

THE

INDORAMA
VENTURES

BEACON

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CONTINUE BUILDING
A GROWTH ENGINE



New Year
Message



Towards a new
generation of
Sustainable
Recycling



Dutch Design Week
exhibits RECO Young
Designer's award-
winning collections



ONLINE VERSION

EDITOR'S NOTE

Dear Readers,

With a new year underway, it seems like the right time to take a look at our future – and the value of taking responsibility in an increasingly connected world. This issue of The Beacon takes us to Russia, the Netherlands, the United States and many places in between, exploring the role of Indorama Ventures as it works toward an inspiring future where community involvement is prioritized and production is circular.

We focus on two key trends within the company: Greatly expanded manufacturing potential, and increased recycling capacity. The former is made possible by a new round of strategic acquisitions, while the latter is the result of a promising partnership with Loop Industries.

We examine the possibilities of an economy where goods are recycled efficiently through revolutionary new processes, and then tell a cautionary tale about what can happen when the wider picture is ignored in favor of short-term profit.

This issue also looks at how business can positively affect individual communities, using Indorama Ventures' work in Thailand, Myanmar and the US to show how local initiatives can make a real difference in the world. We also highlight the promise and potential of individual innovators, showing how one talented young Thai designer earned himself the trip of a lifetime.

All this, along with more record-breaking financial news for IVL, is in our first issue of the new year. We hope you enjoy reading The Beacon – and as always, send us an email with any comments or suggestions you may have.

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NEW YEAR MESSAGE

Dear Colleagues and Friends,

Another year has flown past and the IVL growth engine continues to pulsate strongly. Geographically, we are more diverse than at any time in our history, spreading from Russia to Brazil, from Portugal to Egypt. We are now in 5 major continents with manufacturing footprint globally. We have continued to invest in businesses with products integral to our core value chain. We have been compiling together the assets of a global network that enable our customers to have confidence that wherever they are, there is an Indorama Ventures business in the region that can fulfil their requirements.

This year's greeting is a reflection on 'food of thought'. We are melting pot of cultures and languages but with a common business sense, ethics and belief in ourselves. We are a global entity that is able to withstand the winds of change and grow stronger because of our unity and strength of purpose. Our values are not solely performance oriented but are all driven by empathy and by care.

I wish to take this moment to say a big thank you for your support and your friendship to the numerous families who call Indorama Ventures their home.

I would like to express my warm gratitude to all of you who have helped us make 2018 another great year of success. I look forward thus commence the New Year fully charged and with the same vigor and dedication that has propelled us this far.

Alope Lohia
Group CEO

INDORAMA VENTURES

REPORTS **BEST-EVER**

QUARTERLY PERFORMANCE

CONNECT

by
Corporate Communications

Indorama Ventures' third-quarter earnings report for 2018 was the strongest ever for the global chemical producer. The new figures stem from developments in three main areas of focus within Indorama Ventures: portfolio development, strategic investments, and a stronger balance sheet with prudent growth. The company's performance reflects its drive toward steady expansion and increased production capability.

Revenues for Indorama Ventures reached US \$2,920 million, representing an overall increase of 34% YoY for the company. Other figures reinforce the company's stellar performance during the 3-month period ending September 30, 2018. Core EBITDA grew by 40% YoY, increasing to \$409 million. The company's core profit rose by an impressive 89% YoY, to \$260 million in 3Q18. Meanwhile, its last-twelve-months core earnings per share increased to THB 4.49, an improvement of 65% YoY post 11.1% dilution from warrants exercise.

Indorama Ventures' expanding network has resulted in the continued development of its product portfolio, both qualitatively and quantitatively, serving larger markets worldwide. Its focus on high-volume necessities as well as high-margin, high value-added products has led to growth in established markets as well as successful entry in new areas. The company's business model of focusing largely on domestic sales has also led to stable performance even during periods of international trade tensions.

Strategic investments have dramatically increased Indorama Ventures' capabilities across continents. Newly acquired plants in Brazil and Egypt have boosted PET capacity by 1.1 million tons annually, while the company's new acquisition in Portugal has brought an additional 1.1 million tons increase in PTA capacity. A rise in output at the company's Rotterdam facility has meant further increases, while separate acquisitions in the automotive and hygiene sectors: Kordana and Avgol respectively, have also provided a significant expansion to Indorama Ventures' HVA portfolio.

Indorama Ventures' credit rating was upgraded from A+ to AA- by the Thai Rating and Information Services (TRIS), reflecting the company's increased operating cash flow and overall financial strength. With a net operating debt to equity ratio of 0.53 times on an LTM 3Q18 basis, Indorama Ventures has the capital in hand to continue its push forward towards increased global market access and greater production capacity.

One of Indorama Ventures' most anticipated new projects is its joint venture in Corpus Christi, USA, which will soon be among the world's largest and most advanced PTA and PET production complexes. Subject to regulatory approval, the project will proceed with a phased beginning to production in 2020. Indorama Ventures is also included once again in the Dow Jones Sustainability Index, for its commitment to environmental preservation.

Mr. Alope Lohia, Group CEO of Indorama Ventures, expressed confidence in the continued success of the company as its latest projects and investments come to fruition. He said, "We are pleased to reaffirm our guidance for 2019, whereby our core EBITDA is anticipated to increase 74%, or approximately \$1.75 billion, in 2019 compared to end 2017. IVL's strong 3Q 2018 and 9-month 2018 performance delivery, especially when considering global economic uncertainty, gives us confidence in the resiliency of our business model and the sustainability of earnings and cash flows going forward."



PUSHING FORWARD WITH NEW ACQUISITIONS AND JOINT VENTURES

Indorama Ventures ended 2018 with a flurry of new investments, further extending its market reach through a series of new acquisitions, joint ventures, and successes in finalizing deals that had previously been agreed upon.

One example of the latter is the acquisition of Kordárna Plus, first announced in June and officially completed in late October. As the largest independent producer of tire cord fabrics in Europe, Kordárna represents a major addition to IVL's high value-added automotive portfolio. The company has 786 employees, and its production sites in Slovakia and the Czech Republic add a combined tire cord and technical fabrics production capacity of 50,000 tonnes per annum.

More recently, IVL announced the regulatory approval of its planned joint asset purchase of M&G USA, including its Corpus Christi plant which can produce up to 1.1 million and 1.3 million tonnes of PET and PTA per year, respectively. This announcement came after Indorama Ventures also agreed to acquire M&G Fibras Brasil, a prolific producer of Polyester Staple Fiber for textiles. Together, these acquisitions extend Indorama Ventures' access to the North and South American markets, offering an expanding range of quality products to vast numbers of consumers.

Also in November, Indorama Ventures completed its acquisition of 74% of the share capital of Egypt's Medco Plast. The Giza-based company is the country's largest producer of recyclable PET preforms, injection molded products, and closures to multinational soft drink and water manufacturers in Egypt. With 11 advanced production lines, a 70,000 tonne capacity of PET preforms, and access to markets across East Africa, the acquisition provides Indorama Ventures with significant new growth potential on the continent.

In December, Indorama Ventures announced the acquisition of a major German fabric producer for airbags and other technical textiles. Through PHP Fibers, Indorama ventures will acquire 80% of UTT Beteiligungsgesellschaft, while Toyobo Group will receive the remaining 20% stake. With 420 employees and around 70 million sqm of fabrics at its sites in Germany and Mexico, UTT provides expertise and excellent production capability for airbag yarns and textiles, improving IVL's reach and efficiency in this sector.

In an additional deal with a separate German manufacturer, IVL also announced its agreement to acquire INVISTA Resins & Fibers, scheduled for completion in the first quarter of 2019. As a producer of packaging and industrial fibers, INVISTA's site in Gersthofen has a total capacity of 282,000 tonnes per annum. The company's intellectual property rights for POLYSHIELD® PET and OXYCLEAR® Barrier PET will belong to IVL, leading to a potentially expanded market for these products which are valuable to the food and beverage industry.

In late December, IVL announced that it will also acquire a PET recycling facility from Custom Polymers, whose production capacity for rPET Flake and food-grade rPET Pellets combine to 31,000 tonnes per annum.

IVL's goal of increasing overall production is also tied to a belief in the need for a circular economy where goods are recycled and reused sustainably. In a move that will greatly increase its own recycling capabilities, IVL has announced a special joint venture with the Canada-based Loop Industries. This partnership will grant IVL exclusive access to Loop's proprietary innovations in science and technology, allowing for sustainable, large-scale commercial production of PET resin and polyester fiber.

Summarizing these acquisition and joint venture projects, Mr. Alope Lohia Group CEO, said: "Combining our forces will create countless opportunities in enhancing our products and processes to become a provider of sustainable solutions to the industry."



MAKING AN IMPACT:

IVL LEADERSHIP GOES GLOBAL



Mr. Jeff Wardat, Mr. Conor Twomey, Mr. Sathish Seshadri and Mr. Sanjay Mehta represented Indorama Ventures at the 1st Annual Coca-Cola Supplier Innovation Summit, held in Atlanta, USA.



Representatives from Indorama Polyester Industries (Rayong) received the Gold Award Certificate at the International Convention on Quality Control Circles 2018

The new Ambassador of Thailand to Lithuania, H.E. Mr. Vichit Chitvimarn, visited Orion Global PET site in October 2018.



Mr. Alope Lohia and Mr. DK Agarwal visited Indorama Ventures Europe for the European Business Review and the i-lead program and held a Town Hall meeting for Q&A session with regional teams.



Mr. Richard Jones and Mr. Avinash Chandra represented Indorama Ventures to receive the Thailand Sustainability Investment (THSI) and the SET Sustainability awards from the Stock Exchange of Thailand (SET).



Mr. Rohit Vashista, represented Indorama Ventures Corlu PET Sanayi to receive the Economic Contribution Award and the Top 500 Largest Companies in Turkey Award from Turkish industry and government leaders.

SAFETY DEPENDS ON TAKING RESPONSIBILITY AT EVERY LEVEL

Complex manufacturing processes often require heavy machinery and moving parts, a large number of chemicals, and a real possibility of safety risks either during production or in the hands of the consumer. Countless examples exist of companies cutting corners to speed up production or save on costs, with often tragic results.

Indorama Ventures puts safety as its highest priority, recognizing that excellence in communication, active workforce involvement, and comprehensive training are at the core of any effort to improve health and safety within an organization.

For the benefit of both our employees and our end-customers, we work tirelessly toward a safe and well-regulated production environment – with zero accidents and injuries in our workplaces, and zero risk passed on to consumers of our products.

Our success toward these goals depends on active cooperation at every level of our company. A safe environment is one in which people take responsibility at every level of the organization, so that problems are noticed, reported, and addressed as quickly and comprehensively as possible.

Adverse cases studies, such as the example of Takata Corporation, are continuing reminders of the importance of safety above all else, and the consequences when leaders and workers choose to abandon their responsibility in the workplace.

The rise and fall of Takata Corporation

As recently as 2016, Takata Corporation was a major producer of automotive products and other goods. With about 20% of the global market share of airbags, this family-run business was once one of the leading airbag producers worldwide. The company's market value in Tokyo Stock Exchange was at its peak of 400 billion yen (\$3.6 billion) in 2007. Its 50,000 employees depended on the company's success for a steady income, and its customers relied on its products – notably its line of airbags for car brands such as Honda, Toyota, Ford, Chrysler, and many more – for safety.

The company is now bankrupt and its assets sold to its largest competitor, because of the company's internal decision to compromise on safety and falsify safety reports to downplay the danger carried by its products.

Takata had used volatile chemicals in its airbags because they were cheaper to produce, giving them a market edge over their competitors. Over the subsequent years, the company attempted to sidestep responsibility for malfunctions of these airbags, even though they had already resulted in injuries and fatalities when deployed.

Resulting investigations led to lawsuits and settlements, as well as criminal charges for three executives for knowingly misleading the public about the risk posed by their products. Costs related to airbag replacement, fines and other reputational damage led to the company listing its liabilities as between \$10 billion and \$50 billion when filing for bankruptcy.

At some level, the executives and compliant employees at Takata Corporation may have believed that their decision to hide inconvenient data would be to the company's benefit. The result, however, was the largest automotive recall in history (42 million cars in the US, with over 50 million recalled worldwide), as well as disastrous outcomes for all concerned.

Indorama Ventures: keeping safety as a core value

No short-term benefit is worth putting other people's safety at risk. At Indorama Ventures, we stress the importance of following all rules and regulations, for the ultimate benefit of our business and each of its customers.

Our goal is to build a strong, durable brand for long-term growth and success – as well as a better, cleaner world. This entire enterprise depends on trust, which can only be earned through honesty and integrity at every level within the company. From all of us at Indorama Ventures, we thank you for continuing to focus on product safety each and every day, so that we and our customers can look forward to a brighter tomorrow.

INDORAMA VENTURES TAKES BIG STEP TOWARDS A CIRCULAR ECONOMY WITH LOOP PARTNERSHIP

Indorama Ventures has agreed to an ambitious partnership with Loop Industries, whose revolutionary upcycling process transforms used polyester and PET materials into high-quality goods indistinguishable from those made from virgin material.

The revolutionary capability of this technology makes the partnership a perfect fit for Indorama Ventures, whose long-term commitment to sustainable development has led to continuous improvement in its own recycling program over the years. Together, the two companies will begin transforming the PET plastic and polyester fiber markets into an entirely circular process, reducing the environmental impact within the industry even further.

A linear problem requires a circular solution

As one of the world's most useful and versatile materials, plastic is a virtually perfect invention for modern society – until it becomes waste.

This linear process – production, use, disposal – leads to overconsumption of oil, plastic waste in the oceans, and other harmful outcomes. Traditional recycling methods have helped greatly, but the methods pioneered by Loop are revolutionizing the industry by turning used plastics into the highest quality material. All of this is accomplished without any net energy use during recycling, because Loop's patented process operates without relying on heat or pressure.

In essence, Loop's technology breaks down the various materials within plastic, separates and purifies them, and recombines them in a pristine new form. Any waste PET plastic can be reused and transformed into high quality material using Loop's upcycling technology, allowing for a major change in how the world treats its waste.

The process has the additional benefit of separating impurities from waste PET plastic, including dyes, additives and foodstuffs, along with inorganic contaminants. The high level of purity and cleanliness achieved through Loop's process allows its output to be used as a replacement for virgin PET plastic in all cases. Loop's products pass all tests and regulations surrounding the use of plastic in handling food, beverages and other materials that require safe and clean plastic to be used.

The long-term promise of this technology is that it will support the global community in efforts to increase recycling and drastically reduce our dependency on virgin production as the main source of plastics in the future. Such a development would go a long way toward cleaning up the seas and landfills, making possible a more sustainable world for future generations, as well as for wildlife around the globe.

Loop and Indorama Ventures Join Forces

With their shared goal of a clean environment and circular economy, Indorama Ventures is a major supporter of Loop's technological breakthrough. The 50/50 joint venture between the two organizations will result in commercial production beginning in Q1 2020. The partnership features an exclusive worldwide license to use Loop's unique technology to produce 100% sustainably produced PET resin and polyester fiber.

Group CEO of Indorama Ventures, Alope Lohia, said, "This joint venture with Loop Industries emphasizes our belief in recycling and is aimed at investing in new technologies that can steer further our aspiration of being a world-class chemical company making great products for society."



DUTCH DESIGN WEEK EXHIBITS

RECO YOUNG DESIGNER'S

AWARD-WINNING COLLECTIONS

RECO Young Designer Competition 2018 in Thailand brought together talented fashion designers and artists to showcase the quality and versatility of recycled PET and polyester materials. It was Indorama Ventures' seventh year in a row hosting the competition, and teams of artists submitted over 200 imaginative pieces for prize consideration.

The latest competition offered extra motivation for the participants with the winning entry receiving a free ticket to the Netherlands and entry to the prestigious Dutch Design Week in addition to monetary rewards for the first-prize winner.

The winner was Mr. Chanajit Hnudat, whose work entitled 'Back to Earth' impressed judges with its innovative design and socially conscious message. Mr. Hnudat stressed the "human effort underway to return to nature," adding that the recycled fabrics in his work "were printed with new motifs in warm colors and natural designs."

Mr. Hnudat earned his place to join Dutch Design Week in October 2018 to present his own work. Two collections from the runner-ups, Mr. Chartchai Chaiydet and Mr. Tanakit Tanyakorn, were also exhibited there.

The RECO designs shown at the Dutch Design Week demonstrated the great potential for recycled polyester in clothing design. Various textile manipulation techniques were applied to create intriguing textures and silhouettes. In the making of their collections, the designers used techniques that help reduce impacts on the environment. These included using print-screen techniques instead of color dyeing, deconstructing textile waste to make new decoration materials, among others.

The versatility of the materials, combined with the creativity of the designers, led to the creation of delightful artistic pieces whose origins as recycled material came as a surprise to audiences.



Decorative items were made of recycled PET.



Safety belts were stripped and woven into a new piece of cloth.



RECO collection at Dutch Design Week.

The fruits of victory

As winner of the RECO competition, Mr. Hnudat enjoyed the opportunity to view the creative design work put forth by other participants at Dutch Design Week. This experience, exposing him to new ideas, concepts, and even cultures, will be a tremendous resource as he turns his attention towards creating future work.

Mr. Hnudat received a warm welcome from the Thai ambassador and other Thai officers at the Hague. His work is widely appreciated and known for its excellent attention to detail. These qualities, matched with his impressive creativity, design sense and environmentally responsible approach, helped him win first prize and earn his trip to Europe.

Mr. Hnudat also had a chance to meet representatives from leading fashion organizations such as House of Denim, along with four awarded designers. High-level professional connections such as these could bring Mr. Hnudat excellent opportunities for collaboration on future projects.

The annual RECO Young Design Competition aims to raise awareness surrounding recycled material and its vast potential for use in consumer products. As a leading upcycling project in Thailand, and the first of its kind, RECO is driven by a belief in building a sustainable environment. Its over-arching goal is to promote the Reduce, Reuse, Recycle concept as part of a healthy and new set of cultural norms. It aims to achieve this goal by encouraging novel uses of recyclable materials, to create new value and beauty from recyclable materials.

This QR code provides a complete look at the RECO 2018 Photo Book:



HOW TO CHANGE CONSUMER WASTE BEHAVIOR?



Consumer behaviour contains inherent inconsistencies, but not so many that obviates change. Marketers know that changing consumer behaviour is possible, it just takes time. The first beers in aluminium cans were met with disparaging remarks, as was the introduction of soft drinks in plastic bottles. Tougher to change attitudes to safety belts in cars. Some people fought against them by saying they were dangerous as they kept people trapped in burning cars following a road accident. All these issues were overcome in different ways, from marketing to stiff penalties.

Today, there is urgency regarding the global waste problem, but action has not been consistent. When people glibly state that the mindset of the public must be changed, there is cause for scepticism as it won't be that easy. Is it possible to solve these seemingly intractable problems? A lot depends on the will of governments. Let's have a look at seemingly insurmountable problems today.

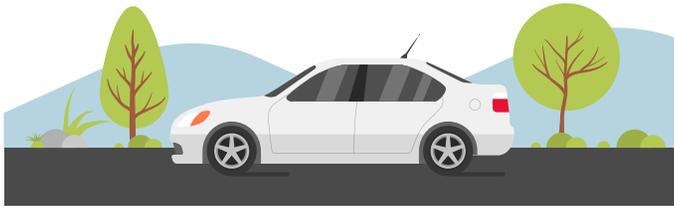
What examples are there that show how to bring about a change in consumer behaviour? Automobiles are a prime instance of the need and challenges of changing behaviour. Severe penalties, tough driving tests and continuous education have worked wonders on the accident rates of major economies. Could we lower the accident rate further?

Let's take high-speed road accidents. One method of changing behaviour is being implemented by car companies. Today, BMW, Audi, Volkswagen and Mercedes-Benz limit the speed of their cars to 250 kilometres per hour (155 mph), while

most Japanese domestic market vehicles are limited to 180 kilometers per hour (112 mph) or 190 kilometers per hour (118 mph), using speed limiters, also called governors. These have been around since the steam engine and actually limit the top speed of an engine. In Thailand, the highest speed limit is 120 kilometres per hour (74 mph) but there are no regulations for governors on cars sold here. The technology also exists to prevent drunk drivers starting their cars. It is called a Driver Alcohol Detection System, similar to building a breathalyser test into the ignition system. Making it normal to test for alcohol before being allowed to drive would be a reasonable way of changing consumer behaviour.

Autonomous cars may solve both of these issues by taking away the consumers' need to drive and likely end speeding and drunk driving. What we see is that by using technology and government will, consumers can be influenced to change their attitudes in order to receive a reward (i.e. fewer road deaths, no fines, and lower insurance premiums).

Similarly, changing consumer behaviour about waste needs a combination of government will and technology to create the necessary environment that makes sorting and recycling a way of life. Unfortunately, the infrastructure to collect, sort and recycle is not fully available in many countries. Local authorities don't all yet have segregated collection. To change consumer habits and behaviour, they must be made to feel it natural that they separate waste because it will be collected separately and recycled. Today, we cannot guarantee that.



Mr. Richard Jones

Senior Vice President Corporate
Communications, Sustainability and
Head Office Human Resources

If there is an economic factor that benefits society, this could be implemented first. A deposit scheme on plastic bottles is a good start, but only addresses a tiny fraction of the waste that could be recycled for economic gain. Thus, shops and recyclers have to work in tandem and ensure that they take back the items sold once they reach end of life. This automatically implies that the number of certified recyclers needs to increase, as does the number of waste collection employees.

Education is obviously a key to encouraging a different mindset. The messages must be regularly repeated and made as interesting as possible. However, any effort to educate consumers to separate waste for collection is likely to fail if the collection and recycling infrastructure is not already in place. No consumer wants to go to the trouble of separating waste if they see it all dumped in the back of a garbage truck together.

This is not a chicken and egg situation: it must commence with waste bins being available and collected separately by trucks able to store garbage separately then sent to or collected by a certified recycler. A corresponding educational program can then be implemented. If education came first, with no bins available or no collection made, it would squander consumer education efforts and demoralize everyone concerned.

The effort would require a concerted plan to promote and publicise the need to separate waste. One way is for the government to issue public service announcements in the media over several years. As this is not marketing a product but embedding a concept in the mind of the consumer, repetition is essential. When it becomes clear that “everybody is doing it” most consumers will take up the trend. To reinforce the trend there must be a carrot and stick approach. For instance, shop side machines that give rewards when people fill them with empty PET bottles; a deposit system that encourages people to return plastic bottles in return for the original deposit. Then the penalties could include higher fines for dumping trash and fines for not separating waste at the house or factory.

To summarize, firstly, get buy-in from all related parties with step-by-step implementation in the order they must be completed; issue clear communications and ensure the repetition of the message to embed it into the unconsciousness; finally some incentives and penalties that reinforce the need to follow what others are doing.



FOR SUSTAINABLE LIVING, THE FUTURE IS CIRCULAR

The global community has long been aware that the wasteful use of Earth's resources could not be sustained indefinitely. The difficulty lay in devising a cost-effective alternative to the produce-consume-dispose economic model. With advances in logistics, technology and (of equal importance) public awareness worldwide, the time for a new model of production has finally arrived – and it is circular.

Just as the Earth's own environment recycles resources such as energy and water through natural processes, civilizations are now able to take a similar step with most of the waste they produce. When such processes become commonplace, the resulting system is known as a circular economy, because it involves remanufacturing, reusing and recycling materials so they can be used again and again.

By adopting a circular economic system, we as a global society can take a giant and necessary step toward leaving a cleaner Earth for future generations, without sacrificing the standard of living that we enjoy today.

Achieving sustainability through global cooperation

For such an ambitious project to fully succeed, all of the world's nations need to do their part – with help from the business community and the public sector as well.

Some nations have already invested heavily in the circular economy, and have seen that investment rewarded, both environmentally and financially. Germany is a prime example of a country at the cutting edge of the growing circular economy. The country created roughly 200,000 jobs in the waste management industry in 2016, along with an economic value of €40 billion in the process, as a result of the resources it was able to save for future use.

Other countries, such as China, have pushed for environmental sustainability through a series of business incentives. These have led to improved environmental conditions as well as a significant improvement in the efficient use of materials such as rubber.

Elsewhere, the potential economic benefits of the circular economy in Asia have largely gone untapped. Economic forecasts suggest an estimated US \$324 billion in increased value, along with 1.5 million new jobs across the continent, are available over the next 25 years if countries across the region make the switch to the circular economy.

Cleaning up Thailand's future

In recent years, Thailand's leadership has taken genuine – although sometimes inconsistent – steps toward building a functioning circular economy. The Ministry of Industry has sought a real strategy to promote a sustainable production model, in cooperation with the Office of Industrial Economics and the Board of Investment.

Its plan is to target 11 industries: cars; smart electronics; affluent, medical and wellness tourism; agriculture and biotechnology; food; robotics for industry; logistics and aviation; biofuels and biochemicals; digital; medical services; and defense.

Companies like Indorama Ventures have long embraced these efforts, committing to the three principles of waste and pollution control; keeping products and materials in use; and regenerating the natural system. Indorama Ventures' recent partnership with Loop Industries in Canada (see p.9 of this issue) is just the latest example of its push toward recyclable products.

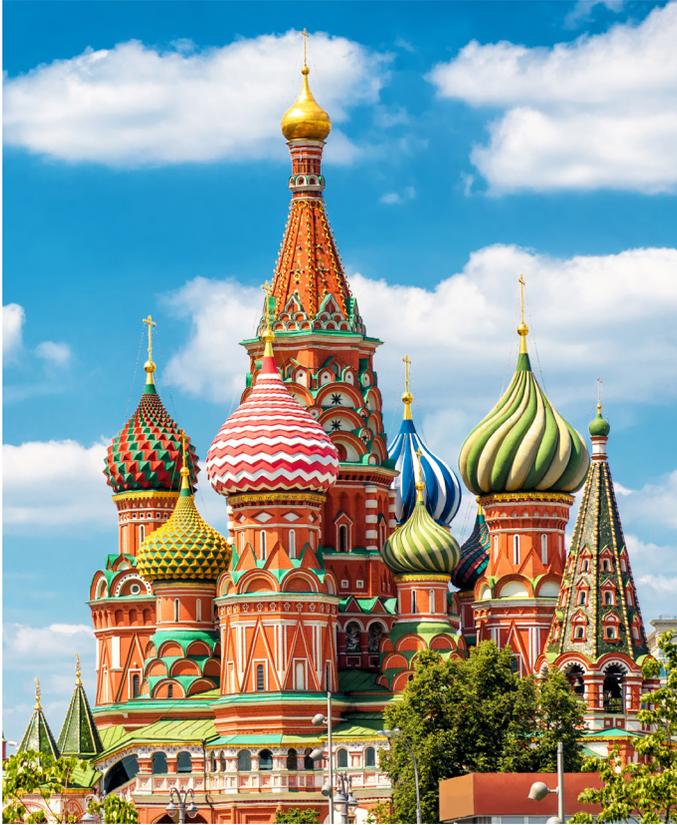
Indorama Ventures has also built a recycling facility in Nakhon Pathom province, with a capacity of 29,000 tons per year. Aimed at reducing greenhouse gas emissions, the recycling center also facilitates the reuse of plastic waste as well as the recycling of used PET bottles for the production of polyester fibers and filaments.

The output of this facility, however, cannot always be re-integrated into Thailand's consumer economy, because national regulations prohibit the use of recycled PET products in food and beverage packaging.

Such obstacles, which reflect a lingering hesitancy among the public to embrace the full potential of recycled goods, will need to be overcome for Thailand – and the world at large – to move bravely forward into a sustainable future.



RUGGED AND RESURGENT, RUSSIA'S RENAISSANCE IS A SIGHT TO BEHOLD



The monumental Hermitage in St. Petersburg, resting between the Neva River and the central Nevsky Prospekt, adds a striking artistic dimension to the coastal city. First-time visitors to these city centers will be struck by the sheer size and scope of the architecture, along with the polished, distinctive appearance of the buildings along the main avenues and shopping streets.

But in a country of such size, it would be a shame to miss out on exploring the highlights outside the two main cities. Hop onboard the legendary Trans-Siberian Express, and it will take you a full seven days of traveling to go from Moscow all the way to Vladivostok in the far east.

Along the way you will pass by the gorgeously decorated city of Kazan, with its fine walking streets and rich history of Islamic influence. Stop off at Krasnoyarsk, and climb on the distinctive rock formations in Stolby National Park as you keep an eye out for nearby wildlife. Visit Irkutsk as you head further east, using this famously cold city (the average high temperature is just 5 degrees) as a base for exploring Lake Baikal.

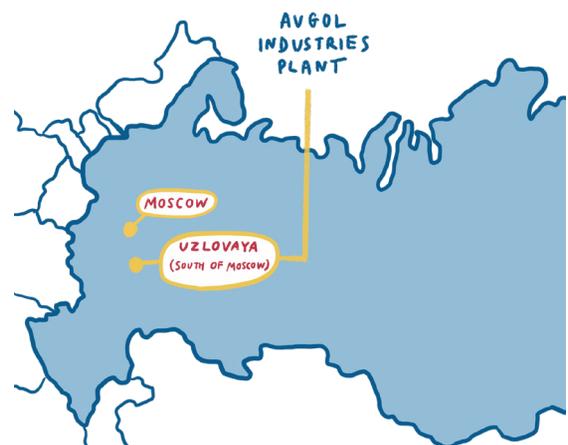
As the largest freshwater lake in the world and also the deepest, Baikal holds nearly one-quarter of the world's fresh surface water, and is an especially popular destination for young travelers. For a true adventure, stay with a local family on the lake's Olkhon Island and experience traditional life as it must have felt decades or even centuries ago.

The Trans-Siberian Railway diverges soon after Irkutsk, offering the choice to continue all the way to the Pacific Ocean or to take a detour into Mongolia and China. But even these train journeys leave out the vast wilderness of northern Russia, with much of the country beyond the Arctic Circle and ready for brave wanderers to explore.

Indorama Ventures now has a presence in Russia, thanks to its recent acquisition of nonwoven hygiene fabrics manufacturer Avgol Industries. The Israeli high-performance nonwoven producer brings its full global operations to Indorama Ventures, including one industrial facility in Uzlovaya, a rural area south of Moscow. Its other five locations are in Israel, the US, China and India.

With its considerable expertise, 900 employees worldwide, and a combined production capacity of 203,000 tonnes per annum, Avgol is a leading manufacturer for the baby diaper, adult incontinence and feminine hygiene markets. The acquisition will considerably strengthen Indorama Ventures' high value added portfolio in the personal hygiene market, bringing new growth opportunities worldwide.

Spread out over two continents, this gargantuan land is experiencing a renaissance among travelers to rediscover its wealth of cultural and natural treasures. First among these is surely Moscow, with its breathtaking Red Square and candy-colored cathedral. The city's parks and river provide a superb setting for relaxation, while the Kremlin and its museums give a fascinating window into the traditions and history of the area.



BRINGING SMILES TO A NEW GENERATION



Operation Smile is a nonprofit medical organization that provides free corrective surgery to children born with a cleft lip or cleft palate. The medical group was formed in 1982 and has since provided more than 288,000 patients with surgical and dental care.

Cleft surgery is a life-changing procedure, as children suffering from the condition often have trouble breathing, eating, drinking and speaking. They are also at far greater risk for ear disease and dental problems. The ability to repair cleft conditions quickly through surgery allows affected children to live happy and healthy lives, especially if the surgery is performed at a very young age.

For the past five years, Indorama Ventures has been a proud supporter of the international Operation Smile project in Thailand and Myanmar. Indorama Ventures was initially drawn to the program because Operation Smile gives affected children the opportunity to live better lives – a key element of the UN’s sustainable development goals.

Indorama Ventures employees have also personally joined missions on Operation Smile to offer medical and personal care to children in Thailand and Myanmar. Mrs. Suchitra Lohia, Director and Chairperson of the Sustainability Committee of Indorama Ventures, along with several volunteer employees, were among those taking part in a Medical Mission at Mae Hong Son with Operation Smile Thailand. Together they helped provide access to surgery and post-operative care to patients who were born with cleft lips or palates.

In the last few years alone, Operation Smile Thailand has delivered free corrective surgery to more than 13,000 children across the region. The recovery facility in Myanmar already has plans for expansion to accommodate even greater numbers of patients.

WHY ARE CLEFTS SO HARMFUL?

A cleft is a gap in the mouth that fails to close during the early stages of pregnancy. Its precise causes are unclear, but drugs and infections, as well as maternal illnesses, alcohol consumption and smoking may increase the risk. Malnutrition on the part of the mother, including vitamin deficiencies, may also contribute to the likelihood of a child being born with a cleft.

Around the world, a child is born with a cleft lip or cleft palate once every three minutes, which is an average of one in every 500 to 750 births. In many cases, surgery can be completed in an hour, at the cost of 25,000 Thai baht (around \$760 USD). The conditions, however, remain more frequently untreated in rural areas, where finances and resources available to parents may not allow them to arrange surgery for their children.

Feelings of isolation, low self-esteem and social inadequacy often characterize the experience of growing up with a cleft, but continued education and support following surgery can hasten a complete physical as well as psychological recovery. The volunteers at Operation Smile have improved countless lives around the world, and their mission continues to grow.

Three times a year, Operation Smile Thailand arranges week-long medical missions where its volunteer medical team performs up to 120 free surgeries per week in locations where cleft care is unavailable. These efforts are in addition to its ongoing medical missions, where Operation Smile funds a local hospital to provide surgery and continuous care.



Photos: Operation Smile

TOWARD A BRIGHT FUTURE

Indorama Ventures remains a dedicated supporter of Operation Smile Thailand, and the company plans to increase its involvement over the coming years. Indorama Ventures' involvement has focused on Thailand and Myanmar so far, but plans are underway to expand its involvement to every country where an Indorama Ventures factory is located.

As Indorama Ventures now has a presence in 31 countries, its future partnership with Operation Smile is on course to expand – bringing care to people who need it in even greater numbers. This commitment to healing the younger generation is aligned with Indorama Ventures' other community involvement projects and sustainable production methods, as the company is doing its part to bring about a better world. Thanks to growing organizations like Operation Smile, the future of health in developing areas looks brighter than ever.



TOWARDS A NEW GENERATION OF SUSTAINABLE RECYCLING



Increasing numbers of people around the world are aware of the importance of recycling for a cleaner world. But several factors can nevertheless get in the way, preventing them from taking the extra step of ensuring that their waste goes through the recycling process.

In the United States, this gap – between the number of people who know they should recycle, and those who actually do recycle – is famously wide. So over the past two years, Indorama Ventures Xylenes & PTA and AlphaPet have teamed up to provide some extra motivation for the younger generation, encouraging them to make a habit of recycling.

The value of education and promotion

In 2017, Indorama Ventures Xylenes & PTA and AlphaPet partnered with an Alabama middle school that had no formal recycling program in place at the time. The two companies decided to embark on a combined process of education and promotion, in order to bring a culture of recycling into the school system.

Over five weeks, they helped educate students about their companies and the types of manufacturing they were involved in – while also explaining the idea of recycling, and why it is an essential component of sustainable living.

The two companies then introduced three competitions to the school, all centered around the importance of recycling.

1. **Competition between grades.** Students collected as much recyclable material as they could, during the five-week period. The results would be weighed, to determine which grade was able to find the most recyclable material.
2. **Second chance competition.** Students used their imagination and creativity to find the best “second use” for an item that would have otherwise been thrown away. A new category, “Best Use of Recycled PET”, was introduced in 2018.
3. **School year competition.** Students worked toward a goal of collecting at least 9,000 pounds of recyclable material by the end of the school year. In 2018, the goal was raised to 11,500 pounds.



The enormous energy and effort shown by the students proved that people are ready to embrace recycling under the right conditions. As the five-week visit by Indorama Ventures Xylenes & PTA and AlphaPet representatives ended, a closing rally attracted TV and newspaper journalists, as well as local and state officials. The school itself was later nominated for a prestigious Council for Leaders in Alabama Schools (CLAS) Banner School Award, largely for their participation in this recycling initiative.

Principal Anita Clarke said, "I absolutely love observing our students take pride in collecting the recyclable items, with an energy that is unmatched. We are training a generation of young people to care about our environment and to understand the importance of recycling on a global scale. Indorama Ventures, our partners-in-education, have made an impact on the school by educating our students on recycling."

Laura Smith, career technologies teacher at the school, added: "I am quite certain that because of this program, my students will continue to be recyclers into their adult life."

These are inspiring words, but perhaps the most heartening message comes from student Jordan Rhymer, whose enthusiasm shines through his words: "If you recycle, others will. You can have influence if you recycle! Recycling at school has made me recycle at home. Now my family is recycling!"



INDORAMA VENTURES PUBLIC COMPANY LIMITED (IVL)

IS PROUD TO ANNOUNCE OUR CONTINUED INCLUSION IN
**THE DOW JONES SUSTAINABILITY
INDEX (DJSI) FOR 2018**

We are committed to building a better society
through our sustainable business operations
and fulfil our responsibility as a global chemical leader based in Thailand.

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