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TAJUK ARTIKEL	CHEMICAL INDUSTRY'S FUTURE IS CIRCULAR		
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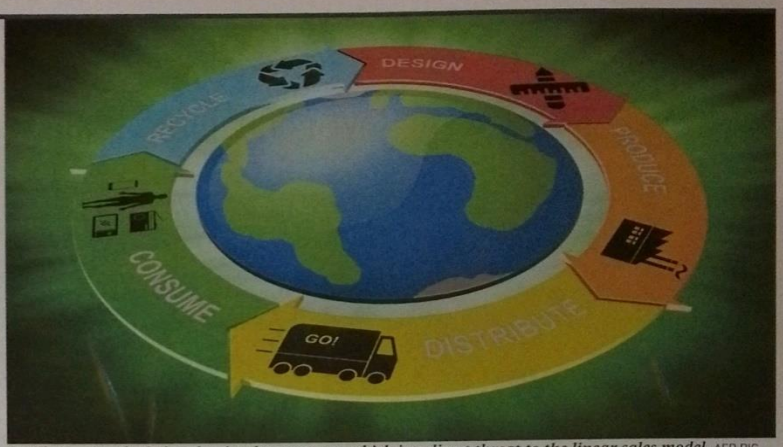
BRUTAL PARADOX

CHEMICAL INDUSTRY'S FUTURE IS CIRCULAR



An illustration depicting the circular economy, which is a direct threat to the linear sales model. AFP PIC

LOOK around you. The screen you're reading, the medicines that keep us healthy, the fertilisers that feed billions, the lightweight components in electric vehicles — all are gifts of the chemical industry.

For over a century, it has been the silent, often invisible, engine of progress.

Yet, today, this same industry stands accused of poisoning our planet, drowning us in plastic, and fuelling the climate crisis. It is at a profound crossroads, facing an existential choice: reinvent or face irrelevance.

The core dilemma is a brutal paradox. The industry's genius — transforming inert matter into wonder materials — is now its greatest liability.

Its lifeblood has been cheap fossil fuels, both as feedstock and power. This made the modern world, but at a cost we can no longer afford.

The "smokestack" image, long a symbol of industrial might, is now a branding nightmare in an ESG-driven world.

The public sees plastic-choked oceans and "forever chemicals"; investors see carbon liabilities and regulatory risk. The industry must change.

DATUK DR AHMAD IBRAHIM

The challenges are not mere headwinds; they are a hurricane.

FIRST, the decarbonisation imperative. The chemistry sector is a top-three industrial carbon emitter.

Truly greening it means more than incremental efficiency gains; it requires a fundamental reimagining of core processes, swapping fossil feedstocks for green hydrogen, captured carbon monoxide and biomass.

This isn't a research and development project — it's a capital project requiring trillions, with uncertain returns.

SECOND, the circular economy, though imperative, is a direct threat to the linear sales model.

For decades, success meant selling more virgin plastic. Not anymore.

Tomorrow's success will hinge on creating closed loops: designing polymers for recyclability, pioneering chemical recycling to break plastics back to their original molecules and building entirely new supply chains from post-consumer waste.

It's a shift from selling a product to managing a molecule's entire lifecycle. Chemical engineering must adapt to the new reality.

THIRD, geopolitics has shattered the globalised model. There are no clear signs of that ending. If at all, it is getting worse.

The era of optimising supply chains for cheap inputs from one continent, processing in another, and selling to a third is over.

Pandemic shocks and strategic decoupling have exposed fatal vulnerabilities. The scramble is now on for secure access to critical minerals — lithium, cobalt and rare earths — the new "oil" of the energy transition.

Chemical sovereignty is becoming a national security priority, forcing a costly and complex regionalisation of production.

So, is the industry doomed? Far from it, though. This crisis is also its greatest opportunity.

The very industries championed as our salvation — renewables, electrification and sustainable agriculture — are utterly dependent on advanced materials.

There is no energy transition without the chemical industry.

Better batteries, more efficient solar cells, lightweight composites for electric vehicles and green hydrogen technologies are all, at their heart, chemistry problems. The companies that can provide these solutions will command green premiums and secure their place in the new economy.

To get there, leaders must make ruthless choices.

This means managed decline of legacy, carbon-intensive assets and bold, venture capital-style bets on sustainable chemistry.

It means embracing partnerships that would have been unthinkable a decade ago: oil giants turned green hydrogen suppliers, chemical firms collaborating with waste management giants and nimble tech startups.

Most critically, it requires a new narrative. The industry must move from a defensive crouch to proactive leadership.

It must stop being the reluctant actor dragged by regulation and become the architect of its own future. This means transparently owning past problems while championing the science-led solutions. It means engaging with the public not just as consumers but as citizens concerned about the planet.

The verdict is not yet in. Will the chemical industry cling to its 20th-century playbook and become a regulated utility of the past?

Or will it harness its unparalleled innovative power to become the indispensable enabler of a sustainable 21st century?

The molecules of the future — clean, circular, and carbon-neutral— are waiting to be built. The world needs this industry to succeed. The question is whether it has the courage to transform itself from a linear to a circular one.

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