



The 14th Five-Year Plan and China's Chemical Industry

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China's 14th Five-Year Plan (FYP) covering the period from 2021 to 2025 will only be published after its acceptance by the National People's Congress in March 2021. However, the drafting process has long started, beginning with ministries commissioning investigations and research organizations working on reports. The development of the FYP is led by the National Development and Reform Commission (NDRC), which collects input from the ministries and other sources and uses this input to prepare a series of draft documents. Some potential focus areas of the

new plan have already been mentioned in the press. The objective of this paper is to give an overview of these likely key points, and discuss their impact on China's chemical industry.

So, what will the FYP be about? According to a report by the Russian International Affairs Council, "The new plan is expected to focus on the creation of a high-income economy while prioritizing four spheres: digitalization, market accessibility, environmental improvement, and rural development." Overall, this represents only a gradual shift from the key themes of the 13th Five-Year Plan, which in 2016 I

summarized by the five points of innovation, environmental protection, reducing the income gap, opening up and rural-urban balance. Indeed, the way the five-year plans are developed – in multiple stages over a period of time, with a large number of input providers – virtually guarantees that a new plan will not represent a massive deviation from the previous one, but rather a document that builds on previous achievements in a gradual way.

Let us get a bit more specific about likely key themes of the 14th Five-Year Plan, and also discuss their impact on China's chemical





industry.

Environmental protection

The 13th Five-Year Plan will likely be remembered in particular for its strong emphasis on environmental protection. The 14th FYP will continue to highlight environmental protection, building on the path outlined in the past few years. One key climate and sustainability advisor to the government, Wang Yi, has suggested replacing the energy consumption cap with a carbon emissions cap in the 14th FYP. On the other hand, in some areas there will likely be a reduction of subsidies, for example for solar and wind energy as well as for electric vehicles, as these technologies are assumed to no longer need constant support to be competitive in the marketplace.

For the chemical industry in China, this will mean that current tight supervision of the industry will not loosen up. The relocation of chemical production to chemical parks will continue, while at the same time the confirmed chemical parks will be upgraded. In the years to 2025, even the largest chemical plants will have to relocate. Certain chemical segments that are regarded as highly polluting and not contributing to China's modern economy may find it hard to seek any alternative location at least in the most popular chemical parks, for example leather chemicals or some dyes. Chemicals for which alternative production routes with different environmental impact exist may see a more strongly enforced shift to the more environmentally friendly route – for

example, this may be the only route for which capacity expansions will be permitted.

On the other hand, increased environmental protection will also be a boon to many chemical segments that provide relevant materials, be it membranes or lithium salts for rechargeable batteries, polymers and coatings for wind turbines, electronic chemicals for the production of photovoltaic cells or filter materials used in exhaust cleaning.

A further push may come depending on specific goals in the FYP, for example, tighter fuel efficiency regulation for vehicles could benefit the producers of high-end plastics for automotive applications. Negative surprises are also possible – for example, a carbon cap may increase the cost of chemical production.

Innovation and technology

Somewhat surprisingly given the background of China's top politicians in engineering and sciences (Xi Jinping himself has a degree in chemical engineering), R&D spending is one of the few areas where China is likely to fail meeting its target outlined in the 13th FYP. In 2019, China's R&D expenditure was only 2.2% of GDP, compared to a 2020 target of 2.5%.

The 14th FYP will almost certainly at least confirm the previous target. Political developments such as the United States restricting exports of some high-tech goods to China have increased China's desire to reduce its reliance on such imports. This will mean that leading-edge sectors of the Chinese economy will receive greater investments.

For chemicals, the electronic segment is

highly relevant. It is the chemical segment for which China's dependency on imports is the strongest. At the same time, it is the most difficult segment for local players to catch up due to its rapid pace of innovation. Local players in this segment will likely be able to benefit from generous R&D subsidies.

Other chemical areas are new materials, mostly those already listed in the 13th FYP, including engineering plastics, organosilicones, fluoroorganic compounds, membranes for water treatment etc.

It will be interesting to see to what extent the modern coal chemistry will be further promoted in the 14th FYP. On the one hand, this is an area in which China has a leading global position and ample natural resources, and its promotion may also help the development of some Western provinces. On the other hand, pushing coal chemicals conflicts with China's environmental targets, as even if the technology does not cause local pollution, it certainly contributes to carbon emissions.

Self-sufficiency

Within the framework of the 14th FYP, China is expected to rely more on its domestic market than in the past. This is both a consequence of the increase of this market due to China's massive past GDP growth, and of complications in global trade due to frictions with the United States and the effects of the coronavirus.

An early indication of this shift is the latest "Go West" plan announced in June 2020.



This plan outlines a way to seek growth from China's western regions to compensate for economic losses in the export-reliant eastern provinces. It includes a number of infrastructure projects including a Sichuan-Tibet railway, high-speed rail links, and a series of airports, reservoirs and irrigation projects. The government will also develop new energy projects, such as oil storage facilities, and encourage industrial projects to shift operations westward.

China's objective to become more self-sufficient is highly relevant for the chemical industry, as China currently is a strong net importer. According to CPCIF President Li Shousheng, the domestic market for chemicals has been undersupplied for a long time. In 2019, the trade deficit of the whole industry was US\$268.3 billion. Imports of synthetic resin increased by 12.4%, polyethylene increased by 18.8%, polypropylene increased by 6.4%, polystyrene increased by 13.6%, polycarbonate increased by 12.8%, and pesticide imports increased by 14%. In particular, the import volume of high-end products such as new chemical materials and special chemicals has increased to varying degrees.

This stands in contrast to goals increasing self-sufficiency that were published in 2016. For example, China aimed to increase self-sufficiency in the ethylene chain from 49% in 2015 to 62% in 2020, and from 67% to 92% for PP. However, for PP, the rate stood only at about 86-87% in 2019. As a consequence, the 14th FYP is likely to further promote self-sufficiency for these basic polyolefins.

The issue is not only one of insufficient capacity, but also of China not producing some chemical materials at all. According to 2018 statistics of the Ministry of Industry and Information Technology, 32% of the more than 130 key chemical materials are not produced in China and all, and for 52%, China still depends on imports, including high-end electronic chemicals, high-end functional materials, high-end polyolefins. Here, the quest for self-sufficiency is closely linked to the objective of not relying too strongly on imported technologies.

The gap is particularly obvious in fine chemicals. Again, according to Li Shousheng, the share of fine chemicals in China is only around 45%, much lower than the average level of 60% to 70% in developed countries.

The top ten high-end chemical companies in the world are all foreign companies, and they all have full-chain processing and research and development capabilities from basic chemicals to high-end chemical materials. Chinese chemical companies generally lack these highly developed, extended value chains that include fine chemicals. Reducing China's dependency on imported fine chemicals will therefore mean political support for such domestic companies.

Conclusion

So, in summary, what can the chemical industry expect from China's 14th Five-Year Plan? As outlined above, none of the likely key thrusts of the plan represents a massive change from the 13th FYP. Rather, it is a continuation with slightly different emphasis. While with regard to environmental aspects and also mainly for R&D, the focus will be on continuation, the added emphasis will be on self-sufficiency, particularly in high-end chemicals. Recent events – particularly frictions in global trade and the coronavirus – are at least partly responsible for this. ■

