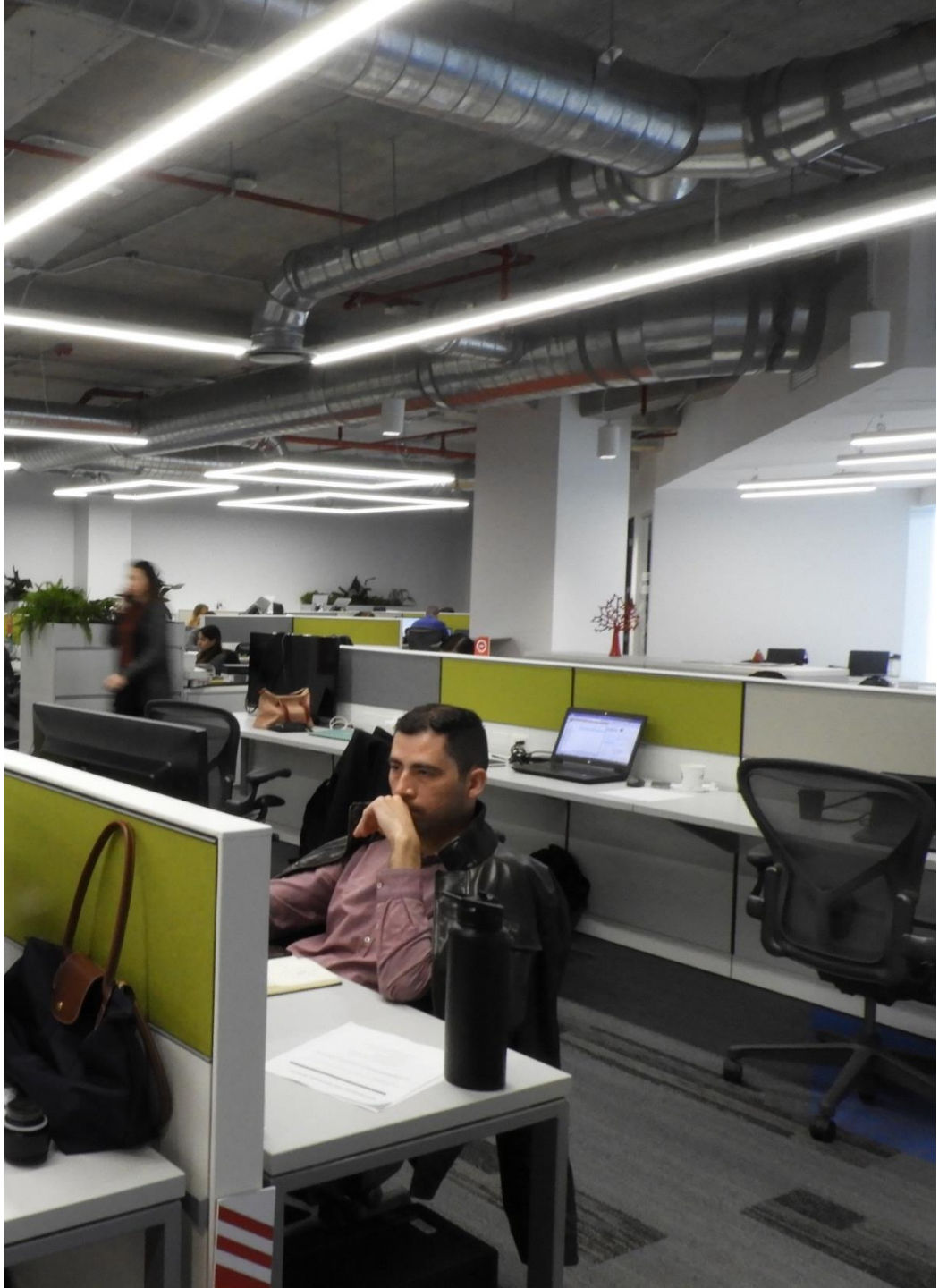


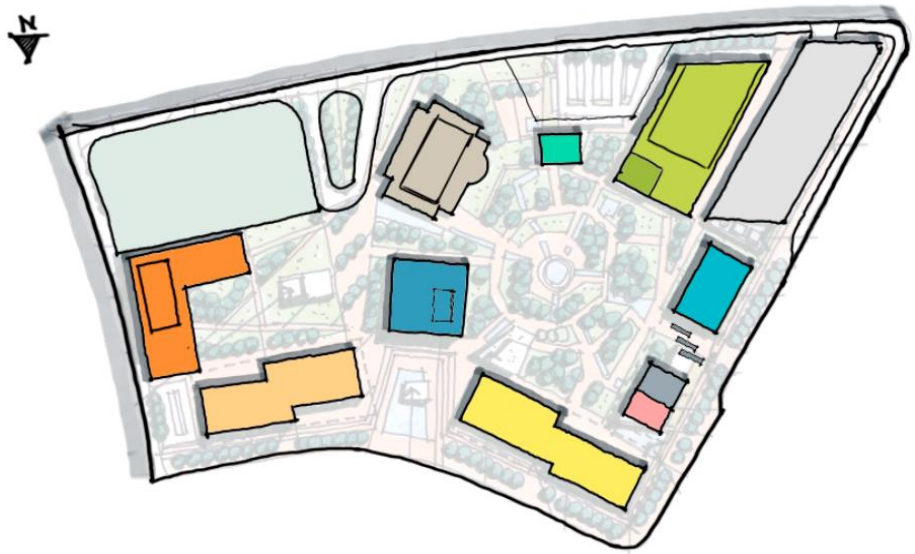
Antes	Ahora
Oficinas cerradas y privadas	Espacios abiertos y compartidos
Salas de juntas personalizadas	Sistema de reservación de salas
Utilización de oficinas menos del 50%	Optimización de uso de espacios 1.4x
Oficinas con área de comida independiente	Áreas Nuestro Espacio
Falta de espacios para nómadas	Espacios flexibles y nómadas
Insuficientes espacios	A tu disponibilidad todo el TEC
Espacios diferentes según campus	Estandarización de espacios
Jerarquía y poder	Todos somos iguales

Flexibilidad



Colaboración





“Transformación y evolución del campus que busca integrarse con sus comunidades vecinas para generar un ecosistema de innovación, emprendimiento y sustentabilidad”

José Antonio Torre

Conexión

Caso UDB en Soyapango El Salvador

Universidad Don Bosco

El Espíritu Salesiano
VITAM IMPEDERE
VERO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CURSO A NIVEL UNIVERSITARIO, Válido por Créditos de la Carrera

Civil and Environmental Eng. 4232 – Sustainable Design and Construction

SMU Dallas Texas, Dallas Hall Building, LEED GOLD, 20+ LEED Buildings

UT Texas, students in a Green Construction class

Institutions Hosting LEED Lab

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Education Redefined

The Catholic University of America

Colorado State University Pueblo

California State University Fullerton

逢甲大學
Feng Chia University

UF University of Florida
The Foundation for The Gator Nation

Purdue University

NC State University

UC Merced

UWM

Environmental Design
University of Colorado Boulder

California State University East Bay

PUCP

IBERO
Ciudad de México

Universidad Panamericana

Knowledge Institute of Technology, Salem - India

The American University in Cairo

Universidad Don Bosco


8


DESIGN TABLE

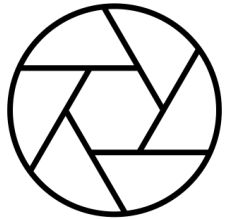

LOCATION &
TRANSPORTATION
SUSTAINABLE
SITES
WATER
EFFICIENCY
INDOOR
QUALITY
REGIONAL
PRIORITY

CHAMPIONS

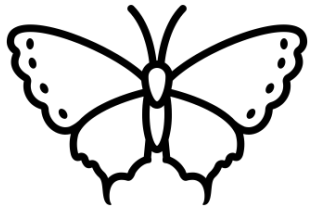
LEED® Lab™
TRANSFORMING CAMPUSES AND CAREERS


MUJERES
A LA OBRA

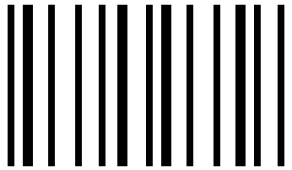
REQUISITOS PARA TRABAJOS COLABORATIVOS EN EL CAMPUS



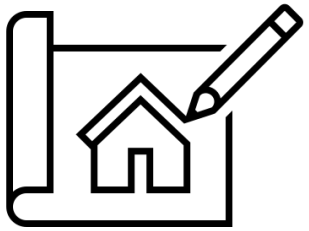
TRABAJO HOLÍSTICO



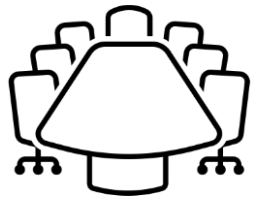
POLINIZACIÓN DE CHAMPIONS



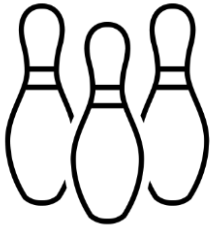
BASADOS EN DATA



NORMATIVAS REGLAMENTO TÉCNICOS



MESAS TÉCNICAS STEM



PLAYBOOKS (GUIAS)

Planes de Sostenibilidad

Martín Pescador Pigmeo
Manglares de la Barra de Santiago
Juan Francisco Siontes
jfsifontes2015@gmail.com
503 7594 8020

GRACIAS….