

Depletion of the Resources of the Earth: The Upcoming Battlefields

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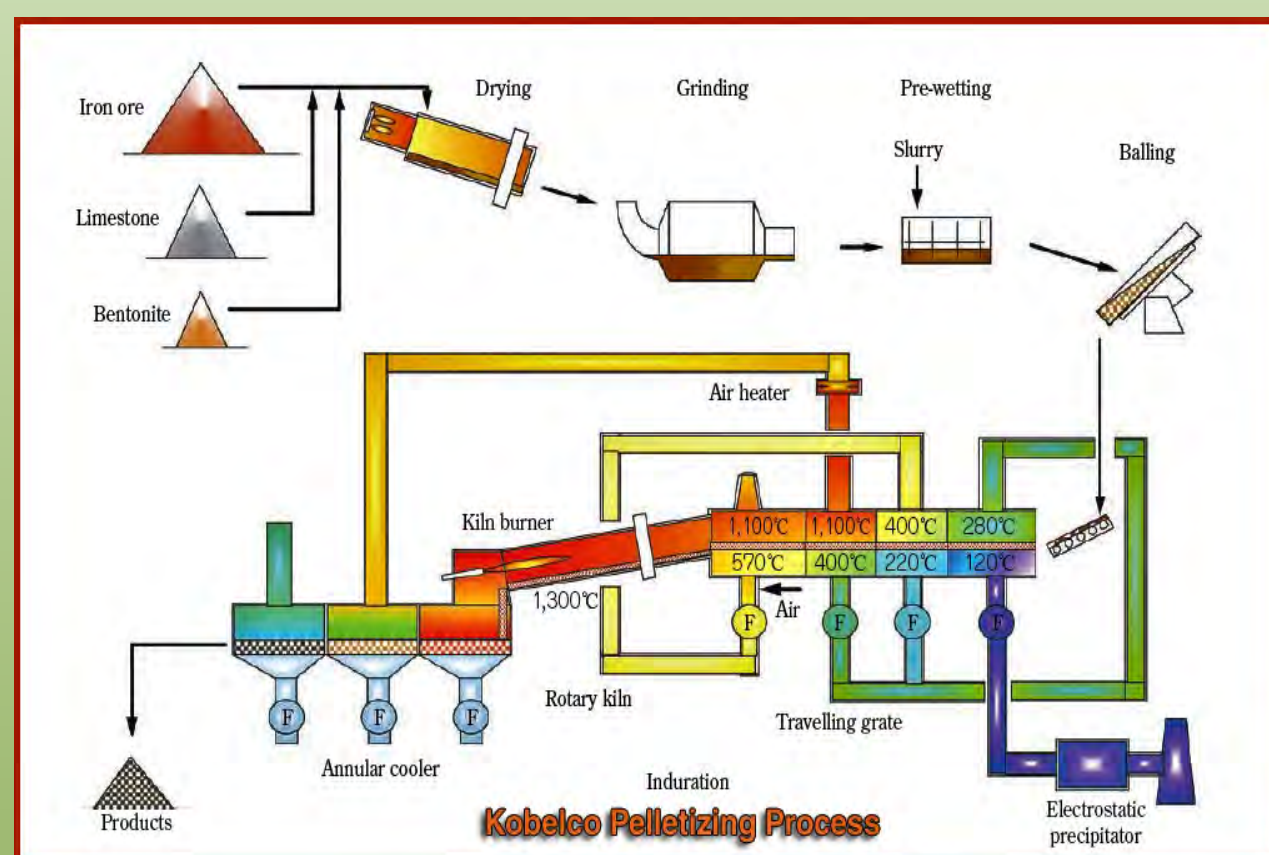
Abstract

People and planet Earth have a very close relationship - whatever affects the Earth, affects humanity too, and vice versa. Since the industrial revolution, people have been using more and more non-renewable resources and every passing day their complete depletion is increasingly inevitable. The most common example is oil – its depletion date is predicted to be in 40 years and there are already many battles for this coveted black liquid. This, however, is just the beginning. Soon, many other resources will face a similar fate –Gold and Tin, for instance, are next with their depletion by 2020. Countries will fight for these metals, because each one's citizens will demand electronics with components made of rare metals. In this war we are both the perpetrator and the victim.

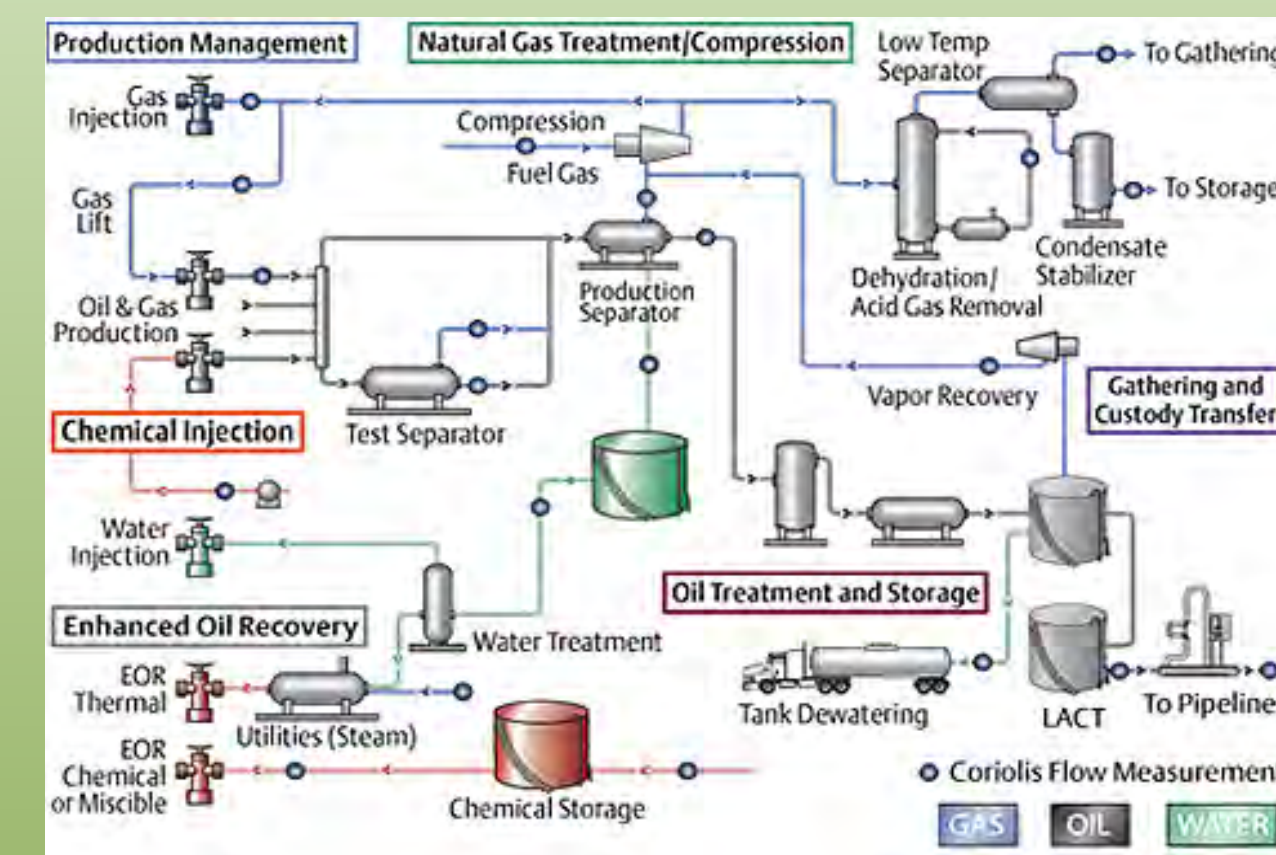
The depletion of many natural resources is inevitable. Yet, it is not expected by many and most are not prepared. Instead of fighting for the last few reserves of these resources, we should start working as a population and increase the amount of materials, or find out how to substitute them. People must be aware that nothing will be the same in the next 50 years. More scholars must start researching how to substitute these ever shrinking resources with other materials. Engineers must think on efficient recycling. Governments must start promoting sustainability. We *all* need to think on this issue in order to prevent Earth from becoming a battlefield.

Why is depletion Inevitable?

1. Dispersion⁶



2. Treatment³



3. Heterogeneous pile of trash⁴



4. Undeveloped science⁵



5. High industrial demand

Resource Demand & Depletion

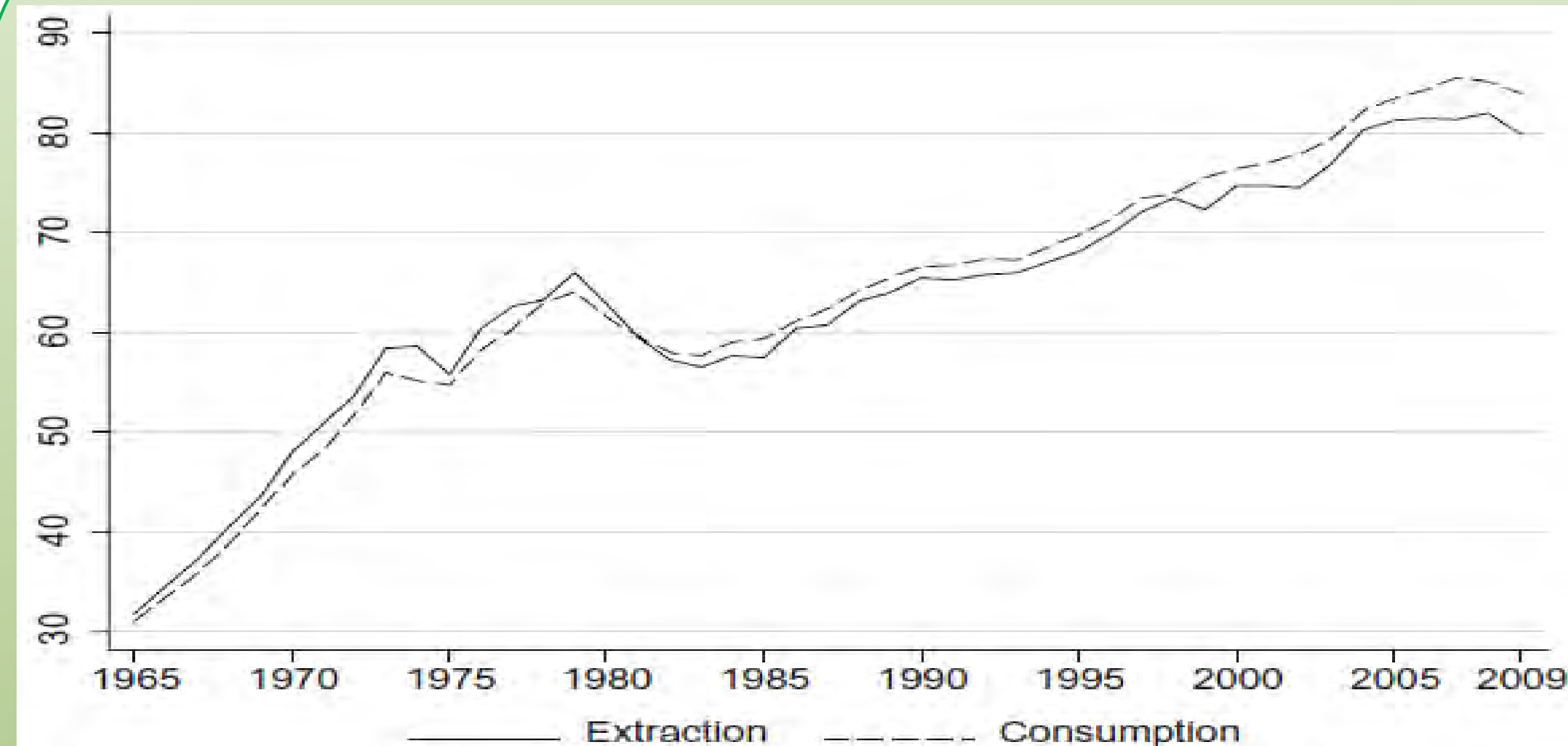


Figure 1. World oil extraction and consumption, 1965–2009.¹

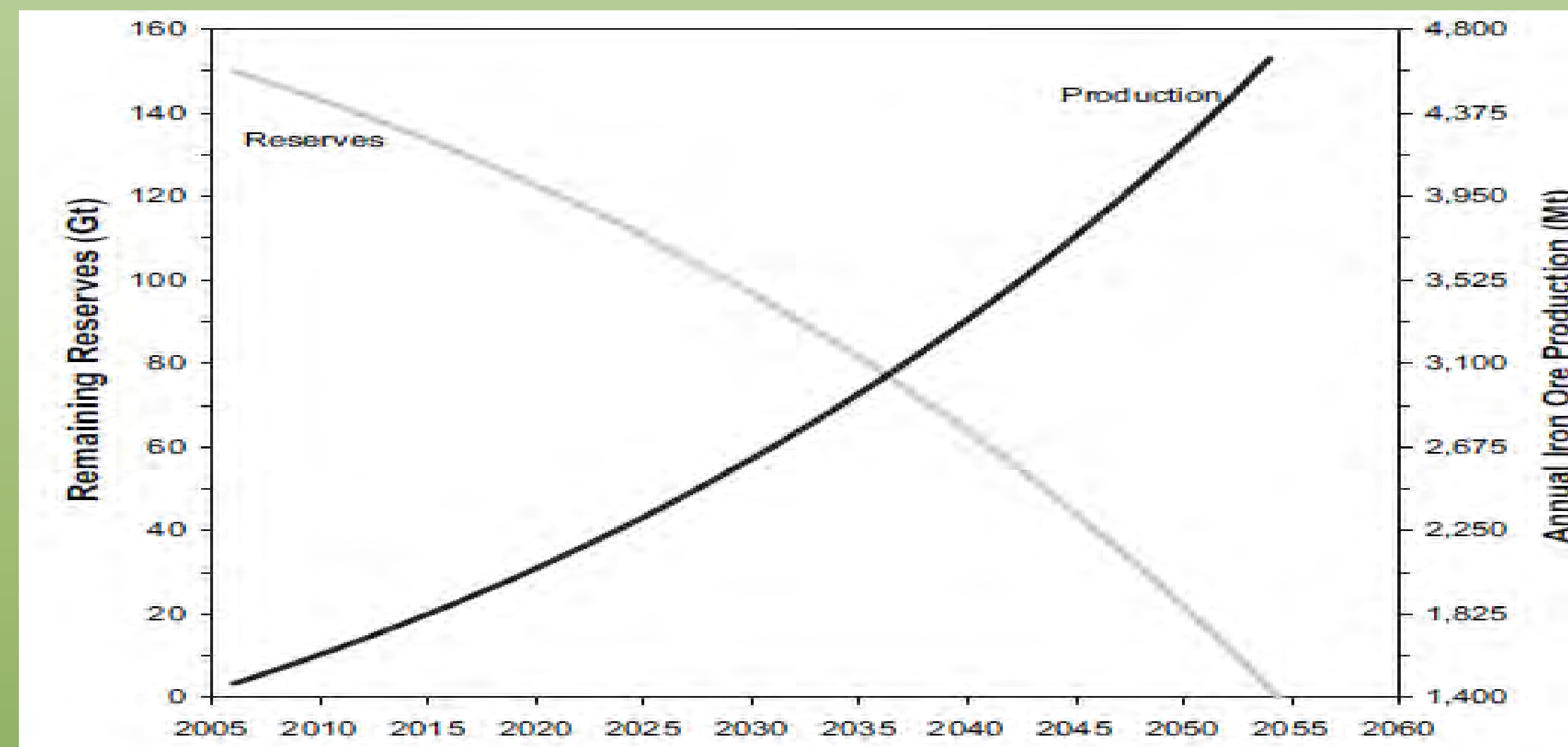


Figure 2. Predicted global iron ore production and reserves depletion²

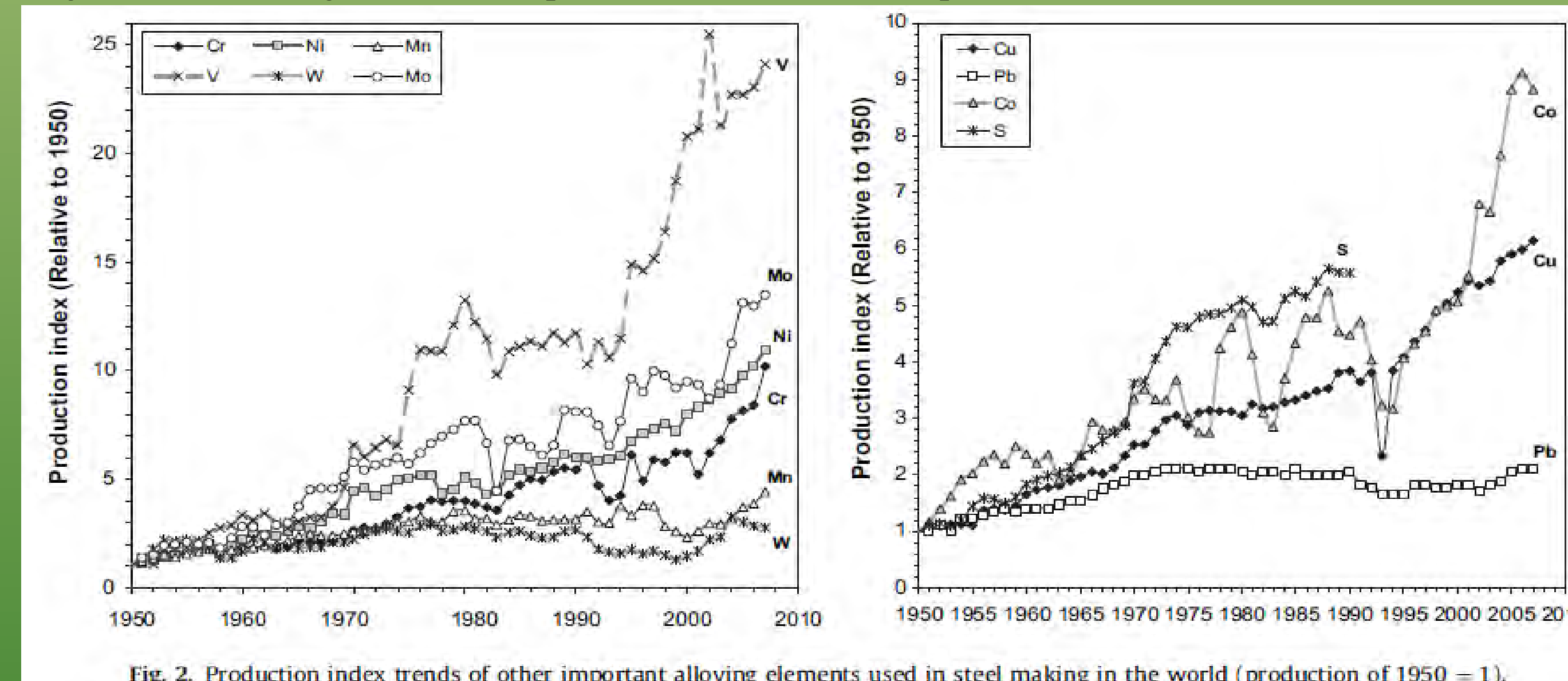


Figure 3. Production index trends of other important alloying elements used in steel making in the world²

Fe*	2090	Pb*	2033	V*	2233
B*	2051	Mn*	2051	Oil	2053
Co*	2123	Mo*	2057	Gas	2178
Nb*	2071	Ni*	2051	Coal	2428
Cu*	2042	Se*	2064	Au, Sn, REM	2020

Figure 4. Depletion dates of common resources (their ores)²

Resource Conflicts

- Continuation War(1941-1944) – Soviet Union and Finland fought over Ni-mines
- Iraq's invasion in Kuwait(1990) – Kuwait and Iraq fought over oil
- France and Germany have fought over Alsace-Lorraine for centuries and the mines caused the Franco-Prussian War, the First and Second World Wars
- The Copper Kings (industrialists William Andrews Clark, Marcus Daly, and F. Augustus Heinze) fought over copper mines in Butte, Montana (1880)
- Wars in Congo over Au, Co, Sn, Nb, Ta by Rwanda, Uganda and Burundi (1996-2003)

Actions to be Taken:

- Recycle, Reduce and Reuse
- Reduce demand by increasing efficiency
- Substitute non-renewable with renewable
- Discover new ways of using matter (fuel cells)
- Develop methods to extract resources from water
- Pass laws banning wastefulness

