

GRI content index

UPM follows the Global Reporting Initiative's (GRI) Sustainability Reporting Standards in its corporate responsibility reporting. The reporting has been prepared in accordance with the GRI Standards: Core option.

General and topic-specific disclosures for 2018 in English with a reference to external assurance in the GRI content index have been externally assured by an independent third party PricewaterhouseCoopers Oy. The Independent Assurance Report is available in UPM's Annual Report on page 98.

The index below shows where the GRI disclosures are addressed in the Annual Report (AR), on UPM's webpage ([web](http://www.upm.com/responsibility)) www.upm.com/responsibility and www.upm.com/investors/governance or in the GRI content index at hand.

Including additional information:

- Information on materiality analysis and process for defining report content
- Information on re-statements
- Management approach
- Measurement techniques
 - Environmental disclosures
 - Social disclosures

List of references for GRI disclosures:

- [Annual Report 2018](#)
- [Charting tool with responsibility data](#)
- www.upm.com/responsibility
- www.upm.com/investors/governance
- [Corporate Governance Statement 2018](#)
- [Remuneration Statement 2018](#)
- [Carbon Inventory 2018](#)
- [Material balance 2018](#)

General disclosures

STANDARD / DISCLOSURE	LOCATION	DISCLOSURE / COMMENT	ASSURANCE
GRI 102: General Disclosures 2016			
Organizational Profile			
102-1 Name of the organisation	AR 125		
102-2 Activities, brands, products, and services	AR 5	There are no banned products in 2018.	
102-3 Location of headquarters	AR 125		
102-4 Location of operations	AR 194–195		
102-5 Ownership and legal form	AR 125		
102-6 Markets served	AR 133, 194–195		
102-7 Scale of the organization	AR 194–195		
102-8 Information on employees and other workers	AR 55–56, web , web , web	Workers who are not employees are not performing a significant portion of the organization's activities. There were no significant changes on employee number in 2018.	x
102-9 Supply chain	AR 60–61		
102-10 Significant changes to the organization and its supply chain	AR 102		
102-11 Precautionary principle approach	AR 17, 24-31		
102-12 External initiatives	AR 24		
102-13 Memberships of associations	web		
Strategy			
102-14 Statement from senior decision-maker	AR 8–9		
102-15 Key impacts, risks and opportunities	AR 6–7, 24–31		
Ethics and integrity			
102-16 Values, principles, standards, and norms of behavior	AR 24–25, 54-57, 80–82		

STANDARD / DISCLOSURE	LOCATION	DISCLOSURE / COMMENT	ASSURANCE
102-17 Mechanisms for advice and concerns about ethics Governance	AR 82		
102-18 Governance structure	AR 83-89, web		
102-19 Delegating authority	AR 109		
102-20 Executive-level responsibility for economic, environmental, and social topics	AR 109		
102-21 Consulting stakeholders on economic, environmental, and social topics	web	Annual General Meeting	
102-22 Composition of the highest governance body and its committees	AR 83, 87, 92-93		
102-23 Chair of the highest governance body	AR 92		
102-24 Nominating and selecting the highest governance body	AR 83-84		
102-25 Conflicts of interest	AR 85-86, web		
102-26 Role of the highest governance body in setting purpose, values and strategy	AR 86-87, web		
102-27 Collective knowledge of highest governance body	AR 88-89, 99-119, web	Report of Board of Directors including non-financial disclosure approved by the Board.	
102-28 Evaluating the highest governance body's performance	AR 86-87		
102-29 Identifying and managing economic, environmental, and social impacts	AR 86, 99-119		
102-30 Effectiveness of risk management processes	web		
102-31 Review of economic, environmental, and social topics	AR 88		
102-33 Communicating critical concerns	AR 82		
102-34 Nature and total number of critical concerns	AR 82		
102-35 Remuneration policies	AR 90, web		
102-36 Process for determining remuneration	AR 88, web		
Stakeholder engagement			
102-40 List of stakeholder groups	AR 49		
102-41 Collective bargaining agreements	web		x
102-42 Identifying and selecting of stakeholders	web		
102-43 Approach to stakeholder engagement	AR 48-57, 62-63, web		
102-44 Key topics and concerns raised	AR 53, 62-65, web		
Reporting practice			
102-45 Entities included in the consolidated financial statements	AR 169-170		
102-46 Defining report content and topic boundaries	GRI index 7		
102-47 List of material topics	GRI index 7-8		
102-48 Restatements of information	See comment	Any changes to previous reports are included in the topic-specific disclosures.	
102-49 Changes in reporting	GRI index 7		
102-50 Reporting period	See comment	1 January 2018 – 31 December 2018	
102-51 Date of most recent report	See comment	1 March 2018	
102-52 Reporting cycle	See comment	Annual	
102-53 Contact point for questions regarding the report	AR 197		
102-54 Claims of reporting in accordance with the GRI Standards	See comment	This report has been prepared in accordance with the GRI Standards: Core option.	
102-55 GRI content index	See comment	This GRI content index is the actual version. A shortened version is published in the Annual Report on page 96-97.	
102-56 External assurance	AR 98, GRI index 1		
GRI 103: Management Approach 2016			
103-1 Explanation of the material topic and its boundary	GRI index 7-8		
103-2 The management approach and its components	GRI index 7-8		
103-3 Evaluation of the management approach	GRI index 7-8		

Material topics

STANDARD / DISCLOSURE		LOCATION	DISCLOSURE / COMMENT	OMISSION	ASSURANCE
GRI 200: Economic Standard Series					
GRI 201: Economic Performance 2016					
201-1	Direct economic value generated and distributed	AR 66	Corporate income taxes and property taxes reported separately for the eight main production countries		x
201-2	Financial implications and other risks and opportunities due to climate change.	AR 12-13, 28-31, 74-75	Qualitative description of risks, opportunities and responses	UPM is not disclosing financial implications of any risks or opportunities or related costs due to commercially sensitive nature of the data.	x
201-3	Defined benefit plan obligations and other retirement	AR 140-143	In 2018, the percent of salary contributed by employee is 6.35% and the percent of salary contributed by employer is 18.50%.		x
201-4	Financial assistance received from government	AR 136-137	No government is directly present in UPM's shareholding structure.		x
GRI 202: Market Presence 2016					
202-2	Proportion of senior management hired from the local community	See comment	95% of management positions are held by locals. In this indicator, local means nationality, UPM's pulp and paper mills are the significant locations of operation, senior management are the members of the sites' management team.		x
GRI 203: Indirect Economic Impacts 2016					
203-2	Significant indirect economic impacts	AR 66-67, 78-79			x
GRI 204: Procurement Practices 2016					
204-1	Proportion of spending on local suppliers	See comment	Out of a total spend of EUR 2.7 billion for UPM primary raw materials – wood , pulp and recovered paper – 55% was purchased from local suppliers. Scope is fibre raw material which accounts for 35% of total spend. All units using fibre raw material are considered as significant locations. Local in this disclosure means country, except in Austria & Germany also neighbouring country.		x
GRI 205: Anti-corruption 2016					
205-1	Operations assessed for risks related to corruption	AR 110			x
205-2	Communication and training about anti-corruption policies and procedures	See comment	Anti-corruption is one topic in UPM's Code of Conduct. In 2016, the Board of Directors discussed the revised Code of Conduct and related processes, before Board approved the document. All members of the Board were present at the meeting. The new Code was distributed to all employees. 99% of active UPM employees (as of the end of the year) have completed the respective training, which included anti-corruption. The Supplier and Third Party Code is communicated to suppliers as part of the business contract. In 2018, 83% of UPM supplier spend was qualified against the Code. Suppliers represent the majority of the relevant business partners with regard to Supplier and Third Party Code. For further information, read more on page 61, 82.	Following training per employee category and region is not material to UPM. Following qualified suppliers by number and region is not material to UPM, but UPM follows the qualified supplier spend.	x
205-3	Confirmed incidents of corruption and actions taken	AR 82			x
GRI 206: Anti-competitive behaviour 2016					
206-1	Legal actions for anti-competitive behavior, anti-trust, and monopoly practices	See comment	There was no such case in 2018. However, in AR page 171 we describe the pending litigations which include a number of damages claims relating to court decision from 2009. These claims were still pending in 2018, but were finally resolved in early 2019.		x

STANDARD / DISCLOSURE	LOCATION	DISCLOSURE / COMMENT	OMISSION	ASSURANCE
GRI 300: Environmental Standard Series		For reporting principles see page 9.		
GRI 301: Materials 2016				
301-1 Materials used by weight or volume	78, web			x
301-2 Recycled input materials used	60, web	Scope is fibre materials in paper production.		x
GRI 302: Energy 2016				
302-1 Energy consumption within the organization	AR 75, 78, 193, web			x
302-3 Energy intensity	web	UPM is following kWh electricity/tonne of paper produced.		x
302-4 Reduction of energy consumption	AR 74	In energy saving reporting, savings related to use of electricity and heat are included.		x
GRI 303: Water 2016				
303-1 Water withdrawal by source	AR 78			x
303-2 Water sources significantly affected by withdrawal of water	AR 72-73, web	According to assessment based on WSI, no water sources are significantly affected by UPM's withdrawal.		x
GRI 304: Biodiversity 2016				
304-1 Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	AR 68-69, web	Scope is UPM's own forests		x
304-2 Significant impacts of activities, products, and services on biodiversity	AR 68-69, web	Scope is UPM's own forests		x
304-3 Habitats protected or restored	AR 68-69, web	Scope is UPM's own forests		x
304-4 IUCN Red List species and national conservation list species with habitats in areas affected by operations	web	Scope is UPM's own forests		x
GRI 305: Emissions 2016				
305-1 Direct (Scope 1) GHG emissions	AR 79, 193, web , web	Biogenic CO ₂ reported. However, sustainably managed bioenergy sources are considered neutral (EU).		x
305-2 Energy indirect (Scope 2) GHG emissions	AR 193, web , web	Earlier reported value for 2017 has been corrected to 3.2 million t CO ₂		x
305-3 Other indirect (Scope 3) GHG emissions	AR 193, web , web			x
305-4 GHG emissions intensity	AR 193	UPM is following kg CO ₂ /tonne of paper produced (Scope 1 and 2).		x
305-5 Reduction of GHG emissions	AR 74	The emission reductions (Scope 1 and 2) are reported as CO ₂ .		x
305-7 Nitrogen oxides (NO _x), sulfur oxides (SO _x), and other significant air emissions	AR 75, 79			x
GRI 306: Effluents and Waste 2016				
306-1 Water discharge by quality and destination	AR 73, 79			x
306-2 Waste by type and disposal method	AR 79, web			x
306-3 Significant spills	AR 71			x
306-5 Water bodies affected by water discharges and/or runoff	See comment	Based on UPM's bio indicator studies, no water sources are significantly affected by UPM. For further information, read more on AR page 72-73 and web .		x
GRI 307: Environmental Compliance 2016				
307-1 Non-compliance with environmental laws and regulations	AR 71			x
GRI 308: Supplier Environmental Assessment 2016				
308-1 New suppliers that were screened using environmental criteria	AR 60	Reporting scope is fibre raw material which accounts for 35% of total spend.		x
308-2 Negative environmental impacts in the supply chain and actions taken	See comment	No significant negative impacts identified in 2018.	UPM monitors impact assessments based on share of qualified spend.	x

STANDARD / DISCLOSURE	LOCATION	DISCLOSURE / COMMENT	OMISSION	ASSURANCE
GRI 400: Social Standard Series		For reporting principles please see pages 9 and 10.		
GRI 401: Employment 2016				
401-1 New employee hires and employee turnover	AR 56, web , web			x
GRI 402: Labor/Management Relations 2016				
402-1 Minimum notice periods regarding operational changes	web			x
GRI 403: Occupational Health and Safety 2016				
403-1 Workers representation in formal joint management-worker health and safety committees	web			x
403-2 Types of injury and rates of injury, occupational diseases, lost days, and absenteeism, and number of work-related fatalities	AR 27, 56, 58-59 web , web , web , web	TRIF, LTAF and fatalities are reported for UPM workforce, i.e. employees and supervised workers.	Follow-up of disclosures by gender is not material to UPM.	x
403-3 Workers with high incidence or high risk of diseases related to their occupation	web			x
GRI 404: Training and Education 2016				
404-1 Average hours of training per year per employee	AR 56		Following training per gender and employee category is not material to UPM.	x
404-2 Programs for upgrading employee skills and transition assistance programs	AR 56-57, web			x
404-3 Percentage of employees receiving regular performance and career development reviews	AR 27, 54-55		Follow-up per gender and employee category is not material to UPM.	x
UPM-1 Human Capital Return on Investment (UPM indicator)	See comment	UPM's 2018 Human Capital Return on Investment ratio is EUR 2.6 : EUR 1. This indicates the amount returned for every EUR spent on human capital.		x
GRI 405: Diversity and Equal Opportunity 2016				
405-1 Diversity of governance bodies and employees	AR 56, 84-85, 192, web			x
405-2 Ratio of basic salary and remuneration of women to men	AR 192	Significant locations are the nine countries with largest number of salaried employees. These countries cover 90% of total salaried employees. See page 10 for details of the calculation.		x
GRI 406: Non-discrimination 2016				
406-1 Incidents of discrimination and corrective actions taken	AR 82			x
GRI 407: Freedom of Association and Collective Bargaining 2016				
407-1 Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk	See comment	No significant risk identified. For further information, read more on web for own operations, page 61 for suppliers.		x
GRI 408: Child Labor 2016				
408-1 Operations and suppliers at significant risk for incidents of child labor	See comment	No significant risks identified in own and suppliers' operations. For further information, read more in AR page 110, 112.		x
GRI 409: Forced or Compulsory Labor 2016				
409-1 Operations and suppliers at significant risk for incidents of forced or compulsory labor	See comment	No significant risks identified in own and suppliers' operations. For further information, read more in AR page 110, 112.		x
GRI 411: Rights of Indigenous Peoples 2016				
411-1 Incidents of violations involving rights of indigenous peoples	See comment	No incidents occurred in 2018. For further information, read more in AR page 68.		x

STANDARD / DISCLOSURE	LOCATION	DISCLOSURE / COMMENT	OMISSION	ASSURANCE
GRI 412: Human Rights Assessment 2016				
412-1 Operations that have been subject to human rights reviews or impact assessments	AR 55, 110			x
412-2 Employee training on human rights policies or procedures	See comment	Total training hours for employees on human rights were 860 hours in 2018.		x
412-3 Significant investment agreements and contracts that include human rights clauses or that underwent human rights screening	See comment	Responsible sourcing practices (e.g. qualification against UPM's Supplier and Third Party Code) also cover all investments. For further information, read more in AR pages 60-61.		x
GRI 413: Local Communities 2016				
413-1 Operations with local community engagement, impact assessments, and development programs	See comment	UPM has implemented local community engagement programs in all significant locations where it operates. Pulp and paper mills considered as significant locations for this disclosure. For further information, read more in AR page 53.	UPM does not report the percentage of operations with implemented local community engagement.	x
413-2 Operations with significant actual and potential negative impacts on local communities	See comment	No significant negative impacts identified in 2018. For further information, read more in AR pages 19, 33, 53.		x
GRI 414: Supplier Social Assessment 2016				
414-1 New suppliers that were screened using social criteria	AR 60	Reporting scope is fibre raw material which accounts for 35% of total spend.		x
414-2 Negative social impacts in the supply chain and actions taken	See comment	No significant negative impacts identified in 2018.	UPM monitors impact assessments based on share of qualified spend.	x
GRI 415: Public Policy 2016				
415-1 Political contributions	AR 51	UPM does not financially support political parties or individual candidates.		x
GRI 416: Customer Health and Safety 2016				
416-1 Assessment of the health and safety impacts of product and service categories	AR 62-63	For further information, read more on web .		x
GRI 417: Marketing and Labeling 2016				
417-1 Requirements for product and service information and labeling	AR 62-63	UPM's eco-design approach includes at least: <ul style="list-style-type: none"> - The sourcing of components of the product or service. - Content, particularly with regard to substances that might produce an environmental or social impact - Safe use of the product or service - Disposal of the product and environmental/social impacts - Other requirements set by ecolabels 		x
GRI 419: Socioeconomic Compliance 2016				
419-1 Non-compliance with laws and regulations in the social and economic area	See comment	No significant fines or non-monetary sanctions for non-compliance with laws and/or regulations in the social and economic area in 2018..		x

Information for defining report content and topic boundaries (GRI 102-46)

The process for defining the report content is based on a materiality analysis that UPM does on annual basis. The materiality analysis of the company's responsibility issues covers topics that directly or indirectly have an impact and influence the ability to create, maintain or acquire economic, environmental or social value for UPM, stakeholders and society. The main sources for analysis are stakeholder feedback and conducted studies. The result of the materiality analysis are published in the Annual Report on page 49. UPM's material topics are aligned with the material analysis and UPM's commitments. The reporting on sustainability is included to the Annual Report. This way we ensure to comply with the Reporting Principles: stakeholder inclusiveness, materiality, sustainability context, completeness.

Changes in reporting (GRI 102-49)

The consolidated performance data is in accordance with the Group's accounting principles, which are presented in the Annual Report, pages 126-129. Also the Group's adoption of new and revised accounting standards is presented there.

Management approach (GRI 103-1, 2 and 3)

General

Corporate responsibility is an integral part of all our operations and is seen as source of competitive advantage. UPM is strongly committed to continuous improvement in economic, social and environmental performance. UPM promotes responsible practices throughout the value chain and is active in finding sustainable solutions in co-operation with its customers, suppliers and partners.

The Group Executive Team, headed by the President and CEO, is in charge of managing corporate responsibility, determining the course of action and guiding development work. In practice, corporate responsibility efforts take place in businesses and functions, and in the Group's Responsibility team, which coordinates the projects carried out by businesses and functions.

UPM's Biofore strategy and the Code of Conduct lay the foundations for responsible business operations and continuous improvement.

Grievance mechanisms

Should stakeholders have concerns or suspect misconduct, they are encouraged to contact UPM or to use the UPM Report Misconduct channel. This channel is available on UPM's intranet for UPM employees, and also on the corporate website for the company's external stakeholders. UPM's Audit Committee oversees procedures for treatment of complaints and concerns received

anonymously or otherwise by the company. As a part of the committee's compliance review, the committee is provided with a quarterly report by the company's Chief Compliance Officer and a report of submissions under the company's Report Misconduct channel by the Head of Internal Audit.

Economic

Material topics

- Economic performance
- Market presence
- Indirect economic impacts
- Procurement practices
- Anti-corruption
- Anti-competitive behaviour

Boundaries inside the organisation

- The consolidated performance data is in accordance with the Group's accounting principles. Information on joint operation companies, investments in associated companies and joint ventures, available-for-sale investments are not included.

Boundaries outside the organisation

- For the topic "Procurement practices" the reported scope of local spend is UPM's fibre based raw material.

Policies

- Code of Conduct ([link](#))
- Corporate governance statement ([link](#))
- Disclosure policy ([link](#))
- Tax policy ([link](#))

Commitments

- Finnish Corporate Governance Code
- UN Global Compact's ten principles
- Sustainable development goals of the UN Agenda 2030

Targets

- Our economic targets focus on the key areas: profit, governance and responsible sourcing. In all these areas quantitative targets have been set, and are followed up regularly. See Annual Report pages 26 and 27.

Monitoring and evaluation

- The Board of Directors, assisted by the Audit Committee, is responsible for monitoring the company's internal control and risk management systems. Internal audit assists the Board of Directors with its monitoring responsibility by ensuring that the group's control measures have been planned and set up effectively.

Specific actions

- Examples of related actions 2018 are described in the Annual Report on pages 6-7, 18-23, 25, 35, 37, 41, 46-47, 64-67.

Environmental

Material topics

- Materials
- Energy
- Water
- Biodiversity
- Emissions
- Effluents and Waste
- Environmental Compliance
- Supplier environment assessment

Boundaries inside the organisation

- Consolidated environmental data covers all production units, unless otherwise stated in connection with the respective disclosure.
- Information on joint operation companies, investments in associated companies and joint ventures, available-for-sale investments are not included.
- For biodiversity disclosures UPM's own forest areas are included.

Boundaries outside the organisation

- The disclosures related to supply chain sustainability include all suppliers, unless otherwise stated in connection with the disclosure.
- Environmental disclosures from companies of which UPM owns less than 50% are not reported, excluding energy related air emissions that correspond to UPM's energy share.
- Related to energy supply from jointly-owned connected power plants, relevant environmental parameters (air emissions, fuels and waste) are included depending on the energy supply to UPM's production sites. Environmental costs and investments of such entities are not included.
- The disclosures related to GHG emissions cover all relevant upstream and downstream processes.

Policies

- Code of Conduct ([link](#))
- Environmental rules ([link](#))
- Supplier and third party code ([link](#))

Commitments

- UN Global Compact's ten principles
- UN CEO Water Mandate
- Sustainable development goals of the UN Agenda 2030

Targets

- Our environmental targets focus on the key areas: product stewardship, waste, climate, water, forests and biodiversity. In all these areas quantitative targets have been set, and are followed up regularly. In 2018, UPM launched a new target on biodiversity. See Annual Report pages 26 and 27.

Monitoring and evaluation

- Internal and external audits are regularly conducted at production sites, e.g. for environmental management systems, Chain of Custody and so-called internal Clean Run audits. Key performance indicators like deviations or water volumes are followed up on monthly basis, other indicators are at least evaluated on annual basis.
- Supplier audits are regularly performed, too, and for certain product groups performance figures are evaluated on annual basis.

Specific actions

- Examples of environment-related actions 2018 are described in the Annual Report on pages 6-7, 22-23, 35, 39, 41, 46-47, 69, 73, 75, 77

Social

Material topics

- Employment
- Labor/Management relations
- Occupational health and safety
- Training and education
- Diversity and equal opportunity
- Non-discrimination
- Freedom of association and collective bargaining
- Child labor
- Forced or compulsory labor

- Rights of indigenous people
- Human rights assessments
- Local communities
- Supplier social assessment
- Public policy
- Customer health and safety
- Marketing and labeling
- Socioeconomic compliance

Boundaries inside the organisation

- Consolidated data covers whole UPM Corporation, unless otherwise stated in connection with the respective disclosure.
- Information on joint operation companies, investments in associated companies and joint ventures, available-for-sale investments are not included.

Boundaries outside the organisation

- Social disclosures from companies of which UPM owns less than 50% are not reported.
- The disclosures related to supply chain sustainability include all suppliers, unless otherwise stated in connection with the disclosure.

Policies

- Code of Conduct ([link](#))
- Supplier and Third Party Code ([link](#))

Commitments

- ILO Declaration on Fundamental Principles and Rights to Work
- OECD Guidelines for Multinational Enterprises
- UN Global Compact's ten principles
- Sustainable development goals of the UN Agenda 2030
- Policies

Targets

- Our related targets focus on the key areas: diversity and inclusion, continuous learning and development, responsible leadership,

working conditions, responsible sourcing, community involvement, product stewardship. In all these areas quantitative targets have been set, and are followed up regularly. See Annual Report pages 26 and 27.

Monitoring and evaluation

- Internal and external audits are regularly conducted at production sites, e.g. for OHS management systems and our internal safety audits. Key performance indicators like total recordable injury frequency or lost-time accidents are followed up on monthly basis.
- Supplier audits are regularly performed.
- Sharing of best practices is ensured through well-established operational stakeholder forums, for example.
- Compliance with ecolabel criteria and UPM's restricted chemical list is regularly checked, internally and also by third-party verification.

Specific actions

- Examples of related actions 2018 are described in the Annual Report on pages 19, 25, 33, 43, 49, 52, 53, 55, 57, 67, 71

Data measurement techniques

Environmental disclosures

Environmental data of all UPM's production sites is collected in a common database.

UPM's energy-related data (fuels, air emissions, waste) includes its own power plants and a respective share of co-owned or associated power plants, which correspond to UPM's energy supply. External power plants or boilers are considered under heat supply.

Data measurement techniques depend on local and national requirements and therefore can vary between production sites. If relevant, this is taken into account when summarising data for corporate reporting.

UPM uses rolling base year approach for reporting on applicable environmental disclosures.

Materials

Information about material usage is aggregated data from UPM's sourcing unit.

Energy

Information about energy usage is aggregated data from UPM Energy based on information provided by the production units and power plants. For energy saving reporting, the reduction of electricity and heat is included.

Water

If not measured, the amount of water withdrawal is reported based on reasonable estimates.

Air emissions

UPM reports on emission of fossil CO₂, NO_x, SO₂ and particulates as air emission related

performance indicators. These indicators include emissions from UPM power plants and a respective share of co-owned or associated power plants that corresponds to UPM's energy supply. External power plants or boilers are considered under heat supply. Direct fossil CO₂ is calculated based on fuel usage. Calculation is done according to the European Emissions Trading System, other national requirements or based on official calculation factors. NO_x, SO₂ and particulates are usually measured online. Emissions of TRS are converted to SO₂ and included in the overall SO₂ figure.

Indirect CO₂ emissions from electricity usage (Scope 2) are calculated with both market and location-based approach. Main method is the market-based approach and the target follow-up is based on this method. In case the market-based data is not available, residual mix is used and in case if residual mix is not available, regional or national grid factors are used. In the cases where UPM sold greenhouse gas claims (such as guarantees of origin) for energy used by UPM, the respective amount has been calculated with the national residual mix.

Indirect CO₂ i from value chain (Scope 3) is calculated based on data availability, either with secondary emission factors or previous year's primary emission factors. Detailed information about Scope 2 and 3 calculation is published at UPM's webpage. In GRI disclosures 305-1 and 305-2 the emissions are reported as CO₂ only. In 305-3 the emissions are reported as CO₂ equivalents (including CH₄ and N₂O) using IPCC's GWP values.

In addition to energy-related disclosures UPM reports production-related VOC emissions from UPM Rafflatac, UPM Biofuels and UPM Plywood which are calculated using emission factor and/or mass balance methods.

Effluent

UPM reports on effluent flow, COD, BOD and AOX as water-related performance indicators. These are calculated based on mill level data from sampling or continuous monitoring. If the wastewater is treated in municipal or external effluent treatment plants, the values included in the total sums are the loads before effluent treatment. In the calculation of average load per product unit, these mills are excluded. Conversion is done in the case of different measurement scopes, e.g. BOD₇ and BOD₅.

Waste and by-products

UPM reports the sum of non-hazardous process waste and by-products divided to recycling as material, energy recovery, composting, landfill, incineration, and temporary storage, and the sum of hazardous waste divided to recycling as material, energy recovery, incineration and other disposal. Recycled or recovered non-hazardous waste is reported as by-product. Waste figures are reported in dry tonnes, except for hazardous waste. The disposal method is determined by both direct information from the sites or from information provided by waste contractors.

Environmental costs and investments

As a guiding principle to calculate and report environmental costs and investments, UPM has based its instructions on European Commission recommendation 2001/453/EC of 13 June 2001 (Official Journal L 156, 13/06/2001) on the recognition, measurement and disclosure of environmental issues in the annual accounts and annual reports of companies and Kirjanpitolaautakunta: Yleisohje ympäristöasioiden kirjaamisesta, laskennasta ja esittämisestä tilinpäätöksessä 24.10.2006

Social responsibility disclosures

Personnel / employees

Personnel figures base on the UPM global total headcount definition including employees classified as active and inactive and are calculated as heads if not otherwise stated. The terms personnel and employees are used as synonyms and refer to UPM's own employees.

Workforce

Workforce includes UPM's own employees as well as supervised workers.

Personnel by country

Personnel by country is reported based on the UPM global total headcount definition including employees classified as active and inactive and are calculated as heads.

Contract types

All contract types are divided into two categories: permanent and fixed term. Permanent contracts include all contracts that are valid until further notice as well as employees not covered under employment contracts such as the US, where all employees are classified as "Employment at Will".

Collective bargaining agreements

The percentage of employees covered under collective bargaining agreements include all employees (both active and inactive) regardless of their contract type and working time status and includes all countries where UPM has operations.

Employee turnover

Turnover is calculated using the number of all types of employment endings regardless of whether they are voluntary or involuntary (Number of leavers 1. Jan.-31. Dec./Total headcount 31. Dec).

Separate calculation is provided showing turnover specifically for voluntary employment endings. The calculation method has been changed in 2014 and employees with contract expiries and who later have a contract extension have been excluded. Seasonal employees and those leaving due to a business being sold continue to be excluded from the calculation. In 2015 voluntary employment endings have been further clarified to include only reasons related to resignation.

Goal setting discussions

Disclosures for goal setting discussions is based on the percentage of completed goal setting discussions launched in UPM HR system according to UPM people processes annual clock. Figure consists of percentage of completed goal setting templates by the end of July for salaried employees and percentage of completed Annual Discussion templates for shop floor employees by the end of December.

Development plans

Disclosures for development plans documented is based on number of active development plans in UPM HR system comparing to UPM end of year headcount. Figure consists of number of development plans for salaried employees by end of the reporting year and number of completed annual discussions by the end of reporting year for shop floor employees. For shop floor employees development plans are integrated to annual discussion.

Ratio of basic salary of women to men

The ratio is calculated by comparing weighted average of basic salaries of women to men on the same job grade, per country. Basic salary is the constant agreed salary excluding variable parts

like shift allowances. The calculation includes all employees that have a job grade evaluated in the assessed countries and all job grades per country that have minimum three male and female employees. Thus the calculation covers salaried employees only. The reference date for the calculation of the ratio is 31 December of the year in question.

Training hours per employee

Number of training hours per employee are calculated based on the UPM total headcount definition as of the end of the year. Trainings include internal and external training.

Human Capital Return on Investment (HC ROI)

Human Capital Return on Investment (HC ROI) indicator measures the return on capital invested in employee costs. It indicates the value of investing in human asset, i.e. amount returned for every EUR spent on human capital. The ratio of the company's profitability to its human capital expenses is calculated as total revenue less operating expenses excluding employee cost and less depreciation divided by employee costs [e.g. 2018 ratio EUR 2.6 : EUR 1].

Lost-time accident frequency

Lost-time accidents per million hours worked. Calculation is as follows: (The number of accidents at work resulting in absence or disability one or more days)/(Actual hours worked)*1,000,000. Lost time accident type excludes modified duties, medical treatments and first aid cases, but includes fatal accidents.

UPM reports separately for workforce (including UPM employees and supervised workers) and contractors. Disclosure is based on

following annual data: incidents occurred from January to December and actual hours worked from December to November.

Total Recordable Injury Frequency

Recordable injuries per million hours worked. Calculation is as follows: (LTA at work excluding contractors (number of LTAs which are one or more days)'+'Modified duty'+'Medical treatment')/Actual hours worked (UPM)*1,000,000. Total Recordable Injury type excludes first aid cases.

UPM reports separately for workforce (including UPM employees and supervised workers) and contractors. Disclosure is based on following annual data: incidents occurred from January to December and actual hours worked from December to November.

Contractors and contractor working hours

Contractor is a person or organization which provides services to UPM as agreed. Contractor personnel is not directly employed by UPM. Contractor actual working time consists of all hours contractors have worked in UPM premises or under UPM supervision. Contractor working hours are used to calculate lost-time accident frequency and total recordable injury frequency. If working hours are not collected based on a time attendance system, an estimate is used. UPM has defined and published method for calculating contractor working hours if the exact number is not available. Estimates are based on the number of workers or on contract monetary value.

Absenteeism %

Absence percentage due to illness and accidents at work. Illness includes Absence hours due to illness, Absences due to accidents during travelling to/from

work, and Absence hours due to accidents during time off work. Accidents at work include Absences due to accidents at work and Absences due to occupational diseases and illnesses. These figures are added and then divided by Theoretical working time and then multiplied by 100. All hours of absence from work due to accidents at work are included (including hours on day when accident occurred).

In 2018, due to missing data Raflatac Chile is not included in the figures and Raflatac Buenos Aires for Q1 only. These sites cover 0.1% of the total theoretical working time and thus have no impact on the results.

Number of occupational diseases

Number of new cases which have been officially diagnosed and reported as occupational diseases during the reporting year. Reporting year is the last year except for Germany where cases are reported for the penultimate year.

Code of Conduct training

The Code of Conduct completion rate is calculated against the employees classified as active as per our definition and those who are shown as active as of 31 December of the year in question. Training is provided for all employees who are included in our global headcount of active employees definition.

Supplier Qualification

UPM suppliers are qualified against the UPM Supplier and Third Party Code that defines suppliers' minimum compliance requirements in terms of responsibility with regard to matters such as environmental impact, human rights, labour practices, health and safety, and product safety. Supplier spend covers all UPM business-to-business spend including wood and wood-based biomass sourcing.