



# NTNU

Kunnskap for en bedre verden

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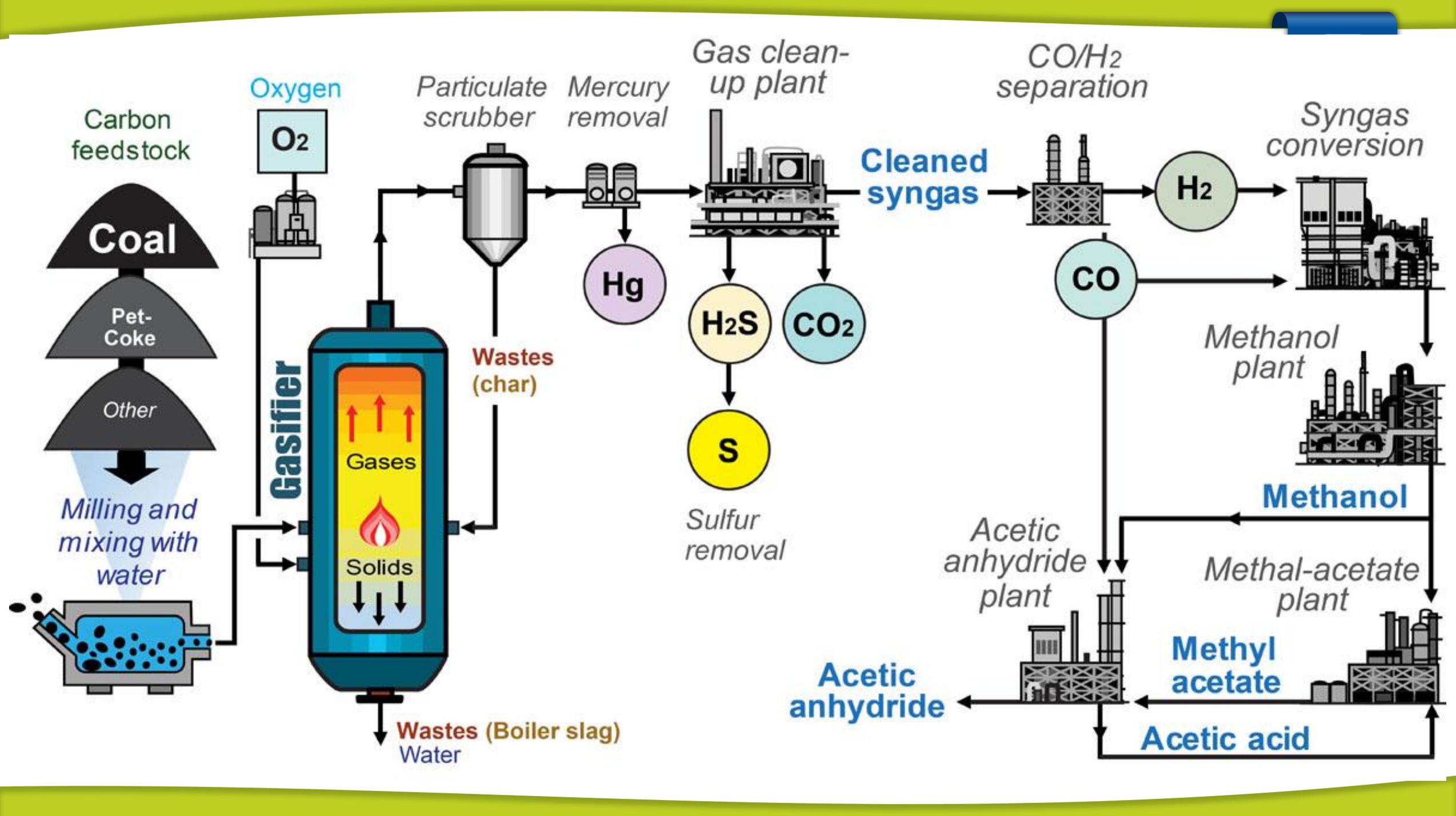
Department of  
Chemical Engineering  
75 Years

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# The past and the future for chemical engineering

- The traditional idea
  - Industry shall efficiently produce products based on raw materials to allow for increased living standard on earth.
- The idea for the future
  - Industry shall recycle materials and have a sufficient production to maintain a reasonable living standard on Earth within what is sustainable in the long run.



# Problems

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Irreversible change of land area by mineral extraction

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Irreversible consumption of minerals

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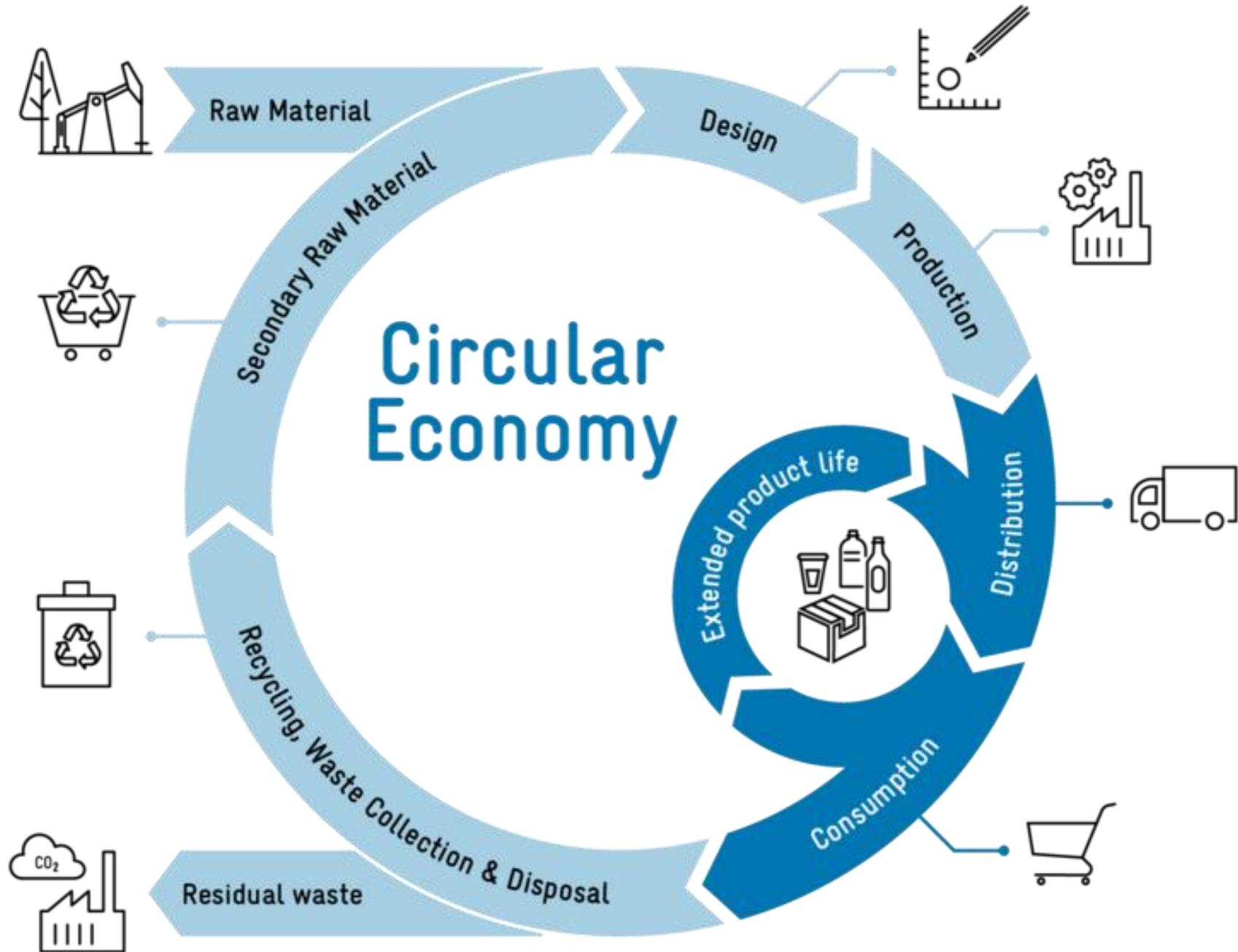
Pollution from the extraction process

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CO<sub>2</sub> emissions and other waste from the production process

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Production of cheap commodity materials like plastics that promote overconsumption and further pollution



# What to work on

- Sustainable energy production
- Energy efficiency
- Waste flows as raw materials
- Effluent free production
- Production processes that produce products with along life span

# The future needs chemical engineering

- Industry shall **recycle materials** and have a **sufficient production** to maintain a **reasonable living standard** on Earth within what is **sustainable** in the long run.
- IKP can **educate** the engineers that can do this
- IKP can do **research and innovation** that leads to this goal