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Thermoforming gains

The cup
spilleth
over

Special Feature

The world of plastics:
Offering a new lease of life

Report



Leaders Speak

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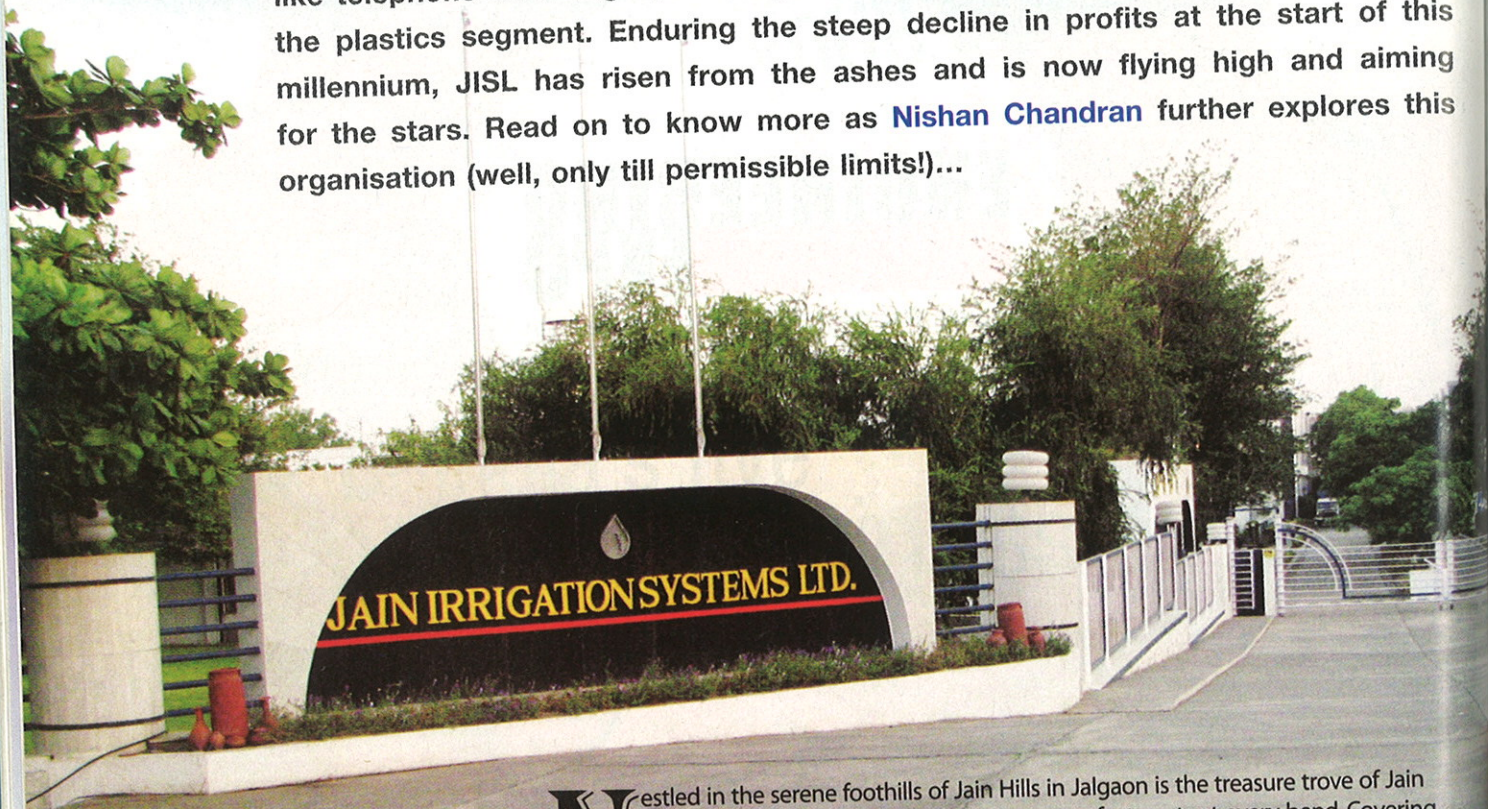
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Piping in a fortune

Standing atop Jain hills and getting a bird's eyeview, gives an idea of the vastness of Jain Irrigation Systems Ltd (JISL) - one of India's largest processors of plastics for pipes. Currently manufacturing over a thousand plastic products - used in drip irrigation systems, building & construction and pipings for utility services like telephone lines & gas, this organisation is fast venturing into other areas of the plastics segment. Enduring the steep decline in profits at the start of this millennium, JISL has risen from the ashes and is now flying high and aiming for the stars. Read on to know more as **Nishan Chandran** further explores this organisation (well, only till permissible limits!)



Nestled in the serene foothills of Jain Hills in Jalgaon is the treasure trove of Jain Group's business set-up - offering picture perfect spots at every bend. Covering approximately 2,000 acre, Jain Irrigation Systems Ltd (JISL) is a diversified entity with an annual turnover of more than Rs 1,800 crore. The company has a pan-India presence with 20 manufacturing bases spread over five continents. Besides being a pioneer in the manufacture of hi-tech agricultural inputs, its product portfolio also includes drip & sprinkler irrigation systems and components, PVC, PE piping systems, plastic sheeting, greenhouses, bio-fertilisers, solar water-heating systems and photovoltaic appliances.

Polymer processing

JISL's Plastic Park, spread over 100 acres, is one of the largest plastic pipe manufacturing sites in India covering a wide range of pipes and fittings with an annual polymer processing capacity of about 2,00,000 MT. At this park, it extrudes and injection moulds PVC, PP, PE along with other engineering polymers like polycarbonate, polyamide, PBT and ABS. Thus,

JISL calls itself a 'total solution provider' for various thermoplastic piping systems which are used in transportation, conveyance of fluids, semi-solids, gases and cables.

Anil B Jain, managing director, JISL says, "We started off with PVC pipes in 1980, drip irrigation products in 1986 and PVC foam sheets in 1991-92. We started with an end capacity of about 20 kg per hour and today, our capacity is around 2,00,000 to 2,50,000 tonne per year. If you look at all our 28 years, in terms of processing of plastics, we have grown at about 25-30 per cent CAGR."

Keeping in line with international trend, JISL's Plastic Park continues to maintain its processing equipment and the energy distribution mechanism in such a way that the power factor continued to remain at enabling the company to secure 7 per cent discount on its monthly energy bills. Technology upgradation and modification of processing equipment & accessories continues aggressively during the current year to conserve energy and install energy efficient & high capacity processing equipment.

Manufacturing facilities

In all, JISL has more than 100 extrusion lines and a state-of-the-art injection moulding facility having above 110 injection moulding machines for manufacturing piping system, pipe fittings, and PVC & PC sheets. It has also successfully adopted state-of-the-art technology in high-speed extrusion systems with high-end laser & electronics application for its precision micro irrigation system. All these manufacturing setups are supported by a large in-house tool design, development and maintenance centre to constantly stay abreast with the

Anil B Jain
managing director, JISL



Be it a new product launch, investments in the latest technologies, upgrading of manufacturing facilities or attending to a customer's needs, our goal has always been the same: to enhance our standards of excellence so as to meet our mission and leave the world better than we found it

latest technologies and also to prevent any major downtime in the production facility. Anil Jain adds, "During 2004-05, we processed 71,000 tonne of plastic pipes. But owing to the continuous demand, we currently process 1,70,000 tonne/yr, which is likely to exceed 3,00,000 tonne during 2008-09."

This increase in production is achieved partly through productivity improvement by adopting the following steps:

- ❖ Increasing overall effectiveness of equipment (OEE)
- ❖ Optimising mould design for higher output
- ❖ Modifying down streams with dual extrusion system
- ❖ Replacing some of the old generation equipment with advance hi-tech equipment
- ❖ Implementing modern mutual handling methods equipment

JISL's production facilities comply with policies for environmental sustainability and are certified with ISO 14001, which shows their concern for the environment. The products manufactured here for domestic consumption adhere to standards like BIS, and all the export products conform to international standards such as DIN, AS/ NZ, EN, ASTM, PNS (Philippines) and ISO product

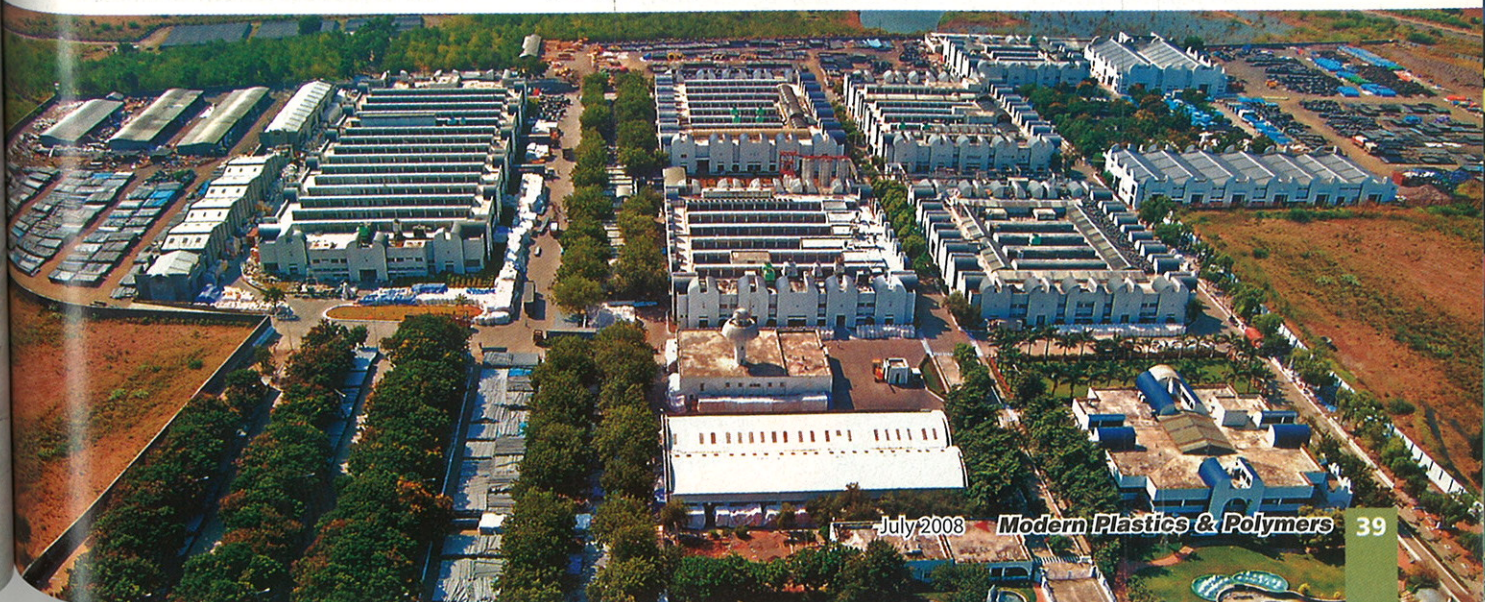
standards as per the requirement of the destination country.

Modifications in manufacturing set up

Owing to the continuous and steep growth in the GDP, JISL has taken up a large-scale expansion programme to enhance its production matching to the demand. Besides production of regular products, few specific product lines, owing to their abnormal sizes, demanded extra large size infrastructure, and suitable material handling and despatch practices. This is where the company's in-house 'Machine Building Centre' comes handy as it is fully equipped with modern equipment to develop extruders, downstream equipment and other shop floor elements.

Quality practices and policies

JISL's quality perspective, 'Make quality a way of life' ensures that every associate in the organisation strives to reach and maintain quality in every aspect. Using the best quality raw materials taken only from highly reputed national and international suppliers, is the management practice at JISL. The in-house R&D laboratory tests the raw materials as per the Indian



& international standards and every batch of material received is checked for adherence to quality specifications.

Being a 'mass-production' organisation, JISL has a well-structured & well-established quality assurance and statistical quality control department. All quality management tools such as pie charts, histograms, etc are regularly used to highlight deviations and non-conformance so that corrective measures can be taken. Most of the units are certified with ISO 9001 for their quality management systems.

JISL also maintains a close monitoring and control system to minimise the process deviations and rejection levels.

Key innovations and R&D breakthroughs

Innovations and use of innovative techniques are at the heart of JISL and it strongly supports the innovators and research scientists. Starting from introduction of casing pipes and drip irrigation systems, the company has innovated various irrigation products to suit various soil conditions and crops at different locations across India.

For example, the all-plastic sprinkler pipes quick clamping system - one of its products - is very light, portable and customer-friendly. In another, the design of *J-Lock* emitters has been modified which in turn has brought substantial benefits in drip irrigation for farmers. Another innovation of JISL, which is in the process of being patented, is *SURE LOC*, a nylon sling joint for joining casing pipes and this has eliminated major hassles in bore well installations. In the field of PVC foam sheets, sheets with *WOOD GRAIN* design are the latest innovation, and this has enhanced the export potential of the company. JISL has received numerous awards for different achievements and in the field of innovation: Golden Peacock Eco Innovation Award 2005 and

Best Innovation Award from EIMA (Italian Award) for auto flush filter.

The full-fledged R&D facility is capable of testing all basic raw materials as well as finished products as per Indian and international standards. Also, the in-house R&D department handles the process design, thereby specifying the resin and additive composition in the production line. Both, the R&D and Industrial Design Centre employ highly qualified and experienced competent personnel for its design and R&D activities. In recognition of its R&D efforts in the field of agriculture and water management, The Irrigation Association of America had presented the company with the most prestigious award - The Crawford Reid Memorial Award to Bhavarlal H Jain, chairman, JISL.

Design capabilities

JISL's design capabilities mainly lie in three areas of expertise. These include:

Product/Component Design

Division: This division designs the end-products like pipes, pipe joints, drip & sprinkler irrigation parts and PVC & PC sheets and suggest modifications in it to enhance efficiency when put to use.

Micro Irrigation System Design

Division: These are projects providing end-to-end solutions to customers, providing standard Irrigation systems and 'on demand irrigation' as per the need.

Machine Mould & Tool Design

Division: In-house machine building and mould making facilities are capable of generating the production equipment for all products. Tooling development has brought the latest technology in drip irrigation called drip tape to the customers. This technology has eliminated many customer complaints.

These design centres are equipped with advanced software like *AutoCAD Ungraphics*, *Smart CAM*, *Mold Flow* and *Digitising*, among others.

Industrial safety...protecting all

Hazard Identification & Risk Analysis (HIRA) is done for all activities in the manufacturing units. As the main activity of this organisation is converting plastic raw material into pipes, tubes, moulded components, and PVC & PC sheets - all of which are heat related process done at around 180°C - it is carried out using both mechanical as well as manual methods. The extrusion and moulding process demands product-finishing operations, which are done manually. Taking into account the risk potential, JISL has set up a full-fledged environment health & safety department and environment scientists, safety officers, & firemen are positioned at appropriate intervals.

Leaving a global footprint

The journey of exports for JISL started way back in 1989-90 with humble figures of Rs 91,00,000 and today, JISL's exports have grown to Rs 4,537 million supplying plastic products to nearly 50 countries worldwide. The export of JISL products started with micro irrigation system products being sent to the US and later PVC sheets joined the export group with 100 per cent of production being exported to the same destination. Another substantial push came from export of casing and screening pipes for borewell applications in the year 1993. The first international office of JISL was opened in Dubai in 1991, followed by offices and warehouses in the US in 1994. Export operations spread to the UK in 1997 with warehouses being set up there. At present, JISL has three warehouses and offices in the US, two in the UK, besides residential offices in Colombo, Srilanka and Australia.

With all these and more, the financial year 2008-09 is going to be a year of significant growth for the plastics division of the company. MPP