

Results by Segment for Fiscal 2018

Business Categories and Segments

Summary of Financial Results

STRATEGY

Core Growth Driving Business

Fibers & Textiles

In Japan, demand for industrial applications such as automobiles was strong in general, while shipment of apparel applications remained weak partly due to the unseasonable weather. Against this background, Toray Group not only strived to expand sales in each application but also worked to expand the business format that integrates fibers to textiles to final products while focusing on strengthening cost competitiveness.

Overseas, business performance of some subsidiaries in Southeast Asia remained slow, and was affected by a slowdown in demand for materials for automotive and other applications from the second half of the fiscal year, reflecting the deceleration of the Chinese economy. The Group expanded the integrated business for apparel applications. The segment's business both in Japan and abroad was generally affected by the increase in raw material prices.

Strategically Expanding Businesses

Performance Chemicals

In the resins business, Toray Group expanded sales of automotive applications while passing on the rise in raw material prices to the sales price, but the business was affected by the economic slowdown in China. The chemicals business saw an improvement in the basic chemicals market and sales of fine chemical products also increased. In the films business, shipment of battery separator films for lithium-ion secondary batteries increased reflecting demand growth, while polyester films and other products were broadly affected by the increase in raw material prices. The electronic & information materials business was affected by the slowing demand in the smartphone market.

Carbon Fiber Composite Materials

In the Carbon Fiber Composite Materials segment, demand for aircraft applications was mostly strong given the completion of the inventory adjustment in the supply chain. Demand for industrial applications showed a recovery trend for the most part, primarily in the environment and energy-related fields led by compressed natural gas tank applications and wind turbine blade applications. However, the segment was affected by rising raw material prices and intensifying competition. The cost of starting a new project at a composite subsidiary overseas increased and the segment also incurred fees related to the acquisition of the entire stake in TenCate Advanced Composites Holding B.V.

Intensively Developing and Expanding Businesses

Environment & Engineering

In the water treatment business, demand for reverse osmosis membranes and other products grew strongly on the whole in Japan and abroad. Among domestic subsidiaries in the segment, the trading volume of a trading subsidiary increased, while an engineering subsidiary outside Japan was affected by the conclusion of a large-scale plant construction project.

Life Science

In the pharmaceutical business, while sales volume of orally active prostacyclin derivative DORNER® increased in the overseas markets, the sales were affected by its generic versions and the revision of National Health Insurance drug price standards in Japan. Sales of pruritus treatment REMITCH®* were influenced by the market entry of its generic versions.

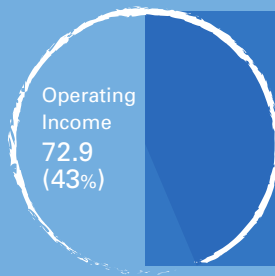
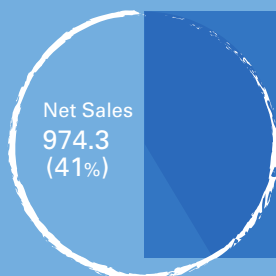
The medical devices business was affected by the reduction of the insurance reimbursement amount in Japan and the increase in raw material prices, while shipment of dialyzers grew strongly in Japan and overseas and sales volume of dialysis machines also expanded.

*REMITCH® is a registered trademark of Torii Pharmaceutical Co., Ltd.

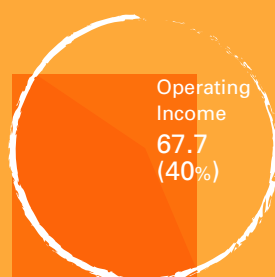
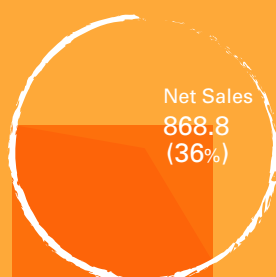
Performance (Billions of yen) Main Products

* The figures in parentheses of each segment are composition ratios by segment.

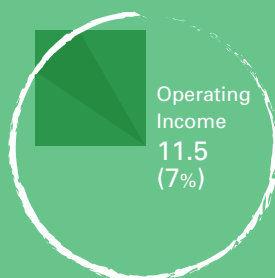
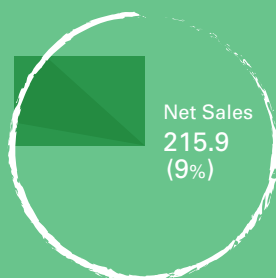
Main Products



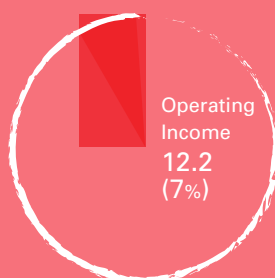
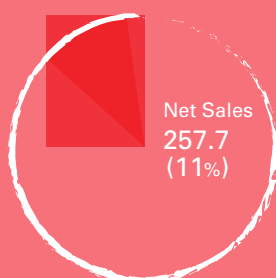
- Filament yarns, staple fibers, spun yarns, woven and knitted fabrics of nylon, polyester, acrylic, and others
- Non-woven fabrics
- Ultra-microfiber non-woven fabric with suede texture
- Apparel products, etc.



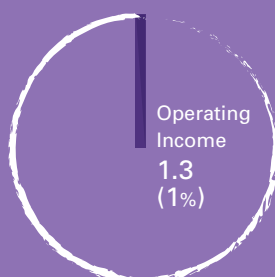
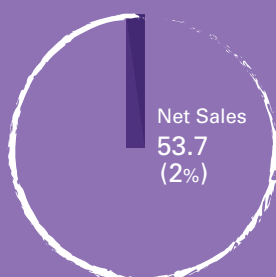
- Nylon, ABS, PBT, PPS, and other resins and molded products
- Polyolefin foam
- Polyester, polyethylene, polypropylene, and other films and processed film products
- Raw materials for synthetic fibers, and other plastics
- Fine chemicals
- Electronic and information materials and graphic materials, etc.



- Carbon fibers, carbon fiber composite materials, and molded products from those materials, etc.



- Comprehensive engineering
- Condominiums
- Industrial equipment and machinery
- IT-related equipment
- Water treatment membranes and related equipment
- Materials for housing, building, and civil engineering applications, etc.



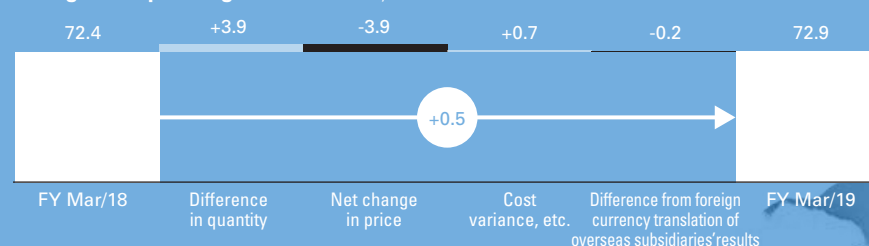
- Pharmaceuticals
- Medical devices, etc.

Excludes other businesses, equivalent to ¥18.5 billion (1%) in net sales and ¥3.1 billion (2%) in operating income, and adjustment of operating income of -¥27.3 billion. The composition ratio by segment of operating income is calculated excluding the adjustment amount.

Fibers & Textiles

Years ended March 31	2017	2018	Changes	2019 Forecast
Net sales (Billion yen)	913.6	974.3	+6.6%	1,000.0
Operating income (Billion yen)	72.4	72.9	+0.6%	70.0
Operating income to net sales	7.9%	7.5%		

Changes in Operating Income (Billion yen)



Net Sales
(Billion yen)

974.3

Operating Income
(Billion yen)

72.9

Operating Income to
Net Sales

7.5%

ROA
(Operating Income/
Assets)

9.3%

Basic Policy

- Strengthen its earnings structure as a core growth driving business of Toray, and expand business in growth business fields and regions
- Aim for significant growth in the segment through the further enhancement of global operations

Earnings Opportunities and Risks

- Growing need for advanced materials contributing to the resolution for global environmental and energy/resource issues, and health and longevity
- Changes in the global economy and personal spending trends
- Improving standards of living and tighter regulations in China and emerging economies as income levels in those areas rise
- Raw materials and fuel prices trends

Basic Strategies for Achieving the Medium-term Management Program "AP-G 2019" Targets

- Maintain and reinforce domestic business foundation and processing platform in production areas, and further strengthen business competitiveness
- Reinforce business foundation of existing operations at overseas locations, and expand business in growth business fields and regions
- Strengthen Toray Group's global operations and create new business areas by developing and expanding business on multiple levels combining its strength of diverse product lines, supply chain, and global sales
 - > Aim to achieve significant growth by the global fibers/textiles/final products integrated business format and SCM, reinforce value chain of strategic products, and expand new business areas

Fiscal 2019 Outlook

- In apparel applications, anticipate 2019 autumn/winter business to be weak due to the warm winter in 2018, despite the efforts to expand sales in all applications and high value-added products
- In industrial applications, seek to expand sales by utilizing enhanced facilities such as PP spunbond, airbags, and ultra-microfiber non-woven fabric with suede texture

Toray completes its new TECHNORAMA GIII textile and garment development base

Toray completed the construction of its new TECHNORAMA GIII textile and garment development base, located in the Advanced Textiles Development Center at the Company's Seta Plant, in June 2018. The Advanced Textiles Development Center is Toray's headquarters for the development of high-level processing technologies, from spinning and yarn texturing to weaving, knitting, dyeing and sewing. Toray launched the TECHNORAMA weather simulation laboratory for the first time in 1983 and has continued to develop numerous highly functional products, including moisture-permeable waterproof material and functional innerwear. Toray in 2008 established TECHNORAMA GII, a large-scale weather simulation laboratory that can accommodate items such as cars, at the Toray Fibers & Textiles Research Laboratories (China) Co., Ltd. (TFRC) in China, and has continued to promote the development of highly functional textiles, industrial materials and environment-conscious materials.

The new weather simulation laboratory at TECHNORAMA GIII can not only recreate a diverse range of weather conditions, including extremely low temperature and low humidity environments, as well as torrential rain, but can also allow experiments focused on sudden temperature changes in our daily lives. It also enhances evaluation and analysis technologies through physiological analysis based on human engineering, and motion analysis based on sports engineering, so that Toray can continue to work on the development of new fields. The Company has also established an Open Lab, which is a joint development base designed to improve the sophistication of products and shorten development cycles through collaboration with partners both within and outside the Company.

Toray launches sales of Ultrasuede® BX, an environmentally friendly non-woven material with a suede texture that has the world's highest level of plant-based raw material content

Toray has launched sales of "Ultrasuede® BX," a non-woven material with a suede texture. The material uses plant-derived polyester and polyurethane as raw materials, giving it a plant-based raw material content ratio of about 30%, the highest in the world. Ultrasuede® BX is also the world's first non-woven material with a suede texture using plant-based polyurethane as a raw material. The Company targets sales of ¥500 million from the product in fiscal 2019 and sales of ¥3 billion in fiscal 2023.

In the past, durability and texture have been key challenges for plant based polyurethane. To solve these issues, Toray used its unique design technologies in areas from original polymers to material structures, as well as its polyurethane coagulation technology to succeed in developing the Ultrasuede® BX product, which has a high plant-based raw material ratio, as well as superior feeling and functionality, including in areas such as durability, air-permeability, and maintenance.

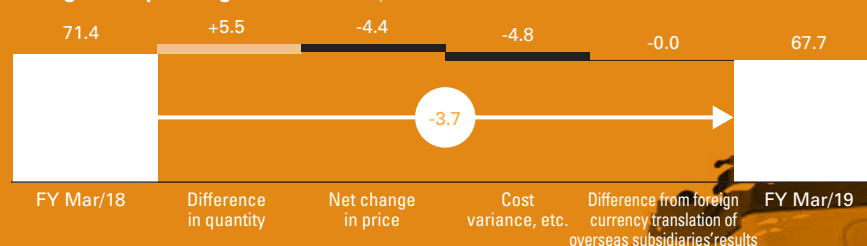
Marketed globally by Toray, Ultrasuede® is a cutting-edge non-woven material with a suede texture representing the best of Japanese quality. Toray developed the product in 1970 and through continuous technological advancements has created a highly sophisticated and functional material that can be used not only in fashion and interior design, but also in automotive and aircraft interiors, sports equipment, and accessories for smartphones and other mobile devices. Toray has also been focusing on the development of environmentally-friendly sustainable products and has been marketing "Ultrasuede® PX," which uses a plant-based polyester since 2016. The addition of Ultrasuede® BX to the brand's product lineup further expands the Company's development of non-woven materials with a suede texture that contribute to both sustainability and new creation.



Performance Chemicals

Years ended March 31	2017	2018	Changes	2019 Forecast
Net sales (Billion yen)	803.3	868.8	+8.2%	935.0
Operating income (Billion yen)	71.4	67.7	-5.1%	81.0
Operating income to net sales	8.9%	7.8%		

Changes in Operating Income (Billion yen)

Net Sales
(Billion yen)**868.8**Operating Income
(Billion yen)**67.7**Operating Income to
Net Sales**7.8%**ROA
(Operating Income/
Assets)**6.9%**

Basic Policy

- Expand business by expanding sales of high value-added products in growth business fields and maximum utilization of global bases
- Strengthen earnings base by business structure reform

Earnings Opportunities and Risks

- Growing need for advanced materials contributing to the resolution of global environmental and energy/resource issues
- Changing in the demand trends of end products such as automobiles, including electric vehicles, LCD TVs and smartphones, and changes in technological trends in various components
- Raw materials price trends

Basic Strategies for Achieving the Medium-term Management Program "AP-G 2019" Targets

■ Resins, Chemicals Business

- Allocate management resources and promote business expansion in growing businesses including PPS resins, resin compounds overseas, and automotive materials

■ Films Business

- Invest in facilities for lithium-ion battery separator films and promote sales expansion through product development
- Reorganize manufacturing of PET films, increase value of existing products by utilizing global operations, and enhance sales expansion

■ Electronic & Information Materials Business

- Expand sales of OLED-related materials and accelerate technology development and commercialization of products beyond the LCD display field

Fiscal 2019 Outlook

- In resins business, will expand sales of high-functional ABS resins and engineering plastics for automotive applications, etc.
- In films business, intend to expand sales in growth business fields, including battery separator films and MLCC release films
- In electronic & information materials business, expect to increase sales of OLED-related materials and electronic circuit materials

Topics

01

Toray bolsters production capacity for ABS resin TOYOLAC® at Malaysian Subsidiary

Toray has decided to increase the production capacity for its ABS resin TOYOLAC®, which is manufactured and distributed by Toray Plastics (Malaysia) Sdn. Berhad (TPM). The Company will add a facility with annual production capacity of 75,000 tons in an effort to expand sales of high performance varieties such as transparent grade, for which the Company has the No. 1 global market share, thanks to its cost competitiveness and stable quality, which is due in large part to the Company's proprietary continuous polymerization production process. The Company aims to launch operations under the new arrangement in November 2020. The move will increase TPM's production capacity to 425,000 tons a year, and Toray Group's capacity, including the existing facility at Toray Chiba Plant, to 497,000 tons a year.

ABS resin is a plastic that is light, strong, and elegant. It shows excellent processability, and it is used for an extremely wide range of applications, from industrial items to household goods. In 2018, global demand for ABS resins was 9 million tons and is expected to grow steadily at 3% a year, as demand is expected to increase in China, the ASEAN community, and emerging countries. Global demand for high performance ABS resin such as transparent ABS, and resins with added properties such as heat resistance and chemical resistance, in 2018 is estimated at about 2.1 million tons. Amid increased demand for enhanced functionality in a wide range of applications, including home appliances, office automation, automobiles, and toys, demand for these products is expected to grow at 4% or more annually.

While the mother plant in Chiba is accelerating the shift in its product mix to focus mainly on highly functional ABS resins, including medical-use transparent ABS, the increase in production in Malaysia will accelerate the expansion of potential applications and advance the Company's entry into the European, U.S., and Indian markets, in addition to the existing mainstay Chinese and ASEAN markets.

02

Toray to increase production capacity of polypropylene film TORAYFAN® at U.S. subsidiary

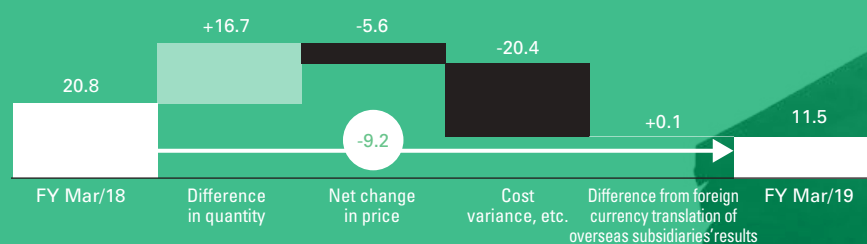
Toray has decided to increase production capacity for its polypropylene film TORAYFAN®, which is manufactured by Toray Plastics (America), Inc. (TPA). A new production facility with annual capacity of 30,000 tons will be additionally built at TPA's Rhode Island plant, with the goal of starting operations in 2020. TORAYFAN® is considered the lightest of the plastic films and shows superiority in transparency, toughness, and the ability to preserve aromas. It is widely used for general industrial applications, capacitors, and packaging materials. TPA has high share in high value-added packaging materials in the North American market.

The biaxially-oriented polypropylene market in North America is expected to grow at a pace of 3% a year as the population in the region expands. In the food packaging film market in particular, there is an increasing push to extend the shelf life of food and to diversify package designs for snacks, confections, and health foods such as nutrition bars. The announced production capacity increase is in response to this kind of diversification and the growing sophistication of customer needs, and by moving quickly to expand production capacity at TPA, the Company aims to further expand its biaxially-oriented polypropylene business.

Carbon Fiber Composite Materials

Years ended March 31	2017	2018	Changes	2019 Forecast
Net sales (Billion yen)	177.9	215.9	+21.3%	250.0
Operating income (Billion yen)	20.8	11.5	-44.4%	22.0
Operating income to net sales	11.7%	5.3%		

Changes in Operating Income (Billion yen)

Net Sales
(Billion yen)

215.9

Operating Income
(Billion yen)

11.5

Operating Income to
Net Sales

5.3%

ROA
(Operating Income/
Assets)

2.1%

Basic Policy

- Further expand the business as the world's number one manufacturer of carbon fibers

Earnings Opportunities and Risks

- Growing need for advanced materials contributing to the resolution of global environmental and energy/resource issues
- Demand trends in end products, including automobiles, compressed natural gas tanks, wind turbine blades, and aircraft
- Global supply and demand balance for carbon fiber
- Trends in raw materials and fuel prices, foreign currency exchange rates

Basic Strategies for Achieving the Medium-term Management Program "AP-G 2019" Targets

■ Aerospace Applications

- Further strengthen existing partnerships
- Capture new programs

■ Industrial Applications

- Reinforce dominant market share by leveraging comprehensive strengths in lineup of regular tow and large tow products
- Reinforce dominant market share in the wind turbine blade applications by strengthening alliance with major customers, supported by the cost competitiveness in large tow products
- Develop intermediate products/molding technologies and enhance the supply chain to meet the full-scale expansion in automotive application demand

Fiscal 2019 Outlook

- In aerospace applications, expect shipment to expand in response to the increase in production volume of our major customer
- In industrial applications, seek to expand sales primarily in the environment and energy-related fields
- Will promote cost reductions at a composite subsidiary overseas

Topics

01

Increasing production capacity for large tow carbon fiber at Zoltek Companies, Inc.

Toray has decided to increase production capacity for large tow* carbon fiber at the U.S. subsidiary Zoltek Companies, Inc. Through this facility expansion, the Company aims to increase production capacity at Zoltek's Hungarian facility from 10,000 tons to 15,000 tons annually. Total investment will exceed US\$130 million and production will start in early 2020. Zoltek has already implemented equipment enhancements and raised the capacity of their Mexican facility from 5,000 tons per year to 10,000 tons per year. Once the current enhancements at the Hungarian facility are in place, Zoltek's total annual production capacity will be approximately 25,000 tons or more.

Zoltek signed a strategic cooperation agreement with the Hungarian government in March 2015, with the company receiving strong support from the government, including in infrastructure development, employee recruitment, and employee education. The announced facility expansion has been planned in line with the content of the strategic cooperation agreement.

Demand for large tow carbon fiber for industrial applications is rapidly expanding. Demand for wind turbine blades, the main application for Zoltek's large tow carbon fiber, is expanding not only in Europe, but in South America as well as Asia, particularly China and India. Furthermore, due to the larger size of the turbines, carbon fiber usage per blade is also expected to increase.

Zoltek will continue to leverage the strengths of its production bases in the U.S., Hungary, and Mexico and follow a business model based on local production and consumption as it aims to capture the growing global demand of wind turbine blade manufacturers. Europe is taking the lead in the use of carbon fiber for automotive structural applications, and Zoltek has established a timely supply chain for the region originating from the Hungarian facility, which is currently expanding its production capacity. The company will continue to respond quickly to demand growth moving forward. Zoltek is also focused on enhancing its carbon fiber production facilities at the Hungarian and Mexican plants, and as the world's number one supplier of large tow carbon fiber remains committed to the building of a top-tier supply system.

*Large tow: carbon fiber having more than 40K filaments (40,000 fibers) that is used as a relative low-priced material and satisfies industrial application requirements, including those related to wind turbine blades and strengthening agents for resin compounds.

02

Toray acquires TenCate Advanced Composites stock

Toray purchased all outstanding shares of TenCate Advanced Composites Holdings B.V., a Dutch carbon fiber composite material manufacturer in July 2018. This company is a prepreg manufacturer with its main manufacturing bases in Europe and the U.S. and has an established track record of supplying thermoplastic prepreg and high heat resistance thermoset resin materials in a wide range of applications. Also, it is a global leader in carbon fiber intermediate materials using thermoplastic resins. The acquisition is expected to generate significant synergies by combining Toray's broad range of carbon fiber and polymer technologies with the product lineup of the newly acquired company. Moreover, by combining the two companies' distribution channels, Toray can offer a wider product lineup to its customers. Toray will continue to respond swiftly to the market expansion in small-sized aircraft and over the medium to long term to expand the business further in industrial applications, including automotive applications.

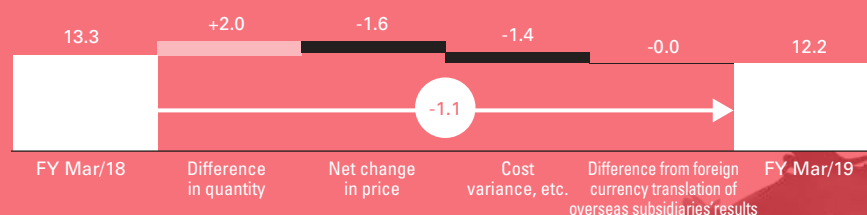


Intensively Developing and Expanding Businesses

Environment & Engineering

Years ended March 31	2017	2018	Changes	2019 Forecast
Net sales (Billion yen)	238.3	257.7	+8.1%	270.0
Operating income (Billion yen)	13.3	12.2	-7.9%	14.0
Operating income to net sales	5.6%	4.7%		

Changes in Operating Income (Billion yen)



Basic Policy

- Expand business in the environment and energy field with focus on water treatment membranes and facility design capabilities

Earnings Opportunities and Risks

- Growing need for advanced materials that can contribute to the resolution of global environmental and energy/resource issues, and related machinery to manufacture them
- Political instability in areas suffering from water shortages
- Crude oil price trends
- Capex trends at mainstay customers

Basic Strategies for Achieving the Medium-term Management Program "AP-G 2019" Targets

■ Water Treatment Business

- Expand business and strengthen competitiveness in the membrane business
- Enhance development of reverse osmosis membrane products and strengthen cost competitiveness
- Expand sales of UF membranes in China and the U.S.A.
- Strengthen the business foundation in the water treatment system and plant business

■ Engineering Business

- Expand plant business and industrial machinery (in the environment and energy fields and the life science field)
- Make use of external resources in growth areas
- Strengthen cost competitiveness
- Accelerate overseas expansion

Fiscal 2019 Outlook

- In the water treatment business, seek to expand sales of the membrane business including RO membranes to meet the growing global demand

Net Sales
(Billion yen)

257.7

Operating Income
(Billion yen)

12.2

Operating Income to
Net Sales

4.7%

ROA
(Operating Income/
Assets)

4.6%



Topics

01

Established a drinking water treatment facility production and sales company in China

Operating its water treatment business in China since the 1980's, Toray, along with ORIX Corporation (ORIX) and China Water Affairs Group Ltd. (China Water Affairs), established a joint-venture corporation (Jiangxi Yinli Drinking Water Equipment Co., Ltd.) in March 2019.

ORIX established China's first leasing company in 1981. Since then, it has utilized its experience to expand its financial and investment businesses in China. China Water Affairs is a comprehensive water treatment company listed on the Hong Kong Stock Exchange. In addition to the operation and management of water supply and sewage facilities in regional cities across China, the Chinese firm also handles peripheral projects including infrastructure and maintenance.

China, in recent years, has seen an increase in demand for water suitable for drinking straight from the tap. With this in mind, the three companies concluded a strategic partnership, and through the establishment of the joint venture will incorporate Toray's membrane filtration technologies to manufacture and sell drinking water treatment facilities that are capable of supplying water that is suitable for drinking directly from the source.

After obtaining water products production and sales license from the Chinese government, the joint venture intends to utilize China Water Affairs' expertise and networks in the water business in China to install facilities in public buildings such as schools and hospitals, as well as private buildings such as hotels, offices, and apartments.

02

Establishing a joint-venture company in the Republic of Korea to expand the air filter business

Toray established M&T Engineering Co., Ltd (M&TE) in the Republic of Korea as a joint venture company with MCM Co., Ltd. (MCM), a company under the Chung Ho Nais Group, which is engaged in the sales of water purifiers and air cleaners. M&TE commenced operations in October 2018. The company is capitalized at 6 billion won (about ¥600 million), with MCM having a 60% stake and Toray having a 40% stake. M&TE combines the assembling and processing, as well as automation expertise of MCM with Toray integrated design and development technology, starting from fibers and filter materials to assembled units, so as to build a local production setup for the high-performance filters necessary to expand the company's business in the Republic of Korea as well as to supply to Korean manufacturers with a global presence. The Chung Ho Nais Group has a strong share of the Korean water purifier market, and has a broad business base, with sales to major global players in the country and exports to some 60 countries.

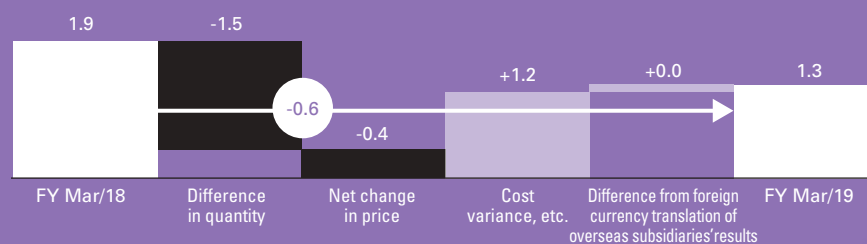
Toray has been producing non-woven fabric for air filters since 2012 at Toray Fibers (Nantong) Co., Ltd. (TFNL), its fiber production base in China. This has allowed the Company to build a local production and supply structure adapted to the Chinese GB standards* and contribute to measures aimed at reducing atmospheric pollution, which has become a serious social issue. M&TE will assemble filters that use TFNL's non-woven fabric for high-performance filters, thus accelerating the sales expansion in the country, as well as around the world, by directly supplying major home electronics and automobile manufacturers.

*Chinese GB standards: Chinese national standards related to initial performance and performance throughout the life of air purifiers.

Life Science

Years ended March 31	2017	2018	Changes	2019 Forecast
Net sales (Billion yen)	53.8	53.7	-0.3%	55.0
Operating income (Billion yen)	1.9	1.3	-33.0%	0
Operating income to net sales	3.6%	2.4%		

Changes in Operating Income (Billion yen)

Net Sales
(Billion yen)

53.7

Operating Income
(Billion yen)

1.3

Operating Income to
Net Sales

2.4%

ROA
(Operating Income/
Assets)

1.7%

Basic Policy

- Maintain and expand domestic market share, accelerate and strengthen overseas development
- Use selection and concentration to promote more efficient product development

Earnings Opportunities and Risks

- Growing need for advanced materials to improve quality of healthcare, ease burden on medical professionals, and contribute to health and longevity
- Japanese government's promotion of generic products and ongoing revision of National Health Insurance drug price standards as well as reduction of the insurance reimbursement prices
- Laws and regulations trends in each country

Basic Strategies for Achieving the Medium-term Management Program "AP-G 2019" Targets

■ Pharmaceutical Business

- Maintain the domestic market share and develop overseas markets of oral antipruritus drug REMITCH®*
- Create next-generation drugs using new processes

■ Medical Devices Business

- Expand sales of dialyzer products in Japan and overseas
- Expand domestic sales and accelerate overseas development in critical care and cardiovascular products
- Quickly commercialize bio-devices

Fiscal 2019 Outlook

- In pharmaceuticals, anticipate pruritus treatment REMITCH®* to be affected by its generic versions
- In the medical devices business, will expand sales of our dialysis-related products, but expect price competition to intensify and demand for some products to decrease

*REMITCH® is a registered trademark of Torii Pharmaceutical Co., Ltd.

Exclusive license agreement for Antipruritic Agent TRK-820 in Thailand and Indonesia

Toray and Meiji Seika Pharma Co., Ltd. (Meiji) signed an exclusive license agreement on the orally disintegrating (OD) tablets formulation for the antipruritic drug TRK-820 developed by Toray. Pursuant to the agreement, Meiji gains the exclusive rights to develop and commercialize the product in Thailand and Indonesia. In return, Meiji will pay an initial payment as well as milestone payments in line with development progress to Toray.

TRK-820 is marketed as REMITCH®*1 Capsule 2.5μg and REMITCH® OD Tablet 2.5μg in Japan to improve pruritus in hemodialysis patients and patients with chronic liver disease (used only when sufficient efficacy is not obtained with the existing therapies or treatments). In particular, the REMITCH® OD Tablet can be administered both with and without water and is expected to contribute to improved medication compliance*2 for patients with a deteriorated swallowing function, which would include some senior citizens and those with limited water intake abilities.

Meiji has consolidated pharmaceutical manufacturing subsidiaries in Thailand and Indonesia. Thailand in particular has a large number of end-stage renal disease patients and it is one of the countries where there is a strong need for hemodialysis treatment. Toray and Meiji expect to make a significant contribution to easing pruritus in dialysis and chronic liver disease patients in Thailand and Indonesia who have until now not had access to effective treatment.

*1 REMITCH®: The world's first highly selective K(kappa)-opioid receptor agonist developed by Toray. REMITCH® is a registered trademark of Torii Pharmaceutical Co., Ltd.

*2 Medication compliance: The act of taking medication on schedule and taking medication as prescribed.

Nucleic acid drug TRK-250 receives orphan drug designation from the U.S. FDA

TRK-250 is a nucleic acid drug for the treatment of Idiopathic Pulmonary Fibrosis (IPF), originated by BONAC Corporation (BONAC) and currently undergoing a Phase I clinical trial in the U.S. with IPF patients by Toray. BONAC received an Orphan Drug Designation from the U.S. Food and Drug Administration (FDA) for TRK-250 in February 2019. The orphan drug designation enables benefits such as 7-year marketing exclusivity, tax credits for clinical trials costs, and a partial waiver on marketing application costs in the U.S.

IPF is a disorder with a poor prognosis and an unpredictable clinical course, in which fibrosis of intestinal pneumonia progresses irreversibly. Thus, the development of a novel drug with new mechanisms is expected to broaden the treatment options in clinical practice.

TRK-250 inhibits the progression of pulmonary fibrosis by selectively suppressing the expression of transforming growth factor-beta 1 (TGF-β1) protein, a key growth factor involved in lung fibrosis, at the gene expression level. One of the features of the agent is that it is a single strand long-chain nucleic acid with a unique molecular structure employing BONAC's proprietary nucleic acid platform. The treatment is expected to overcome the issue of stability, a common problem in conventional nucleic acid treatments. Moreover, it comes in an aerosol form that can be administered directly to the lung, which is expected to carry the agent efficiently to the target organ.

With TRK-250's orphan status in hand, Toray and BONAC are focused on further accelerating the development of TRK-250, and aim to market the treatment in the late 2020s.