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NAZIONALE
OLI USATI

AIEE
ASSOCIAZIONE
ITALIANA ECONOMISTI
DELL'ENERGIA

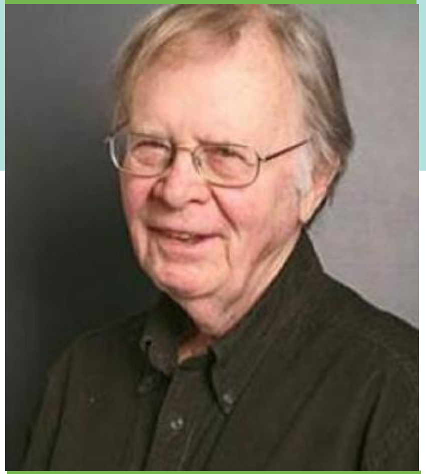
IL RUOLO FONDAMENTALE DELL'ECONOMIA CIRCOLARE NELLA SOPRAVVIVENZA DEL PIANETA

Riccardo Piunti
Presidente CONOU

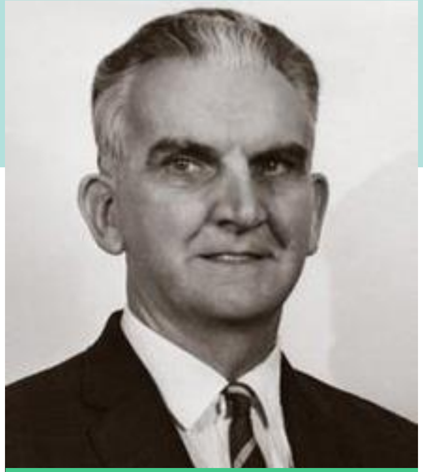
Quattro volti. Una storia.

Jean Baptiste Joseph FOURIER
Matematico e fisico
1768-1830

Charles David KEELING
Chimico e ricercatore
1928-2005



Wallace BROECKER
Climatologo e geologo
1931-2019



Kenneth BOULDING
Economista
1910-1993

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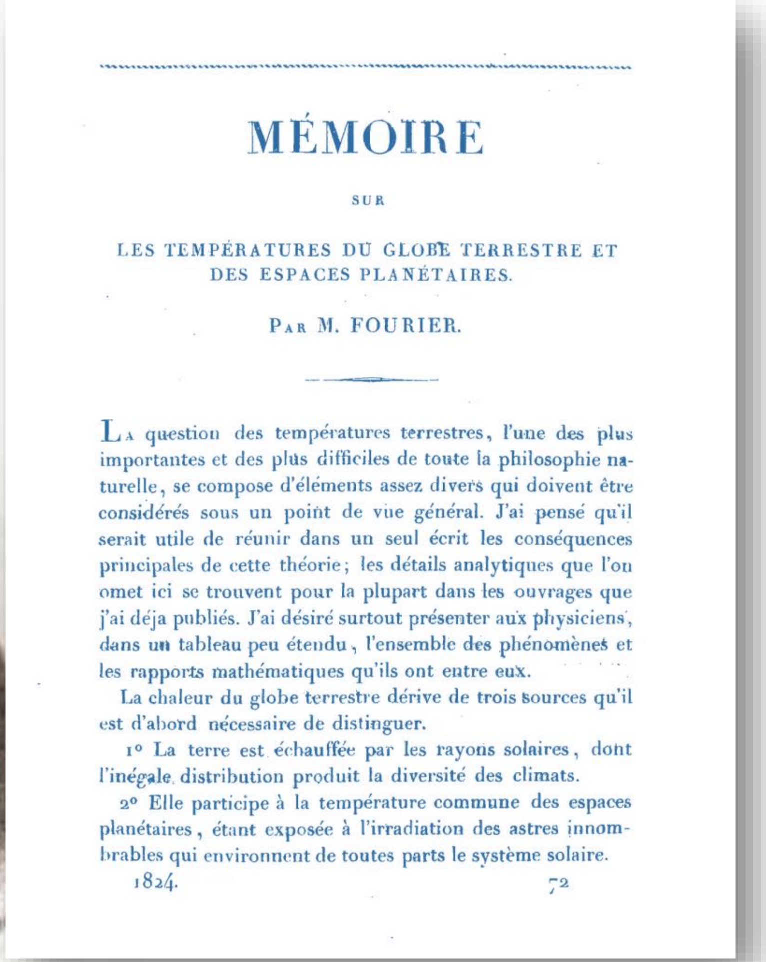
Jean Baptiste Joseph Fourier



MÉMOIRE

SUR

LES TEMPÉRATURES DU GLOBE TERRESTRE ET DES ESPACES PLANÉTAIRES.

PAR M. FOURIER.

La question des températures terrestres, l'une des plus importantes et des plus difficiles de toute la philosophie naturelle, se compose d'éléments assez divers qui doivent être considérés sous un point de vue général. J'ai pensé qu'il serait utile de réunir dans un seul écrit les conséquences principales de cette théorie; les détails analytiques que l'on omet ici se trouvent pour la plupart dans les ouvrages que j'ai déja publiés. J'ai désiré surtout présenter aux physiciens, dans un tableau peu étendu, l'ensemble des phénomènes et les rapports mathématiques qu'ils ont entre eux.

La chaleur du globe terrestre dérive de trois sources qu'il est d'abord nécessaire de distinguer.

1° La terre est échauffée par les rayons solaires, dont l'inégale distribution produit la diversité des climats.

2° Elle participe à la température commune des espaces planétaires, étant exposée à l'irradiation des astres innombrables qui environnent de toutes parts le système solaire.

1824. 72

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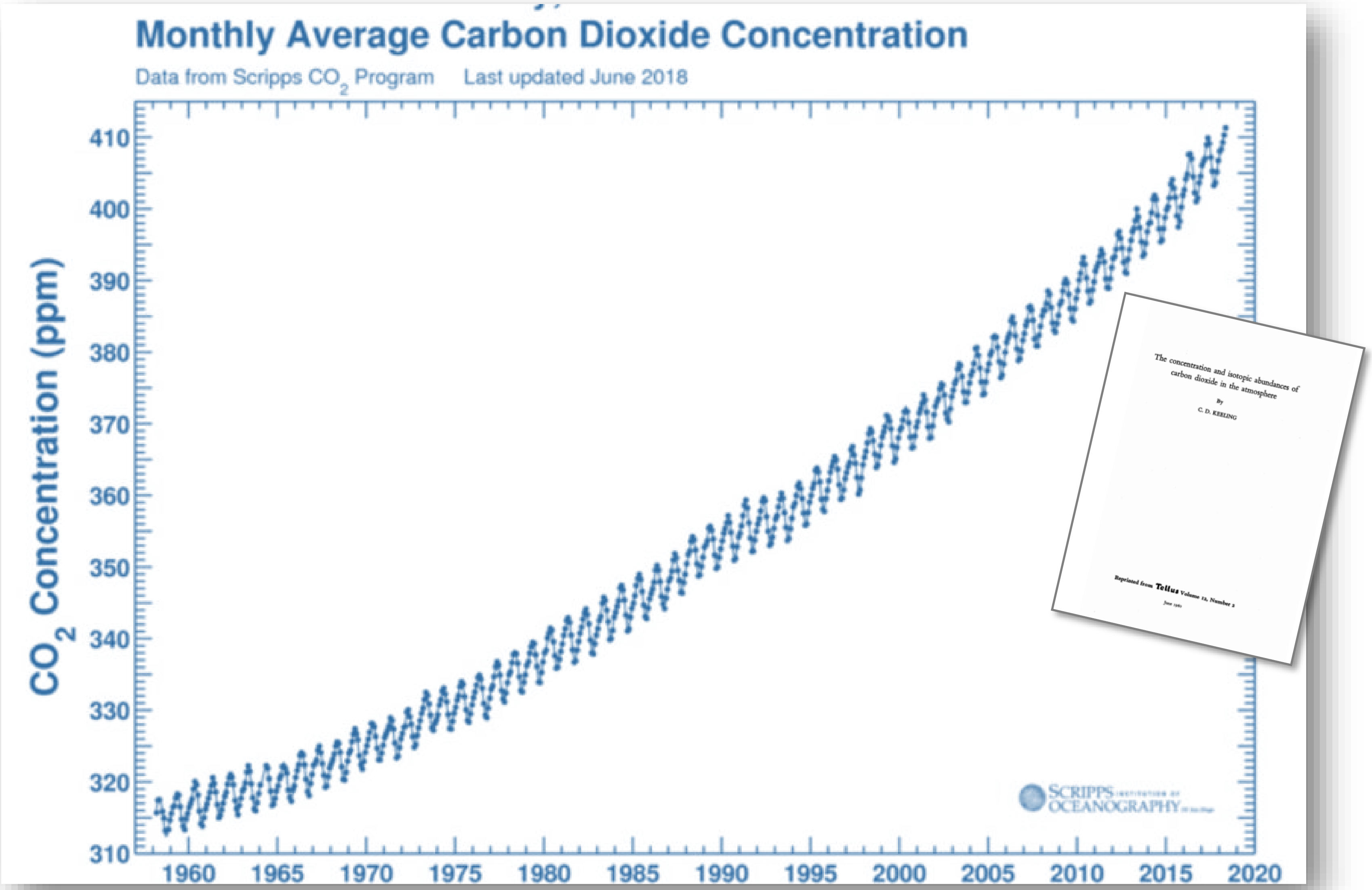
Charles David Keeling



The concentration and isotopic abundances of carbon dioxide in the atmosphere

By

C. D. KEELING

Reprinted from Tellus Volume 12, Number 2

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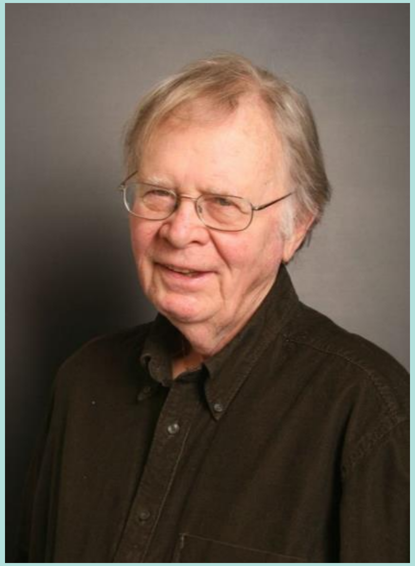
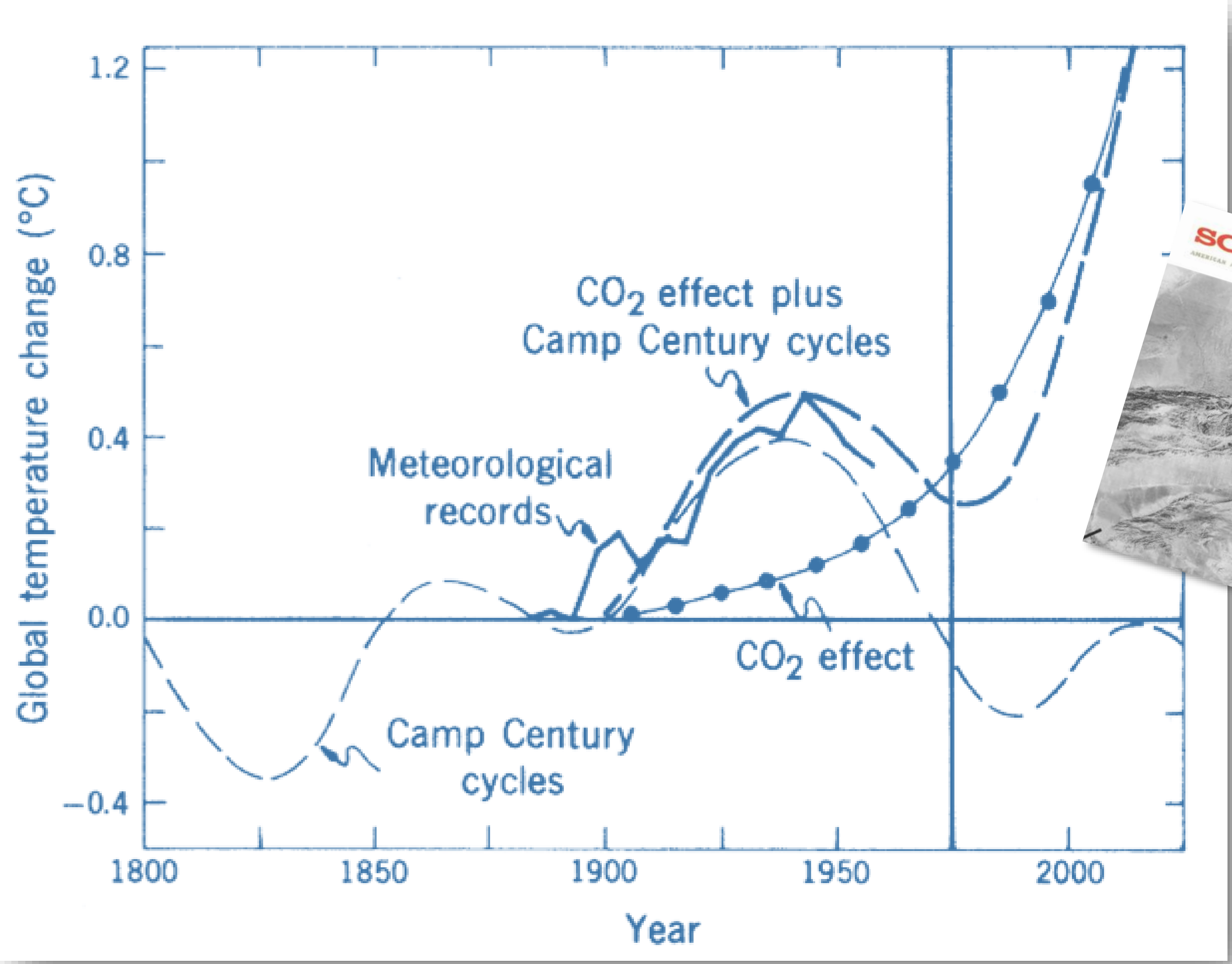


Wallace Broecker



Curves for the global temperature change due to chemical fuel CO_2 natural climatic cycles, and the sum of the two effects. The measured temperature anomaly for successive 5-year means from meteorological records over the last century is given for comparison.

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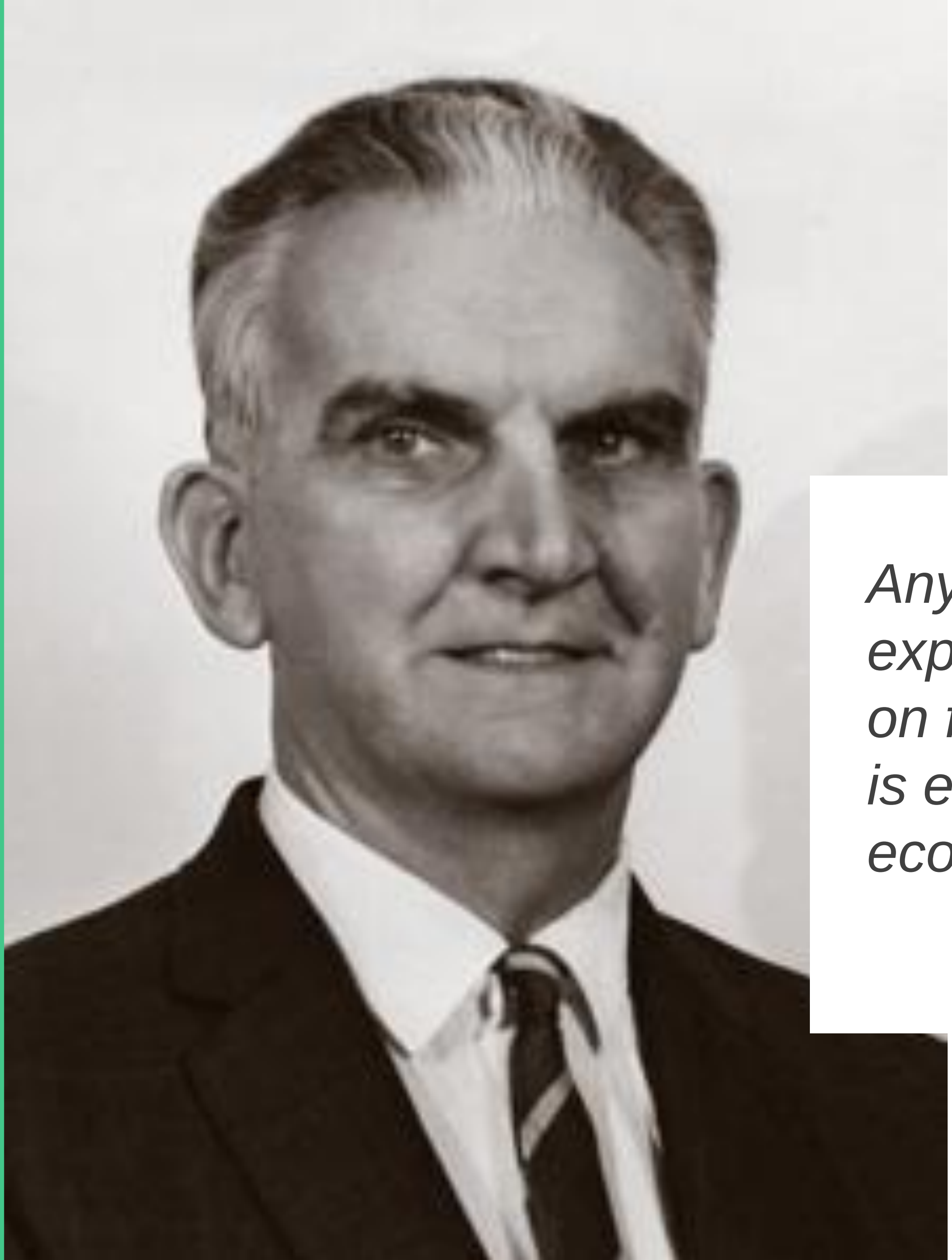
Kenneth Boulding



Anyone who believes exponential growth can go on forever in a finite world is either a madman or an economist.

K.B.

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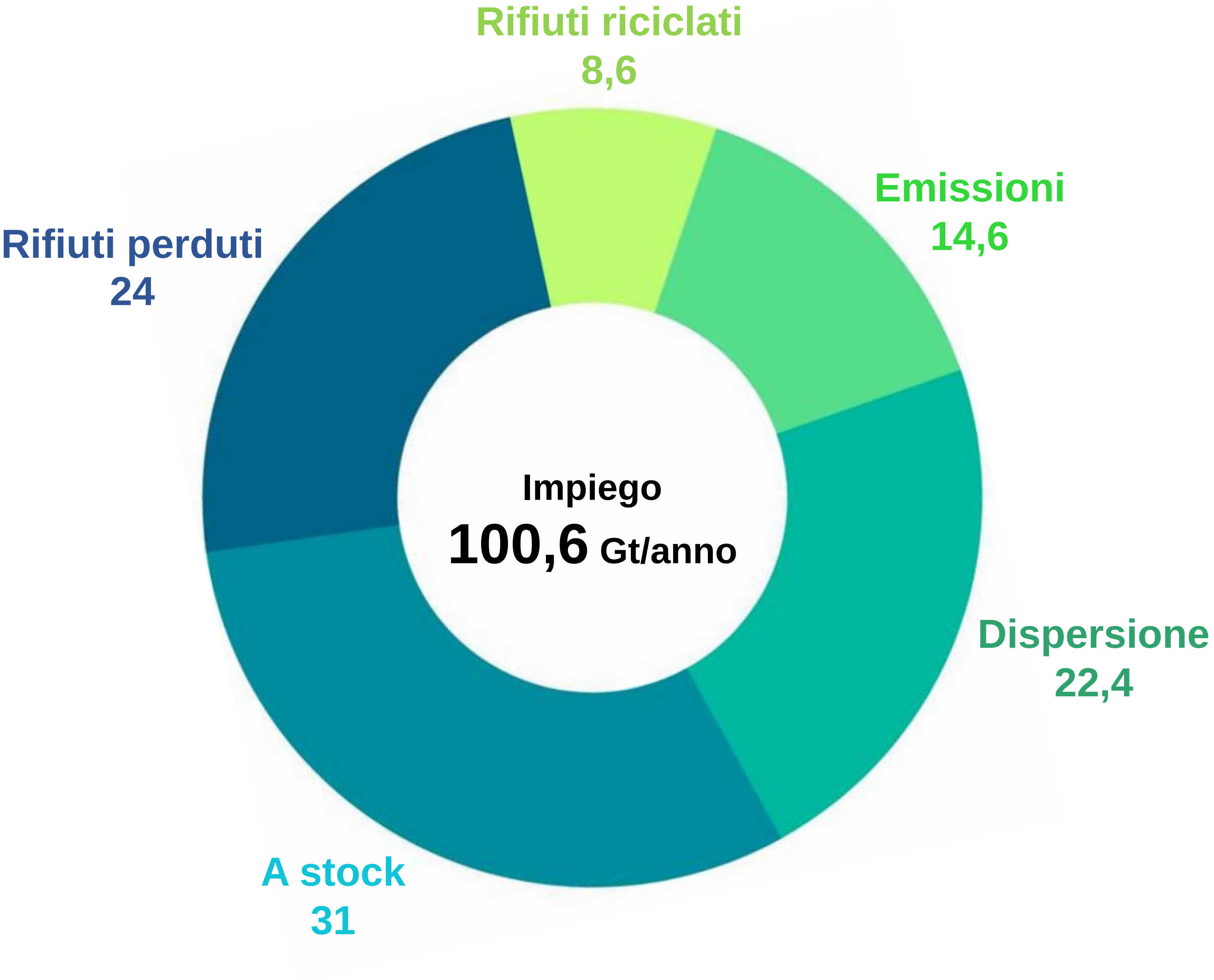
Circularity Gap Report 2020



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Trend risorse

RESOURCE EXTRACTION INCREASED 12-FOLD BETWEEN 1900 AND 2015, FUELLING STEEP ECONOMIC GROWTH, WITH FURTHER DOUBLING FORECAST FOR THE NEXT 35 YEARS TO 2050.

Material extraction has fuelled economic growth since the Industrial Revolution. In fact, over the last four decades, the global use of materials almost tripled, from 26.7 billion tonnes in 1970 to 84.4 billion tons in 2015. Not only has material use been increasing - it has been accelerating, as witnessed in the first decade of the 21st century and ongoing. The IRP forecasts that by 2050 material use will amount to between 170 and 184 billion tonnes. A prime factor driving up environmental pressures, this increased and accelerated material use is to a large extent driven by rising prosperity levels globally. Whist elevating people out of poverty is a desirable, even essential outcome, the associated material use is not.

The circular economy has a key role to play in decoupling growth from material extraction, thereby creating the conditions for sustainable development to deliver more prosperity for a larger population. but with diminishing use of primary resources.

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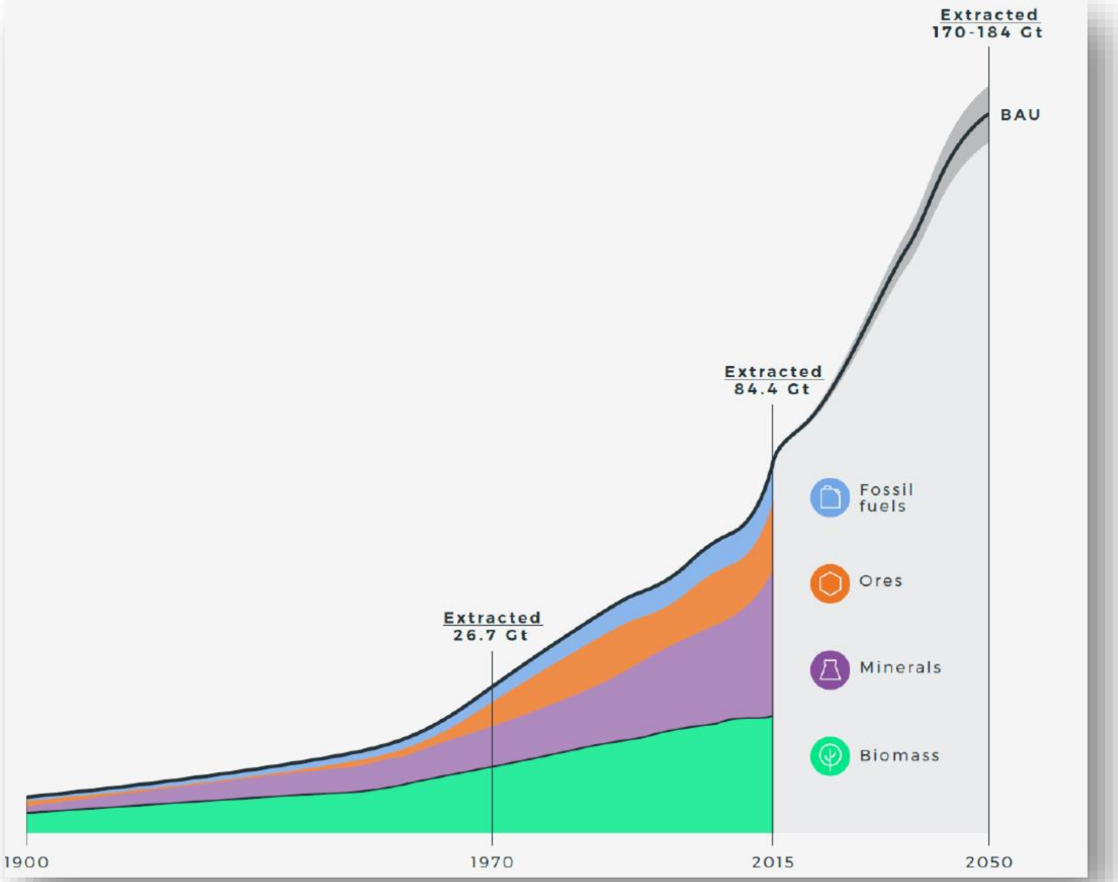

Material extraction of fossil fuels, ores, minerals and biomass between 1900 and 2015 when total material extraction amounted to 84.4 Gt. Forecasts show that expected material use is likely to increase to between 170 and 184 Gt in 2050 (BAU).

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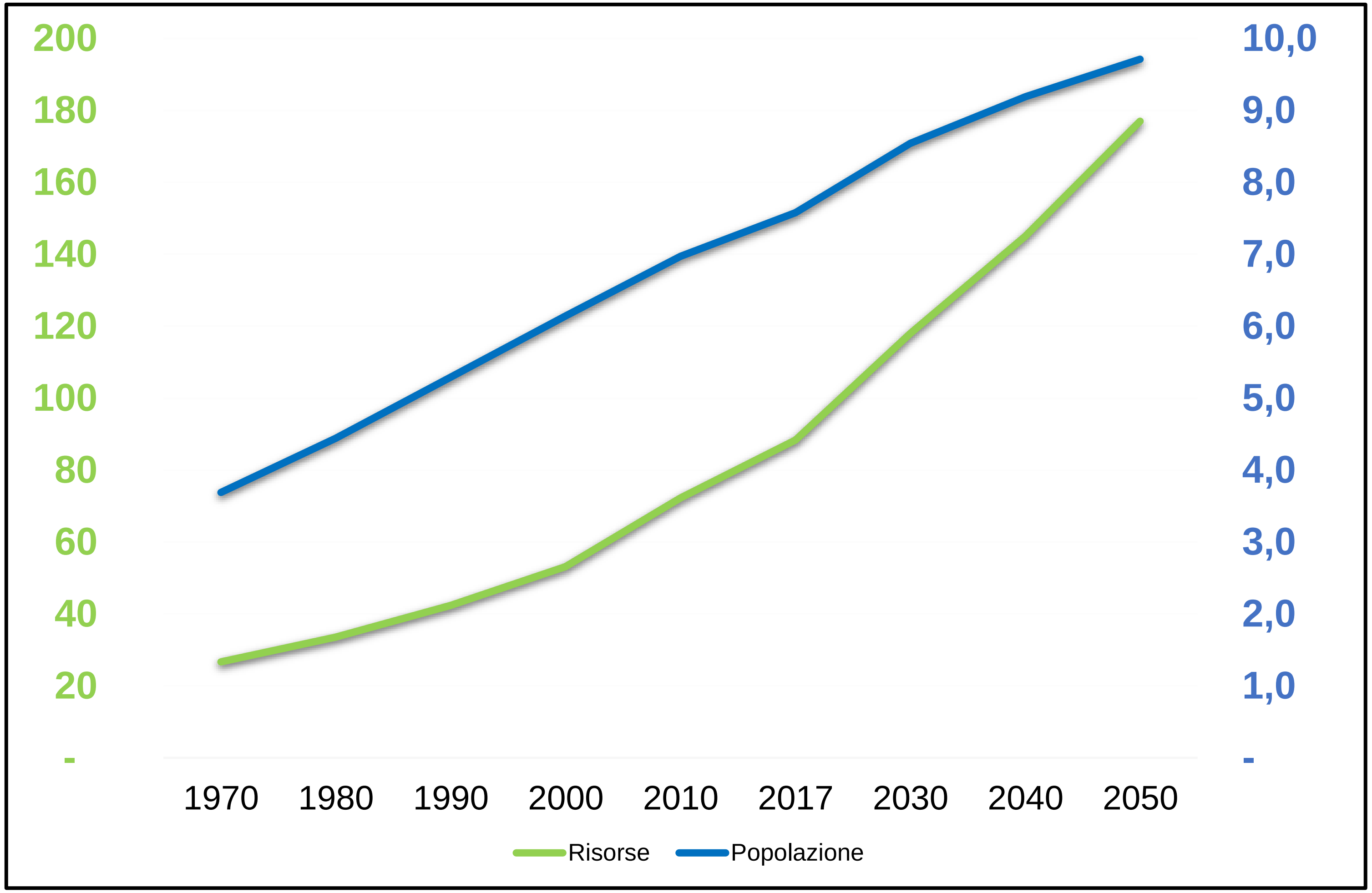
Popolazione vs risorse

Estrazione Risorse dal Pianeta (mld ton/anno) vs Popolazione (mld)



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Grazie per l'attenzione