



# Solutions for change

In 2017 the calls for action on environmental issues rose considerably, particularly with regard to the growing problem of plastic waste in our oceans.

In a report produced by The Ellen MacArthur Foundation and the World Economic Forum, it is estimated that at the current rate of plastic waste entering the oceans there will be more plastic by weight in the oceans than fish by 2050. And in many places around the world this is a very visible reality, with continual large amounts of waste washing up on shorelines every day.

Campaigns calling for new measures to address these issues are increasing around the world, with global institutions and governments proposing new regulations and actions. The European Union has defined new and more aggressive recycling targets, requiring plastic recycling levels of 50% by 2025 and 55% by 2030 (presently 22.5%). China's ban on the import of waste, known as "National Sword," has also had a major impact. Countries that had previously exported a large percentage of their waste to China now must invest in domestic alternatives for handling their waste.

Calls for the implementation of container deposit schemes are also growing. In December 2017 the United Nations Environment Assembly appealed to all nations to introduce deposit schemes for reducing marine littering. Further, the G20 members signed an action plan on marine litter – suggesting extended producer responsibility and deposit schemes for effective waste management systems.

In 2017 New South Wales (NSW), Australia introduced a deposit system. Queensland, Australia and Scotland have also communicated their intended introduction of deposit systems, and similar discussions are developing in a number of other countries. These new regulations drive demand for collection technologies and sorting equipment in

the recycling sector. TOMRA, as the number one provider globally of sensor-based solutions for collecting and sorting of waste, is well positioned to meet this demand.

## MEETING THE INCREASING FOOD DEMAND

With an expanding population and growth in the middle-class consumer group, the demand for food products increases proportionately. By 2050, estimates indicate a growth in food demand of 70%—and it is important to note here that agricultural areas cannot be expanded significantly, and many existing agricultural areas are facing increased environmental challenges such as growing water stress. Many emerging consumers, with strong purchasing power, want greater convenience, increased variation, and access to nutritious, high quality food offerings. Further to this, many typical seasonal products, such as berries, are demanded all year round. We further notice that high quality brand products are outgrowing the traditional commodity markets.

The food industry, in response, is searching for more efficient solutions in globalization of the food supply chain, better quality control systems and higher productivity. Sorting technologies, such as TOMRA's solutions, enable much higher consistent quality and productivity than manual labor can achieve in sorting food. TOMRA is global number one in offering sensor-based solutions for sorting of food products.

## ADDITIONAL TRENDS IMPACTING OUR LONG-TERM STRATEGY

Driven by population growth, urbanization, emergence of smart cities and the digital economy, we anticipate increasing consumer demands for digital services and increased convenience,

which could be highly relevant for our solutions offering. Examples are fast growing ordering of consumer goods, food deliveries and take-away food over web-based services. We note a strong increase for these services in emerging markets such as in Asia. Further requirements for quality and productivity enhancements in the food supply chain as well as the growth of packaging waste open up new potential opportunities for TOMRA. A number of global corporations have communicated increased commitment to reducing their environmental footprint and supporting circular economy development, factors that can also lead to business opportunities for TOMRA. Opportunities within data services, further deployment of artificial intelligence, enhanced sensor technology with focus on internal produce qualities, and connectivity across the value chain and with the installed base of TOMRA machines.

We anticipate that increasing environmental challenges, rapid growth in waste volumes, and the need for greater food security, are all issues that will remain high on the agenda of policymakers. These factors provide TOMRA long-term opportunities to develop and deploy our knowledge and technology, contributing further to optimizing resource productivity and improved environmental footprint.

## HIGHLIGHTS 2017: TOMRA COLLECTION SOLUTIONS

In July 2017, TOMRA in cooperation with the local waste management company, Cleanaway, was awarded the contract to supply the state of New South Wales in Australia with infrastructure needed for its new deposit system. The system went live December 1, 2017, with the use of TOMRA solutions. It was a major effort to set up such a comprehensive system in such a short time. As a



Stefan Ranstrand  
President and CEO TOMRA Systems ASA

We are pleased with the first year of operation and are grateful for the smooth integration and good cultural fit. Compac, as well as the traditional food sorting activities of TOMRA, experienced robust market conditions and progressed well in the year.

Another highlight for the Food business in China was its development of the TOMRA 3C optical sorter. This product, used for the sorting of seeds, was developed by the TOMRA Food technology team in China specifically for the Chinese market.

In 2017 TOMRA Recycling launched its AUTOSORT LASER, offering a powerful sensor combination capable of detecting more material properties at the same point simultaneously, and therefore the ability to sort material fractions more efficiently. In October TOMRA Recycling hosted a global conference for the waste management industry where important discussions took place on the development of the circular economy. Participants also had the opportunity to visit the TOMRA Recycling Test Center in Koblenz, Germany, where demonstrations were given of the AUTOSORT LASER, as well as a preview of the AUTOSORT BLACK—the first machine capable of sorting black plastic packaging materials.

TOMRA Mining also experienced good growth, particularly within its gemstone sorting sector. It also achieved a first with its delivery of sorting technology to a kimberlite waste sorting plant in Canada.

## OUR PRIORITIES FOR 2018

The core fundamentals of TOMRA's offering will continue to remain unchanged; focusing on the targeted business sectors, providing deep sector

knowledge coupled with thought leadership, striving to delight our customers and enhance their competitiveness. We remain committed to serving our customers with state-of-the-art technologies and will use the best of our abilities to help them solve their challenges.

For this, a highly skilled, motivated and geographically dispersed TOMRA team is a key ingredient to our success. We want to offer all our 3,420 employees a meaningful, challenging, safe and rewarding workplace. As part of the Great Place to Work program we conducted an employee satisfaction survey in the fall, where we noted improvements in many areas compared to previous surveys. A solid 78% of the employees expressed that TOMRA is a great place to work.

We believe in continued good momentum into 2018 and are focused on completing the ramp-up of the new container deposit system in New South Wales. We will increase our focus on developing the business in line with the anticipated opportunities connected to smart city development and digitalization of the economy.

We remain committed to the UN Global Compact (as a member since 2009), and strive to support the UN Sustainable Development Goals (SDGs) to the best of our abilities. The 2017 Annual Report contains our eighth consecutive Communication on Progress to the UN Global Compact, reviewing the activities we are focused on as part of our Corporate Responsibility Program. Our aim is to use our business to contribute to a better environment, economy, and society.

*S. Ranstrand*

result, the number of installed sites at the time of launch was behind the desired schedule, however the sites in operation were functioning well and collected over 100 million containers in the first three months. The build-up costs, amounting to almost 70 MNOK, were booked in 2017 and hence affected the earnings result. Since the system is on "through-put lease" basis, revenues will grow gradually, and the revenue contribution in 2017 was insignificant.

Overall, Collection Solutions experienced somewhat lower demand compared to the two "peak years" 2015 and 2016, where we experienced growth of 35% and 7% respectively. The peak in demand was explained by a one-time replacement event in Sweden (some 1,000 RVMS) and the anticipated replacement cycle in Germany. As expected, the replacement event in Sweden ended and the activity in Germany was reduced. Beyond these two events, the base business progressed well and achieved a slight increase in growth.

## HIGHLIGHTS 2017: TOMRA SORTING SOLUTIONS

In February 2017, TOMRA completed its acquisition of the New Zealand based food sorting company, Compac. The strategic reason for the acquisition was to broaden the portfolio, tap into synergies, especially in sales, service and technology, and to extend market reach. Compac underwent a number of agreed improvement projects in 2017 and delivered on the committed targets.



Beginning with the invention of the world's first reverse vending machine in 1972, all the way to providing the most innovative sensor-based sorting solutions today, TOMRA has continuously redefined what it means to be resourceful.

In 2010, as part of integrating recent acquisitions and creating a unified brand, TOMRA updated its vision and mission to better reflect its activities and business strategy. The resulting vision of leading the resource revolution within the business streams of reverse vending, material recovery, food, recycling and mining will enable better utilisation of the world's natural resources as the resource revolution is about transforming how resources are obtained, used and reused for sustainable economic growth.

TOMRA's vision and its activities fit well with several of the UN Sustainable Development Goals (SDGs) and the move towards a circular economy. In particular, SDG 12 – Responsible Consumption and Production is about promoting resource efficiency and “doing more and better with less.” This is also highlighted in the Global Opportunity Report 2018,<sup>(2)</sup>

which states that “achieving economic growth and sustainable development requires us to reduce our ecological footprint by changing the way we produce and consume resources.”

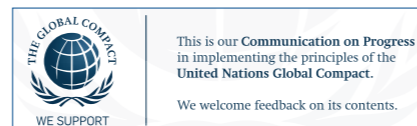
The Global Opportunity Report 2018 focuses on the four SDGs that, according to the “Future of Spaceship Earth” report,<sup>(3)</sup> are most likely to miss their 2030 targets, which includes SDG 12, and highlights global opportunities and business solutions that can help achieve the targets. The report notes that technology has an important role to play in developing innovative solutions, particularly when linked to key markets such as health, food, water and energy.

One example is “Smart Farming” and the use of technology and data to improve processes and increase transparency in the supply chain. TOMRA has identified this as one of several areas where it can make an impact and TOMRA Food recently announced that it will set up Farm-to-Fork working groups to accelerate development of digital standards for the food industry. The topics to be addressed will include how data can be used to inform future

farming practices, optimise yield and reduce waste, and are highly relevant to the SDG 12 target of reducing global food waste.

At TOMRA, it is the role of the Board of Directors to ensure that the Group's corporate governance, environmental, social and ethical practices are sufficient, and TOMRA's Corporate Responsibility Program and implementation plan were reviewed in detail at the April 2017 board meeting. The Corporate Responsibility Committee assists the Board by monitoring and reviewing TOMRA's practices and policies in this area, including regular reviews of progress.

As a member of the UN Global Compact, TOMRA aims to consistently support doing business responsibly and implement the principles of the UN Global Compact. The following pages form part of TOMRA's annual Communication on Progress.



**CIRCULAR ECONOMY PRINCIPLES <sup>(1)</sup>**

- Design out waste and pollution
- Keep products and materials in use
- Regenerate natural systems

**References:**

- (1) *Circular Economy overview – Ellen MacArthur Foundation*
- (2) *Global Opportunity Report 2018 – DNV GL, Sustainia and UN Global Compact*
- (3) *Future of Spaceship Earth – DNV GL*

**TOMRA'S CR PROGRAM**



**Decent work and economic growth - SDG 8**

TOMRA will promote sustained, inclusive and sustainable economic growth and decent work for all.



**Industry, innovation and infrastructure - SDG 9**

TOMRA will contribute to building infrastructure by supporting sustainable use of natural resources and fostering sustainable innovation in the industry.



**Sustainable cities and communities - SDG 11**

TOMRA will contribute to making cities and communities more sustainable by delivering sorting and recycling solutions that ensure safe waste handling.



**Responsible consumption and production SDG - 12**

TOMRA will contribute to ensure sustainable consumption and production patterns.

**SUSTAINABLE DEVELOPMENT GOALS**





ENVIRONMENTAL REVIEW

TOMRA's mission is to create sensor-based solutions for optimal resource productivity so that its products and services contribute to better use of the world's limited resources. Each of its business streams contributes to resource productivity in different ways.

- TCS Reverse Vending ensures efficient collection of beverage containers for high-grade recycling and reuse
- TCS Material Recovery processes empty beverage containers for recycling
- TSS Food sorts and processes fresh and processed food, increasing quality, safety and efficiency
- TSS Recycling enables valuable materials to be recovered from waste and metal material streams
- TSS Mining helps extend the life of mining operations by separating valuable mineral ores from waste rock

The nature of TOMRA's activities means that climate change creates more business opportunities than risks as TOMRA's solutions contribute to sustainable consumption, increased recycling and reduced waste.

An example of this is the growing awareness of marine litter and the need to reduce the amount of plastic reaching the oceans. TOMRA can help to reduce plastic litter in two ways:

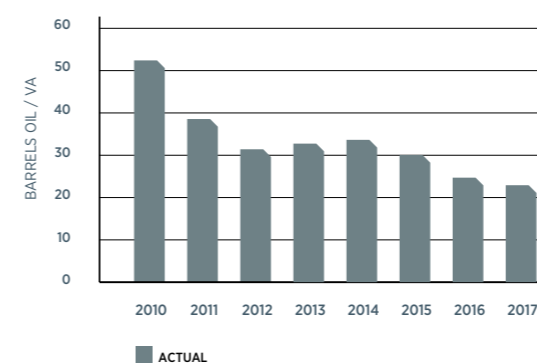
1. Reverse Vending as part of a deposit system encourages consumers to return plastic bottles and other containers to a collection location
2. TOMRA's technology recognises and sorts plastic from household and other waste

As part of this, TOMRA Recycling joined the New Plastics Economy, an initiative launched by the Ellen MacArthur Foundations to look at design, reuse and recycling of plastic packaging, at the start of 2017.

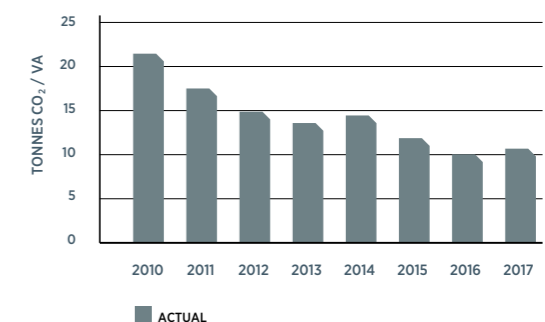
TOMRA reports environmental data from its head office in Norway and all majority-owned subsidiaries. Energy consumption and carbon emissions are primarily driven by TOMRA's vehicle fleet, which consists of trucks in the Material Recovery segment and vans for the service teams. TOMRA has implemented a number of initiatives in recent years to address fuel consumption. TOMRA also reports avoided emissions to illustrate the positive environmental impact that TOMRA's products contribute to, and TOMRA intends to focus more on this positive contribution going forward as part of its involvement in the circular economy.

TOMRA's environmental performance in 2017 showed an increase in direct and indirect emissions. This is mainly explained by increased air travel relating to the acquisition of Compac (based in New Zealand) and the introduction of deposit in Australia. Note that TOMRA Lane Sorting (Compac) is also included in the data for 2017 following its acquisition at the start of the year.

Energy Consumption per unit of value added



Greenhouse Gas Emissions from Operations per unit of value added





## 1. CLIMATE CHANGE ACCOUNT

### CARBON DIOXIDE EMISSIONS FROM OPERATIONS

TONNES CARBON DIOXIDE	2017	2016
<b>Emission from stationary sources (Scope 1)</b>	<b>1 600</b>	<b>1 400</b>
Heating oil	0	0
Natural gas	1 000	1 100
Propane	600	300
<b>Emission from purchased grid electricity (Scope 2)</b>	<b>6 500</b>	<b>6 300</b>
Norway	0	0
Other Europe	800	1 000
North America	5 300	5 000
Rest of World	400	300
Certified low-carbon or renewable	0	0
<b>Emission from transportation</b>	<b>20 500</b>	<b>17 200</b>
Petrol vehicles (Scope 1)	3 700	3 900
Diesel vehicles (Scope 1)	11 300	9 400
LPG vehicles (Scope 1)	0	1 700
Employee-owned vehicles (Scope 3)	200	100
Air travel (Scope 3)	5 300	2 100
<b>Total direct emissions (tonnes CO<sub>2</sub>)</b>	<b>28 600</b>	<b>24 900</b>
<b>Emission from products during use-phase (Scope 3)</b>	<b>68 700</b>	<b>65 700</b>
RVMs owned and operated by TOMRA and customers	61 700	60 000
Scanners owned by customers	7 000	5 700
<b>Total direct and indirect emissions</b>	<b>97 000</b>	<b>91 000</b>

### AVOIDED CARBON DIOXIDE EMISSIONS THROUGH PRODUCT USE

TONNES CARBON DIOXIDE	2017	2016
<b>Beverage container collection through RVMs and ARCs (1)</b>	<b>2 905 000</b>	<b>2 822 000</b>
Plastic bottles	794 000	771 000
Glass bottles	541 000	526 000
Aluminium cans	1 534 000	1 490 000
Steel cans	36 000	35 000
<b>Packaging material transport and handling (2)</b>	<b>815 000</b>	<b>806 000</b>
Glass bottles	50 000	57 000
Aluminium cans	650 000	641 000
Plastic bottles, PET	110 000	103 000
Plastic bottles, HDPE	1 000	1 000
Cardboard and fiber	4 000	4 000
<b>Material sorted for recycling from mixed sources (3)</b>	<b>23 800 000</b>	<b>23 543 000</b>
Glass	110 000	106 000
Aluminium	4 850 000	4 756 000
PET	2 940 000	2 879 000
HDPE	510 000	504 000
Fiber	290 000	289 000
Non-ferrous metal	12 980 000	12 913 000
Other	2 120 000	2 096 000
<b>Total emission avoidance</b>	<b>27 520 000</b>	<b>27 170 000</b>
<b>Net carbon dioxide emission/(avoidance)</b>	<b>(27 400 000)</b>	<b>(27 100 000)</b>

## 2. ENERGY CONSUMPTION

### ENERGY USED IN MANUFACTURING, SALES, SERVICE AND OPERATIONAL PROCESSES

BARRELS OIL EQUIVALENT	2017	2016
<b>Energy consumption, stationary sources (Scope 1)</b>	<b>5 000</b>	<b>300</b>
Heating oil	0	0
Natural gas	3 300	200
Propane	1 700	100
<b>Energy consumption, purchased grid electricity (Scope 2)</b>	<b>12 900</b>	<b>14 500</b>
Norway	2 300	2 400
Europe EU25	1 700	2 200
North America	8 300	9 700
Rest of World	600	200
<b>Energy consumption, transportation</b>	<b>45 600</b>	<b>45 400</b>
Petrol vehicles (Scope 1)	8 900	10 600
Diesel vehicles (Scope 1)	26 400	22 000
LPG vehicles (Scope 1)	0	7 900
Employee-owned vehicles (Scope 3)	200	0
Air travel (Scope 3)	10 100	4 900
<b>Total direct energy consumption</b>	<b>63 500</b>	<b>60 200</b>
<b>Energy consumption, products during use-phase (Scope 3)</b>	<b>82 300</b>	<b>78 600</b>
RVMs owned and operated by TOMRA and customers	73 900	71 800
Scanners owned by customers	8 400	6 800
<b>Total direct and indirect energy consumption</b>	<b>145 800</b>	<b>138 800</b>

## 3. WASTE GENERATION

### WASTE FROM MANUFACTURING, SALES, SERVICE AND OPERATIONS

TONNES WASTE	2017	2016
<b>Waste generation</b>	<b>3 840</b>	<b>3 730</b>
Paper	50	0
Cardboard	275	250
Plastics	730	720
Wood	120	120
Electric and electronic waste	65	40
Expanded polystyrene	0	0
Metal scrap	280	300
Batteries	0	0
Hazardous waste	30	0
Unsorted	2 290	2 300

## 4. WATER CONSUMPTION

### WATER USED BY MANUFACTURING, SALES, SERVICE AND OPERATIONS

CUBIC METRES WATER	2017	2016
<b>Water consumed</b>	<b>18 850</b>	<b>15 900</b>
Norway	2 600	2 500
Europe EU25	10 200	9 950
North America	4 300	3 200
Rest of World	1 750	250

Scope 1: All direct GHG emissions  
 Scope 2: Indirect GHG emissions from purchased electricity, heat or steam  
 Scope 3: Other indirect emissions from purchased goods or services

## NOTES

Emissions have been calculated using the GHG Protocol calculation tools ([www.ghgprotocol.org](http://www.ghgprotocol.org)), and 'Waste Management Options and Climate Change' ([ec.europa.eu/environment/waste/studies/pdf/climate\\_change.pdf](http://ec.europa.eu/environment/waste/studies/pdf/climate_change.pdf)).

1. Beverage container collection through RVMs, TOMRA Collection (Reverse Vending)

Calculated carbon dioxide savings based on the total number of beverage containers collected through TOMRA's over 70,000 RVM installations; more than 35 billion units annually. All glass beverage containers are assumed to be non-refillable, giving significantly lower assumed weight. Split between packaging types is based on beverage consumption data and TOMRA estimates.

The full benefit of collecting and recycling the beverage containers into new material, versus landfill, is included in the calculation.

2. Packaging material transport and handling, TOMRA Collection (Material Handling)

Carbon dioxide saving based on the tonnage

of beverage container material transported and handled by TOMRA in USA. The full benefit of collecting and recycling beverage containers into new material, as opposed to landfill, is included in the calculation, meaning that some of the saving is also included under "Beverage container collection through RVMs."

3. Material sorted for recycling from mixed sources, TOMRA Sorting (Recycling)

Estimated material throughput in TSS Recycling installations is used in the calculation of avoided carbon dioxide emission. The full benefit of sorting materials and recycling into new is included in the calculation.

The provision of information on carbon dioxide emission avoidance is illustrative only, and intended solely as an aid to illustrate the benefit to society generated by the TOMRA Group. The above information does not constitute a full Life Cycle Analysis. The methodology and assumptions used in calculating carbon dioxide avoidance are available upon request.

SOCIAL AND ETHICAL REVIEW

**RESPONSIBLE BUSINESS**

TOMRA is committed to doing business ethically and operates with zero-tolerance for corruption. As part of this, risk assessments are performed for new customers and other business partners. TOMRA respects internationally recognized human rights principles and does not accept any form of discrimination or harassment. Any potential breaches are investigated promptly and, where necessary, appropriate action is taken.

TOMRA has developed a Corporate Responsibility Statement and Code of Conduct along with other policies and guidelines that apply to TOMRA's employees and business practices worldwide. Policies that apply to TOMRA Group have been published on the company intranet and local versions of selected policies are also available.

Information on company policies, including anti-corruption and non-discrimination, is also regularly included in internal company presentations. In addition, further information sessions and/or in-depth workshops are held throughout the year.

Awareness of and compliance with TOMRA's policies is monitored as part of internal audit and the non-financial reporting process. This is part of ensuring that the TOMRA team promotes the core values by acting responsibly at all times.

TOMRA's Code of Conduct details how employees can raise concerns or report violations of TOMRA's policies. Some of these channels, including

ethics@tomra.com, are also available externally and it is possible to remain anonymous. The Corporate Responsibility Committee has reviewed the 2017 cases and the actions taken by TOMRA.

**TOMRA PEOPLE**

TOMRA aims to be an attractive employer and promotes equal employment opportunity. As a result, TOMRA has launched several initiatives over recent years to improve employee satisfaction and provide new challenges and opportunities for those who are looking to develop their abilities in a range of areas. In the 2017 employee survey, 78% of employees reported that they were satisfied overall with working at TOMRA. The slight increase from the previous good result indicates that TOMRA continues to be a great place to work.

TOMRA recognizes that having a diverse workforce leads to better understanding of the global market and, therefore, improved performance over time. In 2017, TOMRA introduced additional training and monitoring to ensure quality and consistency in recruitment processes.

The reportable injuries in 2017 include one fatality as the result of an accident at a TOMRA facility in Canada. The safety of all workers is of utmost importance and TOMRA immediately reviewed its internal processes following the accident. The management team is currently waiting for the report of the external investigators to see if further action is required.

The total number of employees at the end of 2017 includes TOMRA Lane Sorting (Compac), which was acquired

at the start of the year. The relatively low number of female employees is similar to comparable companies.

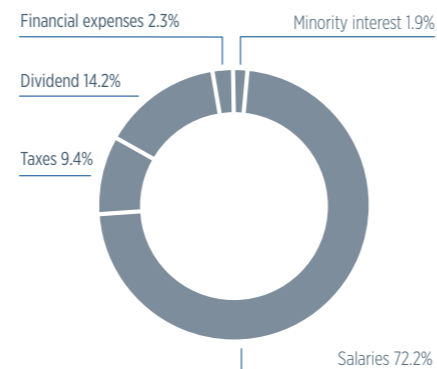
The continuation of the work described above contributes to UN SDG 8 – Decent Work and Economic Growth as part of TOMRA's Corporate Responsibility Program.

**ECONOMIC IMPACT**

TOMRA reports the value distributed to different stakeholder groups as a means of measuring the impact of its activities. These stakeholders include employees, shareholders and society in general.

In 2017, TOMRA created added value of more than 2,700 MNOK, an increase of over 10% compared to 2016. This was distributed to stakeholders as shown in the chart below.

**VALUE DISTRIBUTED 2017**



**IMPACT ON PEOPLE WITHIN TOMRA GROUP**

	2017	2016	2015
Number of employees (#)	3,420	2,770	2,622
Female employees (%)	19	18	16
Female managers (%)	21	22	20
Reportable injuries (#)	102	104	95
- per 100 FTE (#)	3.1	3.9	3.8