Reducing our environmental footprint

Effective environmental management across our operations and value chain goes beyond compliance with applicable laws and regulations: It is central to the security of raw material supply, promotes efficiency and savings, and minimizes negative environmental impacts.

Our environmental management strategy follows a two-pronged approach:

— Minimizing our impact on the environment through carbon footprint and water use reduction, conserving biodiversity and combating deforestation, as well as waste minimization; and

— Understanding and adapting to potential future business impacts of major environmental trends, such as the impact of climate change on tobacco growing. We undertake risk assessments to quantify the impacts of these trends along our value chain. Based on the results, we develop management and adaptation strategies.

Through life-cycle and other assessments along our value chain we understand our main areas of impact and therefore where to set priorities. These areas include tobacco farming for carbon footprint reduction and water stewardship action and product end-of-use for action on litter and waste. We also need to manage new areas of impact due to the increasing use of electronics and batteries in our products.

In this section, we provide an update on our 2017 activities related to climate change, water use, biodiversity, deforestation, and waste. These efforts demonstrate how we are embedding SDGs 6-7 and 13-15 into our sustainability strategy and how these activities contribute towards advancing SDG 12 on Responsible Consumption and Production.

Climate change – a science-based approach

Climate change, one of the biggest challenges facing humanity today, requires collective global action. Following the adoption of the Paris Climate Agreement in 2015, there is widespread understanding of what needs to be done to protect the planet. PMI supports the Agreement, and we are playing our part in delivering on the necessary action.

In 2017, we continued to make progress in reducing our environmental impact across our value chain: in our factories where our carbon footprint is relatively small compared to other industries, as well as beyond the factory gates. That includes looking at both our upstream supply chain activities (currently focusing on tobacco farming) and downstream, following our product and packaging environmental impacts to end-of-use. We also work towards ambitious targets, based on climate science, which guide and inform our climate change programs as part of our culture of continuous improvement.

CDP Climate leadership for the fourth year in a row

Every year we report on the status of our activities and progress to CDP, the leading international not-for-profit organization assessing companies' efforts on climate change. Out of over a thousand of the world's largest companies assessed by CDP last year, PMI's operational carbon footprint is nearly 90% lower than the average, and PMI is one of only 25 companies recognized in CDP's 2017 "Climate A List," for consistently taking comprehensive action to reduce greenhouse gas (GHG) emissions and mitigate climate change, and for the transparency of our disclosures.

PMI also achieved CDP Supplier Engagement Leadership for our actions and strategies to reduce emissions and lower climate-related risks in our supply chain, making it onto CDP's Supplier Engagement leader board, and placing PMI within the top 2% of companies in 2017.

Science-based targets and renewables

PMI supported the call for a price on carbon in the Paris Climate Agreement and committed to developing science-based targets. Our targets, which were recognized by the Science-Based Targets initiative in 2017, demonstrate how PMI can contribute to keeping global warming below 2°C based on pre-industrial levels.
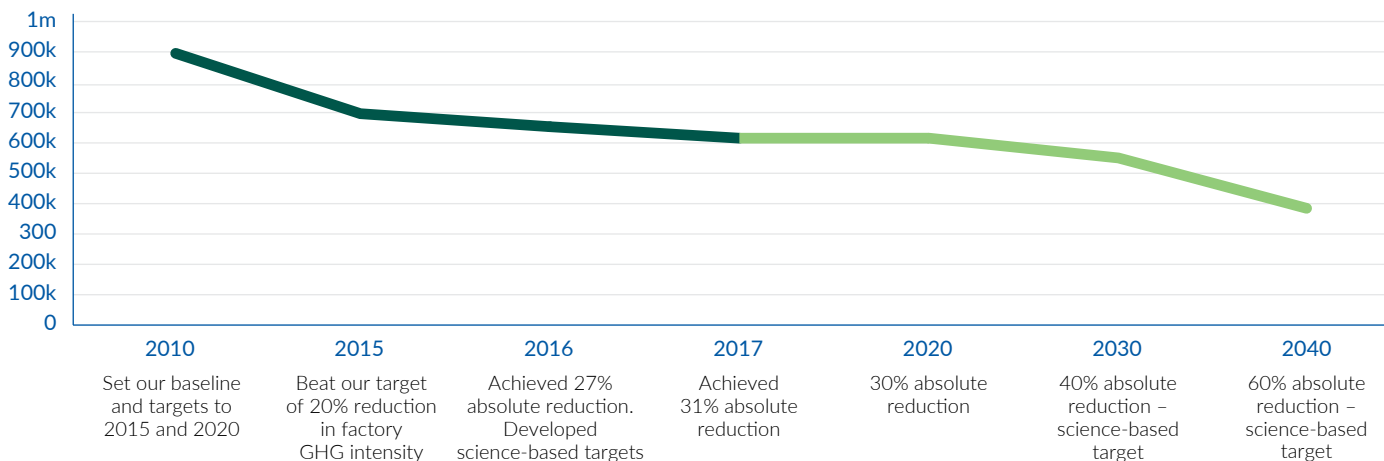
We have set our performance baseline as 2010. Against that baseline, we aim to reduce absolute CO_2e emissions from our own operations by 30% by 2020, 40% by 2030 and 60% by 2040. We are well on track in 2017, achieving an overall reduction of 31% for our GHG scopes 1 and 2 emissions, driven by the use of greener electricity, exceeding our 2020 target.

Across our value chain, we aim to reduce absolute CO_2e emissions by 40% by 2030. In 2017, we achieved a 30% reduction across scopes 1, 2 and 3, driven by gains in curing efficiency and use of greener fuels in tobacco agriculture. We also have a long-standing commitment to reduce the emissions intensity of our value chain (measured in CO_2e per million cigarettes equivalent) by 30% by 2020. In 2017, we remained on track to meet this target, reaching a 24% reduction since 2010.

Global greenhouse gas emissions scope 1, 2 and 3 ('000 metric tons CO_2e)

Year	Scope 3	Scope 2	Scope 1	Total
2010 baseline	88%	6%	6%	7,401
2015	89%	5%	6%	6,381
2016	88%	6%	6%	5,691
2017	88%	5%	8%	5,149

■ Scope 3 ■ Scope 2 ■ Scope 1

Absolute GHG Emissions: Scope 1 and 2 – Results and Targets

2010	2015	2016	2017	2020	2030	2040
Set our baseline and targets to 2015 and 2020	Beat our target of 20% reduction in factory GHG intensity	Achieved 27% absolute reduction. Developed science-based targets	Achieved 31% absolute reduction	30% absolute reduction	40% absolute reduction – science-based target	60% absolute reduction – science-based target

The programs for achieving our targets are comprehensive and include:

— eco-design in new facilities;

— fuel efficiency in our manufacturing processes;

— purchasing greener electricity;

— purchasing greener fuels;

— greening our fleet; and

— helping farmers improve fuel efficiency and use greener fuels in our tobacco supply chain.

We are continuing our Marginal Abatement Cost Curve (MACC) approach to identify where to act by comparing and ranking all our GHG reduction projects globally based on their cost-effectiveness in reducing emissions. We have also set an internal carbon price (USD 17 per ton CO_2e), necessary to drive the investments needed. On a day-to-day basis we use MACC to refresh and enhance our list of initiatives. As an example, in 2017 we installed three high-efficiency tri-generation power plants – systems which generate heat, cold, and power in one efficient combined process – coupled with solar photovoltaic energy generation in Indonesia and Turkey.

In order to support our science-based targets and green technology development, we set a target to source 80% of our production electricity needs from renewables by 2030. In 2017, with green electricity supplied to our facilities for the first time in Mexico, Colombia and Serbia, 53% of electricity was sourced from wind, solar or hydro plants. We will continue sourcing more as renewable electricity becomes available in the countries where we operate.

Greening our vehicle fleet

PMI operates a fleet of more than 25,000 vehicles across the world. In 2017, fleet emissions represented around 30% of our Scope 1 GHG emissions. Reducing those emissions must therefore form a core part of our carbon reduction strategy. In 2017, the absolute CO_2e emissions from our fleet decreased by approximately 16% versus our 2010 baseline.

Significant technological advancement in electric vehicles make them more commercially competitive for fleet managers, and a range of fully electric, hybrid, and other low carbon emissions vehicles are now available in many of the markets where we operate. We are therefore developing a global roadmap on how to move towards a more sustainable fleet, cutting carbon emissions, generating cost savings, and maximizing efficiency.

One example of how we have implemented this approach comes from our affiliate in Spain, where we replaced the entire diesel-powered fleet with hybrid electric cars (around 300 cars). As a result of this project, the fleet CO_2e emissions were reduced by 21%, with an associated reduction in other pollutants typical of diesel vehicles. Beyond the environmental improvements, there was an outstanding engagement within our organization whereby our employees actively participated in the selection of hybrid vehicle models available from different manufacturers. We also recognize that having the correct vehicles is only the starting point and are now focusing on eco-driving initiatives with technical training for our employees on how to drive in the most efficient way.

Working with tobacco farmers to reduce greenhouse gas emissions

The environmental impact of tobacco farming can be significant, and the GAP program is therefore crucial for managing and reducing our overall environmental footprint.

Most GHG emissions related to the tobacco supply chain come from the curing process for Virginia flue-cured tobacco (Virginia). Our target is to lower the GHG emission intensity related to this curing process by 70% by 2020, compared to a 2010 baseline. We are well on track, with a 38% reduction achieved so far by 2017. To achieve this target we focus on improving curing barn efficiency and eliminating the use of coal and non-sustainable firewood.

Improving curing barn efficiency

One of the main tobacco types used in our products is Virginia tobacco, which is cured in heated barns and thus requires an energy source, such as wood. About five kilograms of wood are needed to cure one kilogram of Virginia tobacco. With Virginia tobacco representing approximately two-thirds of our global tobacco variety needs, and around 140 grams of tobacco to produce a carton of 200 cigarettes, approximately 0.5 kilogram of wood is required for the curing of 200 cigarettes.[45]

Most tobacco growers around the world own their own curing barns. Our GAP program focuses on improving combustion efficiency, ventilation, and controls of the barns. In 2017 alone, approximately 23,000 barns were improved in Brazil, Indonesia, Italy, Malawi, Pakistan, the Philippines, Spain, and Tanzania, bringing the total number of barns improved since the beginning of the program in 2014 to approximately 45,000. We aim to improve a total of 60,000 barns by 2020.

To further improve curing efficiency, a trial has been carried out in Brazil and Pakistan involving the installation of fins on the heating pipes in flue-curing barns to increase the exposed surface area and hence the efficiency of the heat exchange. Based on initial results in Pakistan, this method can lead to savings of more than 10% of firewood-fuel.

Eliminating the use of coal and non-sustainable firewood

Based on current plans, more than 70% of our flue-cured tobacco purchases should be cured with renewable fuel sources by 2020. In 2017, 36% of the flue-cured tobacco we purchased was cured with renewable fuels (versus 29% in 2016) of which 29% was cured with sustainably sourced firewood and 7% with biomass. As a result, GHG emissions from curing activities were reduced by over 330,000 tCO$_2$e.

To increase the use of renewable and traceable curing fuel sources, PMI leaf operations and tobacco suppliers planted more than 26 million trees in Brazil, Indonesia, Malawi, Mozambique, Pakistan, the Philippines, and Tanzania. Natural forest regeneration practices were implemented in collaboration with our tobacco suppliers in the secondary Miombo woodland[46] in Malawi, Mozambique, and Tanzania.

To further improve the supply of sustainable firewood for both curing Virginia tobacco and for domestic requirements in tobacco farming communities, our tobacco supplier piloted two community management plans for the secondary Miombo woodlands in Mozambique. These were based on providing technical and financial support to the tobacco farming communities, which will gradually take up the management and ultimately harvest the firewood.

In 2018, we expect to review the first outcomes of the Miombo regeneration strategy and management plans to validate whether they provide a sustainable approach to the supply of firewood. If the practices are demonstrated as feasible and sustainable, we intend to establish more than 10,000 hectares of such managed forestry by 2020.

In 2017, approximately 23% of our Virginia purchases were still cured with coal. Plans have been developed to replace coal with agricultural waste pellets, green electricity produced by hydro-power plants, and sustainable firewood in countries still using coal to cure our Virginia purchases. Our objective is that by 2020, no coal will be used to cure our flue-cured tobacco purchases.

In 2018 and 2019, our GHG emissions related to tobacco flue-curing are expected to decrease further through a significant increase in the usage of traceable firewood coming from sustainably managed tree plantations (more than 200 million trees were planted between 2000 and 2017). As part of our precautionary approach, we do not assume that fuelwood is from sustainable sources unless we have proof – and we calculate our carbon footprint accordingly, using a "full carbon" emission factor for fuel wood that we are not sure is renewable.

Sustainably sourced wood chips used as fuel in tobacco curing

CO$_2$e reductions in our tobacco supply chain

A monitoring and verification framework has been launched in 2017 across our leaf supply chain to monitor and verify the impact of the more than 40 initiatives being implemented. These initiatives support the achievement of our 70% carbon footprint reduction goal for 2020 by eliminating the use of coal and non-sustainable firewood, promoting the use of alternative biomass fuels and improving curing efficiency.

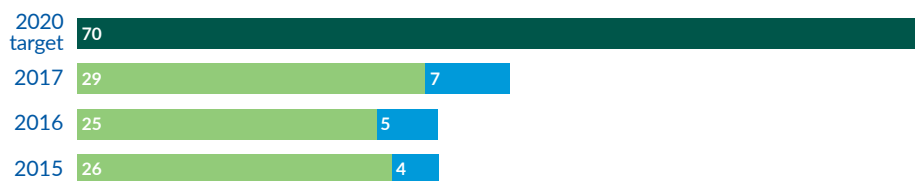### PMI targets for 2020 to improve environmental performance in our tobacco supply chain

CO$_2$e reduction (%)

2020 target	70
2017	38
2016	14
2015	12

Tobacco purchased at no risk of deforestation of old growth forest (%)

2020 target	100
2017	94
2016	88
2015	87

Renewable and traceable fuel sources (%)

2020 target	70	
2017	29	7
2016	25	5
2015	26	4

■ Self-sufficient firewood ■ Biomass adoption ■ Renewable and traceable fuel sources

Water: stewardship across and beyond our operations

In comparison to other products, tobacco is not particularly water intensive. Water is used in our factories, in the manufacture of raw materials such as filters, paper and packaging materials, and in agriculture, even though more than half of the tobacco grown is rain-fed and does not require irrigation.

In our environmental programs, we do not just seek to reduce what we use but also to act as a water steward. That means responsibly using the water we need without negatively affecting the needs of others by:

— Understanding how much water we need and using it optimally;

— Not negatively impacting the quality of water resources;

— Striving to ensure access to safe Water, Sanitation and Hygiene (WASH) in all our facilities and increase availability of WASH services on our contracted farms;

— Respecting the vulnerability of water resources we use and the role of those resources in the wider community;

— Seeking partnerships to improve our water management practices; and

— Continuously improving these practices through our Good Agricultural Practices program in our tobacco supply chain.

In 2017, we achieved A-List status for CDP Water, which recognizes our water stewardship initiatives.

Water is not a major input to conventional tobacco product manufacturing, but we seek continual water use reduction across manufacturing facilities and focus on achieving improvements in water efficiency, conservation, and reusing or recycling water where possible.

In 2017, the process to manufacture our new smoke-free products required approximately four times more water per unit of product than for conventional cigarettes. Our efforts are geared towards improving water efficiency throughout that process by implementing new process designs, reusing or recycling water, and by using rainwater harvesting where feasible, with a view to minimum water discharge.

In 2017, PMI implemented other initiatives to reduce water use and increase water recovery; however, due to our new manufacturing process, our average water consumption increased from our lowest level of 4.0m³ in 2016 to 4.8m³ of water for every million units of product equivalent (cigarettes and *Heatsticks*).

Putting tobacco's water footprint into context

Tobacco growing and manufacturing take around one-third of the water required to make the same amount of tea or one sixth of that required for coffee or chocolate (per weight of finished product).[1]

Tobacco   Tea   Chocolate
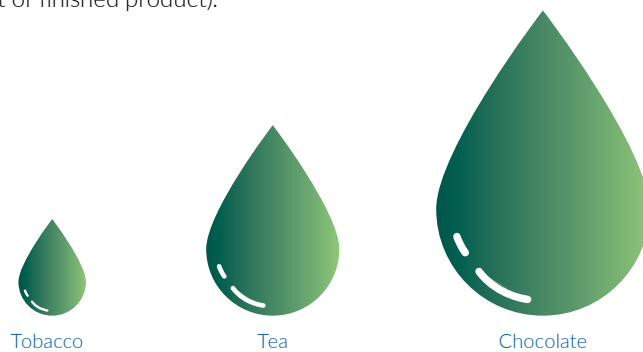
1   Estimation based on PMI water use data for manufacturing and "The green, blue and grey water footprint of crops and derived crop products", M. M. Mekonnen and A. Y. Hoekstra, 2011. (http://wfn.project-platforms.com/Reports/Mekonnen-Hoekstra-2011-WaterFootprintCrops.pdf)

We joined the Alliance for Water Stewardship (AWS) in 2017, a leading organization dedicated to better managing water within the local watersheds. We successfully piloted the adoption of the AWS Standard in our factory in Brazil and developed a toolbox for wider implementation. In March 2018, our factory became the first factory in the country to be certified by AWS. Based on the results and learnings from this pilot, we will roll out the AWS Standard globally. As a priority, we plan to certify the ten factories which ranked highest in our previous risk assessment by 2020 and to extend to the rest of our operations until 2030.

Water stewardship in tobacco agriculture

More than half of the tobacco crops supplied to PMI globally are rain-fed and do not require supplementary irrigation other than at the seedling stage.

In 2017, water baseline studies were conducted in 60 different geographical areas where specific types of tobacco are grown. The selected areas represent 90% of PMI's global purchases of tobacco leaf. A water risk assessment system has been developed, including a global risk assessment tool and a tailored local risk assessment methodology and guideline. Three important tobacco-sourcing countries – Brazil, Malawi and U.S. – were selected to pilot and validate the risk assessment methodology.

The pilot risk assessment in Malawi helped us highlight the lack of access to adequate safe Water, Sanitation and Hygiene services (WASH), which poses a risk to farmers' and workers' health and livelihoods. In Malawi, more than 30% of the rural population lacks access to basic

WASH services,[47] and there are no indications that the situation of smallholder tobacco farmers and contracted workers would differ much from other rural households. Our first priority is on smallholder farms where PMI's active support in providing WASH services is most needed.

The pilot project in Malawi aims to provide a concrete example of how to invest into improving WASH services for farmers in the supply chain and to identify opportunities for further roll-out of a WASH intervention. In developing our project, we used UNICEF/WHO criteria for basic service level provision, which are defined as:

— An improved drinking water source within a 30-minute roundtrip;

— An improved sanitation facility which is not shared with other households; and

— A handwashing facility with water and soap.

In 2018, we plan to begin a program of providing and adapting boreholes fitted with hand pumps. We are also investigating more innovative solutions, such as cloud fishing nets (condensing water from air) and ferro-cement water storage tanks. PMI is engaging with local stakeholders during the pilot to leverage their local expertise and networks, and we already see their strong interest to be involved and contribute to the socio-economic development of Malawi.

A live barn structure in Malawi

Conserving biodiversity and combating deforestation

Biodiversity

Biodiversity represents the diversity of natural habitats, of species in these habitats, and of the genome within these species. Its conservation is essential, not only because we utilize a great diversity of species but also because healthy habitats provide vital services like pollination, biological pest control, filter functions of soils, and the regulation of nutrient cycles.

It is important for successful agriculture that diversity in habitats and species is maintained, as biodiversity raises the resilience of ecosystems and helps provide valuable ecological services including genetic diversity, which is key for biological pest control.

Due to the nature of PMI's business, there are no significant impacts on biodiversity or deforestation from our own operations. Where we do have a larger role to play on biodiversity is in our supply chain. Impacts linked to tobacco farming are addressed through our Good Agricultural Practices program for tobacco suppliers, where we describe our requirements for good environmental practices, including integrated pest management and soil conservation practices, as well as biodiversity management.

GAP provides guidance on biodiversity management practices and requires our tobacco suppliers to develop and implement a biodiversity management plan that incorporates, and goes beyond compliance with the applicable laws, and regulations for tobacco- and forest-growing areas. Tobacco production areas must not be located in places that could cause negative effects on national parks, wildlife refuges, biological corridors, forestry reserves, buffer zones, or other public or private biological conservation areas.

The tobacco supplier plan must aim to enhance habitats, promote native species, maintain biodiversity on the farm through protection of conservation areas and endangered species; the conservation of natural habitats and corridors between natural habitats; land conversion; soil conservation practices; and minimization of pollution to the air, water, or land.

Biodiversity initiatives are linked to tobacco-farming systems or farmed landscape where our tobacco suppliers work with the farmers to make them understand the requirements and provide examples that apply to their daily work.

Responsible management of chemicals for crop protection

To achieve responsible management of chemicals for crop protection, and to reduce risks to the health and safety of farmers and farm workers, we have established an Integrated Pest Management (IPM) program.

IPM plans are underway in all the main areas where tobacco is grown for PMI. Tools have been developed to support the implementation of the program in collaboration with the not-for-profit Centre for Agriculture and Bioscience International (CABI),[48] namely a manual to help screen bio pesticides, a database with over 300 non-Highly Hazardous Pesticides (non-HHP) alternatives, and best practice guidelines for Personal Protective Equipment (PPE) and for the disposal of empty Crop Protection Agent (CPA) containers. Our newly launched IPM app has reached approximately 700 users, while the new IPM website[49] has reached more than 6,500 views in 2017. Both the IPM app and website benefited from the addition of newly developed content.

We have made significant progress towards achieving our target to eliminate WHO TOX1[50] CPAs by crop year 2018 and HHPs by crop year 2020 through promoting alternative and less toxic CPAs and bio pesticides. At the end of 2016, the volume of purchased tobacco without quantifiable level of any WHO TOX1 CPAs was at 98%, in line with our target to reach 100% by 2018. Eighty-four percent of our tobacco purchases did not contain any other quantifiable HHP residues, which represented progress against our target to completely eliminate the use of HHPs by 2020.

Deforestation

One of the most significant environmental issues facing the world is deforestation, which results in both a loss of biodiversity and climate change impacts.

PMI has been working for many years with suppliers and farmers to address the issue of wood used as fuel in tobacco curing, which in some places is associated with risk of deforestation. We address this by improving curing-barn efficiency and increasing the use of sustainable and traceable curing-fuel sources. We currently purchase 94% of tobacco cured at no risk of deforestation, up from 88% in 2016.

Identifying and promoting the use of natural agents to combat pests in tobacco plants
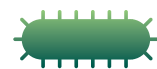
50
Microorganisms
(bacteria, fungi, oomycetes, virus)

9
Semiochemicals
(pheromones)

148
active substances identified

36
Botanicals

53
Macroorganisms
(beneficial nematodes, lacewings, ladybird beetles, parasitoid wasps, predatory bugs and mites)

© CABI

An example of our efforts in this area is the collaboration with our tobacco suppliers in the "Live Barn" initiative in Malawi and Mozambique: Trees are planted in such a way that they will eventually serve, in-situ, as the poles for a curing barn, hence removing the need to cut trees to build curing barns. More than 85,000 live barns have been planted across the two countries, and the first 1,000 are starting to be used in the current curing season.

Tobacco growing is, however, not a significant contributor to deforestation through land-use change, mainly due to the decreasing area of tobacco farmland. A 2017 study using the Big Chain Tool[51] confirmed this for PMI's tobacco supply chain. In 2017, we also supported a land-use change study, which led to the publication of the Land-Use Change Guidance.[52]

In addition to considering deforestation risk in tobacco farming, in 2017, PMI assessed the risks of deforestation across its entire value chain. Among the commodities most linked to deforestation, wood pulp is important to PMI as the raw material for paper, cardboard, and cigarettes filters. The corresponding supply chains tend to be more complex than for tobacco, and a small share of these materials is made from pulp sourced from countries known to experience

deforestation. We plan to work with key suppliers to map these material flows and increase the traceability of our supplies.

Going forward, we intend to develop a company-wide policy and increase our disclosure on this topic through submission to CDP Forests in 2018.

Waste management

Each of our factories operates a waste management program to reduce, reuse, and recycle waste before any final treatment or disposal. In 2017, 94% of our factory waste was recycled, composted or sent for energy recovery.

Beyond our own manufacturing operations, a bigger challenge lies in the waste resulting from the use of our products. Our products and packaging are mostly made of renewable materials, such as tobacco leaves, paper, cellulose acetate filters, and cardboard. After use, paper and cardboard components, such as empty packs, are recyclable, and the rest, such as plastic film wrapping and cigarette butts, should be properly disposed of with general waste.

Littering

Littering of consumer goods is an issue of concern to society in many parts of the world and is linked to two main drivers: consumer behavior and the availability of waste disposal infrastructure.

Cigarette butts are among the most frequently littered items. In natural environments, cigarette butts decompose slowly, leach smoke residues, and risk being accidentally ingested by animals. Smokers should avoid littering and dispose of their cigarette butts responsibly.

We believe that the best way of dealing with cigarette butts is to stub them out and dispose of them with general waste, which in many countries is processed for energy recovery.

We can play an important role in raising awareness and encouraging consumers not to litter, through both information campaigns and the distribution of portable ashtrays. As littering is an increasingly important topic in many places, we recognize that there is an opportunity to be more impactful in our work over the long term.

We can achieve more by working with others – industry peers, anti-littering organizations and authorities – and sharing best practices across cultures and geographies. We are developing a guidance and a toolbox of best practices that we intend to share with our affiliates in 2018, when they develop and support local anti-littering campaigns.

Recycling after consumer use

With the growth of smoke-free products, such as *IQOS*, we want to ensure that the entire life-cycle of these products is managed sustainably. Heated tobacco units for *IQOS* do not burn and carry less odor than cigarette butts. Our observations also suggest that they have a lower propensity to be littered than conventional cigarettes.

In 2017, we started the collection of used heated tobacco units from employees in our Operations Center, Factory and R&D facility in Switzerland. During the year, we collected 356,000 units, which represents an estimated 50% of consumption. The user feedback and collection statistics confirmed the interest and readiness of users

to dispose of their used products responsibly, and we have confirmed the feasibility of this approach. We are currently studying the economic feasibility of developing market recycling schemes for these heated tobacco units.

Electronic waste

The *IQOS* heated tobacco units are used with an electronic device, composed of a holder and a pocket charger. PMI's aim is that the devices are returned after use and recycled to the highest industry standards in every country where we market *IQOS*.

In all countries where *IQOS* is sold the devices can be returned at service points for proper disposal. Consumers

can either bring back the device to a point of sale or return the device through a delivery service if bought online in countries with online sales. Returned devices were inspected and sent for recycling and recovery. In 2017, in our largest market for *IQOS*, Japan, returned devices were recycled to recover valuable metals. The share of recycling is limited by currently available infrastructure and market conditions, so our objective is to improve this over time. In cooperation with recycling experts, we have defined new internal standards for traceability and sustainable recycling. We are now identifying global partners to manage the inspection and recycling process incorporating these new standards.

PMI employees discuss recycling of *HeatSticks* for *IQOS* during a pilot recycling initiative at PMI's Operations Center in Lausanne, Switzerland

Looking ahead

Our business transformation brings new challenges but also significant opportunities for environmental sustainability. Our long-term targets on environment, including our science-based targets, have been developed taking into account the changes in our business.

Beyond our own operations, we also want to apply good environmental stewardship practices. Building on the successful Brazilian pilot, we plan to start implementing water stewardship across our operations, with ten factories expected to be certified by 2020 and the remaining by 2030.

We believe that we can also play a role in combating deforestation in the tobacco supply chain and, to some extent, in our wood pulp supply chain. We want to work more closely with suppliers to improve pulp sustainability and traceability.

With the success of our smoke-free products, our new electronics supply chain is gaining importance. We want to ensure a responsible and sustainable use of batteries, plastics, and printed circuits. We are identifying potential partners to make the production process for our electronic devices more efficient.

We are committed to continuous improvement by incorporating good environmental management into product design, using components that can be recovered or recycled, and working with experts to develop the best technologies to reuse materials. This is especially important for future *IQOS* models and other new products.

A tobacco field in Dowa, Malawi

Our performance: Reducing our environmental footprint	2010 (baseline)	2015	2016	2017	Goal	Scope
CO_2e scope 1 (metric tons)	443,186	361,720	351,990	**388,384**		PMI factories, offices, and fleet
CO_2e scope 2 (metric tons)	470,864	329,323	314,049	**241,355**		PMI factories and offices
CO_2e scope 1+2 (metric tons)	914,050	691,044	666,039	**629,739**		PMI factories, offices, and fleet
CO_2e scope 1 from fleet (metric tons)	143,148	119,471	122,434	**119,588**		PMI fleet
CO_2e emissions from vehicles (g CO_2e per km driven)	296	215	227	**226**		PMI fleet
CO_2e scope 3 ('000 metric tons)[1]	6,487	5,690	5,025	**4,519**		PMI operations and value chain
CO_2e scope 1+2+3 ('000 metric tons)	7,401	6,381	5,691	**5,149**		PMI value chain
CO_2e scope 1+2+3 per million cigarettes equivalent (kg)	7,911	7,070	6,620	**5,994**		PMI value chain
CO_2e scope 1+2 absolute reduction versus 2010 baseline (%)		24	27	**31**	30 by 2020 40 by 2030 60 by 2040	PMI factories, offices, and fleet
CO_2e scope 1+2+3 absolute reduction versus 2010 baseline (%)		14	23	**30**	40 by 2030	PMI value chain
CO_2e scope 1+2+3 intensity reduction versus 2010 baseline (%)[2]		11	16	**24**	30 by 2020	PMI value chain
Energy used and purchased (Gigajoules)		8,025,559	8,230,327	**8,875,006**		PMI factories, offices, and fleet
Renewable electricity (%)	0	30	32	**53**	80 by 2030	PMI factories
Water use ('000 m³)	4,998	3,654	3,394	**4,152**		PMI factories
Water ratio (water use in m³ per million units of cigarette equivalent)	5.34	4.05	3.95	**4.83**		PMI factories
Waste (metric tons)		127,631	130,077	**140,316**		PMI factories
Waste recycled (%)		87	87	**82**	85	PMI factories
Waste disposed to landfill or incineration without energy recover (%)		5.7	4.8	**6.5**	<5.0	PMI factories
Manufacturing facilities certified to ISO14001 (%)		93	93	**91**	100	PMI factories
CDP Climate Change (rating)	B	A	A	**A**		
CDP Water (rating)		B	B	**A**		
CDP Supplier engagement (rating)			A-	**A**		

1 The breakdown of scope 3 emissions is published in our CDP submission.
2 Intensity is measured in CO_2e per million cigarettes equivalent.

Our performance: Environmental metrics in our tobacco supply chain	2015	2016	2017	Goal
Tobacco purchased through direct contract by our leaf operations or our tobacco suppliers (%)	88	88	**90**	>90
Tobacco purchased without detection of any WHO TOX1 Crop Protection Agents (%)	94	98	**Not yet available**	100% by crop year 2018
Tobacco purchased without any detection of other identified HHP residues (%)	69	84	**Not yet available**	100% by crop year 2020
CO_2e intensity reduction versus 2010 baseline (%)	12	14	**38**	70 by 2020
Tobacco purchased at no risk of deforestation of old growth forest (%)	87	88	**94**	100 by 2020