THE DEVELOPMENT OF PETROCHEMICAL INDUSTRY IN KOREA

EE 482: Public Policy and Industrialization

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The development of petrochemical industry in Korea

- The petrochemical industry consists of **naphtha-cracking** and **12 associated sectors**.
- In the absence of an **efficient petrochemical industry**, a nation **cannot keep its light industry independent of foreign suppliers** and ensure that industrial products **remain competitive.**
- The country's first oil refinery, Korea Oil Refinery Corporation, was established in 1962 at Ulsan Industrial Complex as a 50–50 joint venture with the Gulf Corporation.
- Until the early 1960s, all the nation's petroleum had to be imported and rationed to control demand amid the limited supply.
- The optimal production capacity of a **naphtha-cracking plant** in terms of **ethylene production** was **300,000 tons per year** or more in 1965.
- At the time, while **Japan was scaling up their petrochemical plants** to **the international standard**, South Korea had **neither the capital nor the technology** to start what was seen to be a petrochemical industry in name only.

Source: Directly quoted from Chun, S.H. (2018). *The Economic Development of South Korea: From Poverty to a Modern Industrial State*. London: Routledge.

The development of petrochemical industry in Korea (cont'd)

- No less serious a problem was a **yawning gap between domestic demand** and the **capacity demanded by economies of scale**.
- The **maximum capacity** of a petrochemical industry that could be built in the country was **no more than 30,000 tons per year**.
- In February 1966, the MTI commissioned Arthur D. Little, a **US-based consulting company**, to conduct a **feasibility study** for a petrochemical industry in Korea.
- The MTI believed that a feasibility study by a renowned foreign consultant would be able to induce interest from foreign investors.
- But the outcome was disappointing to say the least. In a report submitted in September 1966, the consultant concluded that to guarantee viability, the country's annual production capacity **should not exceed 30,000 tons**, given that **domestic demand was abysmally low**.

Source: Directly quoted from Chun, S.H. (2018). *The Economic Development of South Korea: From Poverty to a Modern Industrial State*. London: Routledge.

The development of petrochemical industry in Korea (cont'd)

- How could a plant with an annual production capacity of **30,000 tons compete against** any of its foreign rivals with such a target?
- The ministry decided a naphtha-cracking plant needed to have an annual ethylene production **capacity of 66,000 tons at a minimum**, and added its construction to the **second Five-Year Economic Development Plan (1967–1971)** as one of its **core projects**.
- A state-funded corporation for the **management of petrochemical industry complexes** was accordingly established for this purpose. The following are key measures the government took to help keep the **prices of domestic petrochemical products below** those of **imports**.
- The **imported equipment and materials** for petrochemical plants were **exempted from tariffs.**
- Newly incorporated petrochemical companies were **exempted from corporate tax**, **business tax** and **other related taxes for 5 years**.
- The Foreign Capital Inducement Act was revised to **exempt foreign direct investments** in the petrochemical industry from taxes.

Source: Directly quoted from Chun, S.H. (2018). *The Economic Development of South Korea: From Poverty to a Modern Industrial State*. London: Routledge.

The development of petrochemical industry in Korea (cont'd)

- Those **buying land** for the construction of a petrochemical plant were allowed to make a **payment equivalent to 20 percent** of the price as **down payment** and pay the remainder in **installments in 5 years** after a **2-year grace period**.
- Although cash loans were prohibited at that time, by setting the **required equity capital rate at 30 percent**, the government allowed **international cash loans exceptionally** for the **extra funds** to abide by the equity capital rate.
- To help keep the price of final products low, the government **subsidized the prices of all utilities**, including **electricity** and **water**.
- As construction continued, the production capacity was **readjusted** in response to **increasing demand**.
- Finally, a **large petrochemical complex** with a production capacity of **100,000 tons** was dedicated in **Ulsan** in 1972. But the government's estimate went off the mark, as **demand** for petrochemical products **grew explosively** when the Ulsan complex went into operation due to **accelerated economic growth and exports**.

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The development of petrochemical industry in Korea (cont'd)

- A worsening **demand–supply mismatch** in petrochemical products was anticipated, as the economy was gearing up for $**10 billion or more in annual exports** in the 1980s.
- Against this backdrop, the government had to **expand the Ulsan complex** and build a **new complex in Yeocheon**.
- Buoyed by expectation of a rise in petrochemical demand, the government wanted to build **two naphtha-cracking plants**, each with the **ethylene production capacity** of **300,000 tons** in a new petrochemical complex in **Yinchuan**.
- However, the plan had to be scaled down to one with a production capacity of **350,000 tons** in the wake of the first global oil shock. Problems with funding and partnership forging further delayed the launch of construction to November 1975.
- The new complex was dedicated near the end of 1979, later than the original plan

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The development of petrochemical industry in Korea (cont'd)

- The annual ethylene production capacity rose to **505,000 tons** with the dedication of the **Yeocheon complex**, making the nation the **15th largest petrochemical producer** in the world in 1981.
- In 1987, another **naphtha-cracking plant** was built in the **Yeocheon complex** with an annual production capacity of **350,000 tons.**
- As the **petrochemical industry matured**, the law on petrochemical industry development, enacted to regulate entry into the market, was scrapped in June 1986, thereby **liberalizing investments in the industry**.

Source: Directly quoted from Chun, S.H. (2018). *The Economic Development of South Korea: From Poverty to a Modern Industrial State*. London: Routledge.