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Importance of Skill Training for the Plastics Processing Sector

Highlighting the Indian Perspective

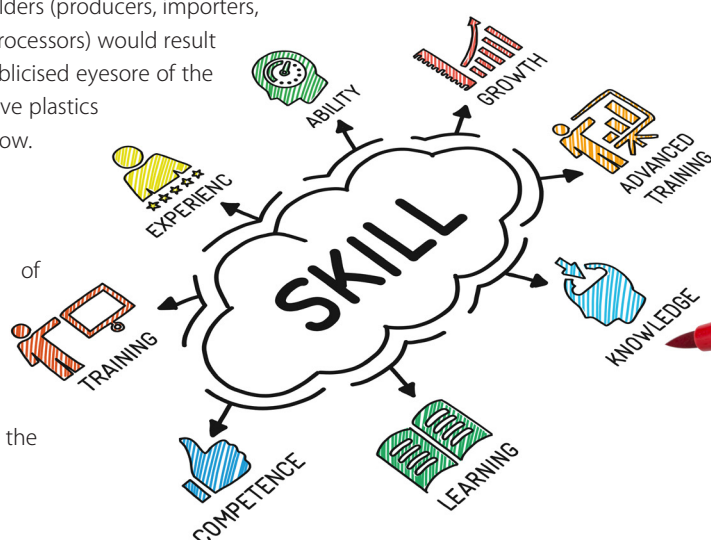
To sustain the growth trend with global competitiveness in the coming years and increase the contribution to exports as well as the country's GDP, the plastics industry and associations at national and regional levels must rework their approach towards attracting skilled manpower, training, and retaining the trained workforce.

Historically, the invention or commercial use of most plastic materials kicked off between 1940 and 1960. In the Indian context, the '70s was roughly when the commencement of the use of plastic began in numerous applications – from commodity to engineering or industrial applications. By the end of the '90s or at the beginning of the new millennium, globally, it was established that we lived in the 'plastics age' and plastic was inseparable from mankind due to its inherent merits such as cost-effectiveness, convenience or user-friendliness and density advantages over many conventional materials (high strength to weight ratio).

However, when it comes to sustainability or the circularity principle, most thermoplastic-based products fare quite well as they are reusable and recyclable. Through EPR guidelines under implementation (specific to packaging products), it is expected that the participation of all stakeholders (producers, importers, brand owners and plastics waste processors) would result in better handling of the much-publicised eyesore of the litter of plastics in MSW or ineffective plastics waste management in years to follow.

The Scope for Growth is Immense

India's per capita consumption of plastics is only about 15 kgs as compared to the global average of 30 kgs (China is 60 kgs and the USA is 112 kgs), suggesting a significant growth potential in the



Cumulative
No.
of Machines
Injection Moulding
1,34,000
Extrusion
52,050
Blow Moulding
15,550

coming decades. As per the industry estimates, there are over 50,000 plastics processing or product manufacturing units across India with a total installed capacity of around 30 million tonnes.

Based on the demand in different end-use sectors of plastics (packaging remains the dominant application sector with around 50% of the share in consumption of polyolefins), India's plastics consumption (virgin) had crossed 20 million tonnes in 2021-22, employing over 3 million people, directly and indirectly. It is worth mentioning that the major blue-collar employment sub-sector is the raffia or technical textile sector based on polymers / plastics, with a headcount of 1 million, comprising both regular roles and contract staff provided by manpower suppliers.

Snapshots of the status of the type and number of different plastics processing machinery in India taken from a recently published report by Plastindia Foundation is as tabulated in Figure 1.

Though realistic statistics on the actual number of blue-collar or machine operating staff (unskilled helpers, machine operating assistants, machine operators or supervisors on shop floors) are difficult to be assessed as they keep changing based on the growth scenario or technology changes of the processing machinery. However, it is easy to see that around 60% of the total manpower employed could be termed as 'Skilled Technicians / Operators / Assistant Operators / Technicians', which totals to around 2 million people. There are technological advancements in plastics processing machinery with the aid of robotics / AI-based automation which require a high level of skill sets equivalent to engineering qualification.

Educational Infrastructure in India

Unfortunately, the Plastic Processing Machine Operator (PPMO) introduced in Government ITIs in the '90s could not become popular, and gradually this trade became obsolete due to a lack of updated infrastructure or faculty and staff

Institutions like CIPET took a major initiative under the 'Skill India' initiative and with the support of different government schemes and CSR funding, they started contributing to the skilling of operating manpower, specifically for injection moulding, blow moulding, film and pipe extrusion etc. through skilling centres spread across the country.

Details	2021 - 22
Virgin Polymer Consumption in 2021-22	19,270 KT
Cumulative Core Processing Machines till March 2022 (Nos)	2,01,600+
Core Processing Machinery Growth - CARG for Last 4 Years	8.5%
Number of Core Processing Machines Installed in 2021-22	14,700
Estimated Investment in Core Machinery in 2021-22	USD 1.32 Bn
Total Processing Capacity*	~58,560 KT
Processing Capacity Addition Growth - CARG for Last 4 Years	9.00%
Number of Plastics Machinery Manufacturing Units	300+
Estimated Project Investment in Machinery, Moulds & Converting Lines (Last 5 Years)	~USD 9.1 Bn
Likely Project Investment in Machinery, Moulds & Converting Lines (Next 5 Years)	~USD 14 Bn
*Capacity includes Compounding & Major Recycling in addition to Virgin Polymer Processing	

Figure 1: The Plastindia Foundation report showing different plastics processing machinery in India.

Source: Industry Estimate / PMMAI

members in Government ITIs across India. However, institutions like CIPET took a major initiative under the 'Skill India' initiative and with the support of different government schemes and CSR funding, they started contributing to the skilling of operating manpower, specifically for injection moulding, blow moulding, film and pipe extrusion etc. through skilling centres spread across the country.

The Rubber, Chemicals and Petrochemical Skill Development Council (RCPSDC), under the aegis of NSDC, has also been entrusted with the role of developing a curriculum based on technology trends and need-based requirements of manpower in the plastics industry. RCPSDC and its stakeholders must engage on a continuous basis to implement developed course modules by collaborating with training partners and institutions like ITIs.

For the raffia sector or polymer-based technical textiles, which consume about 35% of PP material - one of the largest plastics consuming sectors - Lohia's Technical Training and Research Centre (TTRC) has been at the forefront, providing

support through specialised training programmes from operators to managers and senior executive levels. The Textile Sector Skill Council, under NSDC, in association with TTRC, has formulated qualification packs under the National Skill Qualification Framework (NSQF) that are being implemented for the raffia sector. Skilled trainees are assessed and certified by the Textile Sector Skill Council, an awarding body of NCVET (a body under the Ministry of Skill Development & Entrepreneurs, Government of India) based on proficiency and NSQF levels.

Why the Indian Plastics Industry Needs to Buckle Up

It is always encouraging to note that 65% of the Indian population is young, but the aspirations of modern-day youth need to be assessed. The plastic sector's low compensation or salary structure, longer working hours (a 12-hour-shift system) and undesirable working environments make it the least preferred area of employment for youth. It is increasingly becoming more difficult to attract young operators who are willing to learn and work on machines in shifts due to different reasons like work / factory location in remote areas, work environment and lack of other facilities like reasonable accommodation, food etc. in MSME-based plastics processors.

To sustain the growth trend with global competitiveness in the coming years and increase the contribution to exports as well as the country's GDP, the plastics industry and associations at national and regional levels must rework their approach towards attracting skilled manpower, training, and retaining the trained workforce. A few suggestive points could be as follows:

- Utilise the government schemes like NAPS to get reimbursement for part of the salary / stipend paid to new workers, thereby paying better compensation at par with other sectors.
- Coordinate and engage with the Sector Skill Councils under NSDC (RCPSDC and TSC specifically) for updating existing curricula and developing new courses as per the latest technology trends.
- Support government ITIs that are conducting PPMO trades for machinery upgradation and faculty / expert staff and place the trainees of these ITIs or adopt PPMO trade in PPP modes.

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- A large pool of certificate holders (ITI / diploma / engineering degree) across India seeking employment may be enticed to work in the plastics sector by professionally providing effective in-house training with certification.
- Provide accommodation / hostel or staff quarters with reasonable amenities for workers living in remote locations.
- Establish three-shift systems of 8 hours working with flexible options to work beyond 8 hours for additional remuneration, focusing on productivity and efficiency improvement in the operation of processing machines.
- Organise periodical training for working personnel to upgrade their skill and boost motivation.
- Utilise the RPL (Recognition of Prior Learning) scheme under the 'Skill India' initiative of NSDC through Sector Skill Councils for training and certifying existing manpower with experience without any formal training.
- NEP 2020 (National Education Policy 2020) envisaged a multiple entry and exit system with a thrust on industry-focused vocational training. The industry should coordinate with national institutions like CIPET to formulate new courses with appropriate framework mechanisms to recruit technical staff at all levels (operators to executives) with certification of specialisation, as deemed fit. ■■