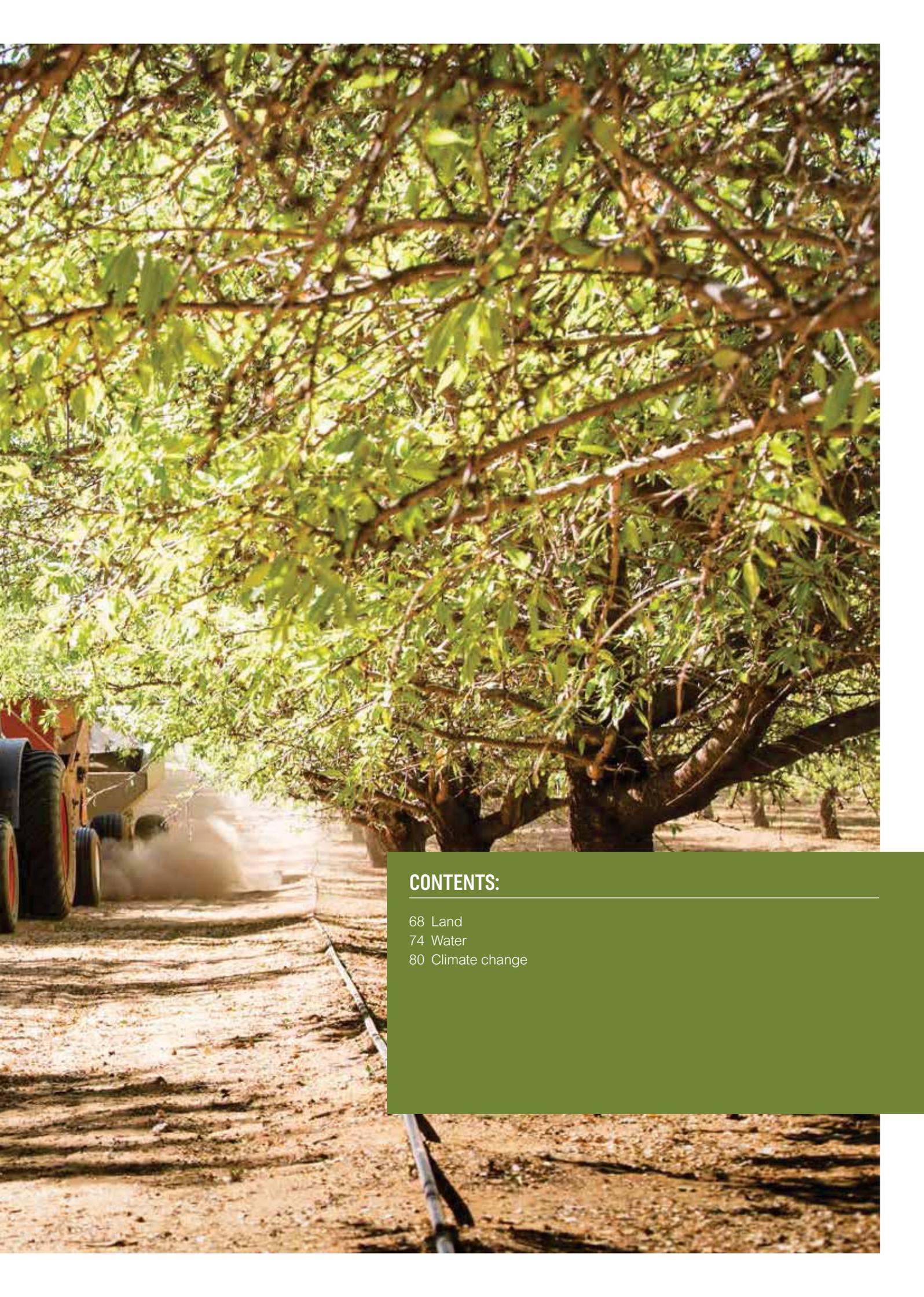


# ENVIRONMENT

Perhaps more than any other sector, agriculture faces huge environmental challenges that are interlocked and complex. At a global scale, our operations and those of our suppliers are at risk of climate change, poor soil quality, and water scarcity, which in turn impact on global food security.





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*This section explores our achievements and challenges in 3 of our material areas that focus on environmental impacts: land, water and climate change.*



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*“Maintaining sustainable yields and growing our business means that we have to act as responsible stewards of the environment and encourage third-parties to do the same.”*

**Dr Christopher Stewart**  
Head of Corporate Responsibility and Sustainability



## Q&A with Dr Christopher Stewart, Head of Corporate Responsibility and Sustainability

### **Olam is a member of the UN Global Compact. How do you fulfil Principle 7 of taking a precautionary approach to environmental challenges?**

As a global agri-business we, and our suppliers, are dependent on the earth's natural resources. Maintaining sustainable yields and growing our business means that we have to act as responsible stewards of the environment and encourage third-parties to do the same. Our own operations must avoid or mitigate potential negative impacts, therefore all investment cases for any new developments must undergo environmental and social impact assessments and implement the relevant management plans. For our existing operations, we are guided by our Risk Scorecard, as well as a suite of Policies, Codes and Standards. Our Governance structure ensures that we adhere to these principles and that we undertake regular audits and gap assessments.

### **How did Olam perform against its environment goals in 2016?**

Our carbon footprint for our own operations continues to improve. We are also making good progress with our Climate-Smart Agriculture training programmes for smallholders, and we have undertaken ground-breaking work on water stewardship, for example in coffee.

We increased the overall tonnage covered under the Olam Supplier Code (OSC). The Code covers social, as well as environmental requirements, and we're updating it in 2017 to reflect the evolution of our global policies.

Managing the impact of our third-party supply chains is a 3-step process: firstly, we need to complete the roll-out of our Supplier Code; then we need to verify that suppliers are upholding the Code; and finally, we must work with suppliers to address any issues that we identify in this process. This can be straightforward when we have direct engagement with the supplier but it is much more challenging when we are procuring through a third-party, as we don't have the direct link to producers. With a supplier base of more than 4 million smallholder farmers, verifying that each one is upholding the Code is impossible. Our big challenge this year is how to combine risk assessment, partnerships and pre-competitive verification platforms to ensure compliance with the Code, building on the extraordinary development of remote sensing technology and traceability systems.

### **Which environmental issues were stakeholders particularly interested in?**

As an organisation that sources from thousands of farmers in developing countries, many of the issues in our supply chains are social problems, linked to poverty and lack of services, rather than strictly speaking environmental – but clean water, fertile land and climate suitability are essential for these communities to thrive. Climate-Smart farming and Water Stewardship practices are examples of the ways we are responding to these concerns.

As we have moved upstream, stakeholders are increasingly asking us to demonstrate a much broader form of responsibility, taking on community development and large-scale conservation issues within the landscapes where our plantations are sited. Social contracts that recognise community land rights are the key platform for our continuous engagement plans, upheld by robust grievance procedures. Eliminating deforestation from palm and rubber supply chains was raised by the NGO Mighty Earth in 2016 (see the Land section of this report), whilst deforestation is increasingly recognised as a major issue in the cocoa sector. Building on our existing upstream policies, in 2017 we have developed a Global Forest Policy to eliminate unsustainable practices across all our supply chains.

We have tried to ensure that the majority of the points raised by stakeholders have been addressed in this report.



More information can be found on sustainability progress in our GRI Report and Olam Livelihood Charter on [olamgroup.com](http://olamgroup.com).

Our material areas

# LAND

The land required to supply the 14.4 million metric tonnes of product in 2016 is estimated at just under 10 million hectares. This is slightly larger than the size of Hungary<sup>1</sup>. Ensuring the sustainable development and use of land-based ecosystems in both our direct and indirect supply chains is therefore a continuing imperative.

## Highlights for the year



58%

Of priority product volumes procured by origins in FY16 are covered by the Olam Supplier Code<sup>2</sup>



4<sup>th</sup>

Most transparent company globally according to the Sustainable Palm Oil Transparency Tool (SPOTT)<sup>3</sup>



120,464

Smallholders trained in soil fertility



179,991

Smallholder hectares GPS mapped under the Olam Farmer Information System (cocoa)



130,157

Smallholders trained on forest conservation, including the impact of converting forest through burning, along with other Climate-Smart Agricultural practices



10,474

Individual farm management plans for cocoa smallholders generated under OFIS in 2016

### Key 2016 focus areas

- Protect High Conservation Value ecosystems and High Carbon Stock Forests
- Ensure community rights and participative decision-taking
- Reduce indirect impacts on land from third-party farmers and suppliers

### Key sector collaborations and commitments

- UN Guidelines on Responsible Land Tenure
- 4<sup>th</sup> year Forest Footprint Disclosure – B
- Member of the Natural Capital Coalition

### Relevant SDGs



<sup>1</sup> 9.3 million hectares.

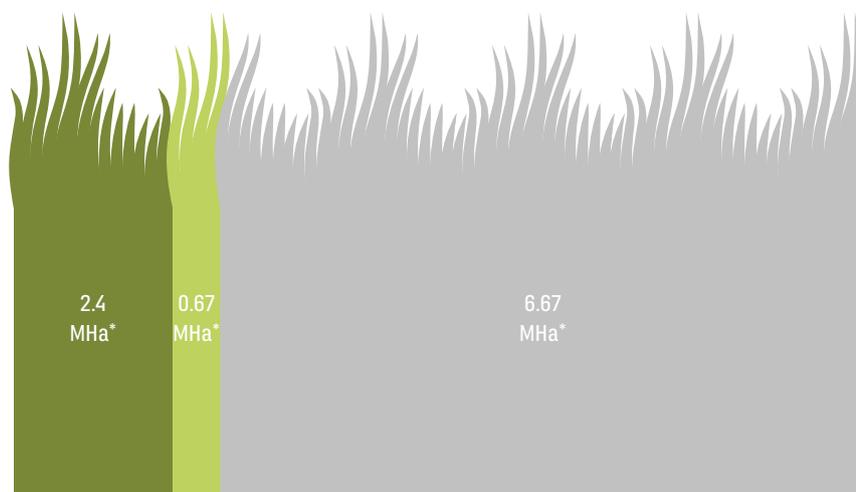
<sup>2</sup> Cashew, cocoa, coffee, cotton, hazelnut, palm and rubber.

<sup>3</sup> Compiled by the Zoological Society of London (ZSL).



## Estimated breakdown of land footprint

● Under Olam management ● Within the Olam Livelihood Charter ● Under third-parties



\* Million hectares

### Olam-managed land

- Natural forest concessions (Republic of Congo)
- Almond orchards (Australia and USA)
- Dairy (pasture and grain in Russia and Uruguay)
- Planted coffee plus High Conservation Value (HCV) set-asides (Laos, Brazil, Tanzania and Zambia)
- Planted palm plus HCV set-asides (Gabon)
- Planted rubber plus HCV set-asides (Gabon)
- Cocoa plantation (Indonesia)
- Rice farm (Nigeria)
- Black pepper plantation (Brazil)

### Land stewardship

Olam has always understood that we have significant responsibility in terms of land and biodiversity stewardship, coupled with ensuring that the rights of communities are upheld. This responsibility is also a business benefit, helping to ensure we do not jeopardise our own operations through soil degradation, loss of pollinators and increasing global temperatures through the loss of carbon sequestration by forests. Many issues relating to land are also interconnected with livelihoods, water and climate change.

### Land under our direct control

Our selective integration into plantations, concessions and farms began in 2010. From the start, we recognised that they would only be successful if they adhered to strict environmental and social criteria. Most of our operations are in rural areas of developing nations. Each locale has its own challenges, and we have learned many lessons along the way. However, by working with expert partners and listening continually to our stakeholders, we are seeing our operations have positive impacts.

### Coffee plantations in Tanzania and Zambia gain Rainforest Alliance and UTZ certification

Subsidiaries Aviv in Tanzania and the Northern Coffee Corporation Ltd (NCCL) in Zambia now meet the growing demand for single-estate, certified, traceable volumes. Aviv is a 2,000 ha plantation with over 1,025 ha of planted Arabica coffee and a wet mill processing facility. Protected areas, including buffer zones, represent over 15% of the land under Aviv management.

NCCL is situated at Kasama, in Zambia's Northern Province, and has planted over 1,825 ha. A further 1,400 ha of conservation areas are being protected. Volumes for both plantations will be supplemented with smallholder coffee programmes, which will be supported for future certification efforts.

### Pursuing international standards and certification for upstream developments

We are guided by:

- Olam Plantations, Concessions and Farms Code
- Olam Sustainable Palm Oil Policy (updated in 2016)
- Olam Global Forest Policy (new in 2017)
- Olam Environment Policy
- Olam Health and Safety Policy
- Olam Code of Conduct
- Certifications including FSC®, ISO, Rainforest Alliance, RSPO and UTZ
- International standards including Alliance for Water Stewardship (see page 76), IFC, Sustainable Natural Rubber Initiative (SNR-i) Standard
- International Labour Organization

## Our material areas: Land



A social team engages regularly with semi-nomadic tribes living in the forest concessions.

### Managing natural forests

In the Republic of Congo, Olam subsidiary Congolaise Industrielle des Bois (CIB) manages over 2 million hectares of natural forest of which about 1.3 million hectares are FSC® certified<sup>1</sup> – one of the world’s largest contiguous FSC® certified tropical hardwood concessions. Our most recent concession of around 671,000 hectares, also leased from the Republic of Congo, is set to achieve certification by 2018.

<sup>1</sup> Licence numbers:  
CIB Kabo – FSC-C128941;  
CIB Pokola – FSC-C014998;  
CIB Loundoungo – FSC-C104637.

### Protecting biodiversity

Plants, birds, insects and mammals all help to create the ecosystems upon which we depend, so protecting biodiversity by minimising our impact and safeguarding areas of habitat is vital. All new developments are subject to independent Environmental and Social Impact Assessments, and we are committed to managing our farms and plantations according to best practice. It should be noted that we limit the use of WHO Class 1A and 1B chemicals to exceptional circumstances.



In Nigeria, our 10,000 ha rice farm and extensive network of smallholders grow rice for the domestic market. Our team has discovered the rare Northern Carmine Bee-Eater and has taken steps to preserve areas of bush, engaging with smallholders to ensure they do not disrupt the habitat.

### Engaging with communities

Our aim is for all land developments to have a positive impact on local communities. Firstly, because it is the right thing to do and, secondly, because we hope local people will want to work with, or grow crops for, Olam. Social conflict is counterproductive and costly to resolve. We use the internationally recognised Free, Prior and Informed Consent process (FPIC) at the start of all new developments, and engage in a continuous process of engagement.

We also undertake Social Contracts or Long-term Village Development Plans.



See page 72, our ‘Focus on Gabon’ for examples of initiatives.

### Responding to grievances

Grievance procedures are important for dealing with any complaints. We investigate and take appropriate action. If a complaint is submitted via a third party, we also investigate. For example, the NGO Brainforest stated in a report released in December 2016 that some communities felt they had not been adequately informed about the GRAINE programme in Gabon. These complaints were not made to Olam despite much ongoing engagement and we have not been able to identify the individuals concerned. Read more about GRAINE in the food security section of this report.

### Land under the control of suppliers

About 75% of land producing crops for customers is under the control of others.

It is not possible to monitor the land management processes of all these farmers, so we prioritise high-risk products (cashew, cocoa, coffee, palm, and rubber) and use the Olam Livelihood Charter and Olam Supplier Code to extend our reach of influence. Specific product policies, such as the Olam Sustainable Palm Oil Policy, state specific product criteria to be followed. In 2017, we will launch a cross-commodity Global Forest Policy, and strengthen and clarify the requirements of our Supplier Code for all third-party suppliers. Please see [olamgroup.com](http://olamgroup.com) for more information.

### Verifying our third-party palm supply chain

The palm supply chain is one of the most complex and challenging to verify. Partnerships and collaboration are essential for verifying that suppliers are upholding our requirements.

We are working with the World Resources Institute (WRI) and its Global Forest Watch Platform to help us identify high-risk mills, which we will verify according to the time-bound targets as stated in our 2020 road map in our Palm Policy. Any mills found to be sourcing from areas identified as being medium or high risk from poor production practices will be assessed, and potentially removed. As highlighted in our October Interim Progress Report, we had already reduced our supplier base from 48 in 2015 to 14 in 2016.

Given the technical aspects and complexity of the palm supply chain, we encourage stakeholders to go to [olamgroup.com](http://olamgroup.com) for our strategy and FAQs. We also welcome all contact for more information via [crs@olam.net](mailto:crs@olam.net).



### Committed to growing and sourcing sustainable rubber

Unlike the palm sector, the rubber industry does not have a certification scheme so, in addition to applying our own internal standards, we have been supporting the natural rubber industry in the development of an international sustainability standard.

In January 2015, the International Rubber Study Group (IRSG) launched the Sustainable Natural Rubber Initiative (SNR-i), which is a self-assessment standard covering 5 main criteria:

- Support improvement of productivity
- Enhance natural rubber quality
- Support forest sustainability
- Water management
- Respect human and labour rights.

In February 2016, we assessed our operations against the proposed SNR-i standards and completed the self-declaration. In addition, Olam presented a comprehensive sustainability framework that covers upstream operations and engagement

with farmers in the downstream supply chain to SNR-i stakeholders in mid-2016.

### Responding to Mighty Earth

In December 2016, the NGO Mighty Earth issued a report with allegations of deforestation in our Gabon palm and rubber plantations, and third-party palm oil sourcing business. We published a full technical response, accepting many positive recommendations related to transparency in the third-party supply chain but refuting the claim that our Gabon developments had not taken a responsible approach.

We met with Mighty Earth in January 2017, and then published a joint statement with a series of actions on behalf of both parties to increase mutual understanding and achieve greater transparency.

This includes Mighty Earth suspending its current palm and rubber campaign for a year, and its complaint to FSC regarding Policy for Association (see our statement on [olamgroup.com](http://olamgroup.com)). It should be noted that, while we have agreed to pause development in

Gabon for our rubber plantation, this is to allow time for both parties to support a multi-stakeholder process to develop further specific criteria for responsible agricultural development in countries that have most of their land covered by forests. It does not imply that we agree with Mighty Earth's allegations on our Gabon operations, which we believe to have been developed to the highest environmental and social standards applicable in the national context. We firmly believe that we have demonstrated a different and more sustainable model for our plantations and will be hosting stakeholder visits in 2017. For more context, please see overleaf, as well as the response on [olamgroup.com](http://olamgroup.com) from Professor Lee White, Director of Gabon's National Parks and the UNFCCC Forests and Agriculture negotiator for Gabon.

## Progress on goals

2016 – 2020 objectives	2020 target	2016 achievement	Outlook for 2020 target
<b>Goal 7: Sustainable development and use of land-based ecosystems (Material area: Land)</b>			
<b>7.1. Protection of ecosystems, high carbon stock forests, and high conservation value forests</b>	100% of Olam-managed plantations, concessions and farms to have implemented their Land Management Plan.	Due Diligence, Environmental and Social Impact Assessments (ESIA) completed for all plantations currently in operation. A Global Forest Policy is in consultation Q1 2017. Full response to Mighty Earth regarding allegations of deforestation available on <a href="http://olamgroup.com">olamgroup.com</a> .	On target
<b>7.2. No community based conflict on Olam-managed plantations, concessions and farms</b>	100% of Olam-managed plantations, concessions and farms to have implemented their FPIC process and their Social Action Plan.	Free Prior Informed Consent, Social Contracts and Grievance Procedure were established and achieved for all new Olam plantations in Gabon since 2011. Formal Grievance Procedures are in place for established coffee plantations in Tanzania, Zambia and Laos. A gap analysis will be conducted in 2017 to ensure suitable processes are in place to avoid, mitigate and manage any potential conflict across all upstream operations.	On target
<b>7.3. Reduce indirect land impacts from third-party farmers and suppliers</b>	100% of third-party supplier volume complies with the Supplier Code based on a prioritised product approach. Priority products: cashew, cocoa, coffee, cotton, hazelnut, palm, rubber.	All priority products are working with suppliers to implement the Supplier Code. 58% of priority product volumes procured by origins in FY16 are covered by the Olam Supplier Code.	On target

Our material areas: Land

# FOCUS ON GABON



## Setting the standard for responsible plantation development in Africa

All of our palm and rubber plantation developments are in joint ventures with the Republic of Gabon. The Government was looking for a business partner to help develop an agricultural economy, to reduce its reliance on finite oil and gas exports and food imports (60%) and create jobs (33% live at or below the poverty line) as well as support cooperative smallholder programmes. From our side, Olam recognised that Gabon had ideal agri-climatic conditions and soil for growing oil palm and rubber, and that the Government shared our strong sustainability ethic.

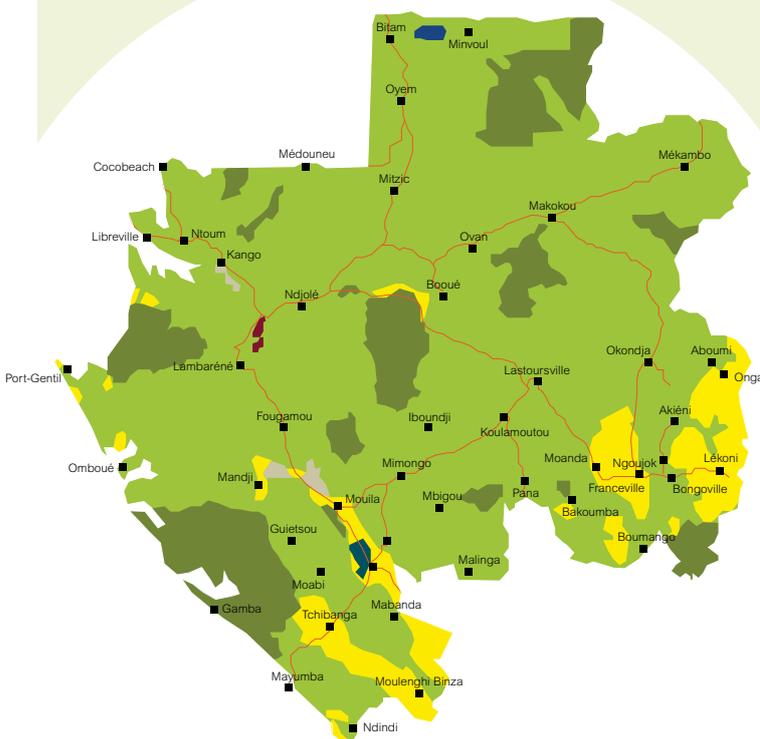
As Gabon is 88% forest cover, the Government decided to make available a small percentage of its most degraded forests for large-scale agriculture, which has already provided thousands of jobs.

### How we approach sustainable palm plantation development in a highly forested country

- Select broad areas in landscapes that are far from national parks and where the natural environment has already been degraded
- Within specific sites, ensure that we identify the land that is of High Conservation Value (HCV) for biodiversity, community or cultural reasons
- Prioritise the 'least value' land for development and invest heavily in conserving the high value areas. We actively manage these HCV areas, helping to prevent poaching and illegal hunting

- Engage the local communities to ensure that they agree with our analysis and with the project
- Validate our assessments through broad-based consultations with NGOs and experts
- Create positive social and economic impact in the local communities through employment, capacity building, and rural infrastructure development
- Ensure we are 100% RSPO<sup>1</sup> compliant from new planting through to mill completion with no burning for land clearance
- All of the above applies to the smallholder programme GRAINE. Cooperatives receive ongoing training in environmental practices including the conservation of forests.

<sup>1</sup> Roundtable on Sustainable Palm Oil



- Main road
- ORG Bitam
- SOTRADER GRAINE
- OPG Makouke (ex Siat)
- OPG Awala and Mouila lot 1, 2 & 3
- National parks
- Forest
- Savannah and grassland

Gabon is 88% forest with the remainder being largely infertile savannah or swamp. Our total planted area for palm and rubber represents less than 0.25% of Gabon's land area. Over 50% of each shaded area indicating the location of a plantation is protected as High Conservation Value forest.



Our palm and rubber plantations in Gabon conserve large blocks of high-value forests, connected with natural corridors to create an ecological network, protecting essential core habitat and allowing free movement of wildlife within the landscape.

### Environmental mapping: our technical approach

Olam uses plane-based laser imaging technology known as LiDAR for large-scale, high resolution mapping of our concessions to support spatial planning of plantations, conservation areas and buffer zones.

LiDAR allows us to map the terrain (slopes, elevation, streams, rivers and water bodies), and provides rich information on the vegetation cover including biomass and carbon estimates. These can be 'ground-truthed' (checked by collecting information from the features at the location) by field observations made through traditional biodiversity surveys, allowing accurate large-scale mapping of land cover types.



As a result of our Environmental and Social Impact Assessment Surveys for rubber, we were able to identify 12,000 ha of plantable lands on the flatter hills, favouring wherever possible the rattan scrub, but also including some areas of secondary forests. The best-quality habitats (maturing and high-biomass forests), as well as all wetlands, have been protected in an extensive, well connected network of core habitat and buffer zones (approximately 13,400 ha of conserved terra firma forest, including some village use areas, and 11,500 ha of swamp forests and wetlands). A strict no-hunting policy has been put in place to ensure that these forests gradually recover from historical over-hunting.

### First new palm development in Africa to achieve RSPO certification

The Awala plantation of 6,822 ha lies within a 20,000 ha lease, the remainder of which is actively managed by Olam Palm Gabon for conservation of biodiversity and forest carbon, and protection of water catchments, in fulfilment of RSPO requirements. At the time of certification, Awala boosted Africa's RSPO certified production hectares by 30%. Once fully developed, the Mouila plantations (Lots 1-3) will achieve certification by 2021.

### Helping villages to thrive – Olam Rubber Gabon

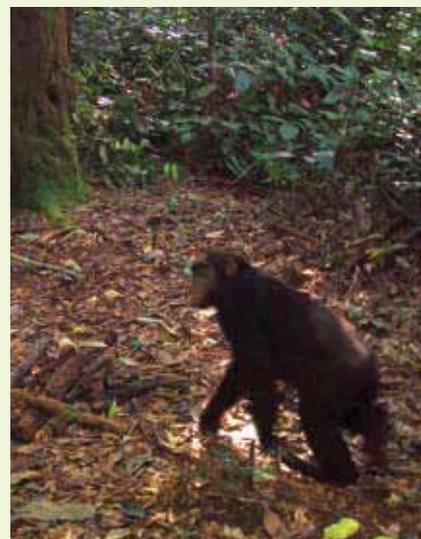
As with our palm operations, Olam Rubber Gabon has signed social contracts – there are 3 contracts with 24 villages (Bitam – 7 villages, Bikondom – 7 villages, and Minvoul – 10 villages). The Social Contract is based on 3 pillars:

- Development of basic social infrastructure
- Establishment of a programme to support income-generating activities

carried out by local populations (including support for smallholder farmers and a fresh produce market)

- Priority hiring of local populations on an equal skills basis.

Olam has supported social projects in the villages at a cost to date of more than 1.3 billion CFA (> US\$2 million), addressing priority needs such as schools and educational materials, teacher housing, dispensaries, water pumps, solar lighting, a fresh produce market, road maintenance, bridges, and various sports and leisure facilities.



Cameras monitor apes and elephants in the forest around our palm plantations in Gabon. At the start of development we had commissioned independent experts to conduct great ape surveys and consulted extensively with the Gabon National Parks Agency, and NGOs such as WWF and the Wildlife Conservation Society, to share best practice. We created a connected network of High Conservation Value habitats for apes totalling 55,000 ha. These areas are directly connected to adjacent forests, allowing free movement of animals through the landscape.

“When I visited Gabon in 2015 with the leading team of scientists involved in the High Carbon Stock Study, I was hugely impressed by the overall approach adopted by Olam in developing its concession areas, by the level of engagement with local communities in implementing the RSPO's new Planting Procedures, and by the methodology it used to minimise emissions of greenhouse gases from forest conversion. I saw for myself how Olam is developing a new model for palm plantations in the 21<sup>st</sup> century. One that is climate positive, and ecologically and socially integrated.”

#### Sir Jonathon Porritt,

Co-Founder Director of Forum for the Future  
and Co-chair of the High Carbon Stock Science Study

Our material areas

# WATER

Water plays a crucial role in global food security and is essential for the resilience of Olam’s international agri-supply chains. Water scarcity is already an issue in many world regions. Successful companies of the future will be those which plan ongoing operations and investments with water at the centre – costing it into their business plans, modelling future availability and collaborating with local stakeholders for equitable access and usage.

## Highlights for the year



Agri-business globally and first business in Africa to have a site achieve the Alliance for Water Stewardship Standard for Aviv Coffee Plantation in Tanzania



Farmers benefited from water stewardship programmes



Improvement in irrigation and process water<sup>1</sup> per tonne of product (intensity) for Olam’s own operations for FY16 versus FY15

### Key 2016 focus areas

- Mapping exposure to water stress
- Supporting smallholders vulnerable to water scarcity
- Implementing processing plant improvement plans

### Key sector collaborations and commitments

- Appointed to the Board and Technical Committee of the Alliance for Water Stewardship
- Member of UN CEO Water Mandate and California Water Action Collaborative
- Completed 4<sup>th</sup> year Carbon Disclosure Project (CDP) Water Module: B- (Ind ave: C)

### We are guided by

- Water risk and footprint assessments included in all new investment cases
- Enterprise Risk Scorecard
- Olam Environment Policy
- Olam Livelihood Charter
- Olam Supplier Code
- Olam Plantations, Concessions and Farms Code
- Water Footprint Network’s Assessment Tool
- Alliance for Water Stewardship Standard

### Relevant SDGs



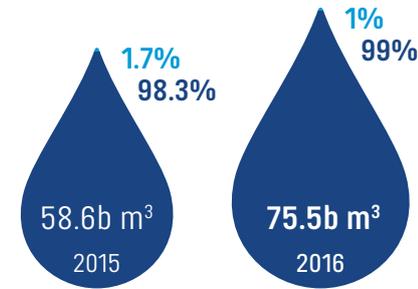
<sup>1</sup> Irrigation and process water is from surface and groundwater sources. Olam’s own operations are plantations, concessions, farms and Tier 1 processing and manufacturing plants.



### FY16 value chain water footprint

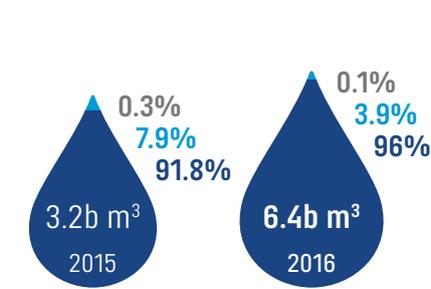
Our water footprint for FY16 was 82 billion m<sup>3</sup> (comparable to 33 million Olympic swimming pools<sup>2</sup>), estimated using the Water Footprint Network's Assessment Tool.

#### Rainwater 75.5 billion m<sup>3</sup>



- 0% processing
- 1.7% Olam-managed plantations, concessions and farms
- 98.3% supply chain

#### Surface and Groundwater 6.4 billion m<sup>3</sup>



- 0.3% processing
- 7.9% Olam-managed plantations, concessions and farms
- 91.8% supply chain
- 0.1% processing
- 3.9% Olam-managed plantations, concessions and farms
- 96% supply chain

**Total value chain water intensity increased by 1.6% from 4,265m<sup>3</sup> per tonne of product in FY15 to 4,331m<sup>3</sup> per metric tonne of product in FY16. This is due to greater volumes of perennial crops such as coffee and cashew that consume more water.**

Additional comparative data available for FY14 at [olamgroup.com/sustainability/water](http://olamgroup.com/sustainability/water).

### Mapping our wider water risks

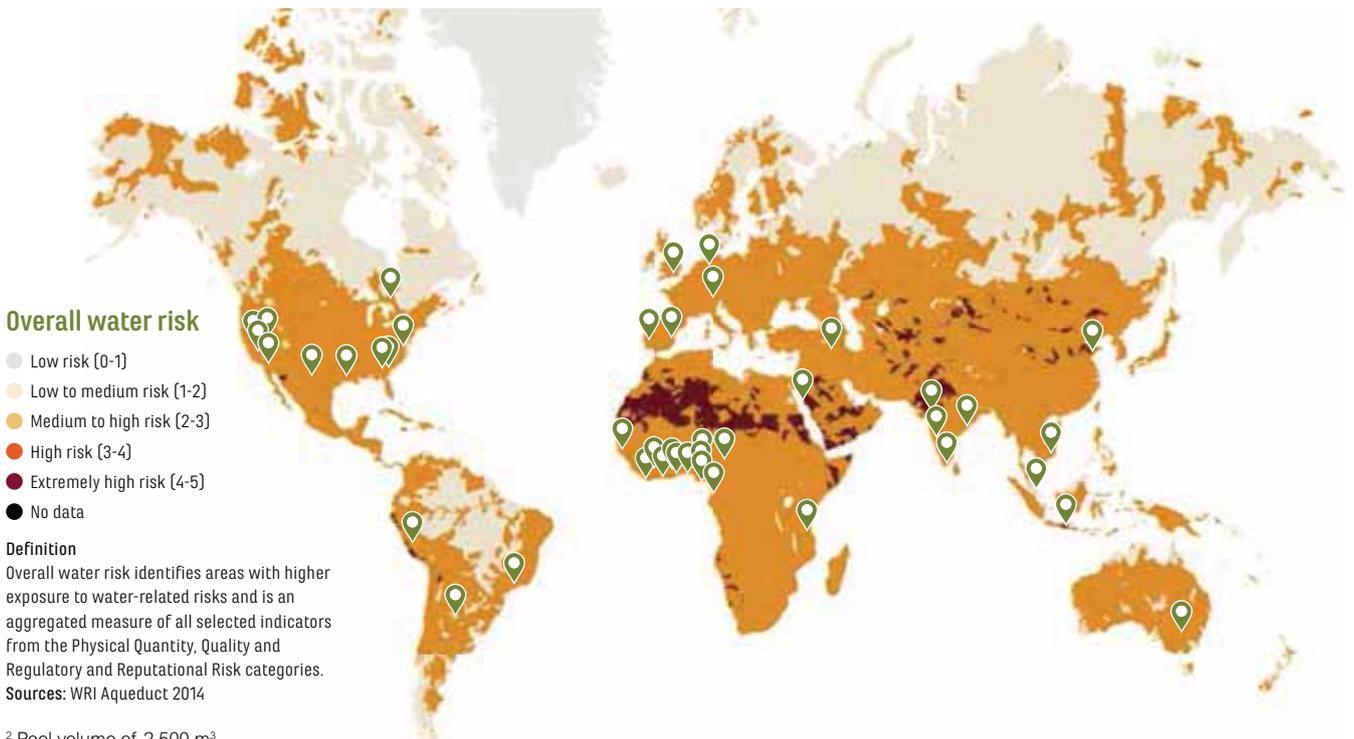
In 2016, we mapped our exposure to current water stress. Using the World Resources Institute Aqueduct risk mapping tool, we screened OLC programmes, our upstream farming and plantations operations and our secondary processing facilities. This enables us to implement enhanced water management and water stewardship approaches.

Globally, we aim to implement the Alliance for Water Stewardship Standard at all processing sites and their supply chains in medium to extremely high water risk locations, and continue to manage low to medium risk sites through ISO 14001.

### Helping smallholders reduce water while improving yields

Although many smallholder crops are naturally rain fed such as cocoa and cotton, others such as rice and sugar are renowned for water consumption, either because they are thirsty or because water is used liberally in production methods. And with weather impacts (either from climate change or El Niño) bringing much drier weather in certain areas in 2016, the rain fed crops require extra moisture.

### Water risk screening of top tier processing and manufacturing plants using the World Resources Institute Aqueduct Water Risk Atlas tool.



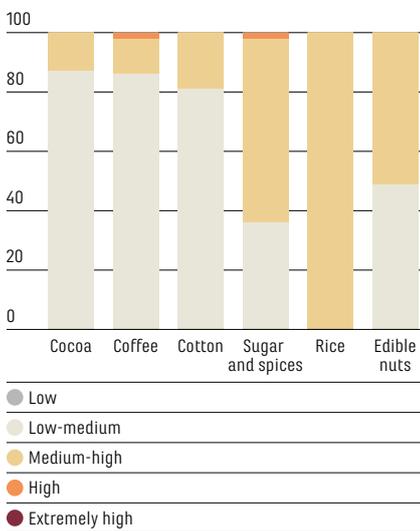
<sup>2</sup> Pool volume of 2,500 m<sup>3</sup>

## Our material areas: Water

### Overall water risk results for OLC products

Through the OLC and other initiatives, we train farmers to develop water management plans that mitigate risk and minimise adverse impacts on water supply. In 2016, we reached over 100,000 smallholders with water conservation education and support. Over 8,600 were supported specifically with water infrastructure such as bore wells.

### Olam Livelihood Charter farmers in areas of water risk [%]



The dam at the Olam Aviv coffee plantation in Tanzania holds 1.5 million m<sup>3</sup> and is part of the Integrated Water Management Plan for the Ruvuma river basin. In the background is the Olam Aviv Arabica coffee plantation with shade trees.

### Water reduction in India sugarcane production

In India, cultivating 1 kg of sugar cane can require between 1,500 and 3,000 litres of water. With the support of partners IFC, Hindustan Unilever Foundation, Solidaridad and New Holland, Olam's smallholder OLC programme in Maharashtra and Madhya Pradesh, which began in 2013, has reached around 20,500 farmers across 22,500 ha of land. Overall productivity has increased by 15% while thanks to water stewardship programmes, about 62 billion litres have been saved (water avoidance) over 3 years. In 2016, the initiative was awarded the Most Notable Project of the Year by the Confederation of Indian Industry.

### Ensuring our operations do not impact on the water security of others, Olam is the first agri-business globally to achieve AWS certification

In 2016, our Aviv coffee plantation in southern Tanzania became the first agri-business site in the world to achieve Alliance for Water Stewardship

(AWS) certification. This strengthened our existing efforts to adhere to global best practice in collaborative water management, and helped to ensure long-term water security for the 300,000 people living in the Ruvuma River Basin.

With the assistance of Water Witness International, the International Water Stewardship Programme (IWaSP), GIZ and SGS, we have worked in partnership with water users including communities in the Ruvuma River Basin. Collaboratively, we developed a scenario plan for extreme weather events such as droughts, ensuring the fair use of water in times of scarcity or water stress. The process helped increase transparency, providing added reassurance on quality and water-footprinting for customers. Additionally, we provided further Water, Hygiene and Sanitation (WASH) facilities for coffee plantation workers.



The Lemoore tomato processing facility in California has made considerable progress on reducing water consumption and food waste.

## Our material areas: Water

*“Committed to growing responsibly, Olam was already addressing water risks. Implementing the AWS<sup>1</sup> Standard in Tanzania has strengthened that effort and advanced collaboration in pursuit of long-term water security in the region. The example of Olam’s implementation of the Standard will be a springboard for rolling out AWS across Africa, as well as providing critical learning for the global AWS network.”*

**Adrian Sym,**  
AWS Chief Executive



With almond plantations in both the northern and southern hemispheres, Olam offers customers year round supply.

### Precision irrigation through cutting edge technology

In our almond orchards in the USA and Australia, technology helps us monitor plant health and needs in real-time, enabling optimum irrigation efficiency. In 2016, this technology helped to reduce water use by up to 10% while maximising growth rate and maintaining non-stress conditions for the tree.

We use Phytech Plantbeat technology which combines sensor hardware installed in the field with data analysis and algorithms to predict exact irrigation requirements across the farm, up to 5 days in advance. Instead of having to wait to see water stress impacting the tree, we can irrigate at the first sign of stress, thus protecting the tree and improving water efficiency.

### Minimising water in California processing

At our Lemoore tomato processing plant:

- 584,830 metric tonnes of tomatoes produce 92,942 metric tonnes of tomato paste and 56,831 metric tonnes of diced tomato per season
- This requires about 596,744,593 litres of water per year
- During the paste evaporation process, 6,042,658 litres of water a day are removed from the tomatoes, and used in the factory to reduce demand for further water inputs
- A closed-loop condensate return and cooling system reduces water and energy consumption
- This water is discharged to Westlake Farms and used to grow alfalfa
- Zero landfill for food waste – all tomato pomace and vine material is received by Gilton Resource Recovery.

<sup>1</sup> AWS – Alliance for Water Stewardship.



Rather than let domestic wastewater seep into the ground or down the drain, the team at the Kochi spices processing plant in India treat and use it to irrigate the garden. The trees – including coconut and jackfruit – are flourishing as water from the 30 KL water treatment plant, recycled each day, is sprinkled over the garden which is used by the 450 workers to spend their breaks. The coconuts are auctioned off every few months at a fraction of the market price.



Olam Palm Gabon team assessing a buffer zone of low density forest. Buffer zones are areas preserved between a plantation and a river. They ensure that any fertiliser run-off, for example, doesn't enter the watercourse.

### Improving wastewater management for farms and factories

In our farms and plantations, water can run off the surface of the land, washing away valuable top soil, nutrients, fertilisers and insecticide, which in turn can then impact on the quality of nearby watercourses.

We incorporate all activities that could affect wastewater quality into our Integrated Water Resource Management plans and our Soil Management plans.

In our plantations, we use remote sensing, sophisticated modelling and ground surveys to map streams, rivers and seasonal wetlands, which we protect with a system of interconnected buffer zones.

In our factories we have wastewater quality standards for the water we discharge. It goes without saying that all Olam locations must comply with their legal licence to operate.

In 2016, we did not receive any environmental fines for water management.

## Progress on goals

2016 – 2020 objectives	2020 target	2016 achievement	Outlook for 2020 target
<b>Goal 8: Sustainable use of water resources (Material area: Water)</b>			
<b>8.1. Increased water use efficiency in Olam's direct operations</b>	New science-based water targets for 2020 to be developed in 2017.	Partnership developed to set science-based targets for Olam-managed plantations, concessions and farms.	On target
	10% reduction in process water intensity in Olam Tier 1 factories from 2013 baseline. Supplementary science-based targets to be developed on a water risk basis.	Partnership developed to set science-based targets. Improved water metering at 100% of factories. Baseline and target to be reviewed in light of improved data from metering and business restructuring.	On target
<b>8.2. Increased water use efficiency in priority supply chains</b>	100% of priority supply chains to have Water Resource Management plans.	On track for OLC volumes. OLC programme water risk mapping completed. Extend risk mapping to non-OLC in 2017.	Started
<b>8.3. Improved water discharge quality from Olam's direct operations</b>	100% compliance with wastewater discharge limits.	Water discharge limits in place for Olam Tier 1 factories. Monthly reporting on discharge for Tier 1 and coffee plantations. Olam's upstream Farming Community of Practice established to support the development of erosion, nutrient and integrated pollution management programmes.	On target
<b>8.4. Long-term equitable water access and usage</b>	100% of Olam's direct operations in high water risk areas to participate in a water stewardship programme.	Olam is first agri-business globally and first business in Africa to have a site achieve the Alliance for Water Stewardship Standard for its Aviv Coffee Plantation in Tanzania.	On target

Our material areas

# CLIMATE CHANGE

Climate change has profound effects on agriculture and global food security in terms of its availability, accessibility and stability of supply. Conversely, agriculture is a major contributor to climate change. Agriculture, forestry and other land use are responsible for 24% of global greenhouse gas emissions (GHG). Mitigating and adapting to climate change is an ever increasing focus for our own operations and for our farmer suppliers.

## Highlights for the year



29%

Improvement on our 2015 carbon footprint from Olam's own operations



55,374

Smallholders trained on Climate-Smart practices under the Olam Livelihood Charter



6<sup>th</sup> year

Reporting to the Carbon Disclosure Project – scored level B

### Key 2016 focus areas

- Reducing GHG emissions from our own farming and processing operations<sup>1</sup>
- Adapting our own farming operations to build in climate resilience
- Encouraging our farmer suppliers and logistics providers to reduce their GHG emissions and build in climate resilience

### Key sector collaborations and commitments

- 2<sup>nd</sup> year as joint Co-Chair of the World Business Council for Sustainable Development (WBCSD) Climate-Smart Agriculture project. Olam is leading the development of Priority Area 1: building smallholder/ family farmer resilience
- Presented at the UN Climate Talks in Marrakesh (COP22) and the 2016 Global Landscapes Forum

### We are guided by

- Olam Environment Policy
- Olam Plantations, Concessions and Farms Code
- Paris Climate Agreement

### Relevant SDGs



<sup>1</sup> Olam's plantations, concessions, farms and Tier 1 processing and manufacturing facilities.



“Olam is already actively undertaking valuation studies in collaboration with other companies and agencies to determine a viable carbon-pricing framework.”

**Chris Brown**  
Vice President, Corporate Responsibility and Sustainability



## Incentivising the transition to a low carbon economy

If something is free, we will use it indiscriminately. And the global community has.

Fossil-fuelled growth, and the emission of greenhouse gases that accompanies it, has led the world to climate change that will have major consequences for millions of people and the natural world around us.

This is why we, despite being a profit-driven company, have called for a tax on carbon. Commercial enterprises must be incentivised to decouple growth from carbon – and there must be a higher cost to doing ‘business as usual’ if companies are unwilling to change.

Only then can we stimulate a concerted effort to increase fossil-fuel efficiency and, more crucially, encourage innovation into alternative energies and efficiency measures.

On our part, Olam is already actively undertaking valuation studies in collaboration with other companies and agencies to determine a viable carbon-pricing framework. Based on our work so far, we believe it would be fair to set an initial global tax of US\$35 – US\$50 per tonne. This would take into account the social costs linked with impacts of greenhouse gas emissions, such as subsidies for crop failure or for health costs as a result of pollution.

We are exploring 3 types of carbon pricing: shadow pricing for our investment cases and business models to test planned projects under a range of potential carbon prices;

internal pricing where a fixed price is assigned to each metric tonne of emissions which could then be incorporated into profit-and-loss statements; and finally internal taxes which could be levied upon the business units for their direct operational emissions to support investment in clean technologies.

We are already making good progress, having consistently cut our carbon footprint year-on-year, and we will continue to limit our footprint even as we grow to scale. But even with this progress, we know more needs to be done.

Energy efficiency on its own is not sufficient to limit the global temperature rise to 2°C by 2100, as described by the Paris Climate Agreement at COP21 in 2015. It may sound insignificant but given the difference between today’s average global temperature and the average global temperature during the last Ice Age is only about 5°C, it really isn’t.

Carbon pricing is one way to contribute to achievement of this objective, but there are other options that are not mutually exclusive. For example, we’re also actively exploring alternative energy, including biomass and solar.

We have also called for incentives including a greater backing for robust and validated financial mechanisms, such as REDD+<sup>1</sup> carbon credits to stimulate the reduction of emissions from deforestation and forest degradation.

This will foster conservation, sustainable management of forests, and enhancement of forest carbon stocks, while ensuring that indigenous communities and biodiversity are not impacted.

Our Wood Products business in the Republic of Congo has undertaken such projects and while the process is lengthy and complex, progress is being made.

But incentives must also come into play for the smallholder farmers. How do we convince them to take up these ‘new methods’ called ‘Climate-Smart Agriculture’ when their family has been farming a certain way for generations? Or help them understand why they can’t expand into the forest next door to grow more cocoa when their yields are so low after decades of under-investment? Explaining these concepts to farmers with little or no education can be very challenging. Certification premiums are one incentive but not every customer wants to pay for certification. We must therefore focus continually on helping farmers to increase yields and quality by working directly with them, while collaborating with peers, NGOs and governments at a country and sector level. For many farmers, there is no short-term incentive, rather they are putting their trust in our hands, which is not always easy to carry when disease or weather means a harvest is not as abundant as hoped.

But it is clear that incentives, in their many guises, are crucial if we are to have any hope of preventing that 2°C rise.

<sup>1</sup> REDD+ Reducing Emissions from Deforestation and forest Degradation in developing countries’ scheme.

## Our material areas: Climate change



In logistics, McCleskey Mills reached a new milestone in its 42-year history – shipping peanuts to several major customers using the rail road. The new bulk rail loading facility at Olam Rochelle in Georgia, USA, has reduced the number of lorries per year by 699 vehicles, while maintaining all food safety requirements.

### Decoupling carbon from business growth in direct operations

As we grow our business, we cannot allow emissions from our operations to grow at the same pace. By 2020, our target is to reduce GHG intensity by 10% (per tonne of product) in Olam-managed plantations, concessions and farms; Tier 1 processing and manufacturing operations; and our marine vessels. We do this through:

- Increasing operational efficiency
- Avoiding High Carbon Stock approach to lands for development (see the Land section within this report)
- Adopting Climate-Smart Agricultural (CSA) practices.

### Reducing fossil fuels

At processing facilities, 'Fossil Fuel Flightpaths' are being developed to promote efficiency and renewable resources. At the Olam Cocoa processing plants in San Pedro and Abidjan in Côte d'Ivoire, the cocoa beans shells/husks are used as biomass while a proportion is going to the poultry industry, as the residual fat can be used in animal feed.



Modern dairies produce as much manure as they do milk. In our Rusmolco dairy operations in Russia, this 'waste' is recycled as nitrogen fertiliser for the soil growing the cow's feed. Over 120,000 MT of manure is put to good use replacing over 1,500 MT of chemical fertilisers each year, reducing GHGs by 2,200 MT CO<sub>2</sub>e per year.

### Olam's carbon footprint

We have seen a 29% improvement on FY15 in our carbon footprint per tonne of product produced (intensity). This has been driven by our upstream productivity and the carbon positive



Solar investment during 2017 in the Ghana biscuit processing facility will reduce emissions by 56 tonnes of CO<sub>2</sub> per year. Preliminary feasibility studies have been undertaken for another 4 plants in Ghana.

result of our palm plantations in Gabon. In processing, the intensity has increased due to 8 new processing facilities made through the ADM acquisition at the end of 2015, as well as the Brooks peanut shelling acquisition in 2016.

### Carbon footprint for Olam-managed plantations, concessions and farms

	FY16	FY15	FY14
<b>Scope 1</b> – All direct GHG emissions (million tonnes of CO <sub>2</sub> e)	0.70	1.76	1.52
<b>Scope 2</b> – Indirect GHG emissions from consumption of purchased electricity, heat or steam (million tonnes of CO <sub>2</sub> e)	0.06	0.08	0.06
<b>Scope 1 + 2</b> (million tonnes of CO <sub>2</sub> e)	0.76	1.84	1.58
<b>For every tonne of product produced, this many tonnes of CO<sub>2</sub>e were generated</b>	0.98 (72% reduction on FY15)	3.54 (15% reduction on FY14)	4.15

### Carbon footprint for Olam's processing

	FY16	FY15	FY14
<b>Scope 1</b> – All direct GHG emissions (million tonnes of CO <sub>2</sub> e)	0.67	0.33	0.38
<b>Scope 2</b> – Indirect GHG emissions from consumption of purchased electricity, heat or steam (million tonnes of CO <sub>2</sub> e)	0.19	0.12	0.18
<b>Scope 1 + 2</b> (million tonnes of CO <sub>2</sub> e)	0.86	0.45	0.56
<b>For every tonne of product produced, this many tonnes of CO<sub>2</sub>e were generated</b>	0.27 (27% increase on FY15)	0.21 (23% reduction on FY14)	0.26



## Promoting Climate-Smart Agriculture in our supply chain

The majority of emissions associated with our business are not from our direct operations. Farmers, especially smallholders, are on the front line of changing weather patterns with limited capacity to adapt to its impacts. Moving to Climate-Smart Agricultural practices can play a significant role in addressing global challenges by way of 3 main pillars:

- Sustainably increasing agricultural productivity and incomes
- Adapting and building resilience to climate change
- Reducing and/or removing greenhouse gases emissions, where possible.

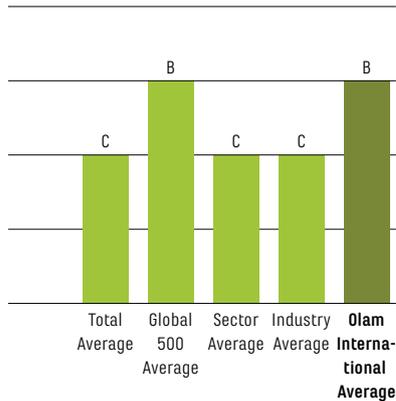
## Supporting healthy, carbon-rich soil

Soil is the second biggest reservoir of carbon on the planet after the oceans, and holds 4 times more carbon than all the plants and trees in the world. However, 33% of the world's soil is moderately to highly degraded due to erosion (as topsoil is washed or blown away) and nutrient depletion. Across supply chains, we promote contour ploughing or contour tillage, micro-catchments and surface mulching, as well as crop rotation to protect the soil and achieve higher yields.

Nutrient loss is estimated to cost sub-Saharan Africa US\$68 billion per year. Although many smallholders still cannot afford to buy synthetic fertiliser, globally it is one of the fastest growing sources of agricultural emissions. Through the Olam Livelihood Charter, we help farmers to learn how to compost and mulch and, where appropriate, to use synthetic fertilisers.

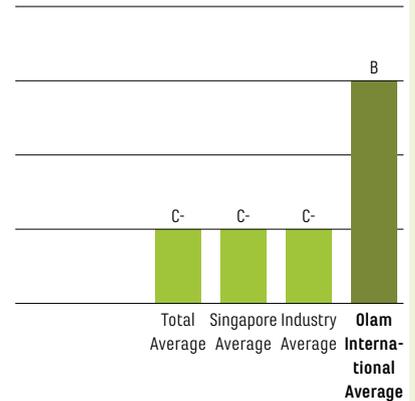
## Reporting to CDP<sup>1</sup>

### Average CDP scores



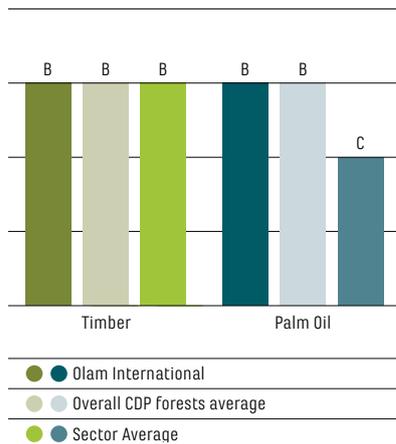
CDP awarded Olam a 'B' for climate change, including emissions management, governance and strategy, risk and opportunity management and verification.

### Average CDP supplier engagement rating



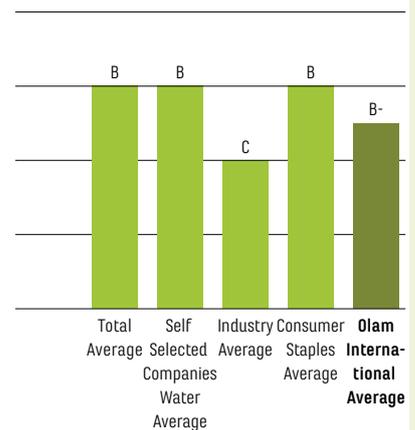
CDP piloted an assessment in 2016 evaluating the ability of organisations to engage with their supply chain on climate change to incentivise significant environmental changes. However, in 2016 just 23% of companies (which includes Olam) reported that they engaged with their own suppliers on GHG emissions and climate change strategies.

### CDP Forest sector benchmark



Olam International's performance benchmarked against peer companies in the Agricultural Production sector and the 2016 CDP Forests sample.

### CDP Water score peer comparison



Olam International score relative to companies responding to CDP Water; companies in the regional sample; and sector peers.

<sup>1</sup> Formerly the Carbon Disclosure Project.

## Our material areas: Climate change



Thai rice farmers from the SRP pilot programme in Ubon Ratchathani.



Young glyricidia shade tree (smallest leaf) next to young banana (largest leaf) and young cocoa tree.

### Reducing methane emissions

About 25% of global man-made warming is from methane emissions, including significant proportions from dairy and rice production. Rice is unusually water tolerant, so to prevent weeds and pests, farmers typically flood fields. However, not only does this use vast amounts of water but as submerged weeds and vegetation rot they release methane – between 50 and 100 million tonnes each year.

We partnered with UNEP, International Rice Research Institute (IRRI), German development agency GIZ, Mars and others to establish the Sustainable Rice Platform (SRP), and the first projects were vetted using the scientifically-verified SRP standard in 2016.

In Thailand, Olam has partnered with Better Rice Initiative Asia (BRIA), GIZ, Bayer and the Thai Rice Department to roll out a trial project in Ubon Ratchathani province in northeast Thailand, which 71 rice farmers joined in its pilot year. The Standard goes beyond methane reduction and helps farmers improve their farm management systems, as well as improve labour conditions,

environmental sustainability and business profitability. Our 5-year commitment will bring the Standard to 16,000 farmers in Thailand and 10,000 in Vietnam by 2022. We are currently the only private company to back the Thai Government's Nationally Appropriate (GHG) Mitigation Action (NAMA).

### Ensuring livelihoods are not compromised

One of the challenges in smallholder programmes is gaining farmer's trust and motivating them to change their traditional ways of farming. For the Ubon Ratchathani project, Olam was able to reach more farmers by partnering with the well-known Thai Rice Department. We also ensured a 'best price' and quality guarantee. We engaged a specific miller and our buyers ensured the farmers could claim the highest observed paddy price to save them from risking a lower price at our delivery point.

### Creating biodiverse, resilient micro-climates

Planting leguminous shade trees brings many benefits to cocoa and coffee landscapes. They increase productivity and resilience of crops, support biodiversity and natural pest deterrents, help maintain soil quality and contribute to carbon sequestration through reforestation.

Through the OLC and other initiatives, we work to educate smallholders, as shade trees often have been cut down for firewood or saplings removed during droughts as they are believed to be too 'thirsty'. In Côte d'Ivoire, in partnership with local timber companies and in-line with the new Rainforest Alliance Sustainable Agricultural Network standards, we now encourage cocoa farmers to plant 400 forestry and shade trees per hectare. This is a big ask but we are seeing improvements. In 2015, the average planted was 50 per hectare and in 2016 it had increased to 100. In 2016, cooperative farmers planted 193,000 leguminous shade trees covering 1.9 million hybrid cocoa seedlings.

## Progress on goals

2016 – 2020 objectives	2020 target	2016 achievement	Outlook for 2020 target
<b>GOAL 5. Reduced greenhouse gas emissions (Material area: Climate change)</b>			
<b>5.1. Increased energy efficiency</b>	During FY17, developing science-based targets for total Olam GHG emissions from which the 2020 metric will be determined.	Energy efficiency assessments conducted. Twelve Tier 1 processing and manufacturing plants with highest potential have been selected for implementing ISO 50 001 Energy Management System.	On target
<b>5.2. Avoided GHG emissions</b>	All Olam farms, plantations and Tier 1 factories to have implemented their 2020 GHG reduction plans (1) operational efficiency (2) Avoid High Carbon Stocks for land development (3) Climate-Smart Agricultural practices.	Olam Palm Gabon is carbon positive.	On target
<b>5.3. Increased share of renewable energy</b>	25% of energy derived from renewable and biomass sources at Olam's Tier 1 factories (from 2015 baseline – 15%).	Sugar, rice and coffee Top Tier processing and manufacturing sites ≥ 15% renewable and biomass energy sources.	On target
<b>GOAL 6. Increased resilience to climate-related risks (Material area: Climate change)</b>			
<b>6.1. Reduced agricultural vulnerability to climate risks for OLC farmers and Olam-managed plantations, concessions and farms</b>	Implement the Olam 2020 Climate-Smart Agriculture (CSSA) Programme.  Resilience impact to be launched in FY17 as part of WBCSD CSA programme.	Climate-Smart Agriculture measures incorporated into OLC principles of Environment, Social Investment and Improved Yield.  CSA measures incorporated into Olam Plantations, Concessions and Farms Code.	On target