

THE

INDORAMA
VENTURES

BEACON

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APRIL 2019

ACHIEVING THE EXTRAORDINARY

1000



IVL's 2019 STRATEGY MEET
Offers a
Look Ahead



Achieving
the
Extraordinary



2018 Financial Earnings Report
Shows Historic
Success



ONLINE VERSION

Dear Readers,

The first quarter of 2019 saw another flurry of activity in the Indorama Ventures family. From a new round of acquisitions in Brazil and Germany, to a lively Strategy Meet in Bangkok that brought together representatives from around the world, Indorama Ventures continues to build towards ever greater success.

This issue of The Beacon includes highlights from that Strategy Meet, including a summary of comments made by our Group CEO Mr. Alope Lohia. It also offers a look at our imaginative Ecobrick environmental project in the Philippines, as well as IVL Foundation's valuable social work in Thailand. Our travel feature for this issue shares some of the wonderful tourist highlights surrounding our recent acquisition in Israel.

Elsewhere we highlight our long-standing commitment to safety and sustainability, which depends on a strong and proactive company culture to stay on track. We also take a step back in order to review the company's history, and how it grew from humble origins to become a global industry leader. A summary of our record-breaking growth in 2018 points to continued business success in the future, as the company gains greater momentum in its push forward.

We hope you enjoy this issue of The Beacon – and as always, send us an email with any comments or suggestions you may have.

TABLE OF CONTENT

FOCUS

MESSAGE TO STAKEHOLDERS HIGHLIGHTS PLANS FOR FUTURE GROWTH	8
IVL FOUNDATION: BRINGING COMMUNITIES TOGETHER	9
ACHIEVING THE EXTRAORDINARY	10-11
KEEPING COMMUNICATION CHANNELS OPEN	15

CONNECT

2018 FINANCIAL EARNINGS REPORT SHOWS HISTORIC SUCCESS	3
INDORAMA VENTURES COMPLETES THREE NEW ACQUISITIONS IN BRAZIL AND GERMANY	4
NEWS & HIGHLIGHT	5
IVL'S 2019 STRATEGY MEET OFFERS A LOOK AHEAD	6-7





BALANCE

PM2.5: WHAT YOU NEED TO KNOW	18
INDULGE YOUR IMAGINATION IN INCREDIBLE ISRAEL	19

SUSTAINABILITY

PET: A PLASTIC THAT HAS NO IMPACT ON HEALTH	12-13
BUILDING NEW ENVIRONMENTAL AWARENESS, ONE ECOBRICK AT A TIME	16-17

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2018 FINANCIAL EARNINGS REPORT SHOWS HISTORIC SUCCESS

The complete 2018 financial results for Indorama Ventures reveals that the company enjoyed the best performance in its history. Company revenue, EBITDA, net profit, earnings per share, and cash flow all showed double-digit growth over the previous year, with 12 new acquisitions leading to growth in every segment.

These stellar results were only slightly dimmed by a weaker fourth quarter, which was affected by unplanned shutdowns at factories in the Netherlands and Poland. Both businesses resumed operations in January 2019.

Total revenue for Indorama Ventures in 2018 reached \$10.7 billion, an increase of 27% year-over-year. Its earnings before interest, tax, depreciation and amortization (EBITDA) for the year was \$1.4 billion, a 40% rise YoY. The company's net profit of \$819 million represented a 33% increase over 2017, while its earnings per share (THB 4.61) and operating cash flow (\$1 billion) were both 16% higher than the preceding 12-month period.

The company's portfolio is now organized into five verticals, each one independently profitable: Integrated PET, Olefins, Fibers, Packaging, and Specialty Chemicals. In total, Indorama Ventures produced 10.4 million metric tonnes (MMT) of material in 2018, a number that is expected to rise to 13 MMT in 2019. Much of this increase will come from its ongoing investment in a newly-acquired joint venture operation in Texas, USA.

Indorama Ventures' continuing project of acquiring new and strategic properties has resulted in a strengthening of its overall portfolio as well as its international market reach. The company's ability to set up complementary regional

production centers means that its manufacturing efforts are able to benefit greatly from economies of scale, as well as technology transfer. These advantages leave Indorama Ventures in an excellent position to profit from positive market trends, while shielding itself from the effects of undesirable fluctuations.

The company's financial and environmental achievements have attracted widespread attention. Other highlights from 2018 included the company's continued inclusion in the Dow Jones Industrial Average listings, along with the Dow Jones Sustainability Index, FTSE4Good, MSCI ESG to BB, and other organizations committed to rewarding environmental responsibility.

Aloke Lohia, Group CEO of Indorama Ventures, summed up the company's solid 2018 performance. "We again delivered what we promised, and achieved a great set of results, while maintaining a high level of capital strength," he said.

"We reached the highest-ever growth in our company's history. With 12 new acquisitions and three joint ventures under our belt, our business segments will continue to fuel our growth trajectory. Building on our robust financials, strong leadership teams and strong positions across the value chain, I am confident that we will continue to deliver strong financial performance and another trailblazing year for IVL in 2019."

Mr. Lohia's comments echoed similar sentiments he delivered as part of the company's annual Strategy Meet in Bangkok. During that speech, he confirmed the company's goal of continuing to acquire new properties, with the aim of doubling its 2018 EBITDA over the next five years.



COMPLETES THREE NEW ACQUISITIONS IN BRAZIL AND GERMANY

As part of a continuing effort to expand its product line and market reach, Indorama Ventures has officially welcomed three new manufacturers into its worldwide network.

Located in Cabo de Santo Agostinho, northeastern Brazil, M&G Fibras Brasil is the first Indorama Ventures asset in the country to produce fibers. Its factory manufactures polyester staple fiber for the 'Home and Lifestyle' market, and has a total polymerization capacity of 75,000 tonnes/annum. The acquisition complements Indorama Ventures' other holdings in Brazil, as it follows a previous acquisition of a PET manufacturer in Brazil in early 2018.

These properties, together with the resources from another nearby PTA manufacturer, allow Indorama Ventures to take advantage of efficient logistics networks to meet growing consumer demand in South America's largest economy. Brazil's free trade agreements with other Latin American nations can also provide new opportunities for synergy, as well as enhanced market access to other countries in the region.

In Germany, Indorama Ventures acquired INVISTA Resins & Fibers, Europe's leading supplier of packaging barrier products and polyester polymers. The Gersthofen-based company is located in southern Germany and has 140 employees, as well as several valuable intellectual property rights.

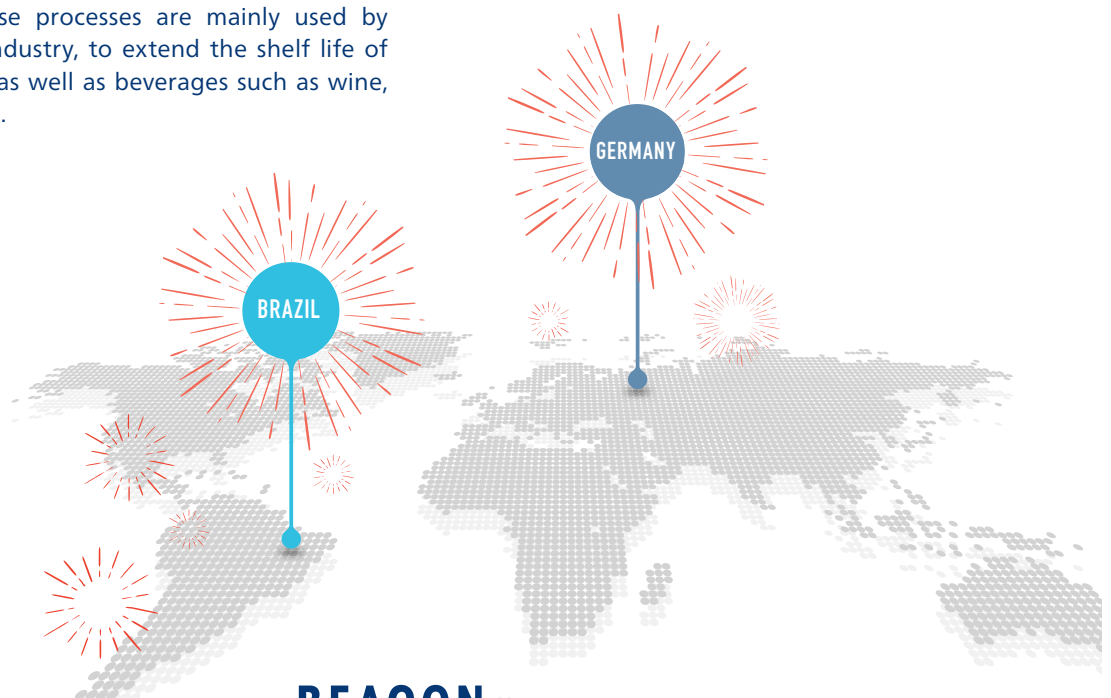
These include POLYSHIELD® PET and OXYCLEAR® Barrier PET, the company's patented oxygen barrier technologies. Products made with these processes are mainly used by the food and beverage industry, to extend the shelf life of condiments like ketchup, as well as beverages such as wine, beer, juice, and dairy items.

As a specialty chemicals producer, INVISTA Resins & Fibers has a combined capacity of 282,000 tonnes per annum. The acquisition puts Indorama Ventures in an excellent position to address a growing demand for barrier resins in new and existing markets. Indorama Ventures already has a leading market share in the North America oxygen barrier PET market, since acquiring Auriga Polymers in 2011.

Indorama Ventures also completed its acquisition of UTT, a leading German supplier of airbag yarn. With headquarters just a few kilometers from INVISTA Resins & Fibers, UTT also has a factory in Puebla, Mexico, just outside the capital city.

Together, these two factories specialize in technical textiles and can produce 70 million sqm of fabrics each year. The acquisition allows Indorama Ventures to strengthen its leading position as a supplier of airbag yarns and textiles, further expanding its offerings and integrating the company into the automotive sector. The new factories will also allow Indorama Ventures to increase internal efficiency as a result of complementary production arrangements within the automotive sector.

Mr. Alope Lohia, Group CEO of Indorama Ventures, expressed optimism about the new acquisitions. "We are putting the puzzle pieces in place," he said. "This is an exciting step forward that will lead us to further accelerate our transformation. We are ready to seize global opportunities and create the greatest value for our customers and shareholders."



NEWS & HIGHLIGHT



IR Magazine has honored Mr. Richard Jones as one of the IR Stars in the 30th year celebration of IR Magazine.



Forbes Poland has awarded Indorama Ventures Poland with the title of Forbes Diamonds, ranking 4th amongst the large companies with sales revenues over PLN 250 million in Kujawsko-Pomorskie Province. The list compiled the most dynamically developing companies with positive financial results in Poland.



Trevira CS fabrics on display at Heimtextil 2019 in Frankfurt, Germany from January 8-11, at a joint booth with 26 top customers.



Mr. D.K. Agarwal meeting Czech Prime Minister H.E. Andrej Babiš on January 17, at the Thai-Czech Business Forum



IVL Turkey was honored to host Ambassador of India Mr. Sanjay Bhattacharya, along with several other VIP guests.



Mr. Richard Ravesloot, Indorama Ventures Europe Works Council Chairman, discusses policy with the Minister of Economic Affairs and Climate, Mr. Eric Wiebes.

In February, IVL Dhunseri employees Mr. Avinash Mishra and Mr. Ujagar Singh saved the life of a woman who was in a road accident.



IVL'S 2019 STRATEGY MEET OFFERS A LOOK AHEAD



With over 200 participants and 25 presenters, Indorama Ventures' 2019 Strategy Meet brought together senior managers and executives from across the Company as well as its subsidiaries for a special two-day event. Held in Bangkok, this annual January gathering provides an opportunity for all businesses within the IVL network to meet with other members, align their strategic outlooks, and plan for the short to medium-term future.

Indorama Ventures Group CEO Alok Lohia was the first presenter at the Strategy Meet, highlighting the numerous successes and initiatives involving the Company over the preceding 12 months. He also reviewed the overall financial and strategic performance of Indorama Ventures in 2018, remarking on its successful endeavors towards ESG including the Dow Jones Sustainability Index, and confirming that the Company remains on track to meet its growth estimates for the coming year and going forward.

Mr. Lohia then reiterated a pledge to greatly increase production using recycled PET material, made possible in part by the Company's collaborations with Loop Industries and Ioniga to improve its recycling capabilities and ongoing enhancements in the more traditional mechanical recycling capability. These priorities are part of Indorama Ventures' ongoing commitment to responsible production, further aligning with customer goals. The Company will continue its mission to play a constructive role in society by reducing its carbon footprint and greenhouse emissions, among other environmental sustainability goals.

Other speakers summarized global, regional and business achievements as well as projections for their respective markets, while also making note of their positive involvement in the local communities where they operate. Their speeches included a special note of thanks to the employees all across Indorama Ventures and its subsidiaries, for their skill, dedication and leadership as the company continues to move forward.



Indeed, the further development of leadership within the organization was one of the major themes of the conference. The company's new Chief HR Officer and Chief Strategy Officer were introduced, each tasked with helping to unify operations across the network at a strategic level. Teams from Indorama Ventures' i-Lead program also presented, as they reviewed their Phase 3 deliverable and demonstrated how it has helped them grow as leaders within the company.

While the first day of the Strategy Meet focused mainly on company goals and achievements, the second day allowed attendees to step back from strategic concerns and spend more time coming together as a coordinated group. Plenty of time was set aside for networking between teams, as well as conceptualizing new digital and marketing possibilities in the months ahead.

External presenters were also invited to the Strategy Meet, including the Boston Consulting Group. Well known business adviser Dr. Ram Charan spoke at the event as well, offering insights on how to handle challenges in the workplace as they arise.

The main Strategy Meet event was held at Anantara Siam in Bangkok, with the Plaza Athenee hosting the special activities and entertainment that accompanied the gathering. In all, attendees from over 31 countries were represented at the conference, with the majority arriving from outside Thailand.



MESSAGE TO STAKEHOLDERS

HIGHLIGHTS PLANS FOR FUTURE GROWTH

Teamwork, continued growth, and a sustainable future were among the key themes of a special message to stakeholders at the company's annual Strategy Meet, held in Bangkok in late January of this year. Mr. Alope Lohia, Group CEO of Indorama Ventures, delivered the address, which included a long list of company successes in 2018 and a preview of further achievements in the years to come.

A combination of organic growth and acquisitions has allowed Indorama Ventures to grow to over 19,000 employees, tripling the size of its team since 2010. Mr. Lohia credited a performance-driven company culture, as well as continued talent development across all departments, for the impressive accomplishments of the Indorama Ventures global workforce. He also gave special thanks to the Board of Directors, whose leadership and vision have been integral to the company's worldwide growth.

This growth has been aided significantly by strategic acquisitions in every major regional market. These include new facilities in the United States, Brazil, Portugal, Egypt, Israel, Austria and more. Each acquisition allows Indorama Ventures to expand and augment its product offerings, as well as its market access in new parts of the world.

As it grows, Indorama Ventures is also increasing its commitment to sustainable production. The acquisitions of Sorepla in France and Custom Polymers in the US have allowed Indorama Ventures to improve its mechanical recycling capability. Additional partnerships with chemical recycling startups Ioniqa (from The Netherlands) and Loop Industries (from Canada) will vastly improve the company's ability to recover its PET waste.

These and other achievements have helped Indorama Ventures qualify for the Dow Jones Sustainability Index for the second consecutive year, reflecting the company's commitment to sustainable industry. The company also earned an improved ranking in the MSCI ESG ratings report for environmental responsibility, as well as continued acknowledgement by London's FTSE Russell for its positive Environmental, Social and Governance practices.

Indorama Ventures' impressive market reach, diverse product portfolio, capacity for high value-added products, and establishment of sustainable production methods have given the company increased stability in a changing global economic climate. Despite macroeconomic uncertainties, demand for key products such as polyester and high-value fibers is expected to grow at very healthy rates in the short to medium term.



After highlighting the company's advantageous position across several markets, Mr. Lohia announced an ambitious but achievable target of doubling Indorama Ventures' EBITDA once again over the next 5 years. This financial goal was set alongside the sustainability goal of continuing to support the circular economy for reduced environmental impact.

These aims, he said, could be achieved by streamlining operations in various regions to allow for greater synergy. Developing new machine-learning techniques using digital technology could further increase factory output. By optimizing production methods and scaling up key strategic manufacturing sites, the company could maximize the efficiency of its supply chain, leading to enhanced overall performance.

IVL FOUNDATION: BRINGING COMMUNITIES TOGETHER



Registered in May 2018, the IVL Foundation has since been active in supporting a number of valuable community efforts in Thailand and beyond. This initiative has four key objectives, which are as follows:

1. To provide and support activities focused on improving the quality of life for the poor, the elderly, and the underprivileged such as providing scholarships, educational activities, medical activities, and medical research.
2. To promote sports activities and cooperate with the relevant organizations in carrying out various sports related projects and activities for the well-being of society.
3. To prevent wildlife hunting and support conservation of nature.
4. To help victims of natural disasters and perils.

its efforts in these areas are typically carried out in coordination with those of other organizations, but in some cases are entirely the product of the IVL Foundation and its volunteer staff from Indorama Ventures.

One of the IVL Foundation's current collaborative projects is with the powerful charity group Operation Smile, featured in the previous issue of *The Beacon*. Operation Smile is a medical organization that provides free corrective surgery and support to children born with cleft lips or cleft palates. Its work in Thailand and Myanmar has radically improved the lives of thousands of children born with these conditions, helping them make complete recoveries through medical assistance and post-operative care.

Another ongoing activity of the IVL Foundation involves its work in providing educational assistance to unregistered refugee children in Bangkok. This joint effort is made possible by the Good Shepherd Sisters and the Catholic Office for Emergency Relief and Refugees, organizations that teach the children intensive Thai language skills alongside math, English, and Thai cultural lessons. These programs offer invaluable assistance to the refugee children, allowing them to integrate successfully into Thai society.

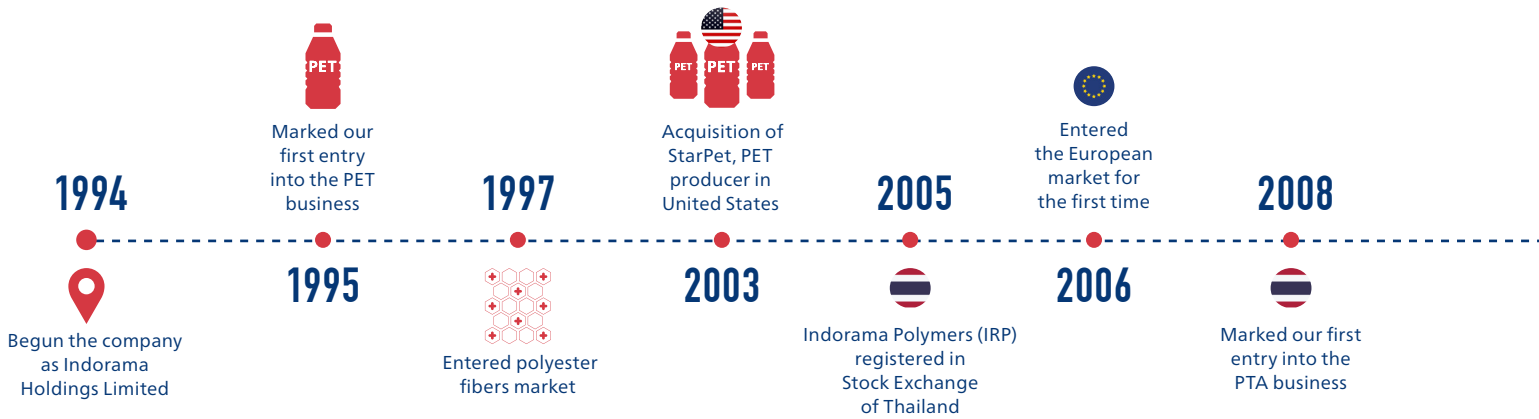
Recent IVL Foundation collaborations include its work with Carcel, a Danish clothing manufacturer that has set up a production center inside the Chiang Mai Women's Correctional Institution in Thailand. Its goal is to provide incarcerated women with new skills and fair wages by offering skills training and paid work opportunities while they are in prison. Carcel sees idle time in prison as an opportunity for people to learn useful and constructive abilities, and the company uses this chance to prepare inmates for a better future upon release.

IVL Foundation has also supported the Center for Asian Philanthropy and Society Limited (CAPS), by helping with costs as the organization begins producing and compiling its *Doing Good Index 2020*. As a research and advisory organization, CAPS seeks to improve the state of private social investment in Asia. It helps clients develop meaningful community-oriented goals, while also advising on strategy and design of projects. CAPS is widely known for its regular 'Doing Good' series, in which effective philanthropy and charity across the region receive wide recognition.

With the success of these projects, and many others on the horizon, the IVL Foundation will continue its work in promoting good health and social harmony across the region in the coming years.

ACHIEVING THE EXTRAORDINARY

MILESTONES



CARVING OUT A NEW SPACE

Now established within the petrochemical industry, we concentrated on the production of PET resin in Thailand. With this new orientation, the three key segments of successive growth in the polyester value chain became a company target. These elements were PET resin, polyester fibers, and feedstock comprising PTA, MEG and a range of EO derivatives.

In 1996, we diversified its PET business by producing PET preforms, bottles and bottle tops with a joint venture alongside Serm Suk Pcl. Indorama Holdings officially entered into the polyester fiber market by acquiring Siam Polyester in 1997. That company was later renamed Indo Poly, and would become Thailand's biggest producer of polyester fiber.

After a period of organic growth, we acquired the American PET producer StarPet in 2003. This would be the first of many foreign acquisitions, and marked Indorama as a truly international player in the PET production industry.

Meanwhile, the company's growth began to attract attention from investors. In 2005, one of its subsidiaries (Indorama Polymers) was listed on the Stock Exchange of Thailand. The following year, we expanded into Europe for the first time, by acquiring Orion Global PET in Lithuania.

Several new company milestones would then follow in quick succession. New acquisitions allowed us to enter the PTA business, while also expanding its manufacturing capability in PET. These included PTA manufacturers IRH Rotterdam, Indorama Petrochem, TPT Petrochemicals and Tuntex Thailand, as well as two facilities from the Eastman Chemical Company for producing PET resin. These new properties increased the strength of us in Europe and Asia.

NEW BEGINNINGS

In 2009, The company was renamed into Indorama Ventures Limited (IVL). During the same year, its AlphaPet facility in the United States completed construction. It soon became clear, however, that the company was only just beginning to make a name for itself – and that it had its sights set on far bigger goals.

In 2011, Indorama Ventures expanded into China by acquiring Guangdong IVL PET Polymer in Kaiping City, Guangdong. In North America, the company also acquired polymer assets of INVISTA, including Auriga Polymers in South Carolina and in Queretaro, Mexico.

The same year, Indorama Polychem Indonesia established a new Continuous Polymerization resin plant in Purwakarta. Indorama Ventures also invested in high quality bi-component yarns at its plant in Tangerang, Indonesia, and in a bi-component fibers project for hygiene applications in Thailand. Meanwhile, the company completed brownfield expansions of PET polymers production at Indorama Polymers Poland, and began PTA production at Indorama Holdings Rotterdam.

2011 saw two additional acquisitions for the company, furthering its ambitions toward global expansion. The first involved Germany's Trevira, a significant producer in the polyester staple fiber and specialty filament business. Later in the year, IVL acquired Ireland's Wellman International, a recycling and fiber manufacturing business.

Indorama Ventures' journey began in 1994, when it was known as Indorama Holdings Ltd. At that time it was the first provider of worsted wool yarns in Thailand, and indeed the company is now well known as a leading producer of premium worsted wool yarn around the world. Within a year, however, the organization expanded into PET, making this field of business its new priority. The idea was to sell plastic polymer resin used in producing containers for food and beverages, pharmaceutical and household needs, as well as industrial packaging.



Subsequent years saw continued rapid growth. In 2012, Indorama Ventures acquired Polypet in Indonesia, and Beverage Plastics in the United Kingdom. Another acquisition, FiberVisions, meant that IVL would control one of the world's leading manufacturers of polyolefin fiber. At the time of acquisition, the United States-based company had manufacturing facilities on four continents.

Yet another 2012 acquisition was for Old World, the largest EO and EG production facility in the United States. The same year saw Indorama Ventures first expand into Africa by acquiring a packaging plant together with the construction of a PET plant in Port Harcourt, Nigeria. The following year, Indorama Ventures Packaging (Nigeria) was formally established.

A TRULY GLOBAL NETWORK

In 2014, Indorama Ventures acquired 80% of PHP Fibers and its subsidiaries in Japan, as well as Artenius TurkPET in Turkey. The same year, Indorama Ventures built new packaging facilities in the Philippines and Ghana, and announced an agreement to acquire Performance Fibers in China.

Several agreements were made between Indorama Ventures and other companies in 2015. These included an agreement to acquire Polyplex Resins in Turkey. A separate acquisition agreement was made for CEPESA Chimie Montreal in Canada – along with another to acquire CEPESA's PIA, PET, and PTA businesses in Spain. An agreement was also signed to acquire MicroPet's India-based PET business. The same year, Indorama Ventures also acquired Bangkok Polyester and 76% stake in an ethylene cracker in Lake Charles, Louisiana.

In 2016, Indorama Ventures continued its work to create a world class chemicals company. It became the key player in producing isophthalic acid, the main component in the PET manufacturing process, by completing its acquisition of the PIA, PET and PTA assets from CEPESA Spain. Other achievements included the group's acquisition of the BP Amoco chemicals business in Decatur, Alabama, as well as completing the joint venture MicroPet with Dhunseri Petrochem from India.

2017 saw more acquisitions, including Glanzstoff Group, a European producer of tire cord fabrics and single-end-cords; DuraFiber Technologies Mexico Operations, a Mexican company which manufactures textiles for industrial and specialty applications; as well as Artlant PTA. and the assets of Artelia Ambiente, both in Portugal.

2018 and 2019 saw the group's rapid pace of growth and acquisitions continue, together with greater production efficiency, rising profits, and an increased focus on environmental sustainability. Its accelerated growth comes from the clear vision and strategy of our leadership, combined with a commitment to success on a global scale. Most of all, however, our success is due to the hard work and dedication of all of our employees, whose tremendous skill and constant effort have led our global family to greater and greater heights.

PET:

A PLASTIC THAT HAS NO IMPACT ON HEALTH



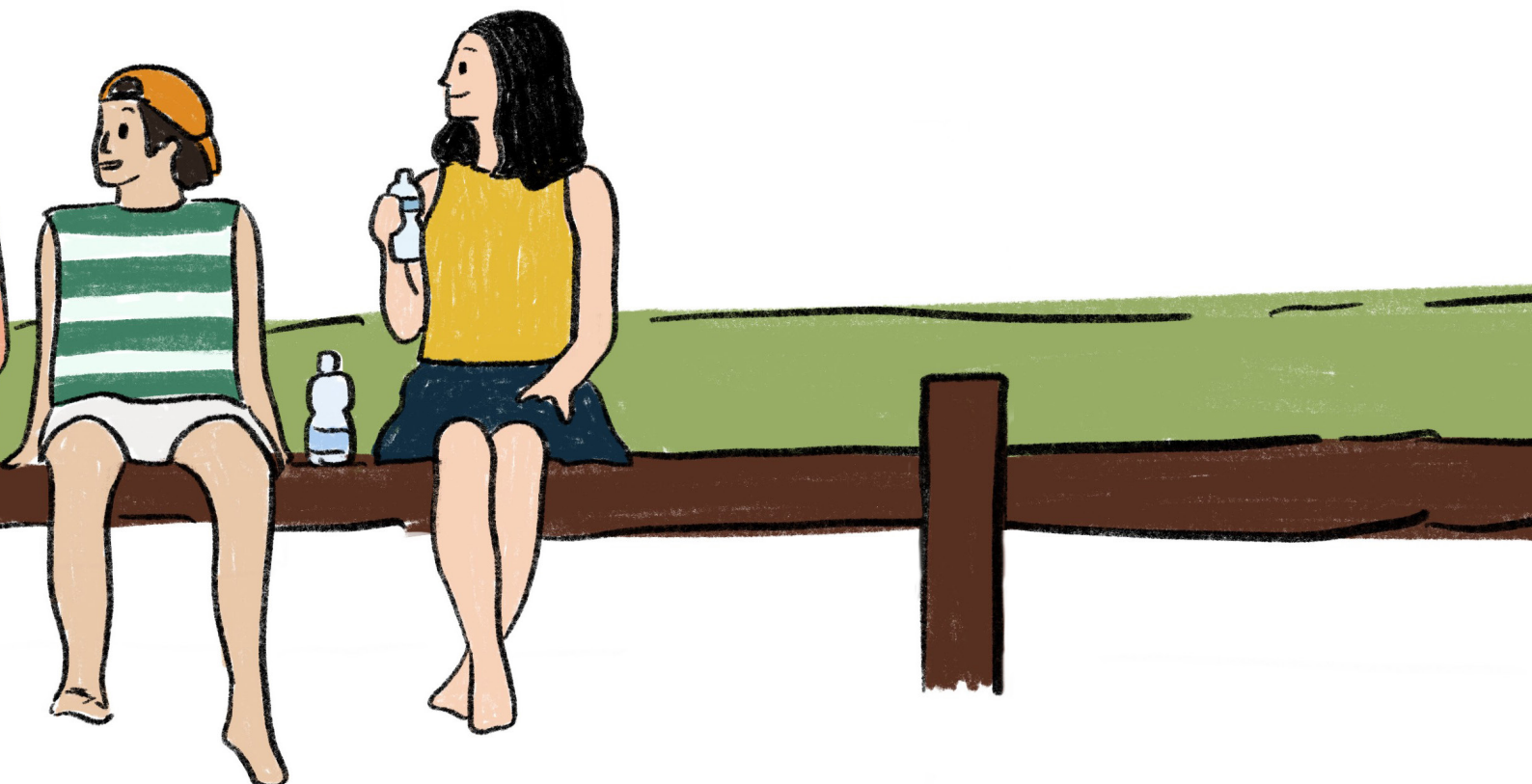
For a variety of reasons, rumors have a habit of spreading more quickly than carefully measured analysis. It is worth examining a few of these rumors here, as they relate to the safety of PET bottles. Comprehensive research confirms that drinking water from a PET bottle that has been left in a hot vehicle, or that has been frozen, does not cause breast cancer. No adverse health effects result from the frequent reuse of PET bottles. The Food and Drug Administration in the USA has approved PET as safe for food use.

This misunderstanding seems to have come about – and subsequently shared widely – after comments made by the singer Sheryl Crow on the Ellen Show in reference to her own breast cancer. It is unlikely that her oncologist specifically asked whether she had been drinking from PET bottles, and so it is worth noting that differences in bottle type do exist. Many people assume that all plastic bottles have the same chemistry – but this is simply not the case, as PET uses a modern and completely safe container material.



There are several websites that make the case for PET's safety, such as the PET resin association PETRA which categorically states that PET does not contain Bisphenol-A (BPA), phthalates, dioxins, lead, cadmium or endocrine disruptors. Snopes (www.snopes.com), the renowned myth-busting site, has also interviewed Johns Hopkins researcher Dr. Rolf Halden about this topic. He confirms that concern over PET is based on an urban legend.

The environmental effects surrounding PET are also commonly misunderstood. PET production takes less energy than the manufacture of glass or aluminum, so the carbon footprint of PET is smaller. It is worth remembering that the production of aluminum cans went ahead for several years before serious recycling efforts were made. An efficient PET recycling industry is now beginning to emerge as well, allowing for the material to be completely recycled. Moreover, new technology has led to some impressive achievements in this area. For example, at the 2010 World Cup in South Africa, several of the teams wore Nike shirts made from recycled PET bottles.



Whistleblower Center

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For reporting policy violation
and unethical practices



KEEPING COMMUNICATION CHANNELS OPEN

Department managers are tasked with overseeing an area of operations, but they are far better equipped to do so when they are able to hear feedback from their employees. Because the manager's desk is a step removed from day-to-day operations, the rest of the workforce may notice an area of concern – or opportunity – that the manager may not be aware of.

Ensuring constructive two-way communication is a priority at Indorama Ventures, both to create a comfortable working environment for every member of our team, and to ensure that every one of our locations continues to improve its production methods for maximum efficiency and precision.

Sometimes, however, employees may not feel comfortable speaking their minds in such ways. That's why we're making an extra effort to encourage an open avenue of communications across our entire network. Our employees are our most valuable asset – particularly when they let us know how we can do better. The more we learn about opportunities to improve, the stronger and more successful our combined efforts will be.

BUILDING AN OPEN COMPANY CULTURE

In the world of business, some workplaces benefit from relaxed and open communication between different levels in the organization. Others have settled into a top-down approach, where employees feel hesitant to suggest alternative ideas for improvement.

Oftentimes the difference comes down to culture, as common expectations in a country such as Thailand may be at odds with those in a country like the United States. Moreover, individual personality remains a real factor in determining the type of working relationship each person has with their department manager.

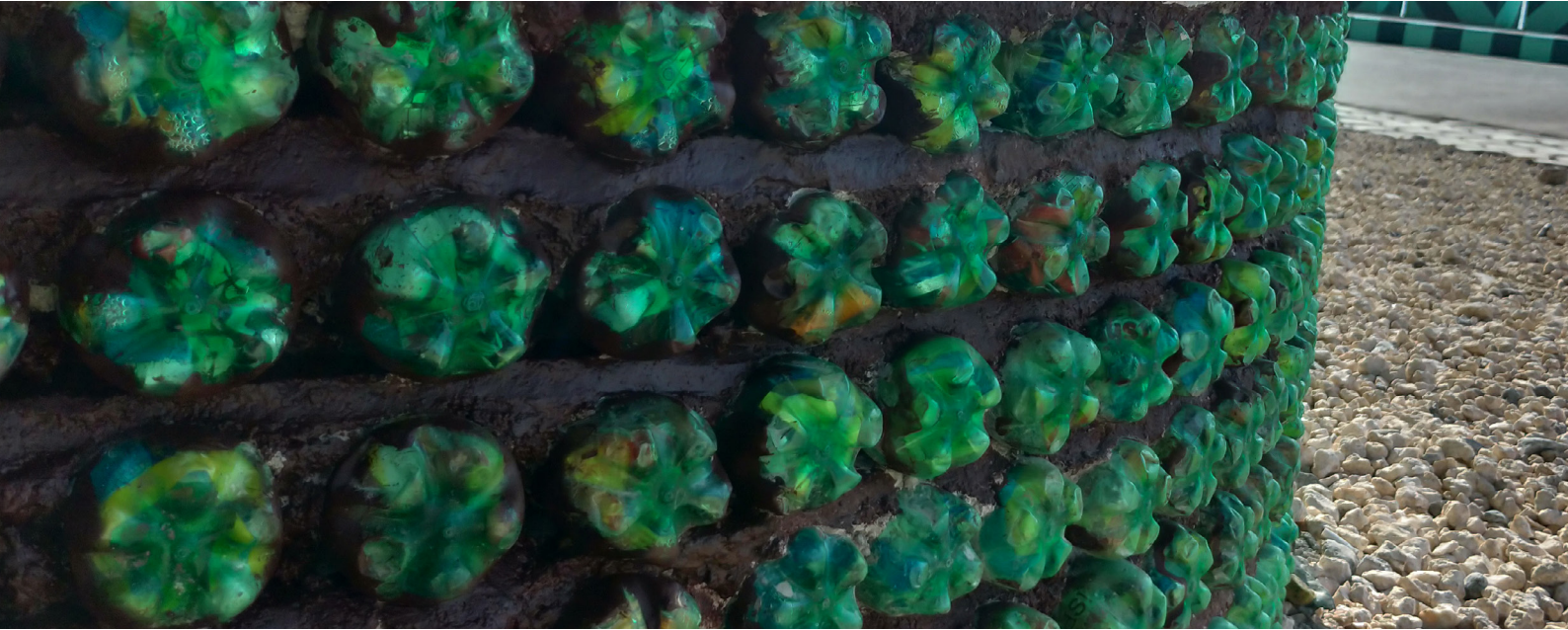
But the role of company culture is at least as important as either of these factors. As several studies on the subject have discovered, employees pay close attention to how their peers are treated when they take a complaint or suggestion to somebody at a higher level within the organization. When these comments are rewarded and encouraged, others in the company are far more likely to come forward. If they receive pushback, other employees are far more likely to stay silent even when they have something important to say.

Psychology has an interesting role to play here. People with some personality types are much more comfortable 'following the crowd' than calling attention to themselves. But when 'the crowd' around them has already embraced the concept of speaking up about potential safety concerns or opportunities to innovate, then even the more socially cautious employees will find themselves making suggestions as well.

This desirable and important outcome, where many minds are indeed better than one, is up to each of us to create. We can all do more to facilitate an open and positive working environment, and we all win when we succeed. The responsibility for building a synergistic company culture indeed begins with managers and leaders, but – in the very same spirit of openness and improvement – the rest of our team is encouraged to step forward and show us how we can do better as well.



BUILDING NEW ENVIRONMENTAL AWARENESS, ONE ECOBRICK AT A TIME



As a major manufacturer of PET bottles and preforms, Indorama Ventures Packaging (Philippines) Corporation – Misamis Oriental Plant is one of the company’s earliest packaging sites outside of Thailand. Its location in Northern Mindanao can produce 17,000 tonnes of material per annum, mostly for beverage companies – but its value to the community and to the wider environment is far greater than these numbers would suggest.

From November 2018 to March 2019, seven volunteer employees from the plant worked alongside the Local Government of Villanueva on a project designed to raise awareness regarding plastic waste and environment pollutants. The project used ecobricks, made out of plastic PET bottles, as construction materials to help decorate community spaces.

WHAT ARE ECOBRICKS?

Ecobricks are used PET bottles which have been cleaned and dried, then filled with plastic to a specific density. They are then sealed with an ordinary cap, at which point they become hard and durable enough to be used as construction material.

One of the standard environmental concerns surrounding plastic production is that it can last for centuries before degrading. But when repurposed in this way, its durability becomes a distinct advantage. Each plastic-filled ecobrick can remain effective as construction material for up to 300-500 years if kept away from sunlight.

When used with concrete, each ecobrick becomes a functional building block as well as a decorative design flourish, with the added bonus of drawing attention to plastic as a material in relationship to our living environment. By creating a new and intriguing ‘second use’ for each plastic bottle, ecobricks inspire people to reimagine plastic bottles as items that continue to endure long after their primary use has been fulfilled – and can be repurposed rather than just tossed away and forgotten. Of course, the more that plastics are reused or recycled, the less space they will take up in landfills and other disposal areas.

Ecobricks are a recent invention, having evolved conceptually from the kind of sand-filled PET bottles that began to appear in community-based construction projects less than two decades ago. The first practical guide to building modern ecobricks appeared in the Philippines in 2010, and was distributed among local schools. It was embraced by the country’s Department of Education, and eventually sent to 1,700 schools around the country in 2014.

During the same period, an international ecobrick movement spread across several countries in Africa, Asia and America. Communities taught themselves effective ways to produce long-lasting ecobricks, while also learning about the properties of plastic within our ecosystem.

BUILDING BLOCKS FOR THE IMAGINATION

Durable, colorful and plentiful – ecobricks can be used in the construction of ordinary houses and buildings, but they are equally well suited to wall decorations, indoor furniture, park fixtures, and any other constructions the mind can imagine.

Known as the Villanueva Ecobrick Boulevard Project, local government officials worked alongside Indorama Ventures employees to create a wide range of attractive new public features. As a result, the tropical community now enjoys numerous colorful decorative features in its parks, benches and walkways – and more importantly, the project has raised awareness of ecobricks among the local population, which is now beginning to experiment with building their own inventive ecobrick-based structures.

LASTING BENEFITS

The educational aspect of the project was always one of its central aims. By encouraging local residents to collect plastic waste and convert it to ecobricks, the surrounding area saw an immediate environmental benefit.

This improvement was welcome indeed, but it could only be sustained by demonstrating to the community that plastic had far more value as a building tool than as a waste product.

The incredible educational and environmental potential of Villanueva's ecobrick project made it a perfect fit for our company's mission and values. Our own goal of sustainable production and environmental responsibility depends on working closely with communities to promote responsible solutions that can reduce waste. By sharing the recycling and repurposing potential of our products, we can help to create a cleaner world for ourselves and for future generations.

In this project, roughly 10,000 PET bottles were donated and then converted to ecobricks through a process now widely known and practiced throughout the area. The collection of bottles and their conversion into ecobricks created work opportunities, as did the design and construction of each decorative element of the project.



Moreover, successes such as these provide a model for other communities to create similar green spaces and promote proper waste management. Indeed, the concept has already proven to be highly successful elsewhere. Ordinary people in destinations as diverse as Argentina, Serbia, and elsewhere in the Philippines have taken the initiative and turned their homes into bona fide tourist attractions simply by integrating ecobricks creatively into their front steps, beds, walls, gardens and coffee tables.

A man in Nicaragua, disturbed by the buildup of plastic waste in his community, used ecobricks to revamp his hotel. Soon, dozens of local schools nearby copied his methods, and helped turn his community into one of the cleanest in the country. A resident of New Mexico, USA, decided to launch ecobrick workshops while setting up new construction projects to use them. As a result, riverbanks are being cleaned up and new structures are being created in public spaces.

Step by step, through modest local initiatives like these, the world is learning to treat its waste more responsibly. For communities like Villanueva, a pile of used PET bottles used to be an eyesore. But with a little education, creativity, and an important shift of perspective, residents now see it for what it really is: A resource of terrific potential.

PM2.5: WHAT YOU NEED TO KNOW



WHAT IS PM2.5? WHERE DOES IT COME FROM?

PM2.5 is particulate matter smaller than 2.5 micrometers in diameter. It is finer than human hair and can only be seen through an electron microscope.

This type of matter can float in the air as a liquid or solid, which is why PM2.5 resembles a mist or fog. It can be made of natural particles such as dirt, sand, or smoke from fire; or man-made particles such as vehicle exhaust, dust from construction sites, factories, or waste incineration. Because PM 2.5 is so light and small, it can stay in the atmosphere for years – far longer than other, heavier particles.

HOW DOES IT AFFECT THE BODY?

People who have allergies or other sensitive groups of people are at the highest level of risk from exposure to PM2.5. Allergies can be aggravated, or other ailments may occur such as runny nose, itchy eyes, tightness in the chest, or tonsillitis. By inhaling these particles, PM2.5 can go through your nose, mouth and throat, into your lungs and respiratory system. The particles can even find their way into your skin or even enter your circulatory system, causing lung disease or other chronic diseases. PM2.5 has also been found to trigger heart attacks or even cancer.

HOW TO PROTECT YOURSELF FROM PM 2.5 WHEN POLLUTION LEVELS ARE HIGH

- Try to stay indoors and close all windows.
- Use an air purifier in your room.
- Do not use equipment which produces smoke or gas in a closed room.
- Use public transportation rather than your own vehicle.
- Do not incinerate waste in open areas.
- If you want to exercise, try doing it indoors.
- If you have to go outside, wear an N95 mask to protect your respiratory system.

MASKS AND THEIR APPROPRIATE USE

Make sure that your mask has an N95 rating, as these respirators can protect you from up to 95% of fine particles. There are also N99 and N100 masks for ultra-fine protection.

Aside from choosing the right type of mask, choosing the right size is also important. When you are wearing your mask, the mask should be fitted right to your face and remain tight around your nose and mouth. If your mask doesn't fit tightly, particles can enter from the gap between the mask and your face. Both disposable respirators and reusable respirators are available.

As their name suggests, disposable respirators can be used a few times, and their filters are not designed to be cleaned between uses. One significant drawback for disposable respirators is that they are currently only available in an adult size, so children and babies will not be able to wear them.

Reusable respirators are worn by firefighters and people who work with hazardous substances. They come in different sizes, and can cover either the full face or half of the face. They can also fit snugly on everyone's face, including children or adults. Different types of filters can be used for different levels of protection.



INDULGE YOUR IMAGINATION IN INCREDIBLE ISRAEL



Filled with fascinating cultural and religious history, Israel features as many significant sights as most countries ten times its size. Overlooking the eastern Mediterranean, Israel is smaller than Sicily but oversees historic sites that are central to the world's three great monotheistic religions.

A visit to Israel must surely include the modern seaside city of Tel Aviv, where a morning coffee and a walk along the coast can acclimate you to the warm climate. Keep walking and you'll arrive at the popular tourist area of Old Jaffa, an ancient port town that has been preserved over time. Its beautifully textured stone architecture will prepare you for Jerusalem and its magnificent Old City, Israel's crown jewel of historical sights.

One of the oldest cities in the world, Jerusalem is filled with sacred sites for all of the Abrahamic religions, from the Temple Mount to the Wailing Wall to the Church of the Holy Sepulchre and countless other remarkable structures. Travelers come from around the world to visit these locations, but outside of the Old City there is much more to see as well. Jerusalem's modern center offers plenty of areas to explore, and public transport can bring you to the Israel Museum as well as Yad Vashem Holocaust Remembrance Center.

Day trips to Bethlehem, Nazareth, and Haifa are richly rewarding cultural experiences, with plenty of local markets and historical areas to visit. A trip to the Dead Sea is also highly recommended, with its unique properties largely due to its location at more than 400 meters below sea level.

For travelers looking to take a break from religious and archeology-themed tours, Eilat in the far south offers a relaxing alternative. Next to the Gulf of Aqaba, Eilat offers slow-paced comfort near the borders of Egypt and Jordan.

Wherever you go in Israel, be sure to sample the cuisine – particularly in the local markets. Pita bread with falafel and hummus is always a delight, with pickles and olives on the side. As a satisfying Mediterranean sandwich, shawarmas have long been a local favorite. Shakshuka makes for a tasty and filling breakfast, and there are plenty of superb desserts to try as well.

A visit to Israel could also include one of Indorama Ventures' more recent acquisitions, Avgol Industries. With its headquarters in Tel Aviv, Avgol produces nonwoven fabrics that are widely used in diapers, feminine hygiene products and adult incontinence products. Avgol has six production sites around the world in Israel, the United States, Russia, China, and India. The combined production capacity of these factories is 203,000 tonnes per annum, making it a highly significant acquisition that adds to Indorama Ventures' ability to serve customer needs in the personal hygiene segment.

The acquisition, completed last July, brings the experience and knowhow of Avgol's 900 employees to Indorama Ventures. This expertise will open new doors for Indorama Ventures' further growth in the future, including in adjacent segments through continued innovation.





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