

IFC SECTOR NOTES

Outlook for Chemicals Manufacturing

SEPTEMBER 2021



This report summarizes insights and opinions of external industry experts, practitioners and stakeholders of the chemicals manufacturing industry, obtained through discussions conducted by IFC's Global Manufacturing and Corporate Strategy teams during Q1 2021.



Overview of the Industry

Chemicals are essential to everyday life—food, clothing, healthcare, comfort, convenience. The chemicals industry is also an integral part of the global economic landscape. The industry's total contribution to the global Gross Domestic Product (GDP) was estimated at US\$5.7 trillion in 2017, equivalent to 7% of the world's GDP that year¹. It is estimated that the industry directly employed approximately 15 million people while supporting a further 105 million jobs indirectly in 2017¹. In other words, for every person employed in the sector, another 7 jobs are indirectly supported elsewhere in the global economy. In developing countries such as Nigeria, the jobs' multiplier is much higher, ranging from between 13 to 20 jobs indirectly supported for each person employed².

Over 96% of all manufactured goods rely on chemicals that cannot be replaced with alternative materials³. More than 80% of chemicals are sold to other businesses and go through multiple transformations in various value chains prior to reaching the end-user. As the input materials needed for almost every product, chemicals are the unseen foundation on which economies are built. It could be said that the sales of chemicals in a country is indeed a barometer of the country's economic strength.

Global chemicals sales are projected to increase from US\$4.3 trillion in 2019 to US\$ 7.3 trillion in 2030⁴. Emerging markets (Asia-Pacific, South Asia, Africa, Middle East, and Latin America) will be the main drivers of this growth, supported by rising income levels and a growing middle-class population. Excluding China and developed countries, sales of chemicals in other emerging market countries are projected to increase by US\$ 650 billion by 2030. Chemicals manufacturing worldwide will require substantial capital investment of around US\$3.6 trillion to enable this growth. If current investment patterns continue, about half of this investment will be in China and almost US\$1 trillion will be needed in emerging markets.

Given the expected high growth of demand for chemicals, industry players need to ensure that all activities include sustainability measures, which is now seen as vital to the industry's long-term goals. This requires taking a closer look at finding solutions for greenhouse gas (GHG) emissions from the high energy production processes needs, reliance on fossil fuels as feedstock, circularity and safe end-of-life disposal of products, and proper treatment of effluents⁵.

Given the importance of chemicals to economic development, Development Finance Institutions (DFIs) must take steps to support the sustainable development of the chemicals manufacturing industry in emerging markets. To support the development of more sustainable projects to meet the Paris Agreement objectives, IFC plays a pivotal role in emerging markets through its additionality and by providing Investment, Upstream, Advisory and Blended Finance solutions, as well as by mobilizing commercial financing. Over the last 10 years, IFC has committed ~US\$6.6 billion to the chemicals manufacturing industry globally, including US\$3.6 billion mobilization of third-party funds in 71 projects⁶.



Assessing the Market Outlook

Looking ahead, IFC's investments in the chemicals manufacturing industry are likely to increase in line with the expected demand growth, especially in emerging markets. Given the centrality of the chemicals industry to economic activity and the urgency for climate action, IFC has recently developed a Chemicals Manufacturing Roadmap that will serve as a diagnostic and business development tool to guide IFC's engagements in the industry. The roadmap will help develop and implement strategies within the chemicals industry, instrumental in operationalizing IFC's 2030 ambitions.

In developing the strategy, IFC held a series of in-depth discussions with external experts, practitioners, and stakeholders across multiple entities to capture their opinions and insights on the industry. The panel included companies in the industry, sampled across sizes and regions, and operating in various value chains such as petrochemicals, fertilizers, biotechnology, agriculture, as well as other stakeholders like trade associations and non-government organizations. The discussions were conducted over a period of two months, between January – February 2021. The topics covered in the discussions included the following:

1. What are the main **market trends** shaping your industry, especially in emerging markets?
2. What do you think your industry would look like in **2030**, and what are the implications for emerging markets?
3. What **challenges or constraints** do you encounter while trying to scale up in emerging markets?
4. What **practical lessons** have you learned that relate to your industry, particularly in emerging markets?
5. In order to support your industry in addressing the challenges and capturing opportunities in emerging markets, where do you think **IFC/WB focus** should be? (*country/region focus, strategic interventions, policy/regulation, etc.*)

Certain themes emerged from these in-depth discussions. Sustainability, for instance, emerged as one of the key current trends and will likely continue to influence the activities of industry players over the next decade. Most leaders agreed that there is need to transition towards products and processes that do not have adverse environmental impacts.

The following section provides a summary of the most common responses received from the industry leaders in each of the above list of questions.



Market Trends

Sustainability: There was consensus among the discussants that sustainability is a core function for any company in the chemicals industry. Consumer awareness on issues such as circularity is increasingly shaping the actions of chemical companies. Consumers are demanding more environmentally friendly products such as bio-based and bio-degradable products, while simultaneously reducing consumption of environmentally harmful products like single-use plastics.

This trend towards sustainability is being witnessed not only in developed markets but also in emerging markets. Companies operating in emerging markets are progressively setting ambitious targets on reducing their carbon footprint, increasing biodiversity, waste management, recycling, and transitioning towards green energy sources, among others.

Environmental, Social and Governance (ESG) principles have also become more entrenched in business models. Financial investors, industry associations and a better-informed younger generation are increasingly demanding adoption of ESG standards among companies. Governments are also a key catalyst in the move towards ESG and sustainability as they are becoming more aware of the potential for chemical companies to mitigate the negative effects of climate change. Countries like Uruguay and Kenya have completely banned the use of convenience plastic bags due to adverse environmental impacts.

Innovations & Disruptions: Innovations and digital technologies are being rapidly implemented in the global chemicals industry. For example, fertilizer companies are adopting innovations like digital farming and climate smart agricultural practices to create more value to consumers, ensure food security, and contribute towards sustainability. Digital farming with more efficient fertilizer applications is also gaining traction in emerging markets. Companies with new business models are using technology to transform biomass (agricultural waste) into biofuels, biochemicals, and renewable materials.

Disruptions from emerging technologies will continue to make companies more competitive and resilient through the adoption of innovative business models. The COVID-19 pandemic has forced the chemicals industry to fast track innovations and solutions that were previously only in pipeline. For example, the pandemic has hastened the use of blockchain technology in supply chain management in markets such as Pakistan and China.

Demographics: The demand for chemical products, especially in emerging markets, is on an upward trajectory. This is largely being driven by economic growth and a burgeoning middle class. These factors have led to an increase in disposable incomes, resulting in increased consumption and demand. Additionally, population growth and urbanization have also led to a rise in demand of chemical products used in other industries such as construction, automotive and packaging.



2030 Outlook

Circularity: There was a common sentiment amongst most discussants that the chemicals industry will make tremendous efforts in adopting the circular economy model by 2030. Circular economy solutions will increase significantly as companies seek to produce products that are less damaging to the environment. Some companies are investing in products such as 'Circular Plastics,' which are more recyclable and environmentally friendly. Recycling rates are expected to increase especially in emerging markets as collection costs decline over time. Circular economy has the potential of creating new products and services that facilitate incremental value creation at the consumer level. Amid all these benefits, one of the greatest bottlenecks to the advancement of circular economy is proving the economic viability and sustainability of some of the current solutions in order to attract investments.

Decarbonization & regulations: Industry players predict an acceleration in decarbonization efforts over the coming years across the chemicals industry. As an energy-intensive industry, chemical companies may be pushed to transition to renewable energy sources in both developed and emerging markets. Dependence on fossil fuels is expected to decline as incentives such as government subsidies shift to more environmentally friendly alternatives like biofuels. Moreover, cornerstone initiatives like the Paris Agreement will drive these efforts, as companies strive to demonstrate their alignment to such agreements and climate goals. However, decarbonizing efforts are expected to be constrained by the high cost implications of making the transition, especially in emerging markets.



Challenges and Constraints

Infrastructure and logistics: Infrastructure gaps pose a significant challenge to the development of the chemicals industry in emerging markets. Lack of proper ports, roads, energy, and digital infrastructure deter investors from investing in developing countries. Many countries lack the necessary digital infrastructure and systems to facilitate market-based instruments such as Renewable Energy Certificates, which signal market sophistication and development of the industry. Limited internet/data access is a barrier to uptake of digital agricultural services in sub-Saharan Africa. Logistical challenges persist, leading to much longer transport times in emerging markets compared to developed markets, making the products more expensive and often unaffordable. High electricity costs and power outages were also cited as challenges faced in the industry.

Operating environment: Emerging markets were consistently cited to have more challenging business and operating environments compared to developed markets. Some discussants noted that policies and regulations in developing countries remain weak and are constantly changing, thus eroding investor confidence. There is also a big discrepancy in policy enforcement, compared to developed markets.

Uncertain economic environments also hinder growth and development of the chemicals industry in developing countries. Erratic and short economic cycles make it harder for long term planning and forecasting for companies looking to invest in emerging markets. High inflation rates, balance of payment crisis and foreign exchange controls including restrictions in access to foreign currency were cited as some of the main macroeconomic issues that adversely affect operations.

Access to finance: Several discussants identified access to finance as a significant barrier to investments in emerging markets. This is further exacerbated by the high cost of capital in countries like Indonesia and India. The situation is the similar for sub-Saharan countries where fertilizer and agricultural input providers indicated that: (i) they have limited access to capital for their businesses, and (ii) their customers (smallholder farmers in particular) cannot easily obtain financing to purchase their products. Consequently, the usage of fertilizers remains low, which affects the development of agriculture in this region.



Practical Lessons

Value chain approach: One of the key lessons cited by industry practitioners was the need to implement a value chain approach in devising solutions for challenges ailing the industry as a whole. The aim is to better understand the firms that operate within a particular value chain: input suppliers; end users; support services; and the environment which businesses operate. There is also a growing need to engage with governments to evaluate their business needs, determine their understanding of the industry, and devise policies that help develop the whole industry.

Training and skills: Another lesson pertains to training and skills development of local employees. On the one hand, discussants indicated that they invested substantially more in training and education programs for employees based in emerging markets. On the other hand, the cost of hiring skilled labor varied from country to country. Companies willing to invest in emerging markets should factor in the different costs and availability of skilled labor needed for the investment.

Local market knowledge: Companies need to have a good understanding of the local market before investing in emerging markets. They need to undertake in-depth research and country assessments prior to investing. Additionally, having a grasp of and planning for the local economic factors (e.g., economic cycles, market risks and regulations) was considered essential in guaranteeing successful operations in emerging markets.



IFC/WB Focus

Convener: There was consensus among most of the discussants that IFC and the World Bank (IFC/WB) should play a greater role in facilitating strategic partnerships among players in the global chemicals industry. IFC/WB could leverage its global reach and convening power to initiate and drive multi-stakeholder dialogues aimed at creating opportunities and addressing challenges in the industry. Greater collaboration between chemical companies and other actors such as governments, academia, and industry associations could also accelerate the achievement of sustainability goals within the industry.

Policy intervention: Discussants indicated that IFC/WB has the capability to effectively influence in the formulation, adoption, and implementation processes of policies related to the chemicals industry. IFC/WB can assist local governments and other policy makers in developing regulations and compliance systems (e.g., on issues like climate change), which are weak or non-existent in many emerging markets. The institutions should also play a role in advocating for better standards and enabling environments to support growth and development of the chemicals industry in emerging markets. Most discussants noted that governments in emerging markets require more education and awareness on key sustainability issues in the chemicals industry in order to create and implement effective policies.

Financing: As one of the leading investors in the chemicals industry in emerging markets, IFC has provided catalytic capital that has enabled the growth of numerous chemical companies. There, however, remains opportunities which require additional financial and non-financial interventions of IFC/WB. Discussants indicated that IFC could develop suitable financing products for emergent business models and small companies within the industry to enable them reach scale. The World Bank could also play a pivotal role in providing subsidies and grants to chemical companies which are providing leadership in circular economy principles to offset the added cost of those initiatives until they mature.



Conclusion

The demand for chemicals will continue to support GDP growth in most emerging markets, while sustainability concerns are also on the rise. Pressure is mounting on the industry to develop pathways to a more sustainable future. The industry needs to align with initiatives such as the Paris Agreement and the Sustainable Development Goals and ensure that its operations continue to make positive contributions to people, economies, and the environment. A value chain approach is crucial if: (i) these ambitious targets are to be achieved over the next decade and (ii) the challenges facing the industry are to be addressed effectively. Whereas concerns around sustainability are high in the industry, the

sensitivity to cost and lack of profitable business models seem to be the reason why industrial action is lagging. As a critical industry, chemicals production has to move faster in addressing sustainability challenges. Industry leaders cited the lack of an enabling environment, such as infrastructure and industry regulation, in reducing their ability for further action relating to the improvement of sustainability in chemicals production. Given the expected high growth of the chemicals industry, it is increasingly important for industry leaders to act themselves. The questions to be explored in further discussions include: What is the chemical industry/your company doing proactively to address climate change in production of critical materials such as chemicals? What new technologies are being pursued? What product redesign, process improvements, and rethinking of value chains are being explored? How can the industry proactively and fundamentally address its products and business models to make a positive contribution to efforts to mitigate climate change?

References

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Endnotes

- 1 Oxford Economics 2019
- 2 IFC 2016
- 3 American Chemistry Council 2019
- 4 CEFIC 2021
- 5 IEA 2018
- 6 IFC 2020