Cracking the Ammonia Code: Balancing Global Food Security and Environmental Sustainability

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Ammonia, a simple yet critical molecule, feeds half of the world's population, thanks to the Haber-Bosch process. However, its energy-intensive production and environmental impacts raise urgent questions about sustainability. The rising demand for ammonia-based fertilisers fuels a global environmental dilemma, as nitrogen runoff creates dead zones and contributes to climate change. A promising solution lies in "green ammonia," which could revolutionise the industry by replacing fossil fuels with renewable energy. While the costs remain high, breakthroughs in catalysts and new methods could unlock a sustainable future for ammonia production.