UNITED NATIONS CONFERENCE ON TRADE AND DEVELOPMENT

UNCTAD

Core SDG Indicators

for Entity Reporting

TRAINING MANUAL

ISAR SDG Reporting

UNITED NATIONS

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The Manual is a first edition of the GCI training material. It will be updated based on the feedback on its practical application by preparers and users, as well as on results of implementation of the *Guidance on core indicators for entity reporting on contribution towards implementation of the Sustainable Development Goals.*

Introduction

In 2015, Member States of the United Nations adopted the 2030 Agenda for Sustainable Development, containing 17 Sustainable Development Goals (SDGs) and 169 targets. As part of the follow up and review process of the implementation of the 2030 Agenda a Global Indicator Framework with 232 indicators was adopted. In particular, SDG 12 Sustainable Consumption and Production in its Target 12.6 explicitly encourages companies to adopt sustainable practices and to integrate sustainability information into their reporting cycles. Indicator 12.6.1 requires data on the number of companies publishing sustainability reports. UNCTAD and UN Environment are co-custodians of indicator 12.6.1 and thus responsible for developing metadata guidance and collecting data. In this regard, company reporting may be an important data source, as relevant data on companies' contribution towards the SDGs is critical for: assessing the progress of the SDG implementation; enhancing the SDG-oriented corporate governance mechanisms, decision-making by investors and other key stakeholders; as well as promoting behavioral change at the enterprise level.

Accordingly, since 2015 UNCTAD has been working to enable further advancements on SDG/sustainability reporting by companies. Specifically, focusing efforts to support governments in measuring the contribution of the private sector to the implementation of the SDGs. Therefore, it has developed its *Guidance on core indicators for entity reporting on contribution towards implementation of the Sustainable Development Goals (GCI)*[1] which was launched at the 35th session of ISAR in October 2018 in Geneva. The GCI is based on elaborations on the SDG reporting issues during the annual sessions[2] of the Intergovernmental Working Group of Experts on International Standards of Accounting and Reporting (ISAR) and at the intersessional forums, including Consultative Group meetings, since 2016.

The core SDG indicators cover the economic, environmental, social and institutional areas. They were identified based on key reporting principles, main reporting frameworks and companies reporting practices. They are also selected based on the macro indicators included

[1] UNCTAD 2019. Guidance on core indicators for entity reporting on contribution towards implementation of the Sustainable Development Goals (GCI). Available at: https://unctad.org/en/PublicationsLibrary/diae2019d1_en.pdf

[2] For further information please see:
UNCTAD 2018. Enhancing the comparability of sustainability reporting: Selection of core indicators for entity reporting on the contribution towards the attainment of the Sustainable Development Goals. Available at: https://unctad.org/meetings/en/SessionalDocuments/ciiisard85_en.pdf
UNCTAD 2017. Enhancing comparability of sustainability reporting: Selection of core indicators for company reporting on the contribution towards the attainment of the Sustainable Development Goals. Available at: https://unctad.org/meetings/en/SessionalDocuments/ciiisard81_en.pdf
UNCTAD 2016. Enhancing the role of reporting in attaining the Sustainable Development Goals: Integration of environmental, social and governance information into company reporting. Available at: https://unctad.org/meetings/en/SessionalDocuments/ciiisard78_en.pdf

in the SDG monitoring framework[3] of the Inter-agency and Expert Group on SDG Indicators (IAEG-SDGs), which are also applicable at the company level.

The core indicators are intended as a starting point in the journey towards sustainability and SDG reporting by enterprises, and, therefore, they would represent the minimum disclosures that companies would need to provide in order for governments to be able to evaluate the contribution of the private sector to the SDGs. However, they do not attempt to preclude companies from providing more information in a qualitative or quantitative form.

With a view to pilot test and obtain evidence of the GCI's practical use and conduct further refinement if needed, a series of GCI company case studies in different countries and various industries including telecommunications, oil & gas, mining, healthcare manufacturing, retail, hospitality and energy industries, have been conducted. Preliminary findings[4] show that most companies were able to provide data on the majority of the core indicators. There was no single indicator that was not reported by all companies participated in the pilot testing.

In some companies few indicators were found difficult to report due to lack of technical expertise, legislative restrictions, lack of data or a system to collect information or simply because there are no activities related to a particular indicator (like water recycling, training on anticorruption issues, etc.). In general, environmental indicators were found to be more challenging to be reported by companies. Particular challenges were mentioned with regard to the data collection of environmental indicators such as measuring waste, water recycling, ozone-depleting substances or chemicals and renewable energy. A lack of knowledge of sources of information to calculate greenhouse emissions or water stress was also highlighted.

The case studies further underscored an urgent need for building technical capacity on the SDG reporting by companies. Moreover, UNCTAD is implementing a capacity building project entitled "Enabling policy frameworks for enterprise sustainability and SDG reporting in Africa and Latin America". The project's main objective is to strengthen the capacities of Governments to measure and monitor the private sector contribution to the 2030 Agenda for Sustainable Development and facilitate data availability towards target 12.6 and indicator 12.6.1.

Against this background, UNCTAD has developed this training manual with the funding support of this project, in order to facilitate harmonization and comparability of companies reporting on the SDGs and implementation of the GCI. The training manual contains four chapters i.e. on economic, environmental, social and institutional indicators. It aims at becoming a practical tool, useful for all kind of users, including preparers of reports by Small and Medium-Sized Enterprises (SMEs). By showing the link between the micro (core indicator at the company level)

[3] Available at: https://unstats.un.org/sdgs/indicators/indicators-list/

[4] UNCTAD 2019. Practical implementation, including measurement, of core indicators for entity reporting on the contribution towards the attainment of the Sustainable Development Goals: Review of case studies. Available at: https://unctad.org/meetings/en/SessionalDocuments/ciiisard89_en.pdf

and the macro levels (SDG indicator at the national and Global levels), the manual facilitates the understanding of companies' impacts on the implementation of the SDGs. The manual builds on the GCI by providing detailed explanation on each indicator, including definition, measurement methodology and potential sources of information. It provides useful illustrative and numerical examples of indicator calculations, and also examples of how these indicators have been already disclosed by companies around the world. In this regard, the examples are used for illustrative purposes and taken from the websites and annual reports of these companies, therefore UNCTAD assumes no responsibility or liability for the accuracy of the information and/or any errors or omissions included in it.

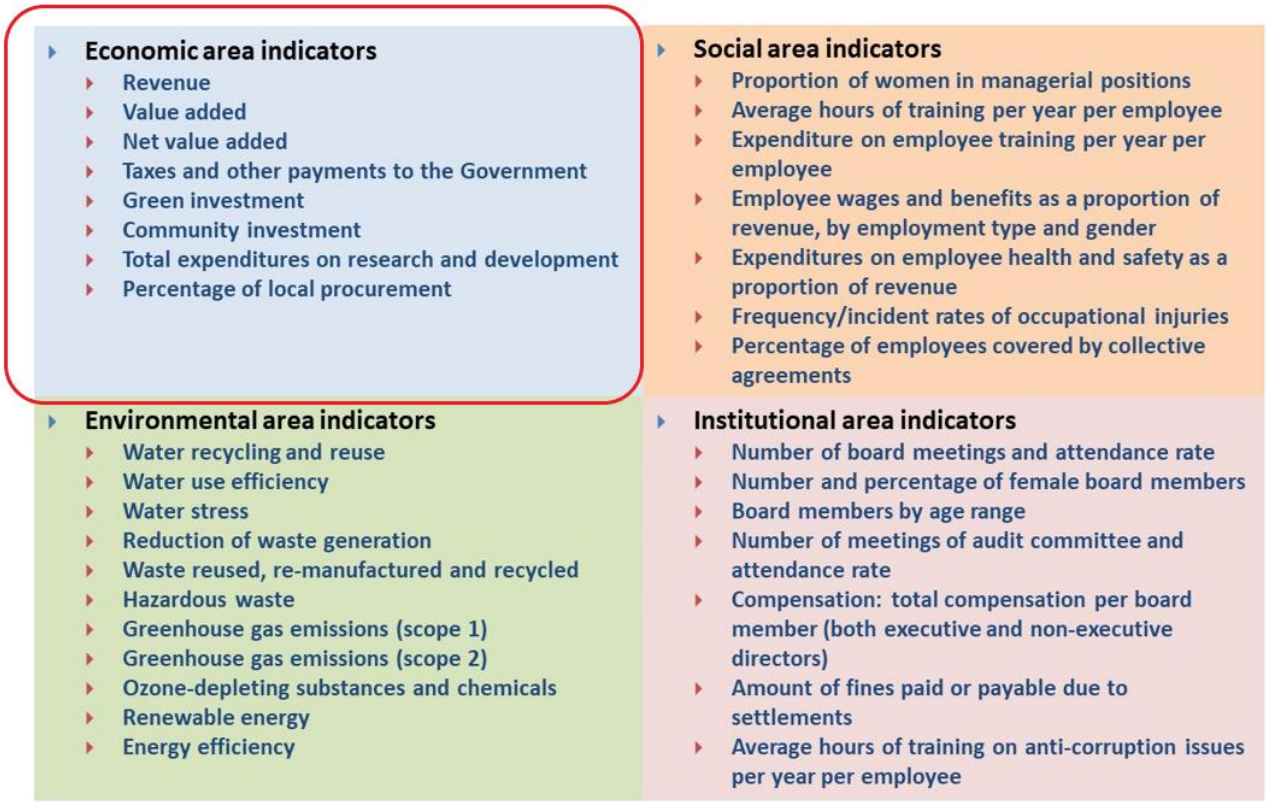
In addition, it contains self-assessment questions and solutions and a list of selected references to deepen the understanding of these issues.

The Manual is a work in progress as it will be updated based on feedback from preparers and users.

A. Economic indicators manual

Introduction

This section provides definitions, measurement methodology, potential sources of information and examples to assist entities in reporting core SDG economic indicators.



A set of key economic indicators typically used to understand the economic 'health' of an entity and that are material not only for capital providers but also for a broader range of stakeholders (e.g., employees, suppliers, local communities and the government) include:

- *Revenue;*
- *Value added;*
- *Net value added;*
- *Taxes and other payments to the Government;*
- *Green investment;*
- *Community investment,*
- *Total expenditures on research and development; and*
- *Percentage of local procurement.*

For each one of the abovementioned economic indicators a consistent set of information is presented and structured into:

- *Definition*
- *Measurement methodology (with illustrative, numerical examples)*
- *Potential sources of information*
- *Examples of how these indicators have been already incorporated in the reporting practices of companies around the world*

This section includes also a list of selected references and some self-assessment questions with solutions.

Learning objectives

By the end of the module you will:

a) Be able to define and calculate the following core indicators in the economic area:
   - Revenue;
   - Value added;
   - Net value added;
   - Taxes and other payments to the Government;
   - Green investment;
   - Community investment,
   - Total expenditures on research and development; and
   - Percentage of local procurement.

b) Be able to critically assess existing potential sources of information to calculate economic indicators in your company
c) Understand if your information systems already collect the information required to calculate economic indicators
d) Refer to examples of companies already using and disclosing economic indicators

A.1. Revenue and/or (net) value added

A.1.1. Revenue

Definition

Revenue is the value generated from sale of goods or services, or any other use of capital or assets, recognized by an entity in a given reporting period. Revenue (also known as Sales or Turnover) is shown usually as the top item in an income (profit and loss) statement. That is why it is considered the "top line" of a business.

Measurement methodology

Revenues should be preferably defined and measured according to the "IFRS 15 Revenue from Contracts with Customers".[5] In case of an entity that is not applying IFRS 15 and using IFRS for SMEs, it should be clearly stated and explained. The reference to the IFRS framework is also consistent with the preparation of macro-level statistical data (such as gross domestic product), in line with the System of National Accounts (SNA), established by the United Nations, the European Commission, the Organization for Economic Co-operation and Development, the International Monetary Fund and the World Bank Group.[6]

As IFRS 15 replaces the existing IAS 18 Revenue Recognition, it is suggested that, if possible, the calculation of revenues is done according to this new standard that establishes a single model for revenue recognition from contracts with customers. In fact, IFRS 15, effective for annual periods beginning on or after 1 January 2018, is intended to support consistency and comparability across industries and capital markets.

For straightforward contracts, such as retail transactions, IFRS 15 will have little effect on the amount and timing of revenue recognition. On the contrary, for more complex contracts, such as long-term service contracts and multiple-element arrangements, IFRS 15 could result in some changes either to the amount or timing of the revenue recognized by a company.

The five key steps proposed to apply the standard are the following[7]:

- *Step 1: Identify the contract(s) with a customer.*

[5] This is in line with several proposals already applied in practice by entities. Global Reporting Initiative (GRI) standard 201-1 requires similar reporting on revenue. The GRI guidance specifies that an organization is expected to compile information for economic disclosures using figures from its audited financial statements or from its internally-audited management accounts, whenever possible. Data can be compiled using, for example, the relevant International Financial Reporting Standards (IFRS), published by the International Accounting Standards Board (IASB), and the Interpretations developed by the IFRS Interpretations Committee (specific IFRS are referenced for some of the disclosures), as well as national or regional standards recognized internationally for the purpose of financial reporting. Also, the UNCTAD/EEI (III.G) ("A Manual for the Preparers and Users of Eco-efficiency Indicators", http://unctad.org/en/Docs/iteipc20037_ en.pdf, p. 103) specifies that all financial items, including revenues, should be defined in line with the International Accounting Standards.

[6] The full text of the SNA is available at: https://unstats.un.org/UNSD/nationalaccount/docs/SNA2008.pdf.

[7] http://www.ifrs.org/issued-standards/list-of-standards/; http://www.accaglobal.com/ie/en/member/discover/cpd-articles /corporate-reporting/fivestep-model.html

IFRS 15 describes a contract as an agreement between two or more parties that creates enforceable rights and obligations and sets out the criteria for every contract that must be met.

- *Step 2: Identify the performance obligations in the contract.*

A performance obligation is a promise in a contract with a customer to transfer a good or service to the customer. Identifying performance obligations is crucial for the measurement and timing of revenue recognition. The distinctiveness of the good or service, or a bundle of goods or services, is the fundamental factor in identifying a separate performance obligation. A good or service is distinct if the customer can benefit from the good or service on its own (or with other readily available resources) and is distinguishable from other elements of the contract. However, IFRS 15 demands a series of distinct goods or services that are substantially the same with the same pattern of transfer to be considered as a single performance obligation. A good or service which has been delivered may not be distinct if it cannot be utilized without another good or service that has not yet been delivered. So, goods or services that are not distinct should be combined with other goods or services until the company can recognize a bundle of goods or services that is distinct. It is important to notice that IFRS 15 proposes indicators rather than criteria to establish when a good or service is distinct within the context of the contract. As a consequence, managers need to apply judgment to define the separate performance obligations that best signal the economic substance of a transaction.

- *Step 3: Determine the transaction price.*

The transaction price is the amount of consideration (e.g., payment) to which an entity expects to be entitled in exchange for transferring promised goods or services to a customer, excluding amounts collected on behalf of third parties (e.g., government taxes). This should include an estimate of elements of variable consideration that can arise, for example, as a result of discounts, rebates, refunds, performance bonuses, penalties.

- *Step 4: Allocate the transaction price to the performance obligations in the contract.*

For a contract that has more than one performance obligation, an entity should allocate the transaction price to each performance obligation in an amount that depicts the amount of consideration to which the entity expects to be entitled in exchange for satisfying each performance obligation. In other words, the allocation is based on the relative standalone selling price of the goods or services promised, defined based on the observable price of the good or service when the entity sells that good or service separately. If such evidence is not available, the price is mainly estimated based on an expected cost plus an appropriate margin or based on the assessment of market prices for similar goods or services adjusted for entity-specific costs and margins. Discounts and variable consideration will typically be allocated proportionately to all of the performance obligations in the contract or, if certain conditions are met, they can be allocated to one or more separate performance obligations.

- *Step 5: Recognize revenue when (or as) the entity satisfies a performance obligation.*

Step five requires revenue to be recognized as each performance obligation is satisfied. Differently from IAS 18, an entity satisfies a performance obligation by transferring control of a promised good or service to the customer. Control is defined as the ability to prevent others

from directing the use of and obtaining the benefits from the asset. The transfer of the control could occur at a point in time or over time. In this case, the company recognizes revenue based on the pattern of transfer to the customer. Whether an entity recognizes revenue over the period during which it manufactures a product or on delivery to the customer will depend on the specific terms of the contract.

IFRS 15 also includes some disclosure requirements in relation to the disaggregation of revenue without specifying how. The application guidance encourages companies to “tailor” disaggregated revenue considering, for example, how revenue is disaggregated for other purposes (e.g., press releases) and how information is regularly collected and elaborated by internal management reports to evaluate the financial performance of operating segments (in accordance with IFRS 8). Examples of categories include type of good or service, geographical region, type of customer. As for multinational companies, the geographical region is an important dimension around which internal reporting systems are designed, these companies are encouraged to disclose revenues by country.

In addition, as IFRS 15 represents a change from IAS 18, to implement the new IFRS 15 it is suggested that companies start with the following activities: analysis of all existing customer contracts; contract inventory; identification of performance obligations; determination of stand-alone selling prices; adjustment of internal management reporting including IFRS 8 (about the disclosure of information on operating segments, products and services, geographical areas and major customers).

Let us assume the following example:

Peter enters into a 12-month telecom plan with the local mobile operator ABC. The terms of plan are:

- Peter’s monthly fixed fee is CU 100.
- Peter receives a free handset at the inception of the plan.

The company ABC sells the same handsets for CU 300 and the same monthly prepayment plans without handset for CU 80/month.

How will ABC calculate revenues from this contract?

- With IAS 18:

  Revenue from monthly plan is recognized on a monthly basis. The journal entry is to debit receivables or cash and credit revenues with CU 100.

- With IFRS 15:

  ABC needs to identify all performance obligations from the contract with Johnny (step 2 in the 5-step model):

    - Obligation to deliver a handset

- Obligation to deliver network services over 1 year

The transaction price (step 3) is CU 1200, calculated as monthly fee of CU 100 times 12 months.

ABC needs to allocate that transaction price of CU 1,200 to individual performance obligations under the contract based on their relative stand-alone selling prices (or their estimates) (this is step 4).

Performance obligation	**Stand-alone selling price**	**% on total**	**Revenue (=relative selling price = 1200*%)**
Handset	300.00	23.8%	285.60
Network services	960.00 (=80*12)	76.2%	914.40
Total	**1,260.00**	**100.0%**	**1,200.00**

The step 5 is to recognize the revenue when ABC satisfies the performance obligations. Therefore:

- When ABC gives a handset to Peter, it needs to recognize the revenue of CU 285.60;
- When ABC provides network services to Peter, it needs to recognize the total revenue of CU 914.40 (it is practical to do it once per month as the billing happens).

Performance obligation	**Under IAS 18 (6 months)**	**Under IFRS 15 (6 months)**
Handset	0.00	285.60
Network services	600.00 (=1,200/2)	457.20 (=914.4/2)
Total	**600.00**	**742.80**

Potential sources of information

Revenues are to be found as the first line of the income statement. The information about the single transactions to calculate revenues in the reporting period are recorded within financial accounting systems (accounts receivable, revenue cycle). Management accounting systems/internal management reports usually present segment revenues with reference to different dimensions (segment reporting). Country-specific data can be recovered from these systems.

The figure for total revenues should correspond to the same data as reported elsewhere in the entity's management accounts and in its audited financial statements.

Example n.1

https://www.capita.com/: Capita plc is an international business process outsourcing and professional services company headquartered in London. It is the largest business process outsourcing and professional services company in the UK and has clients in central government, local government and the private sector. Half of its turnover comes from the private sector and half from the public sector. Whilst UK-focused, Capita also has operations across Europe, Africa and Asia and is listed on the London Stock Exchange.

FINANCIAL HIGHLIGHTS

	Reported results – continuing operations		
	Reported 2017	Reported 2016	Reported YOY change
Revenue	**£4,234.6m**	£4,368.6m	(3)%
Operating profit before significant new contracts and restructuring			
Operating profit/(loss)	**£(420.1)m**	£(16.1)m	2,509%
Profit before tax before significant new contracts and restructuring			
Profit/(loss) before tax	**£(513.1)m**	£(89.8)m	471%
Earnings/(loss) per share	**(80.14)p**	(14.27)p	462%
Total dividend per share	**11.1p**	31.7p	(65)%
Free cash flow	**£37.7m**	£367.3m	(90)%

Source: Capita's Annual Report 2017

A.1.2. Value added

Definition

Value added is defined as the difference between the revenues and the costs of bought-in materials, goods and services. In other terms, value added is the wealth the entity has been able to create and that can be distributed among different stakeholders (employees, lenders, authorities, shareholders).

Measurement methodology

Value added can be calculated as part of the preparation of a Value Added Statement, that is a financial statement reporting the wealth created by an entity and how it is distributed among different stakeholders (e.g., the employees, shareholders, government, creditors) and retained in the business. The Value Added Statement is based on the following equation[8]:

Direct economic value generated (revenues and other income)

Minus

Economic value distributed (operating costs, employee wages and benefits, payments to providers of capital, payments to government by country, and community investments)

= Economic value retained

Where:

- Direct economic value generated is calculated starting from revenues and considering also other income from financial investments (such as interest on financial loans; dividends from shareholdings) and from the sale of assets (such as physical assets, e.g. property, infrastructure, and equipment, and intangibles, e.g. intellectual property rights).
- Economic value distributed is calculated considering:
    - Operating costs, i.e., all payments made outside the organization for materials, product components, facilities, and services purchased. Some examples of

[8] This is in line with several approaches including the GRI (Disclosure 201-1, pp. 6-7) and the UNCTAD/EEI ("A Manual for the Preparers and Users of Eco-efficiency Indicators", http://unctad.org/en/Docs/iteipc20037_ en.pdf, p. 103), which defines Value Added as Revenue – Purchase of Goods and Services. However, it should be noted that the proposed calculation of value added may understate the economic value generated by some businesses, particularly those operating in the technology and innovation fields where the generation of own-account capital can create significant economic value for the business and its owners. Examples of this own-account capital can include: the generation of intellectual property through the research and development process, as well as construction and engineering projects to support extractive and transportation industries. In these cases, it is thus suggested to also separately report the own-account capital generated during the reporting period.

operating costs, in addition to the costs for materials and components used in production processes, include: property rental, license fees, payments for contract workers.

- Employee wages and benefits, i.e., total payroll (including employee salaries and amounts paid to government institutions on behalf of employees) plus total benefits (excluding training, costs of protective equipment or other cost items directly related to the employee's job function). Amounts paid to government institutions on behalf of employees can include employee taxes, levies, and unemployment funds. Total benefits can include: regular contributions, such as to pensions, insurance, fleet, and private health; other employee support, such as housing, interest-free loans, public transport assistance, educational grants, and redundancy payments.

- Payments to providers of capital, i.e., dividends to all shareholders, plus interest payments made to providers of loans (interests on all forms of debt and borrowings, not only long-term debt).

- Payments to government; i.e. all of the organization's taxes plus related penalties paid at the international, national, and local levels (see also A.2.1. Taxes and other payments to the Government).

- Community investments, i.e., voluntary donations plus investment of funds in the broader community where the target beneficiaries are external to the organization. These can include: contributions to charities, NGOs and research institutes (unrelated to the organization's commercial research and development); funds to support community infrastructure, such as recreational facilities; direct costs of social programs, including arts and educational events. If reporting infrastructure investments, an organization can include costs of goods and labor, in addition to capital costs, as well as operating costs for support of ongoing facilities or programs (see also A.3.2. Community investment).

Specifically, starting from this equation, Value added is calculated as direct economic value generated (revenues and other income) MINUS the above-defined operating costs, i.e., the costs of bought-in goods and services purchased from external suppliers (not made within the organization).[9]

This is normally referred to as Gross Value Added (GVA).

An example of calculation of GVA using the format of the Value added statement is the following:

[9] Value added can be calculated also as: Salaries + Depreciation + Amortisation + Interest Paid + Taxes + Community investments + Dividends + Retained Profit. This approach can be found in: "A Manual for the Preparers and Users of Eco-efficiency Indicators", http://unctad.org/en/Docs/iteipc20037_en.pdf , p. 104

Generation of Value Added		
Revenue		1,000
Less: Cost of bought in goods and services	300	
Value Added (GVA)		**700**
Application of Value Added		
To employees (wages and benefits)		250
To capital providers (interest expenses and dividends)		100
To the Government (taxes)		100
To the Entity (depreciation and expansion of business)		250
Value Added (GVA)		**700**

From the above example, two things should be underlined:

- GVA can be calculated as the difference between revenue and cost of bought-in materials and services for a specific entity ($1,000 MINUS $300). This is the first part of the statement, i.e., the Generation of Value Added.

- GVA can be calculated also the sum of: $250 referred to employee wages and benefits, $100 given as interest of loans and dividends to shareholders, $100 contributed to the government in the form of taxes and $250 kept aside for depreciation and for expansion of the business. This is the second part of the statement reporting the distribution of the value added by the entity across its various stakeholders, i.e., the Application of Value Added.

Potential sources of information

Information to calculate the Gross Value Added (GVA) can be derived directly from the Value Added Statement. The preparation of a Value Added Statement is based on the data collected within the traditional accounting systems, so that value added is calculated on an accruals basis.

If an entity does not prepare a Value Added Statement the calculation of value added should be done from data in the organization's audited profit and loss (P&L) statement, or its internally audited management accounts. In particular, if an entity would like to calculate the GVA and prepare also a Value Added Statement, operating costs can be derived from all the bills to external suppliers of goods and services (recorded in the accounts payable); the data on employee wages and benefits and the related information flows are normally managed by the HR function, typically within a Compensation & Payroll management information system. Many entities use specialized software for collecting and elaborating payroll information; payments to the different providers of capital are recorded in specific accounts (e.g., interest payables or dividend payables) and can be found in the P&L as interest expenses or in the cash flow statement as dividends paid; community investments in the form of donations are recorded in

a specific account that is usually called charitable contributions (in an internal report they will appear as a discrete expense line item most likely called Charitable Contributions).

Example n.2

http://www.supergroup.co.za/: Super Group is a broad-based supply chain management business listed on the Johannesburg Securities Exchange. Super Group is essentially a supply chain mobility company revolving around the optimization of supply chain processes and vehicle fleets with a strong IT focus and technology underpin. Its expertise is applied into vertically integrated divisions covering vehicle dealerships and fleet management. Founded in 1986, Super Group has an international footprint.

Group Social and Ethics Committee Report
(continued)

Value-added statement

A measure of the wealth created by Super Group, for various stakeholders, is the amount spent on the cost of goods and services provided, the remuneration paid to its employees, money paid to providers of equity and debt, taxes paid to government and capital reinvested in the Group.

	Year ended 30 June 2018 R'000	%	Year ended 30 June 2017 R'000	%
Revenue	35 662 856		29 873 856	
Goods and services provided	(26 258 749)		(21 687 692)	
Total wealth created	**9 404 107**		**8 186 164**	
Allocated as follows:				
Wealth distributed	5 953 645	63.3	5 115 424	62.5
Employees	3 765 375	40.0	3 286 394	40.1
Provider of equity capital	340 612	3.6	339 987	4.2
Providers of debt	334 206	3.6	288 673	3.5
Government	1 513 452	16.1	1 200 370	14.7
Reinvested in the Group	3 450 462	36.7	3 070 740	37.5
Total wealth distributed	**9 404 107**	**100.0**	**8 186 164**	**100.0**
Number of employees	11 930		10 797	
Wealth created per employee	788		758	
Wealth distributed per employee	316		304	
Revenue per employee	2 989		2 767	

Source: Supergroup's Integrated Report 2018.

A.1.3. Net value added

Definition

Net value added consists of value added (GVA as described at point A.1.3) from which depreciation has been subtracted. In other terms, NVA is the sum of the value added to employees, to providers of loan capital, to Government and to owners.[10]

Measurement methodology

Net value added is calculated by considering indicator A.1.2 on value added (GVA), and by subtracting depreciation.

Referring back to the example reported for indicator A.1.2., let us assume that depreciation is equal to $100. NVA will be calculated as follows:

Generation of Value Added		
Revenue		1,000
Less: Cost of bought in goods and services	300	
Less: Depreciation		100
Value Added (NVA)		**600**
Application of Value Added		
To employees (wages and benefits)		250
To capital providers (interest expenses and dividends)		100
To the Government (taxes)		100
To the Entity (expansion of business)		150
Value Added (NVA)		**600**

The below figure presents a comparative example for indicators A.1.1. Revenue, A.1.2. Value added and A.1.3. Net value Added (where 2a and 3a indicate where it is possible to find the Cost of bought-in goods and services and Depreciation starting from the traditional Profit and loss (Income) statement).

[10] Net value added can also be calculated as Salaries + Amortization on intangible assets + Interest paid + Taxes + Community investments + Dividends + Retained Profit. This approach can be found in: "A Manual for the Preparers and Users of Eco-efficiency Indicators", http://unctad.org/en/Docs/iteipc20037_ en.pdf, p. 104.

Figure: Illustrative example of the computation of indicators A.1.1, A.1.2 and A.1.3

	A.1.1 Revenue	***A.1.2.* and *A.1.3. Value Added***	
REVENUE			**1a**
COST OF SALES		Costs of goods and services from external suppliers	**2a**
		Depreciation	**3a**
		Other costs	
GROSS PROFIT			
OPERATING EXPENSES		Costs of goods and services from external suppliers	**2b**
		Depreciation	**3b**
Selling, general and administrative expense		Other costs	
OPERATING INCOME (LOSS)			
OTHER INCOME			**1b**
Investment income, other gain and losses			
EBIT (earnings before interest and taxes)			
INTEREST EXPENSE/FINANCE COSTS			
EBT (earnings before taxes)			
INCOME TAXES			
NET INCOME			

GVA = 1a + 1b - 2a - 2b
NVA = 1a + 1b - 2a - 2b - 3a - 3b

Source: UNCTAD

Potential sources of information

Reference is made to the Value Added statement and other possibilities for calculation of value added-related data, discussed in indicator A.1.2.

Example n.3

> https://www.volkswagenag.com/: Volkswagen AG, known internationally as the Volkswagen Group, is a German multinational automotive manufacturing company headquartered in Wolfsburg, Lower Saxony, Germany and indirectly majority owned by the Austrian Porsche-Piëch family. It designs, manufactures and distributes passenger and commercial vehicles, motorcycles, engines, and turbomachinery and offers related services including financing, leasing and fleet management. It ranked seventh in the 2018 Fortune Global 500 list of the world's largest companies.

The value added statement indicates the added value generated by a company in the past fiscal year as its contribution to the gross domestic product of its home country, and how it is appropriated. Due to the improved operating profit before special items and lower negative special items, the value added generated by the Volkswagen Group in the reporting period was up 16.8% year-on-year. Added value per employee increased to €107.7 thousand (+13.9%) in 2017. Employees in the passive phase of their partial retirement as well as vocational trainees are not included in the calculation.

VALUE ADDED GENERATED BY THE VOLKSWAGEN GROUP

Source of funds in € million	2017	2016
Sales revenue	230,682	217,267
Other income	18,912	17,907
Cost of materials	−151,449	−140,307
Depreciation and amortization	−22,165	−20,924
Other upfront expenditures	−17,615	−23,990
Value added	**58,364**	**49,953**

DOWNLOAD

Appropriation of funds in € million	2017	%	2016	%
to Volkswagen AG shareholders (dividend, 2017 dividend proposal)	1,967	3.4	1,015	2.0
to employees (wages, salaries, benefits)	38,950	66.7	37,017	74.1
to the state (taxes, duties)	3,433	5.9	3,486	7.0
to creditors (interest expense)	4,344	7.4	4,070	8.1
to the Company (reserves)	9,671	16.6	4,365	8.7
Value added	**58,364**	**100.0**	**49,953**	**100.0**

Source: Volkswagen's Annual Report 2016

A.2. Payments to the Government

A.2.1. Taxes and other payments to the Government

Definition

This indicator is defined as the amount of taxes (encompassing not only income taxes, but also other levies and taxes, such as property taxes or value added taxes) plus related penalties paid, plus all royalties, license fees, and other payments to Government for a given period.

It is important to underline that taxes provide a means to fairly distribute wealth, as well as social costs, and there is a fundamental obligation for entities to comply with tax legislation and to be responsible in their tax practices.

Measurement methodology

It is important to start by saying that, in practice, the calculation of this indicator is very much impacted by the specific rules at the country level, at the industry level (e.g., oil and extraction), and by the specific nature of the entity (e.g., public-interest entity).

In general terms, an entity can compute this indicator by summing up all of its taxes and payments to the Government, which can include:

- income taxes,
- property taxes,
- excise duties[11],
- value added tax (VAT),
- local rates and other levies and taxes that may be industry/country specific[12],
- royalties, license fees, and other payments to Government.

This figure does not include:

- deferred taxes as they may not be paid;[13]
- the amounts related to the acquisition of government assets (e.g., purchase of formerly state-owned enterprises);

[11] An excise duty is a tax on some types of goods, such as alcohol, cigarettes, gasoline or other fuels, paid to a national or state government. The existence and amount of such duties depend very much on the country-specific rules.

[12] On this point, see also: Guidance on Corporate Responsibility Indicators in Annual Reports, published by UNCTAD in 2008 (UNCTAD/CRI). United Nations publication, UNCTAD/ITE/TEB/2007/6, available at: http://unctad.org/en/Docs/iteteb20076_en.pdf , (indicator 14); http://www.ifrs.org/issued-standards/list-of-interpretations/ifric-21-levies/

[13] The measurement approach proposed here is consistent with GRI 201: Economic performance.

- penalties and fines for non-compliance issues unrelated to tax payment (e.g. environmental pollution).

It is important to recall that “tax payable” and “deferred taxes” appear as liabilities on an entity’s balance sheet. Although they both represent taxes to be paid in the future, they originate in different ways. The item “tax payable” refers to taxes that the entity has incurred but has not had to pay because tax time has not arrived yet. The second item, “deferred taxes”, originates because tax laws and accounting rules may differ due, for example, to different treatments of fixed assets depreciation, revenues recognition and valuation of inventories. Because of these differences, an entity’s earnings before taxes on the income statement, i.e., the ‘accounting income’, can be higher than its ‘taxable income’ hence the amount of tax due according to tax rules is lower than that according to accounting rules. Because this imbalance is temporary, and an entity expects to settle its tax liability in the future, it records a deferred tax liability. In other words, a deferred tax liability is recognized in the current period for the taxes payable in future periods.

In case an entity receives subsidies and other payments from the Government, it is suggested to indicate them separately.

For example, let us assume that the entity XYZ is an oil and gas company that has registered the following amounts during a certain reporting period:[14]

- Royalties for the rights to extract oil and gas resource = € 130,000
- Licence fees and rental fees for gaining access to an area where exploration, development and production activities are performed = € 80,000
- Income taxes = € 250,000
- Corporation tax penalty = € 45,000

The indicator should be calculated as the sum of all the previous amounts, i.e., as:

130,000 + 80,000 + 250,000 + 45,000 = € 505,000

If operating in more than one country, it is suggested, in line with what was already suggested for other indicators, that the organization reports this indicator by country. The definition of segmentation used should remain consistent for all the economic indicators presented at a country level. Alternatively, this indicator could be calculated based on legal entity reporting.

It is important to note that legal entity reporting does not necessarily equate to country-by-country reporting. There can be multiple legal entities in a host country that are controlled by a parent in a host country. The legal entity data of the multiple entities in a country needs to be aggregated at a country level to provide meaningful information to stakeholders interested in country-level information. Therefore, country-by-country reporting is more than legal entity

[14] For a very comprehensive example of report on payments to Governments refer to: https://www.eni.com/docs/en_IT/enicom/publications-archive/publications/reports/reports-2016/Report-Payments-governments-2016.pdf

reporting. Country-by-country reporting can help stakeholders understand its approach to taxes and payments to governments across the tax jurisdictions in which it operates.

Potential sources of information

Taxes and other payments to the Government can be found either in the income statement or in the balance sheet.

For example, income tax expense is an income-statement item, a line that comes immediately after EBT (earnings before taxes).

Property taxes are part of the general expenses.

Specific taxes and payments to the Government are usually recorded within identifiable accounts referred to each type of tax/payment.

In many accounting software programs, a VAT account is used to keep track of sales taxes collected and paid (VAT).

Specific accounts are also used to record certain fees, concessions, contributions or royalties' fees imposed on industries which are regulated by the government, e.g., telecommunications, mining, aviation, banking, insurance, dairy, energy and natural resources, etc.

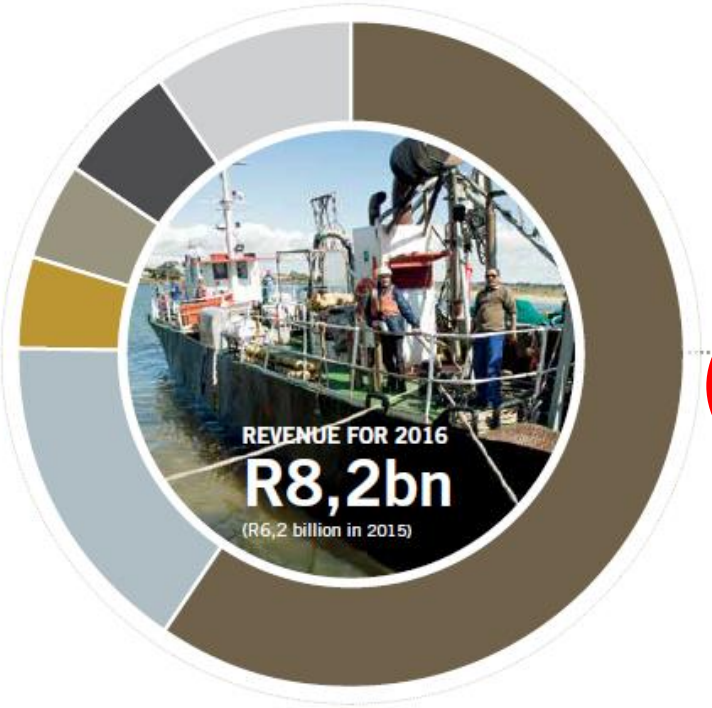
Internal management reports for the country-specific data should also be referred to when identifying information on taxes and other payments to the Government at the country level. Internal management reports could be maintained at various levels of detail and could be aggregated at a country level to inform decision making, for example with respect to operations in a country.

Example n.4

> http://oceana.co.za/: Incorporated in 1918 and listed on the Johannesburg (JSE) and Namibian (NSX) stock exchanges, Oceana Group is the largest fishing company in Africa and an important participant in the Namibian, Angolan and US fishing industries. They employ 5 225 people.

VALUE ADDED

at 30 September 2016



VALUE DISTRIBUTED

PROCUREMENT ON GOODS AND SERVICES

R4,9bn
(R4,0 billion in 2015)

EMPLOYEES

R1,3bn
(R1,0 billion in 2015)

GOVERNMENT[1]

R375,0m
(R311,1 million in 2015)

LENDERS

R385,2m
(R158,4 million in 2015)

SHAREHOLDERS (DIVIDENDS)

R476,8m
(R427,4 million in 2015)

RETAINED

R793,6m
(R257,7 million in 2015)

[1] *This includes company taxation, skills development levy net of refunds, rates and taxes paid to local authorities, customs duties, import surcharges and excise taxes, and withholding taxes. It excludes amounts collected by the group on behalf of the government for VAT (net amount refunded), PAYE and SITE (withheld from remuneration paid) and UIF (contributions withheld from employees' salaries)*

Source: Oceana Group's Integrated Report 2016

A.3. New investment/expenditures

A.3.1. Green investment

Definition

Green investment refers to investment that can be considered positive for the environment in a direct or indirect manner. In other words, this indicator includes all the expenditures for those investments whose primary purpose is the prevention, reduction and elimination of pollution and other forms of degradation to the environment.[15] This means that investments that are beneficial to the environment but that primarily satisfy the technical needs or the internal requirements for hygiene or safety and security of an entity are excluded from this definition.

Measurement methodology

In order to calculate this indicator in the correct way, it is important to start from understanding what 'green investments' are.

There are a number of different definitions of 'green' for different economic activities and of synonyms that are employed by entities to denote this kind of investment:

- environmental,
- ecological,
- eco-friendly.

The High-Level Expert Group on Sustainable Finance (HLEG), in collaboration with the European Commission's Action Plan on Sustainable Finance, has developed a framework for a full sustainability taxonomy which entails the identification and classification of sectors, sub-sectors and associated assets, i.e., investments, by purpose: climate change mitigation (avoided emissions or increased sequestration[16]), climate change adaptation (reduced disruption and damage arising from acute or chronic effects of climate change), healthy natural habitats (protecting and enhancing land & marine habitats and biodiversity), water resource management & conservation (water efficiency and sustainable management and withdrawals), waste minimization (reuse of waste and circular economy).[17]

There are different classifications that can be used in practice to identify green investments and

[15] This definition is consistent with the approach based on the Environmental Protection Expenditure Accounts (EPEA) (see SEEA CF section 4.3) that can be found at: https://seea.un.org/sites/seea.un.org/files_/seea_techncial_note_-_epea_jan_2017_draft.pdf

[16] It is a set of technologies that can greatly reduce CO_2 emissions usually through a three-step process including: capturing CO2 from power plants or industrial processes, transporting the captured and compressed CO_2 (usually in pipelines), underground injection and geologic sequestration (named also as storage) into underground deep rock formations.

[17] This classification can be found at (https://ec.europa.eu/info/sites/info/files/180131-sustainable-finance-final-report_en.pdf , p. 18).

to decide which investments can be incorporated in the calculations.

One classification is based on the idea that, typically, green investments comprise different technologies which contribute to solving particular environmental problems and which include:

- low carbon power generation and vehicles,
- smart grids,
- energy efficiency,
- pollution controls,
- recycling,
- waste management and waste of energy.

Another useful check-list[18] is based on the classification of green investments depending on the function of the underlying technologies:

- General environmental management (including waste management, air and water pollution abatement, soil remediation);
- Renewable energy (including biofuels);
- Combustion technologies for improved efficiency;
- Climate change mitigation (e.g., capture, storage, sequestration, disposal of GHG);
- Indirect contribution (e.g. energy storage);
- Transportation (emissions abatement, efficiency); and
- Buildings (energy efficiency).

The European Union Classification of Environmental Protection Activities (CEPA) also includes in the expenditures for environmental protection, i.e., that can be considered as part of green investments, outlays and other transactions related to:

- Capital formation and the purchase of land for environmental protection activities;
- The purchase of environmental protection products, i.e., goods which directly contribute

[18] Researchers of the European Patent Office and OECD (2011) have developed this list. Refer to Indicator of Environmental Technologies (ENV-Tech Indicator) and to Inderst, G., Kaminker, Ch., Stewart, F. (2012), "Defining and Measuring Green Investments: Implications for Institutional Investors' Asset Allocations", OECD Working Papers on Finance, Insurance and Private Pensions, No.24, OECD Publishing. For other illustrative examples of possible green investments see also: Inderst, G., Kaminker, Ch., Stewart, F. (2012), "Defining and Measuring Green Investments: Implications for Institutional Investors' Asset Allocations", OECD Working Papers on Finance, Insurance and Private Pensions, No.24, OECD Publishing.

to preservation efforts (e.g. septic tanks, rubbish containers, compost containers); and

- Investment in adapted goods, which are goods that have been specifically modified to be greener (i.e., mercury free batteries, Chlorofluorocarbon (CFC) free products). Only the extra costs paid in excess of the cost of the "normal" product is counted.

Starting from these classifications, two indicators can be calculated:

- ✓ the first one is the total amount of green investments over a certain reporting period. This indicator should be measured in monetary units (the costs as indicated on the corresponding invoices), i.e., it should be calculated as the total amount of green investments referred to in the reporting period under consideration;

- ✓ the second one is a ratio expressing a firm's green investments in period t as a percentage of the entity's period t total assets (and/or revenue). These indicators would be expressed in percentage (%) terms and would be calculated as follows:

$$\frac{\text{Total amount of green investments}}{\text{Total assets}}$$

Or

$$\frac{\text{Total amount of green investments}}{\text{Total revenue}}$$

In order to calculate the first indicator and the numerator of the second indicator(s) the following table can be used in order to keep track of green investments over a certain reporting period:

Type of investments	***Expenses***	***Amounts (monetary)***
Pollution prevention investments	1) Expenses for preventing air pollution (including acid rain)	
	2) Expenses for preventing water pollution	
	3) Expenses for preventing ground contamination	
	4) Expenses for preventing noise pollution	
	5) Expenses for preventing vibration pollution	
	6) Expenses for preventing odor pollution	
	7) Expenses for preventing ground sinkage	
	8) Expenses for preventing other types of pollution	

Global environment conservation investments	1) Expenses for preventing global warming and energy conservation	
	2) Expenses for preventing the ozone depletion	
	3) Expenses for other global environmental conservation activities	
Resource circulation investments	1) Expenses for the efficient utilization of resources	
	2) Expenses for recycling waste	
	3) Expenses for disposal of waste	
	4) Expenses contributing to resource circulation	

So, for example, let us assume that an entity has the following records at the end of the reporting period:

Type of investments	***Expenses***	***Amounts (monetary)***
Pollution prevention investments	1) Expenses for preventing air pollution (including acid rain) ✓ Low carbon vehicles	32,000 €
	2) Expenses for preventing water pollution ✓ Plant pollution controllers	15,000 €
	3) Expenses for preventing ground contamination	--
	4) Expenses for preventing noise pollution	--
	5) Expenses for preventing vibration pollution	--
	6) Expenses for preventing odor pollution	--
	7) Expenses for preventing ground sinkage	--
	8) Expenses for preventing other types	--

	of pollution	
Global environment conservation investments	1) Expenses for preventing global warming and energy conservation ✓ Smart grids	80,000 €
	2) Expenses for preventing the ozone depletion ✓ CO_2 sequestration technologies	110,000 €
	3) Expenses for other global environmental conservation activities	--
Resource circulation investments	1) Expenses for the efficient utilization of resources	--
	2) Expenses for recycling waste ✓ New recycling equipment	200,000 €
	3) Expenses for disposal of waste	--
	4) Expenses contributing to resource circulation	--

Based on these records, the indicator “Green investments” would be calculated as:

32,000 + 15,000 + 80,000 + 110,000 + 200,000 = € 437,000

Assuming that the entity has recorded 10,000,000 € in revenue and has assets equal to 4,000,000 €, the ratios indicators would be calculated as:

Total amount of green investments / Total assets = 437,000 / 4,000,000 = 10.93%

Total amount of green investments / Total revenue = 437,000 / 10,000,000 = 4.37%

The below figure presents a stylized profit and loss (income) statement and a stylized balance sheet (asset side only) to illustrate where it is generally possible to find the items to calculate the monetary amount of green investments.

It is important to underline that, given the lack of a shared definition across industries and that the definition of green investment is likely to depend on the entity’s location and operational context, it is important to complement the disclosure of these indicators with a consistent

explanation for why an investment has been categorized as “green”.[19]

Similar to what is recommended for other economic indicators included in this guidance, multinational entities are encouraged to disclose green investments by country.

Figure: Illustrative example of where to find items related to green investments in financial statements

PROFIT AND LOSS (INCOME STATEMENT) - ILLUSTRATIVE EXAMPLE

	A.3.1. Green investments
REVENUE	
COST OF SALES	
GROSS PROFIT	
OPERATING EXPENSES Selling, general and administrative expense	
OPERATING INCOME (LOSS)	
OTHER INCOME Investment income, other gain and losses	
EBIT (earnings before interest and taxes)	
INTEREST EXPENSE/FINANCE COSTS	
EBT (earnings before taxes)	
INCOME TAXES	
NET INCOME	

Source: UNCTAD

[19] In the United States, for example, disclosure of material capital expenditures for pollution abatement and control is mandated by the Securities and Exchange Commission, and such expenditures are defined as ‘environmental capital spending’ or ‘environmental capital expenditures’.

BALANCE SHEET - ILLUSTRATIVE EXAMPLE	
	A.3.1. Green investments
CURRENT ASSETS:	
CASH	
ACCOUNTS RECEIVABLE	
INVENTORIES	
OTHER ASSETS	
NON-CURRENT ASSETS:	
PROPERTY, PLANT AND EQUIPMENT	
INTANGIBLE ASSETS	
FINANCIAL ASSETS	
OTHER ASSETS	
TOTAL ASSETS	

Source: UNCTAD

Potential sources of information

Information regarding these expenditures can be found as an operating expense when the corresponding expenses are not capitalized. They can be found in the P&L statement as part of production costs or as part of selling expenses depending on the nature of the corresponding investment.

When these investments are material, they are most likely capitalized, and they are budgeted at the beginning of the reporting period so that it is possible to find the corresponding amounts in internal management reports such as capital budgets. Once the entity has capitalized such expenses, they are included in the fixed assets in the balance sheet of the entity (typically as part of plant, property and equipment (PPE)).

Example n.5

http://www.terna.it/: Terna S.p.A. is a transmission system operator (TSO) based in Rome, Italy. It operates through Terna Rete Italia, that manages the Italian transmission grid and Terna Plus which is in charge of new business opportunities and non-traditional

activities in Italy and abroad. With 72,900 kilometres (45,300 mi) of power lines or around 98% of the Italian high-voltage power transmission grid, Terna is the first independent electricity transmission grid operator in Europe and the sixth in the world based on the size of its electrical grid. Terna is listed on the Borsa Italiana and is a constituent of the FTSE MIB index.

ENVIRONMENTAL COSTS – CAPITAL EXPENDITURE AND OPERATING COSTS €m

	2018	2017	2016
Capital expenditure			
Environmental offsets[1]	7.1	7.9	14.7
Environmental-impact studies[2]	3.5	4.2	2.4
Environmental activities – new plants[3]	3.9	4.8	4.3
Environmental activities – existing plants[4]	2.9	3.6	7.5
Demolitions[5]	2.2	0.8	0.9
Total capital expenditure	**19.6**	**21.2**	**29.8**
Costs			
Costs for environmental activities[6]	23.8	24.1	19.1
Total operating costs	**23.8**	**24.1**	**19.1**

Source: Terna's website: Costs for the Environment (last accessed on 26 March 2020)

https://www.terna.it/en/sustainability/environment/costs-environment

A.3.2. Community investment

Definition

Community investment refers to charitable/voluntary donations and investments of funds in the broader community where the target beneficiaries are external to the entity. This excludes legal and commercial activities or investments whose purpose is driven primarily by core business needs or to facilitate the business operations of the entity (e.g., building a road to a factory). The calculation of community investment can include infrastructure built outside the main business activities of the organization, such as a school or hospital for workers and their families.

Measurement methodology

Two indicators can be calculated:

- ✓ the first one is the total amount of community investments over a certain reporting period. Community investments should be expressed in monetary terms and should comprise the expenditures (both capital expenditure and operating ones if applicable) incurred in the reporting period;
- ✓ the second one is a ratio expressing a firm's community investments in period t as a percentage of the entity's period t total assets (and/or revenue). These indicators would be expressed in percentage (%) terms and would be calculated as follows:

$$\frac{\text{Total amount of community investments}}{\text{Total assets}}$$

Or

$$\frac{\text{Total amount of community investments}}{\text{Total revenue}}$$

In order to calculate the first indicator and the numerator of the second indicator(s) the following classification can be used in order to keep track of community investments over a certain reporting period:

a) contributions to charities, non-governmental organizations and research institutes (not related to the entity's commercial research and development);

b) funding of community infrastructures (e.g., education, medical and recreational facilities) including infrastructures outside the main business activities of the entity, such as a school or hospital for employees and their families;

c) direct costs of social programs (e.g., arts and educational events) or of provision of emergency relief in times of natural disaster.

For what concerns the support of community infrastructures (b), in case the entity buys an existing infrastructure, the calculation should refer to the amount of expenditures incurred, in case the entity contributes to building the facility, the costs of materials, labour, and all construction costs specific to the facility need to be included in the calculation. If the entity is funding the daily operations of a community facility, the reported amount should include the related operating costs.

Regarding the support of social programs (c), the amount to calculate the indicator should refer to the specific operating costs related to the programs financed by the entity.

The calculation of this indicator should also include non-monetary contributions by entities, for instance in the context of an entity whose workers “lend” their time and capabilities to build infrastructure for a community project, as well as in-kind donations (at fair value).

So, let us assume that an entity has recorded the following activities over a certain reporting period:

- charitable contribution = 50,000 $
- donation to the cancer foundation = 10,000 $
- funding of the refurbishment of the local community elementary school = 30,000 $
- workplace giving (the entity has matched the time workers have dedicated to a non-profit as volunteers with monetary support: 100 workers for 5 working days at 8 $ per hour) = 100 X 5 X 8 = 4,000 $
- product donations (100,000 units at fair value) = 50,000 $

The total amount of community investments during a certain reporting period is calculated as:

50,000 + 10,000 + 30,000 + 4,000 + 50,000 = 144,000 $

Assuming that the entity has recorded 10,000,000 € in revenue and has assets equal to 4,000,000 €, the ratios indicators would be calculated as:

Total amount of community investments / Total assets = 144,000 / 4,000,000 = 3.6%

Total amount of community investments / Total revenue = 144,000 / 10,000,000 = 1.44%

It is important to complement the disclosure of these indicators with a consistent and detailed explanation of all the activities and initiatives that an entity has put in place for the benefit of its community(ies).

Similar to what is recommended for other economic indicators included in this guidance, multinational entities are encouraged to disclose community investments by country.

Potential sources of information

Donations or charitable contributions are generally recorded in as entity's general ledger in a separate account. This is necessary for tax purposes: entities should use a dedicated account for tax-deductible contributions. Information to compute this indicator is thus found there and is usually recorded by the finance, treasury, or accounting departments.

In case there is a community investment manager, she/he should be the owner of all the relevant information for calculating this indicator.

Example n.6

> https://www.ferrero.com/: Ferrero SpA is an Italian manufacturer of branded chocolate and confectionery products and it is the second biggest chocolate producer and confectionery company in the world. It was founded in 1946 in Alba, Piedmont, Italy, by Pietro Ferrero. The Ferrero Group worldwide includes 38 trading companies, 18 factories, approximately 40,000 employees. Ferrero International SA's headquarters is in Luxembourg. Ferrero SpA is a private company owned by the Ferrero family.

FERRERO'S ADDED VALUE

By "Added Value" we mean the economic value generated by our Group.

The **"Net Added Value"** in particular represents the economic value generated during the reporting period, net of depreciation and operating costs, which includes payments to suppliers (mainly for raw materials and services).

As illustrated in the chart below, Ferrero's Net Added Value for the period considered in this CSR report is distributed in different ways to various internal and external stakeholders.

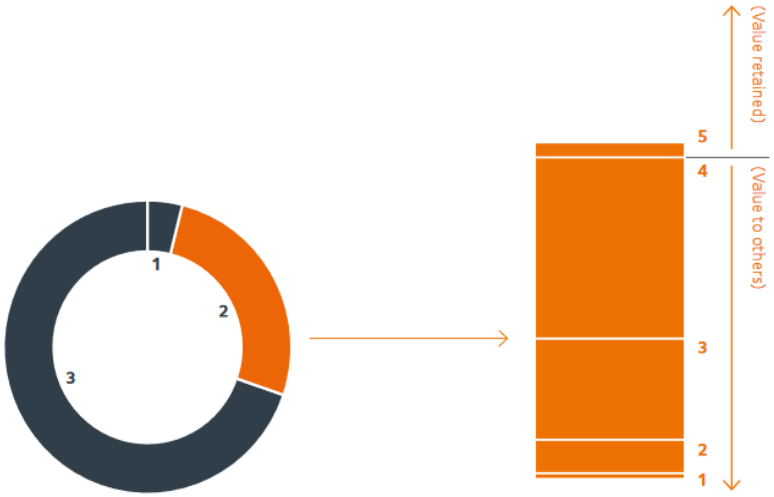
The item **"Human Resources"** includes all types of salaries and wages paid for work carried out by employees, including social and welfare contributions made by our Group.

The item **"Capital Remuneration"** includes the distribution of the net profit for the reporting year and the recognition of accrued interest.

The item **"Public Sector"** represents the amount our Group must pay to public bodies as corporation tax and other contributions directly connected to the Company assets, with the exclusion of taxes and additional costs relating to operations (duties and customs fees).

The item **"Community"** includes donations, gifts and investments in social projects and partnerships with universities and research centers.

Finally, the item **"Enterprise System"** represents the economic value retained in our Group: the difference between the generated economic value and the distributed economic value.



Added Value Generated 2016/2017

1. Depreciation	3.4%
2. Net added Value	26.8%
3. Operating Cost Reclassified	69.8%

Added Value Distributed 2016/2017

1. Community	1.1%
2. Public Sector	11.0%
3. Capital Remuneration	33.3%
4. Human Resources	59.6%
5. Enterprise System	(4.9%)

Source: Ferrero's Corporate Social Responsibility Report 2016

Example n.7

https://intl.target.com/: Target Corporation is the eighth-largest retailer in the United States, and is a component of the S&P 500 Index. They sell the following products: beauty and health products; bedding; clothing and accessories; electronics; food; furniture; jewelry; lawn and garden; pet supplies; shoes; small appliances; toys/games. Their revenue (FY 2019) amounts to US$75.356 billion.

Indirect Economic Impacts

GRI 203: Indirect Economic Impacts 2016

Infrastructure investments and services supported — 203-1

Goals:
- Volunteer hours

Total amount given for corporate philanthropy: $209.7M
- Amount provided in cash to community programs: $93.4M
- Value of in-kind donations: $116.2M (In-kind donations include food donations made to Feeding America affiliates.)
  - In 2016, Target gave more than 61.8 million pounds of food, which equals more than 51.5 million meals through programs like our store food donations to Feeding America affiliates across the country and our Meals for Minds school food pantry program.

Additional Contributions
- Total number of volunteer hours: 1.1M
- Team member participation in the Employee Giving Campaign: 94%
- Total donated to the United Way and other organizations our team members support: $12.6M

Total Giving Amount (cash and in-kind)

2016	2015	2014	2013	2012
$210M	$216M	$244M	$246M	$223M

All of our stores and distribution centers have community giving and volunteerism funds to use in their local communities.
- In 2016, 90 percent or $189.6 million of our giving went to local community programs and organizations.
- Disaster Preparedness and Response: $2.5M in disaster response
- International Giving: $2.6M

Source: 2016 Target's Corporate Social Responsibility Report

A.3.3. Total expenditures on research and development

Definition

Total expenditures on research and development include all costs related to original and planned research undertaken with the prospect of gaining new scientific or technical knowledge and understanding (i.e., expenditures for research activities) and related to the application of research findings or other knowledge to a plan or design for the production of new or substantially improved materials, devices, products, processes, systems or services before the start of commercial production or use (i.e., expenditures for development activities). This indicator requires disclosure, in monetary units, on the expenditure on research and development (R&D) by the reporting entity during the reporting period. Examples of such activities may be the following: research to discover new knowledge; modification of formulas, products, or processes; design of tools that involve new technology; design and test of prototypes, new products and processes.

Measurement methodology

Two indicators can be calculated:

- ✓ the first one is the total R&D expenditure amount (expressed in monetary terms) over a certain reporting period;
- ✓ the second one is a ratio expressing a firm's total R&D expenditures in period t as a percentage of the entity's period t total assets (and/or revenue). These indicators would be expressed in percentage (%) terms and would be calculated as follows:

$$\frac{\text{Total R\&D expenditures}}{\text{Total assets}}$$

Or

$$\frac{\text{Total R\&D expenditures}}{\text{Total revenue}}$$

It is important to acknowledge that there are different accounting treatments of research and development expenses.

- Under IFRS (IAS 38), research costs are expensed, while development expenditures need to be capitalized (i.e., treated as an intangible asset, amortized and reported in the balance sheet).
    - An example of research expense could be the expenditures for tests aimed at

obtaining new knowledge to develop a new vaccine by an entity in the pharmaceutical industry.

  - An example of development expense could be the design, construction, and testing of a pre-production car model by an automotive entity.

- So according to IFRS, distinguishing development activities from research activities is crucial and the most important criterion to decide between expensing or capitalizing R&D expenditure is represented by the technical feasibility of completing the intangible asset so that it will be available for use or sale.

- Under US GAAP, all R&D costs are expensed as incurred (i.e., they are written off to the income statement as an expense when incurred). The R&D costs are included in the operating expenses and are usually reflected in an entity's income statement.

Figure: Illustrative example of where to find items related to total expenditures on research and development in financial statements

PROFIT AND LOSS (INCOME STATEMENT) - ILLUSTRATIVE EXAMPLE	
	A.3.3. Total expenditures on research and development
REVENUE	
COST OF SALES	
GROSS PROFIT	
OPERATING EXPENSES	
Selling, general and administrative expense	
OPERATING INCOME (LOSS)	
OTHER INCOME	
Investment income, other gain and losses	
EBIT (earnings before interest and taxes)	
INTEREST EXPENSE/FINANCE COSTS	
EBT (earnings before taxes)	
INCOME TAXES	
NET INCOME	

Source: UNCTAD

BALANCE SHEET - ILLUSTRATIVE EXAMPLE

	A.3.3. Total expenditures on research and development
CURRENT ASSETS:	
CASH	
ACCOUNTS RECEIVABLE	
INVENTORIES	
OTHER ASSETS	
NON-CURRENT ASSETS:	
PROPERTY, PLANT AND EQUIPMENT	
INTANGIBLE ASSETS	
FINANCIAL ASSETS	
OTHER ASSETS	
TOTAL ASSETS	

Source: UNCTAD

Let us assume that the pharmaceutical company Alpha incurs costs, during one reporting period, equal to $250,000 to develop new knowledge on a new vaccine, and costs of $500,000 to test a new drug. These amounts could be treated in the following ways:

Option 1: Expense all costs

	Profit and loss account extract	***Balance sheet extract***
Expenses: R&D	750,000	

Option 2: Expense research and capitalise development costs

	Profit and loss account extract	***Balance sheet extract***
Expenses: Research	250,000	
Intangible asset: Development costs		500,000

To calculate the abovementioned indicators, all R&D expenditures incurred in a certain reporting period should be considered, independently from their accounting treatment.[20]

So total R&D expenditures to be taken into account would be 750,000 $.

Assuming that the entity has recorded 10,000,000 € in revenue and has assets equal to 4,000,000 €, the ratios indicators would be calculated as:

Total R&D expenditures / Total assets = 750,000 / 4,000,000 = 18.75%

Total R&D expenditures / Total revenue = 750,000 / 10,000,000 = 7.5%

Similar to what is recommended for other economic indicators included in this guidance, multinational entities are encouraged to disclose R&D expenditures by country. Furthermore, a multinational enterprise could have research and development projects and arrangements with academic institutions that might not necessarily be legal entities in the sense of corporate law.

<u>Potential sources of information</u>

As represented in the above Figure, information to calculate this indicator can be found in financial statements/financial accounting systems, either in the profit & loss statement or in the balance sheet depending on whether R&D costs incurred in a certain reporting period are expensed (there is a specific line in the P&L for R&D expenses, included as part of the operating costs) or capitalized (as intangible assets).

Management accounting systems and internal management reports can be consulted for the country-specific data.

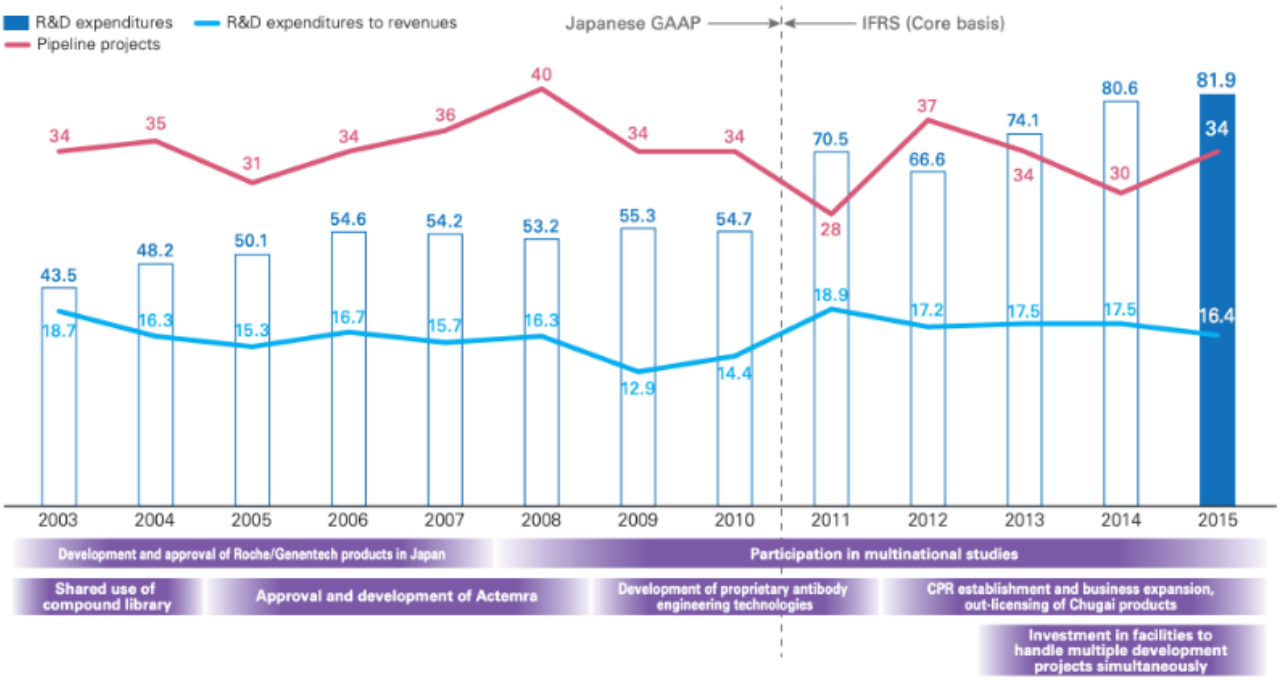
[20] On this indicator see also Guidance on Corporate Responsibility Indicators in Annual Reports, published by UNCTAD in 2008 (UNCTAD/CRI). United Nations publication, UNCTAD/ITE/TEB/2007/6, available at: http://unctad.org/en/Docs/iteteb20076_en.pdf , (indicator 9).

Example n.8

https://www.chugai-pharm.co.jp/english/: Chugai Pharmaceutical Co., Ltd. (中外製薬株式会社 Chūgai Seiyaku Kabushikigaisha) is a drug manufacturer operating in Japan. It is a subsidiary controlled by Hoffmann–La Roche, which owns 62% of the company as of 30 June 2014. The company is headquartered in Tokyo.

Research, Clinical Development and Production

R&D Expenditures/R&D Expenditures to Revenues/Pipeline Projects
(Billions of yen/%/Projects)



As revenues grow, Chugai increases investment in research and development to steadily create innovative drugs. These investments have also led to the creation of research technologies and findings that may contribute to the advancement of healthcare and the pharmaceutical industry worldwide. Development of Roche Group products in Japan has proceeded smoothly since our alliance began, and we currently have a development system capable of simultaneous filings in Japan, the United States and Europe. In addition, we enhance our drug discovery capabilities to maintain a robust pipeline, with numerous products from Chugai research having moved into the clinical phase.

Source: Chugai Pharmaceutical Annual Report 2015

A.4. Local supplier/purchasing programmes

A.4.1. Percentage of local procurement[21]

Definition

Percentage of local procurement is the proportion of spending of a reporting entity at local suppliers. Costs of local procurement are a general indicator of the extent of an entity's linkages with the local economy.

Measurement methodology

This indicator denotes the percentage of products or services purchased locally and is calculated as follows:

$$\frac{\text{Local suppliers' procurement costs}}{\text{Total procurement costs}}$$

The indicator can be calculated based on invoices or commitments made during the reporting period based on the accrual accounting principle.

Invoices or commitments to local suppliers are those towards organizations or people that provide products or services to the organization and that are based in the same geographical market as the reporting organization.

The "same geographical market" definition, i.e., the definition of "local", may refer to the community surrounding operations (within a certain reach defined in terms of kilometers or miles), a region within a country or a country. Therefore, as there could be considerable variation in how organizations define "local" and as tracking local purchases requires systems, staff time, and specific skills that are not part of the procurement operations of many entities, it is suggested to consider the country as a distinguishing criterion. In line with the UNCTAD/CRI guidance, purchasing is defined as "local" when it concerns products or services produced in the same country as the reporting entity or provided by an entity that is incorporated in the same country as the reporting entity, or otherwise meet the local content or entity requirements as defined by the Government of that country. Following this line of reasoning, as a starting point to decide whether or not to include a certain amount of purchases in the calculation of this indicator, it could be useful to check whether trans-national payments to the suppliers have been made. In this way, looking at invoices, reporting entities can identify the items of local purchasing included in the reporting period, and calculate the costs on an accrual basis.

It is suggested that the total amount of local purchasing is presented both as an absolute figure

[21] See also GRIG4-Part2-Implementation-Manual, p.83 and p. 250. It is acknowledged that the definition of "local" for this indicator may require refining, although such refinement may be challenging to implement in practice. In particular, a criterion based on the location of the supplier may disregard the fact that local suppliers may themselves be buyers of non-local goods. At the same time, focus on the geographic origin of suppliers could raise concerns related to protectionism and anti-competitive practice. Therefore, the guidance opts for an established and baseline approach on this matter.

(in monetary terms) and as a percentage of total purchasing of the reporting entity.

So let us assume that a company incorporated in country A buys products and services from four different suppliers and has recorded the following purchasing costs:

- Supplier 1, located in country A = 15,000 €
- Supplier 2, located in country B = 40,000 €
- Supplier 3, located in country C = 30,000 €
- Supplier 4, located in country A = 15,000 €

The amount of local procurement costs is equal to 30,000 € (15,000 of supplier 1 and 15,000 of supplier 4) and in percentage terms it is calculated as:

Local suppliers' procurement costs / Total procurement costs

= 30,000 / (30,000 + 40,000 + 30,000) = 30%

If a specific definition of "local procurement" is used by the entity (e.g., kilometer zero for food), it is important to explain such definition in a note to the indicator.

This measurement approach also allows multinational entities to calculate the amount of local purchasing by country, both in absolute and in percentage terms. This can be done by cumulating all the amounts of local purchasing of the reporting entities located in a certain country, i.e., the amount of purchases by entities located in a certain country from suppliers located in that same country.

When possible, it is also suggested to categorize the amount of local purchases by size of the suppliers. As there is no international consensus on the requirements to be classified as a "small" entity and "size" depends on the particular economy of a country or a region, reporting should follow the practice of the country of operation of the business entity. When no such practice exists, it could be possible to make a reference to internationally recognized threshold figures (and to specify which criterion has been used to categorize the amount of local procurement), for example, the following threshold figures could be used in some countries: a) based on the number of employees: small businesses are usually defined as organizations with fewer than 100 employees; midsize entities are those organizations with 100 to 999 employees; b) based on the amount of annual revenue: small business is usually defined as organizations with less than $50 million in annual revenue; a midsize entity is defined as organizations that make more than $50 million, but less than $1 billion in annual revenue.[22]

So starting from the previous example and from the data provided there, let us also assume that:

- Supplier 1, located in country A has 80 employees

[22] https://www.gartner.com/it-glossary/smbs-small-and-midsize-businesses .

- Supplier 4, also located in country A has 1,500 employees

The percentage of local procurement from small suppliers is calculated as follows:

15,000 / (30,000 + 40,000 + 30,000) = 15%

Potential sources of information

Information about local procurement can be found by looking at the bills of the entity's suppliers (accounts payable) and, if applicable, at the internal reporting system, in particular the operational information system for recording supplier master data.[23]

Example n.9

https://intl.target.com/: Target Corporation is the eighth-largest retailer in the United States, and is a component of the S&P 500 Index. They sell the following products: beauty and health products; bedding; clothing and accessories; electronics; food; furniture; jewelry; lawn and garden; pet supplies; shoes; small appliances; toys/games. Their revenue (FY 2019) amounts to US$75.356 billion.

GRI 204: Indirect Economic Impacts 2016	Proportion of spending on local suppliers	204-1	**Local Supplier Procurement Practices** Percentage of the procurement budget used for significant locations of operation spent on suppliers local to that operation (such as percentage of products and services purchased locally) 4% • We define local as our Itasca project – which includes all of Minnesota and three counties in Western Wisconsin (Polk, St. Croix and Pierce). • At this time we are basing significant locations of operation off of the home state of our international headquarters.

Source: Target's Corporate Social Responsibility Report 2016

[23] This is a reference to the enterprise resource planning system that records information on the entity's suppliers, including records of payments and other transactions.

Selected references

Value added

https://theuxbridgegraduate.wordpress.com/category/value-added-statements/

https://content.sciendo.com/downloadpdf/journals/fiqf/12/4/article-p92.xml

https://www.caclubindia.com/articles/value-added-statement-2485.asp

Taxes and other payments to the Government

https://smallbusiness.chron.com/tax-payable-vs-deferred-income-tax-liability-48704.html

https://www.cpaireland.ie/CPAIreland/media/Education-Training/Study%20Support%20Resources/F2%20Taxation/Relevant%20Articles/corporation-tax-computation-7-steps.pdf

http://www.mca.gov.in/Ministry/notification/pdf/AS_22.pdf

Green investment

https://ostrava.arcelormittal.com/responsibility/environmental-investments.aspx

https://www.env.go.jp/en/policy/ssee/eag02.pdf

Total expenditures on research and development

https://corporatefinanceinstitute.com/resources/knowledge/accounting/research-and-development-rd/

https://www.accaglobal.com/hk/en/student/exam-support-resources/fundamentals-exams-study-resources/f7/technical-articles/rd.html

Percentage of local procurement

https://www.relexsolutions.com/how-to-balance-global-and-local-sourcing-for-maximum-profit/

https://cles.org.uk/wp-content/uploads/2012/07/fsb2012procurementsurvey.pdf

Self-assessment questions

1. Revenues are to be found as the first line of the income statement. The information about the single transactions to calculate revenues in the reporting period are recorded within financial accounting systems (accounts receivable, revenue cycle).

☐ True

☐ False

2. Assuming that a reporting entity has revenue equal to $2,000, cost of bought in goods and services equal to $450, and depreciation equal to $250, the gross value added (GVA) is:

☐ $2,000

☐ $1,550

☐ $1,750

☐ None of the above

3. Assuming that a reporting entity has revenue equal to $2,000, cost of bought in goods and services equal to $450, and depreciation equal to $250, the net value added (NVA) is:

☐ $2,000

☐ $1,550

☐ $1,750

☐ $1,300

4. The indicator “Taxes and other payments to the Government” is defined as the amount of taxes (encompassing not only income taxes, but also other levies and taxes, such as property taxes or value added taxes) plus related penalties paid, plus all royalties, license fees, and other payments to Government for a given period.

☐ True

☐ False

5. Indicate which one of the following expenses would not be included in the calculation of green investments

☐ Expenses for preventing air pollution

- Expenses for preventing ground contamination
- Expenses for the development of a new prototype
- Expenses for recycling waste

6. Indicate which one of the following expenses would not be included in the calculation of community investments

- expenses for the disposal of waste
- contributions to charities
- funding of a local community recreational facility
- funding of emergency relief

7. All research and development (R&D) costs are always expensed as incurred

- True
- False

8. If a company incorporated in country 1 buys products and services from three different suppliers and has recorded the following purchasing costs: Supplier A, located in country 1 = 5,000 €; Supplier B, located in country 1 = 3,000 €; Supplier C, located in country 2 = 8,000 €, the percentage of local procurement is:

- 100%
- 0%
- 50%
- None of the above

Self-assessment questions with solutions

1. Revenues are to be found as the first line of the income statement. The information about the single transactions to calculate revenues in the reporting period are recorded within financial accounting systems (accounts receivable, revenue cycle).

☐ True

☐ False

2. Assuming that a reporting entity has revenue equal to $2,000, cost of bought in goods and services equal to $450, and depreciation equal to $250, the gross value added (GVA) is:

☐ $2,000

☐ $1,550

☐ $1,750

☐ None of the above

2,000 - 450

3. Assuming that a reporting entity has revenue equal to $2,000, cost of bought in goods and services equal to $450, and depreciation equal to $250, the net value added (NVA) is:

☐ $2,000

☐ $1,550

☐ $1,750

☐ $1,300

2,000 – 450 – 250

4. The indicator "Taxes and other payments to the Government" is defined as the amount of taxes (encompassing not only income taxes, but also other levies and taxes, such as property taxes or value added taxes) plus related penalties paid, plus all royalties, license fees, and other payments to Government for a given period.

☐ True

☐ False

5. Indicate which one of the following expenses would not be included in the calculation of green investments

- ☐ Expenses for preventing air pollution
- ☐ Expenses for preventing ground contamination
- ☐ Expenses for the development of a new prototype
- ☐ Expenses for recycling waste

6. Indicate which one of the following expenses would not be included in the calculation of community investments

- ☐ expenses for the disposal of waste
- ☐ contributions to charities
- ☐ funding of a local community recreational facility
- ☐ funding of emergency relief

7. All research and development (R&D) costs are always expensed as incurred

- ☐ True
- ☐ False

8. If a company incorporated in country 1 buys products and services from three different suppliers and has recorded the following purchasing costs: Supplier A, located in country 1 = 5,000 €; Supplier B, located in country 1 = 3,000 €; Supplier C, located in country 2 = 8,000 €, the percentage of local procurement is:

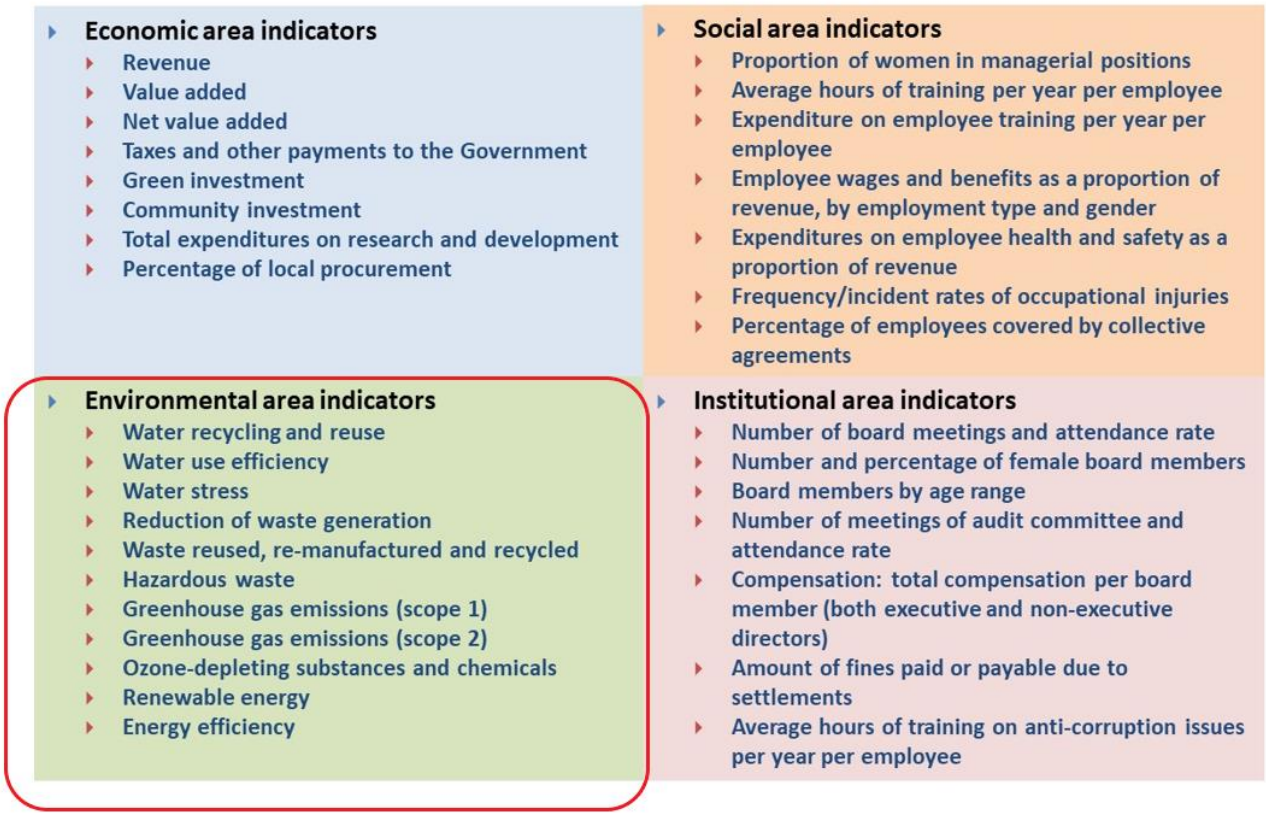
- ☐ 100%
- ☐ 0%
- ☐ 50%
- ☐ None of the above

(5000 + 3,000) / (5000 + 3,000 + 8,000)

B. Environmental indicators manual

Introduction

This section provides definitions, measurement methodology, potential sources of information and examples to assist entities in reporting core SDG environmental indicators.



The goal of environmental indicators is to communicate information about the environment, about the entity's activities that affect it to highlight emerging problems and draw attention of decision-makers to the effectiveness of current environmental policies implemented by the entity. This includes the following indicators:

- ***Sustainable use of water***
  - *Water recycling and reuse;*
  - *Water use efficiency;*
  - *Water stress*
- ***Waste Management***
  - *Reduction of waste generation;*

- *Waste reused, re-manufactured and recycled;*
- *Hazardous waste*

- ***Greenhouse gas emissions***
  - *Greenhouse gas emissions (scope 1);*
  - *Greenhouse gas emissions (scope 2);*
- ***Ozone-depleting substances and chemicals***
  - *Ozone-depleting substances and chemicals*
- ***Energy consumption***
  - *Renewable energy;*
  - *Energy efficiency.*

For each one of the abovementioned environmental indicators a consistent set of information is presented and structured into:

- *Definition*
- *Measurement methodology (with illustrative, numerical examples)*
- *Potential sources of information*
- *Examples of how these indicators have been already incorporated in the reporting practices of companies around the world*

This section includes also a list of selected references and some self-assessment questions with solutions.

Learning objectives

By the end of the module, you will:

a) Be able to define and calculate the following core indicators in the environmental area:

- Water recycling and reuse;
- Water use efficiency;
- Water stress;
- Reduction of waste generation;
- Waste reused, re-manufactured and recycled;

- Hazardous waste;
- Greenhouse gas emissions (scope 1);
- Greenhouse gas emissions (scope 2);
- Ozone-depleting substances and chemicals;
- Renewable energy;
- Energy efficiency.

b) Be able to critically assess existing potential sources of information to calculate environmental indicators in your company
c) Understand how to design a system to collect the information that is required to calculate environmental indicators
d) Refer to examples of companies already using and disclosing environmental indicators

B.1 Sustainable use of water[24]

B.1.1. Water recycling and reuse

Definition

Water recycling and reuse[25] refers to the total volume of water that a reporting entity recycles and/or reuses during the reporting period. Water recycling and reuse can be implemented by almost any industry. This includes:

- *Direct reuse*

  An entity can reuse wastewater that is clean enough for the purpose for which it is being reused. Reusing water allows firms to decrease their wastewater[26] discharge to water bodies, thus decreasing their negative impact on communities and the environment. Water reuse can also potentially reduce costs where the price of acquiring freshwater is high or decrease the firm dependency where water supplies are unpredictable. Water can potentially be reused many times and by other entities: this is one of the most important ways to minimize water consumption. Water can be reused for different purposes, for example:

  - Irrigation (in agriculture)
  - Heating and cooling
  - Washing
  - Cleaning
  - pH adjustment[27]

[24] Useful sources of information regarding sustainable water use can be found at https://ceowatermandate.org/disclosure/resources/assessing/. This indicator is in line with UNCTAD/EEI (III.B), GRI 303-3, UN Environment report: Raising the Bar - Advancing Environmental Disclosure in Sustainability Reporting, published in 2015. United Nations publication, available at: http://web.unep.org/ourplanet/december-2015/unep-publications/raising-bar-advancing-environmental-disclosure-sustainability.

[25] Water recycling and reuse is defined as the "act of processing used water and wastewater (treated or untreated) through another cycle before discharge to surface water, groundwater, or third party (in the same process, in a different process but within the same facility, or at another of the organization's facilities" https://www.globalreporting.org/standards/media/1775/revised-exposure-draft-gri-303-water-and-effluents-20dec17-18feb18.pdf (p. 29). It has to be noted that according to the System of Environmental and Economic Accounting (SEEA), "reused water is wastewater supplied to another user for further use with or without prior treatment. This excludes recycling of water within the same economic unit" (https://seea.un.org/sites/seea.un.org/files/water_note_final_27-10-17_clean_0.pdf, p. 10). Therefore, when possible, reused water delivered to another entity should be reported separately.

[26] Wastewater (or waste water) is any water that has been affected by human use, i.e., used water from domestic, industrial, commercial or agricultural activities.

[27] pH: The measure of acidity or alkalinity of a substance. A pH value below 7 indicates that it is acidic, a pH value above 7 indicates that it is basic (alkaline). It can be measured by a pH meter, titration, or indicator (e.g. litmus) stripes.

- Fire protection
- Production line needs

Cooling towers are one of the most common water technologies in use by industry nowadays, especially in electric power plants and oil refineries. Water is also used in several industries for the production of steam for manufacturing processes. Cooling water and water from heating are quite easy to reuse. Even when cooling water cannot be re-circulated, it can be reused for other activities such as cleaning. Also process water can be reused for many purposes including washing floors, vehicle washing, sanitary purposes (toilet flushing, etc.), fire protection.

- *Treat and reuse (recycling)*

  Sometimes wastewater cannot be directly reused, for example, because it has been polluted. Therefore, to make it safe to be reused (or discharged in the environment) it needs to be treated to reduce the level of contaminants and impurities to a level that is safe for reuse. The choice of the treatment procedure[28] depends on the quality required to reuse the water.

Based on the above considerations and in a nutshell, this measure includes both water not treated prior to reuse and water treated prior to reuse.

Measurement methodology

Two indicators can be calculated: the first one is the total volume of water recycled and reused; the second one is the total volume of water recycled and reused as a percentage of the total water withdrawal and total water received from a third party.

1) Total volume of water recycled and reused

This indicator should be expressed in total cubic meters (m^3).

If there is a need to convert liters (l, ℓ or L) into cubic meters, it is important to know that:

$$1{,}000 \text{ l} = 1 \text{ m}^3$$

$$1 \text{ megaliter} = 1{,}000 \text{ m}^3$$

To calculate this indicator, the procedure should be distinguished based on the following question:

Do your facilities have water or flow meters?

[28] To have an overview of the possible treatments refer to: https://sswm.info/water-nutrient-cycle/water-use/hardwares/optimisation-water-use-industries/wastewater-reuse-in-industry

- *If yes:*

  It is suggested that the indicator is calculated at facility-level/individual business site level where appropriate documentation and reporting should exist based on water or flow meters that are used to directly measure the quantity of water recycled and/or reused at the site.

  Data on the total volume of water recycled and/or reused need to be collected with reference to a relevant time unit (e.g., day, week, month) so that it can be cumulated with reference to the total reporting period.

  An excel spreadsheet could be designed in the following way (where the months – first column – could be broken down into weeks or even days, depending on the frequency of measurement at the specific site).

	Metric wording	Type of data to be reported	Unit of measure		Source (function, documents and/or software or database)	Limits (by authorization, law, etc)	Notes and Comments	Data Gatherer's Name
Sustainable use of water								
31/01/2018	Water recycling and reuse	Total volume of water recycled and reused	m^3	2.837	Operations manager, operating information system			John Collins
28/02/2018	Water recycling and reuse	Total volume of water recycled and reused	m^3	3.457	Operations manager, operating information system		good increase	John Collins
31/03/2018	Water recycling and reuse	Total volume of water recycled and reused	m^3	3.287	Operations manager, operating information system			John Collins
30/04/2018	Water recycling and reuse	Total volume of water recycled and reused	m^3	2.986	Operations manager, operating information system		less due to problems at the plant	John Collins
31/05/2018	Water recycling and reuse	Total volume of water recycled and reused	m^3	3.017	Operations manager, operating information system			John Collins

30/06/2018	Water recycling and reuse	Total volume of water recycled and reused	m^3	2.967	Operations manager, operating information system			John Collins
Total				**18.551**				

- *If no:*

  <u>If water or flow meters do not exist</u>, the water recycled and reused needs to be estimated.

  The volume of recycled and reused water can be calculated based on the volume of water demand of the entity that is satisfied by recycled and/or reused water, rather than by further withdrawals/supplies from third parties.

  For example:

  Let us assume that a business site has a production cycle that requires 10 m^3 of water per cycle. The entity withdraws/is supplied by a third party water for one production process cycle and then reuses it. By counting the production cycles for which the water is reused, it is possible to calculate the amount of water recycled and reused. So, if the entity reuses the water for an additional four cycles, the total volume of water recycled is 40 m^3.

  If the entity knows the number of units produced through the production cycle, it is also possible to estimate the amount of water recycled and/or reused per unit produced.

  So, let us assume that for each production cycle, the entity produces 160 units. If we refer to the numbers above, we will have 5 production cycles, 40 m^3 of water recycled and reused and 800 units produced. We can then say that the entity recycles and/or reuses 0.05 m^3 of water per unit produced, calculated as:

  40 m^3 / 800 units = 0.05 m^3 per unit

  To estimate the total volume of water recycled and reused at the end of the period, it is then sufficient to know the amount of units produced over a certain reporting period. So, if the entity has produced 10,000,000 units over a certain reporting period, we can calculate the total volume of water recycled and reused as:

  10,000,000 units x 0.05 m^3 = 500,000 m^3

  The estimation above based on the amount of water recycled and/or reused per unit can be done by collecting data at a certain facility during a certain period (e.g., one month) and can be used to calculate the water recycled and/or reused at other facilities, producing similar products and having a similar production process.

2) *Total volume of water recycled and reused as a percentage of the total water withdrawal and total water received from third party*

This indicator is expressed in percentage terms (%) and is defined in the following way:

$$\frac{\text{Total volume of water recycled and reused}}{\text{Total water withdrawal and total water received from third party}}$$

The numerator is calculated as explained above at point 1).

The denominator takes into account water withdrawn either directly by the organization or through intermediaries, such as water utilities. More specifically, total water withdrawal is calculated as the sum of all water drawn into the boundaries of the entity for any use over the course of the reporting period from different sources, including[29]:

- fresh surface water
- groundwater
- seawater water[30]
- produced/process water[31]
- third party water.

The total volume withdrawn and received from third party is a proxy for the organization's relative size and importance as a user of water, as well as a baseline figure for other calculations relating to efficiency and use.

It is possible to use the following table as a framework for calculating the total amount of water withdrawn and received from third parties:

[29] This definition is in line also with GRI 303-3 at https://www.globalreporting.org/standards/gri-standards-download-center/gri-303-water-and-effluents-2018/

[30] Also brackish water can be included in the computation. Brackish water has more salinity than fresh water, but not as much as seawater (e.g., a mix of seawater with fresh water as in estuaries, or it may occur in brackish fossil aquifers).

[31] Produced water is water that enters an entity's boundary as a result of extraction (e.g., crude oil), processing (e.g., sugar cane crushing), or use of any raw material, and has to be managed by the organization. This definition is based on CDP, CDP Water Security Reporting Guidance, 2018.

		January 2018	February 2018	March 2018	…
Water withdrawn and received by source	Surface water (m3)	1000			
	Groundwater (m3)	0			
	Seawater (m3)	2300			
	Produced water (m3)	0			
	Third-party water (m3)	5000			
	Total	**8300**			

As specified at point 1), data on the total volume of water recycled and/or reused (numerator) need to be collected with reference to a relevant time unit (e.g., day, week, month) so that it can be cumulated with reference to the total reporting period and compared to the amount of total water withdrawn and received (denominator) for the same time unit (e.g., day, week, month) to calculate this percentage indicator.

As specified at point 1), also this indicator is calculated at facility-level/individual business site level where appropriate documentation and reporting should exist based on water or flow meters. Calculating such indicator at facility- level/business site level allows data consolidation within certain geographic and operational boundaries at a later stage.

If the entity does not use water or flow meters, most likely the most important part of the denominator is represented by water received from third parties, therefore, the denominator can be estimated based on the amount of water received (that is usually indicated in the water suppliers' bills).

Estimates can also be based on coefficients (area statistics) relating water use to another characteristic usually representing a proxy of the volume of business activity, such as number of employees or production values and volume and applying it to a site-specific amount of that characteristic[32].

As entities should be striving to improve the amount of water recycling and reuse, it is suggested to calculate a third indicator that should be expressed in terms of change with reference to the previous reporting period.

So, the indicator should be calculated as:

[32] See for example: http://pacinst.org/wp-content/uploads/2013/02/appendix_e3.pdf; https://www.epa.gov/lean/lean-water-toolkit-appendix-c; http://www.dartmouth.edu/~cushman/courses/engs44/water.pdf; http://www.wastewatergardens.com/pdf/WWG_InfoSheet_InternationalWaterConsump.pdf

Total volume of water recycled and reused at time t

MINUS

Total volume of water recycled and reused at time t-1

For example:

If the volume of water recycled and reused in year 2018 is equal to 100,800 m^3 and the volume of water recycled and reused in year 2017 is equal to 98,300 m^3 the change of water recycled and reused per net value added is equal to +2,500 m^3. This signals an improvement as the amount of water recycled and reused has increased.

Potential sources of information

The calculation of the indicators explained before involves water data collected at each facility/site through direct measurement (through water meters). Water should be metered and measured cubic meters (or in liters). If such information is collected, it can be found in internal reporting system (operational information system tracking physical units and recording water flows) and/or environmental accounting systems/environmental management systems especially for what concerns the resource recycling quantities and costs.

If these instruments are not used at their facilities and thus estimation is required, reporting entities would need to disclose the fact that they are using estimates.

Also, information collected in accounts payable based on water suppliers' bills can be used to calculate this indicator. It is also possible to find information to calculate this indicator in accounts receivable when reused water is considered a product and when payment is made by the receiving unit.

It is also possible to implement a water audit[33] for specific facilities or office buildings for identifying where and how water is used. It can be developed following the below steps:

- understand who is the decision maker and the owner of the information on water,
- determine the characteristics of the facility and its various buildings (e.g., size, etc.), the operating schedules, and employees,
- identify the type of indoor and outdoor water usages, water supply sources (e.g., utility, private well),
- collect available records about water use metering and water-energy billing. This

[33] Refer for example to: http://www.mwi.gov.jo/sites/en-us/Best%20Managment%20Practices/Office%20Buildings%20Water%20Efficiency%20Guide.pdf for a detailed definition of water audits for office buildings. See also page 9 for some useful data statistics to estimate water use in office buildings.

information can be used to define some preliminary estimates of per employee water use/reuse/recycling,

- run facility survey and talk to the people who are familiar with the daily operations, particularly the manager of operations and maintenance, to understand how water is used in the various areas of the site. Interview relevant staff and employees to confirm and deepen the information obtained,

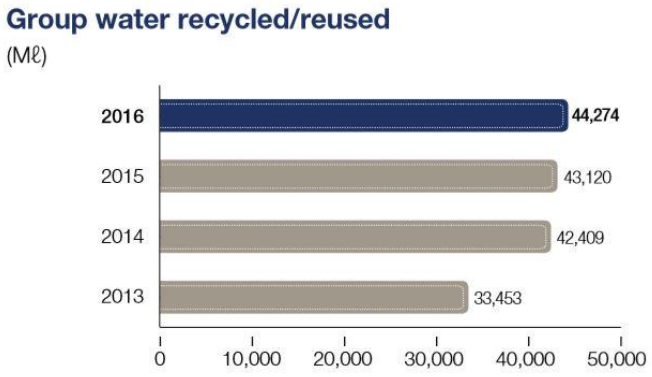
- check water-using equipment and water treatment systems,

- try to measure flow-rates for each type of water-consuming equipment. This can be done by using temporary strap-on meters on water pipes or by using a bucket or plastic bag and a stopwatch (for simpler processes, such as cleaning or cooking).

Example n.10

https://www.goldfields.com/: Gold Fields Limited is a globally diversified gold producer with seven operating mines in Australia, Ghana, Peru and South Africa, and a total attributable annual gold-equivalent production of approximately 2.2 million ounces.

Each operation implements an Environmental Management System (EMS), through which it assesses, manages, monitors and reports on water use and the quality of any discharges. During 2016, Gold Fields spent a total of US$16m on water management and projects. Water withdrawal across the Group decreased to 30,321Mℓ (2015: 35,247Mℓ), and, amid stable Group gold production, water withdrawal per ounce produced was down from 15.77kℓ in 2015 to 13.67kℓ in 2016. Total water recycled or reused remained steady at 44,274Mℓ (2015: 43,120Mℓ). (p. 88)



Source: Gold Fields' Integrated Annual Report 2016

B.1.2. Water use efficiency

Definition

Water use efficiency[34] is defined as the water use per net value added in the reporting period. Specifically, water use is defined in this indicator as water withdrawal plus total water received from a third party. As mentioned with reference to the previous indicator, water use is thus water withdrawn either directly by the organization or through intermediaries, such as water utilities. More specifically, total water withdrawal is calculated as the sum of all water drawn into the boundaries of the entity for any use over the course of the reporting period from different sources, including:

- fresh surface water
- groundwater
- seawater water[35]
- produced/process water[36]
- third party.

The total volume withdrawn and received from third party is a proxy for the organization's relative size and importance as a user of water.

Measurement methodology

Two indicators can be calculated: the first one is the ratio between water use in a reporting period and the net value added for the same reporting period. As entities should be striving to improve water use efficiency, it is suggested to calculate a second indicator that is the change of water use per net value added between two reporting periods.

1) Ratio of water used to net value added

This indicator is defined in the following way:

[34] This indicator is in line with the UNCTAD/EEI (III.B), UN Environment UN Environment report: Raising the Bar - Advancing Environmental Disclosure in Sustainability Reporting, CDP water questionnaire https://www.cdp.net/en/water, GRI 303-1. It is also in line with the definition of the SEEA. Note that the terms "use" and "consumption" are sometimes employed with different specific meanings in different frameworks.

[35] Also brackish water can be included in the computation. Brackish water has more salinity than fresh water, but not as much as seawater (e.g., a mix of seawater with fresh water as in estuaries, or it may occur in brackish fossil aquifers).

[36] Produced water is water that enters an entity's boundary as a result of extraction (e.g., crude oil), processing (e.g., sugar cane crushing), or use of any raw material, and has to be managed by the organization. This definition is based on CDP, CDP Water Security Reporting Guidance, 2018.

$$\frac{\text{Total volume of water used}}{\text{Net value added}}$$

The numerator of this indicator should be expressed in total cubic meters (m^3).

If there is a need to convert liters (l, ℓ or L) into cubic meters, it is important to know that:

$$1{,}000 \text{ l} = 1 \text{ m}^3$$

$$1 \text{ megaliter} = 1{,}000 \text{ m}^3$$

The denominator of this indicator is expressed in monetary terms (e.g., $, £, €).

Therefore, the indicator is expressed in terms of m^3 per $, or £, or € etc.

Some examples of water used can be useful in order to calculate the numerator, that should basically be the sum of all the below “types” of water used withdrawn from the different sources mentioned in the table below (see following page).

Commercial water use, i.e., water used by commercial facilities - such as hotels, motels, restaurants, office buildings, retail stores, leisure parks and ski resorts and for transportation - as well as by non-commercial entities such as government and military facilities, hospitals and educational institutions, includes, for example, water for:

- food preparation,
- pools and laundries,
- cooling,
- snow and ice making,
- toilet flushing,
- air-conditioning,
- washing floors and other surfaces,
- fountains and watering lawns.

Industrial water use, i.e., water used to manufacture products includes, for example:

- water used as process and production water,

- water for boiler feed,
- water for air conditioning,
- water for cooling,
- water for sanitation,
- water for washing,
- water for transport of materials,
- water for steam generation.

Water used can be derived from different sources and it can be useful to use the following table as a framework for calculating the total amount of water used (i.e., withdrawn and received from third parties):

		January 2018	**February 2018**	**March 2018**	**…**
Water withdrawn and received by source	Surface water (m3)	1000			
	Groundwater (m3)	0			
	Seawater (m3)	2300			
	Produced water (m3)	0			
	Third-party water (m3)	5000			
	Total	**8300**			

To calculate the numerator of this indicator, the procedure should be distinguished based on the following question:

Do your facilities have water or flow meters?

- *If yes:*

  It is suggested that the indicator is calculated at facility-level/individual business site level where appropriate documentation and reporting should exist <u>based on water or flow meters</u> that are used to directly measure the quantity of water used at the site.

  Data on the total volume of water used need to be collected with reference to a relevant time unit (e.g., day, week, month) so that it can be cumulated with reference to the total reporting period.

An excel spreadsheet could be designed in the following way (where the months – first column – could be broken down into weeks or even days, depending on the frequency of measurement at the specific site).

		Type of data to be reported	Unit of measure		Source (function, documents and/or software or database)	Limits (by authorization, law, etc)	Notes and Comments	Data Gatherer's Name
Sustainable use of water								
31/01/2018	Water use	Total volume of water used	m^3	12.345	Operations manager, operating information system			Pamela Robin
28/02/2018	Water use	Total volume of water used	m^3	13.006	Operations manager, operating information system			Pamela Robin
31/03/2018	Water use	Total volume of water used	m^3	12.500	Operations manager, operating information system			Pamela Robin
30/04/2018	Water use	Total volume of water used	m^3	14.567	Operations manager, operating information system		too high	Pamela Robin
31/05/2018	Water use	Total volume of water used	m^3	13.234	Operations manager, operating information system			Pamela Robin
30/06/2018	Water use	Total volume of water used	m^3	11.890	Operations manager, operating information system		good decrease	Pamela Robin
Total				**77.542**				

- *If no:*

  <u>If water or flow meters do not exist</u>, the water used needs to be estimated.

  If the entity does not use water or flow meters, most likely the most important part

of the denominator is represented by water received from third parties, therefore, the denominator can be estimated based on the amount of water received (that is usually indicated in the water suppliers' bills).

Estimates can also be based on coefficients (area statistics) relating water use to another characteristic usually representing a proxy of the volume of business activity, such as number of employees or production values and volume and applying it to a site-specific amount of that characteristic[37].

For example:

Let's assume that according to industry statistics[38], a company producing steel uses 66 m^3 per ton of steel.

To estimate the total volume of water used at the end of the period, it is sufficient to know the amount of tons produced over a certain reporting period. So, if the entity has produced 20,000 tons over a certain reporting period, we can calculate the total volume of water recycled and reused as:

20,000 tons x 66 m^3 = 1,320,000 m^3

Alternatively, the estimation above – based on the amount of water recycled and/or reused per unit – can be done by collecting data at a certain facility during a certain period (e.g., one month) and can be used to calculate the water recycled and/or reused at other facilities, producing similar products and having a similar production process.

To do so, it is possible to implement a water audit[39] for specific facilities or office buildings for identifying where and how water is used, as it is explained in the following section.

The denominator of this indicator (net value added) is calculated as explained in the section about economic indicators (A.1.3. Net value added).

2) Change of water use per net value added

As entities should be striving to improve (i.e., decrease) the amount of water used, it is

[37] See for example: http://pacinst.org/wp-content/uploads/2013/02/appendix_e3.pdf; https://www.epa.gov/lean/lean-water-toolkit-appendix-c; http://www.dartmouth.edu/~cushman/courses/engs44/water.pdf; http://www.wastewatergardens.com/pdf/WWG_InfoSheet_InternationalWaterConsump.pdf

[38] See, for example, https://pubs.usgs.gov/wsp/1330h/report.pdf

[39] Refer for example to: http://www.mwi.gov.jo/sites/en-us/Best%20Managment%20Practices/Office%20Buildings%20Water%20Efficiency%20Guide.pdf for a detailed definition of water audits for office buildings. See also page 9 for some useful data statistics to estimate water use in office buildings.

suggested to calculate a second indicator that should be expressed in terms of change with reference to the previous reporting period.

So the indicator should be calculated as:

$$\frac{\text{Total volume of water used at time t}}{\text{Net value added at time t}} \text{ MINUS } \frac{\text{Total volume of water used at time t-1}}{\text{Net value added at time t-1}}$$

For example:

If the volume of water used in year t per net value added (i.e., the water use efficiency) is equal to 23,000 m^3 per € and the volume of water used in year t-1 per net value added is equal to 25,000 m^3 per € the change of water use per net value added is equal to -2,000 m^3 per €. This signals an improvement in the water use efficiency (as the water used per € of net value added is lower).

Potential sources of information

Determining water use and calculating the indicators explained before involves water data collected at each facility/site through direct measurement (through water meters). Water should be metered and measured cubic meters (or in liters). If such information is collected, it can be found in internal reporting system (operational information system tracking physical units and recording water flows) and/or environmental accounting systems/environmental management systems especially for what concerns water quantities and costs.

If these instruments are not used at their facilities and thus estimation is required, reporting entities would need to disclose the fact that they are using estimates.

Also, information collected in accounts payable based on water suppliers' bills can be used as a rough proxy to calculate water use.

It is also possible to implement a water audit[40] for specific facilities or office buildings for identifying where and how water is used. It can be developed following the below steps:

[40] Refer for example to: http://www.mwi.gov.jo/sites/en-us/Best%20Managment%20Practices/Office%20Buildings%20Water%20Efficiency%20Guide.pdf for a detailed definition of water audits for office buildings. See also page 9 for some useful data statistics to estimate water use in office buildings.

- understand who is the decision maker and the owner of the information on water,
- determine the characteristics of the facility and its various buildings (e.g., size, etc.), the operating schedules, and employees,
- identify the type of indoor and outdoor water usages, water supply sources (e.g., utility, private well),
- collect available records about water use metering and water-energy billing. This information can be used to define some preliminary estimates of per employee water use,
- run facility survey and talk to the people who are familiar with the daily operations, particularly the manager of operations and maintenance, to understand how water is used in the various areas of the site. Interview relevant staff and employees to confirm and deepen the information obtained,
- check water-using equipment and water treatment systems,
- try to measure flow-rates for each type of water-consuming equipment. This can be done by using temporary strap-on meters on water pipes or by using a bucket or plastic bag and a stopwatch (for simpler processes, such as cleaning or cooking).

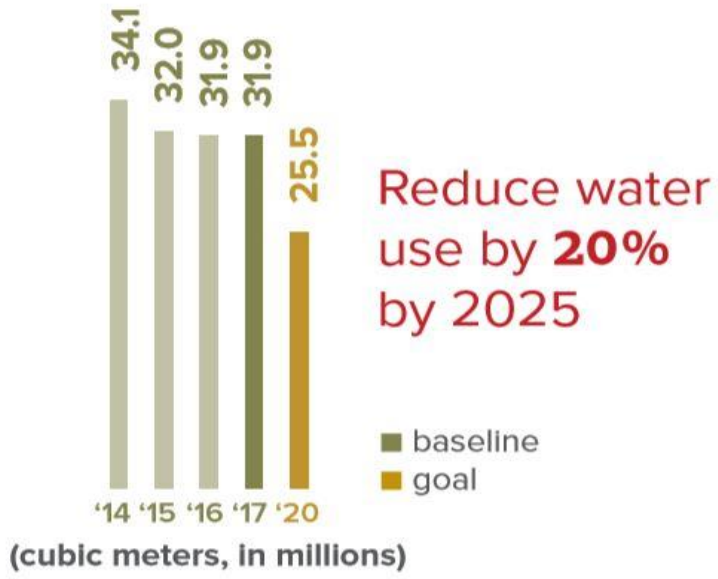
Example n.11

https://www.campbellsoupcompany.com: Campbell Soup Company (NYSE:CPB) is a global food company headquartered in Camden, N.J., with annual sales of approximately $8 billion. The Company makes a range of high-quality soups and simple meals, beverages, snacks and packaged fresh foods.

In 2017, we reaffirmed our commitment to climate action by signing the "We Are Still In" declaration. Our commitment to addressing the risks of climate change and reducing our environmental impact is unwavering. We continue to promote stewardship of natural resources in our operations by investing in efficient and low-carbon technologies and practices. Starting with our own operations, we are using our role as a leading food company to help tackle the global challenge of waste, especially food waste. We also continue to invest in energy- and water-saving opportunities.

The global engineering team, in conjunction with the local facility engineers and Campbell's sustainability team, transform these resource-reduction opportunities into actionable projects that bring about real change. Since global data tracking began in FY2008, we have reduced GHG emissions intensity by 39 percent, energy intensity by 25 percent and water intensity by 36 percent. In FY2016, reflecting significant changes in our operations due to acquisitions and divestitures, we set new environmental targets for our operations. These targets use FY2017 as the base year and are more aggressive in

that they require absolute reductions.



'14, '15, '16, '17 and '20 mean the years 2014, 2015, 2016, 2017 and 2020

Source: Campbell Soup Company's 2018 Corporate Responsibility Report

B.1.3. Water stress

Definition

Water stress is defined as total water withdrawn with a breakdown by sources (e.g., surface, ground, sea) and with reference to water- stressed or water-scarce areas (expressed as a percentage of total withdrawals).

Measurement methodology

Total water withdrawal is calculated as the sum of all water drawn into the boundaries of the entity for any use over the course of the reporting period from different sources, including:

- fresh surface water (from, for example, wetlands, rivers and lakes and including also collected or harvested rainwater)
- groundwater
- seawater water[41]
- produced/process water[42]
- third party (including water supplied by municipal water networks or other organizations).

It is possible to use the following table as a framework for reporting the total amount of water withdrawn and received from third parties by source:

		January 2018	**February 2018**	**March 2018**	**…**
Water withdrawn and received by source	Surface water (m3)	1000			
	Groundwater (m3)	0			
	Seawater (m3)	2300			
	Produced water (m3)	0			

[41] Also brackish water can be included in the computation. Brackish water has more salinity than fresh water, but not as much as seawater (e.g., a mix of seawater with fresh water as in estuaries, or it may occur in brackish fossil aquifers).

[42] Produced water is water that enters an entity's boundary as a result of extraction (e.g., crude oil), processing (e.g., sugar cane crushing), or use of any raw material, and has to be managed by the organization. This definition is based on CDP, CDP Water Security Reporting Guidance, 2018.

	Third-party water (m3)	5000			
	Total	**8300**			

To calculate the water withdrawn from different sources, the procedure should be distinguished based on the following question:

Do your facilities have water or flow meters?

- *If yes:*

  It is suggested that the water withdrawn is calculated at facility-level/individual business site level where appropriate documentation and reporting should exist <u>based on water or flow meters</u> that are used to directly measure the quantity of water withdrawn at the site from different source categories.

  Data on the total volume of water withdrawn from the different sources need to be collected with reference to a relevant time unit (e.g., day, week, month) so that it can be cumulated with reference to the total reporting period.

- *If no:*

  <u>If water or flow meters do not exist</u>, the water withdrawal needs to be estimated.

  If the entity does not use water or flow meters, most likely the most important part of water withdrawal is represented by water received from third parties, therefore, the amount of water withdrawn can be estimated based on the amount of water that is usually indicated in the water suppliers' bills.

  Alternatively, the estimation above can be done by collecting data at a certain facility during a certain period (e.g., one month) and can be used to calculate the water withdrawn at other facilities, producing similar products and having a similar production process.

  To do so, it is possible to implement a water audit[43] for specific facilities or office buildings for identifying where and how water is used, as it is explained in the following section.

Since an organization can affect the availability of water for others, it is important to disclose the entity's water withdrawal from all areas with water stress (if applicable) with a breakdown of this total by the above mentioned withdrawal source categories. The

[43] Refer for example to: http://www.mwi.gov.jo/sites/en-us/Best%20Managment%20Practices/Office%20Buildings%20Water%20Efficiency%20Guide.pdf for a detailed definition of water audits for office buildings. See also page 9 for some useful data statistics to estimate water use in office buildings.

amount of water withdrawal from areas with water stress specifies an entity's impacts in sensitive locations and is useful to understand where improvement actions are most needed.

Water stress can refer to the availability, quality, or accessibility of water. Publicly available tools for assessing areas with water stress include the World Resources Institute 'Aqueduct Water Risk Atlas', and the WWF 'Water Risk Filter' (see also the next section for additional tools). Based on these tools, water stress in an area may be assessed using either of the following indicators and their thresholds[44]:

- ✓ The ratio of total annual water withdrawal to total available annual renewable water supply (i.e., baseline water stress) is high (40-80%) or extremely high (>80%);
- ✓ The ratio of water consumption-to-availability (i.e., water depletion) is moderate (dry-year depletion, where for at least 10% of the time, the monthly depletion ratio is >75%), high (seasonal depletion, where for one month of the year on average, the depletion ratio is >75%), or very high (ongoing depletion, where the depletion ratio on average is >75%).

To calculate this indicator, an entity can follow the below steps:

- determine which facilities/sites are located in areas with water stress,
- for each of these facilities/sites, report a breakdown of the total water withdrawal by surface water, groundwater, seawater, produced water, and third-party water.

The table below can be used to sum up all the data collected in this way:

		All areas 2018	**Areas with water stress 2018**	**Water stress 2018**
Water withdrawn and received by source	Surface water (m3)	1000	300	30.0%
	Groundwater (m3)	0		0.0%
	Seawater (m3)	2300		0.0%
	Produced water (m3)	0		0.0%

[44] This definition is taken from GRI 303-3 (https://www.globalreporting.org/standards/gri-standards-download-center/gri-303-water-and-effluents-2018/) and are consistent with the indicators used in the World Resources Institute, Aqueduct Water Risk Atlas (www.wri.org/our-work/project/aqueduct/) and in WWF, Water Risk Filter (waterriskfilter.panda.org).

	Third-party water (m3)	5000		0.0%
	Total	**8300**	**300**	**3.6%**

As shown in the above table, this indicator is expressed in cubic meters (total m^3 of water withdrawn from different sources) and in percentage terms (%) as it is necessary to express all water withdrawn from the difference sources in areas with water stress as a proportion of all water withdrawn from the difference sources in all areas.

In order to contextualize how an entity manages water use and stress, it is important to take into account its operations and its water resource context. It is thus suggested that the reporting entity also explains with qualitative, descriptive information its water use policy[45].

Potential sources of information

Regarding the assessment of basins where water challenges are pronounced, many entities use their own internal knowledge of the basins where they operate. There are also a number of external datasets that can assist entities in this process and there are also free web-based tools (with online instructions) that use these datasets to conduct calculations, such as:

- WBCSD Global Water Tool
- WRI Aqueduct Water Risk Atlas
- WWF-DEG Water Risk Filter (Quick View)
- WFN Water Footprint Assessment Tool

Additional sources of information to gather data for the calculation of this indicator are the bills of water suppliers (for water received from third parties) as well as the information that can be derived from water withdrawal licenses and permits that are required by entities if they want to use ground or surface water.

Example n.12

http://www.gpic.com/: Gulf Petrochemical Industries Company was established in December 1979 as a joint venture between GCC member states for the manufacture of fertilizers and petrochemicals. The joint venture is equally owned

[45] This is in line with the UN Global Compact's CEO Water Mandate requiring entities to disclose qualitative information, such as the reporting entity's water profile, its relationship with the water resource context, as well as implications and responses.

by the Government of the Kingdom of Bahrain, Saudi Basic Industries Corporation and Petrochemical Industries Company, Kuwait.

Water Withdrawl by Source GRI 303-1

		2017	2016	2015	2014	2013	2012
Component	Unit	Quantity	Quantity	Quantity	Quantity	Quantity	Quantity
Sea Water	M^3	352,596,000.0	353,946,000.0	325,403,991	351,620,462	343,910,835	331,779,958
Purchased Water	M^3	100,977	117,976	95,444	70,001	79,111	84,507

Water sources significantly affected by withdrawl of water GRI 303-2

No water sources are significantly affected by withdrawl of water

Source: GPIC's 2018 Sustainability Report

Water is an important factor in the manufacturing processes. GPIC mainly needs it for production of steam and cooling Purposes, and some part of it goes towards our horticulture practices. Our water requirements are through a desalination mechanism of sea water, and our plants are designed in a way where most of the process related water streams such as process condensate, steam condensate is recovered and recycled back into the process after treatment through steam stripping and polishing for higher resource optimization and energy efficiency.

There is a strict monitoring regime involving online analysers, laboratory analysis and regular checks by government regulators. These stringent controls ensure that we remain compliant to the national legislative requirements by not exceeding the allowable threshold levels. Ground water monitoring is also carried out to ensure the process fluids and chemicals do not contaminate the sea water and that any leakages or seepages are detected on time. In 2012, the use of chlorine from sea water was eliminated and Sodium Hypochlorite was introduced as a safer alternative. In 2014 GPIC constructed and commissioned a double HDPE lined evaporation pond which is capable of storing 1000 m3 of waste water and other solvents. This pond was used very effectively during our turnaround in 2015 for spent fresh cooling water (nitrite based), catalyst contaminated waste water (Heavy metals contamination) etc. The solid sludge after evaporation is disposed to the government controlled hazardous waste landfill site.

The waste water generated in our processes is treated through skimming (oil removal) and neutralization to reduce the pollutant to acceptable limits prior to discharging it into the marine environment. Hence, our effluents do not burden the environment. On an average, during 2016-2017 the discharged water to marine environment contained Chemical Oxygen Demand (COD) value of ‹25 ppm and Biological Oxygen Demand value of 5 ppm, which were well below the accepted levels as per the Bahrain Environment Standards.

The GPIC complex is certified as per environmental standard ISO-14001:2004 and RC-14001. All our emissions and effluents are within the prescribed BES limits and are regularly reported to Supreme Council for Environment. This reporting includes 29

parameters from our 4 effluent streams leading to marine environment and 8 parameters of emissions from 9 sources of emissions in our facilities.

One of the challenges, which is also an opportunity for us, is to further reduce our water consumption by treating and reusing some of the waste water streams, this includes biological waste water streams and the methanol contaminated waste water streams. In addition to that, we continuously work on reducing our steam losses which in turn reduces our energy and our water consumption.

B.2 Waste management

B.2.1. Reduction of waste generation

Definition

This indicator measures the change in the entity's waste generation per net value added. Specifically, waste is intended as a non-product output with a negative or zero market value. Water and air-polluting emissions – although they are non-product output – are not regarded as waste[46].

Measurement methodology

To measure the reduction of waste generation, it is suggested to calculate the change in the entity's waste generation, normalized by the net value added. This indicator should be computed so that it is possible to monitor the level of progress the entity has made toward waste reduction efforts. For the entity, such difference may signal improvements in process efficiency and productivity and, from a financial perspective, some cost savings regarding materials processing and disposal.

This indicator should be calculated in the following way:

$$\frac{\text{Total waste generated at time t}}{\text{Net value added at time t}} \quad \text{MINUS} \quad \frac{\text{Total waste generated at time t-1}}{\text{Net value added at time t-1}}$$

The waste generated during a reporting period can be classified in different ways.

It can be distinguished according to its quality into:

- mineral waste (that is safe by nature and can be discharged without requiring special landfill technology and/or long-term landfill management)

[46] Definition III.F.3.a. General Definition of Waste from UNCTAD/EEI "A Manual for the Preparers and Users of Eco-efficiency Indicators", p. 91 http://unctad.org/en/Docs/iteipc20037_en.pdf

such as rock, brick and glass,

- non-mineral waste (that requires special landfill technology and/or long-term landfill management. Non-mineral waste can be mineralized through waste treatment technology) which includes agricultural waste and most industrial waste.

In addition, waste can be classified according to the different treatment technologies[47] applied to waste itself into:

- Reusing, re-manufacturing, and recycling
  - Reuse is the additional use of a component, part or product after it has been removed from a clearly defined service cycle. Although cleaning, repair or refurbishing may be done between reuses, it does not include a manufacturing process;
  - Re-manufacturing is the additional use of a component, part, or product after it has been removed from a clearly defined service cycle in a new manufacturing process that goes beyond cleaning, repair or refurbishing;
  - Recycling is recovery and reuse of materials from scrap or other waste materials for the production of new goods.
- Waste incineration, which mineralizes waste and reduces the volume of solid residuals.
- Sanitary landfills, i.e., controlled areas of land on which waste is disposed of, in accordance with standards, rules or orders established by a regulatory body, which provide outlets for the ultimate disposal of waste. Waste material is placed in trenches or on land, compacted by mechanical equipment and covered with earth.
- Open dumpsite, i.e., an uncontrolled area of land on which waste is disposed, either legally or illegally.

Waste should be weighted or metered. As waste can be solid, liquid or have a paste-like consistency, it can be measured in kilograms and tons, liters or cubic meters. However, for the purpose of this indicator, waste should be reported according to weight (kg, t) and not volume (liters, m^3). Country-based Environment Agencies usually provide conversion

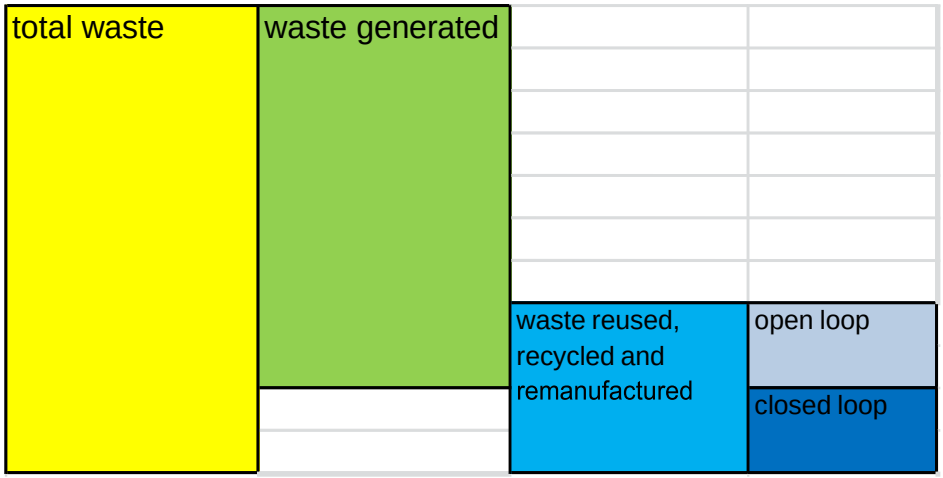
[47] Waste treatment technologies are processes applied to waste to permanently alter their condition through chemical, biological or physical means, and intend to reduce or eliminate their danger to people and the environment. For a complete description of these technologies refer to UNCTAD/EEI "A Manual for the Preparers and Users of Eco-efficiency Indicators", http://unctad.org/en/Docs/iteipc20037_en.pdf, p. 93, section III.F.3.d.

tools to assist organizations in calculating tonnages (e.g., conversion factors based on the waste density and volume, mass balances, or similar information).[48]

To calculate the total waste generated during a certain reporting period, entities shall further distinguish between:

- Open-loop reusing, re-manufacturing, and recycling, where waste is not returned to the processes of the reporting entity (but it is rather returned to the market),
- Closed-loop reusing, re-manufacturing, and recycling, where waste is returned to the processes of the reporting entity.

In fact, as shown in the below figure, when calculating the amount of waste generated over a certain reporting period, one should exclude the amount that is treated either on-site or off-site through closed-loop recycling, reuse or remanufacturing processes, i.e., the recycled, reused or remanufactured waste materials returned to the processes of the reporting entity.



It is also important to refer to national waste legislations, for the classification of waste. See for example:

http://ec.europa.eu/environment/waste/framework/list.htm

The Table[49] below exemplifies how to calculate the total waste generated taking into consideration different classifications.

[48] See for example, https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/519078/LIT_10134.xls, https://www.epa.gov/sites/production/files/2016-04/documents/volume_to_weight_conversion_factors_memorandum_04192016_508fnl.pdf

[49] This table has been adapted from UNCTAD/EEI "A Manual for the Preparers and Users of Eco-efficiency Indicators" https://unctad.org/en/docs/iteipc20037_en.pdf

Waste Generated	**Quality and classification**				TOTAL	
Treatment Technology	*Mineral*		*Non-mineral*			
	2018	2017	2018	2017	2018	2017
Open-loop reuse, remanufacturing, recycling	***83.7***	***23.7***	***105.8***	***74***	***189.5***	***97.7***
Reuse	58.6	10.8	15.2	21.5	***73.8***	***32.3***
Remanufacturing	8.3	5.4	8.4	8.1	***16.7***	***13.5***
Recycling	16.8	7.5	82.2	44.4	***99***	***51.9***
Incineration	***87.5***	***52.4***	***45.4***	***74.5***	***132.9***	***126.9***
Low-temperature	9.2	12.2	7.3	14.3	***16.5***	***26.5***
High-temperature	75.3	9.9	19	18.6	***94.3***	***28.5***
Cement kilns	3	30.3	19.1	41.6	***22.1***	***71.9***
Sanitary landfills	***78.2***	***104.5***	***130.5***	***21.3***	***208.7***	***125.8***
Landfills for bioactive materials	35.8	10.3	22.5	10.4	***58.3***	***20.7***
Landfills for stablized materials	39.3	21.9	51.1	3	***90.4***	***24.9***
Landfills for inert materials	3.1	72.3	56.9	7.9	***60***	***80.2***
Open dumpsite	***67***	***0.2***	***12.3***	***5.4***	***79.3***	***5.6***
Temporary stored on-site	***14.6***	***42***	***46.8***	***55.2***	***61.4***	***97.2***
TOTAL	***331***	***222.8***	***340.8***	***230.4***	***671.8***	***453.2***
Closed-loop reuse, remanufacturing, recycling	***-10***	***-12***	***-5.2***	***-3***	***-15.2***	***-15***
Reuse	-10	-12	-2.1	-2	***-12.1***	***-14***
Remanufacturing	0	0	-1.5	-1	***-1.5***	***-1***
Recycling	0	0	-1.6	0	***-1.6***	***0***
TOTAL WASTE GENERATED	**321**	**210.8**	**335.6**	**227.4**	**656.6**	**438.2**

As the numbers show, referring to the column TOTAL of year 2018 on the right, the total waste generated is calculated as the sum of total mineral and non-mineral waste in 2018 (331.0 + 340.8) minus the sum of closed-loop re-used, remanufactured and recycled mineral and non-mineral waste in 2018 (10.0 + 5.2), i.e., 656.6 tons.

In 2017, the total waste generated is calculated in the same way and is equal to 438.2 tons ((222.8 + 230.4) MINUS (12+3))

Assuming that the net value added in 2018 is equal to 1,000€ and in 2017 is equal to 1,100€.

So in the end, this indicator is calculated as:

$$\frac{656.6}{1{,}000} \text{ MINUS } \frac{438.2}{1{,}100} = 0.6566 \text{ MINUS } 0.3984 = 0.2582 \text{ tons per €}$$

This figure indicates that the entity has worsened in terms of eco-efficiency.

It would also be important to disclose the unnormalized figure, i.e., the change in the amount (expressed in tons) of total waste generated by the entity with reference to the previous reporting period. This figure is important as it suggests the entity's pressure on the environment.

Potential sources of information

Waste should be weighed or metered at each specific business site.

However, some entities might find it difficult to meter the quantity of waste produced. Therefore, as waste is normally collected from an organization by a third party, it is possible to calculate the amount of waste generated in a reporting period via bills from the waste management company (information provided by the waste disposal contractor usually includes, along with the type of waste, also the amount of waste managed (in kilos or tons)).

The data required for the calculation of these indicators and the related information flows are normally managed by a Facility manager or a General services administrator. When such positions are not present in an entity, the related information is to be found in the accounts payable as part of the waste management costs calculation of the reporting period.

Some websites can be used to estimate waste generation based on some variables such as number of employees or square meters occupied by facilities:

https://www2.calrecycle.ca.gov/wastecharacterization/general/rates

https://www2.calrecycle.ca.gov/WasteCharacterization/General/Rates

For the estimation of waste generation of commercial buildings see:

http://www.zerowastedesign.org/waste-calculator/

based on the number of employees it estimates the amount of tons of waste generated per year.

Example n.13

> https://www.covestro.com/en/company/profile/overview/: Covestro is among the leading suppliers of premium polymers. Covestro became an independent company listed on the stock exchange in fall 2015. 16,800 employees work at around 30 sites across the globe.

11.4 Waste and Recycling

In nearly all countries, the law requires exhaustive reporting on waste volumes and waste streams. Covestro's sites meet this requirement accordingly. In Germany, for example, there are waste-tracking procedures between the source of the waste and disposal of the waste that enable end-to-end traceability of the waste flows. Classification in the individual waste categories and the corresponding methods of disposal is according to the locally applicable definitions. Based on this documentation, we prepare and evaluate the Covestro Group's waste footprint, which is published annually.

Compared with the previous year, the volume of hazardous waste produced in 2017 rose by 6.6% to a total of 126,000 metric tons. The increase was primarily due to the substantial growth in production activities worldwide and the reclassification as hazardous of a type of waste at the Brunsbüttel facility formerly considered non-hazardous. The total amount of waste produced at Covestro rose by 3.1% in 2017, mainly due to increased production activities by the Group as well as construction and renovation activities at the Brunsbüttel and Santa Clara (Mexico) sites.

Waste Generated[1]

	2016	2017
Total waste generated (1,000 metric tons p.a.)	**188**	**193**
of which non-hazardous waste generated	70	67
of which hazardous waste generated[2]	118	126
of which hazardous waste from production	113	121

[1] Waste generated by Covestro only, without third-party waste disposed of by Covestro
[2] Definition of hazardous waste in accordance with the local laws in each instance

Waste by Means of Disposal

	2016	2017
Total volume of waste disposed of[1] (1,000 metric tons p.a.)	**200**	**204**
of which incinerated (in %)	55	58
of which recycled (in %)	31	27
Hazardous waste, of which removed to landfill (in %)	2	2
Non-hazardous waste, of which removed to landfill (in %)	8	10
Other[2] (in %)	4	3
Internally landfilled hazardous waste (1,000 metric tons p.a.)	3	1
Internally landfilled non-hazardous waste (1,000 metric tons p.a.)	8	7

[1] Covestro serves as a certified waste disposal plant operator at various sites. At these locations, Covestro disposes not only of its own waste but also of waste from third parties. For that reason, the volume of waste disposed of differs slightly from the volume of waste generated by Covestro.
[2] E.g. passed on to third parties (providers / waste disposal companies)

Covestro's Global Sideline Business unit sold legacy plants and equipment on the market, thereby returning them to the resource cycle. This will also help to conserve resources over the long term. In addition, at Covestro's sites worldwide metal scrap and used packaging such as barrels and pallets were either reused or recycled.

Source: Convestro's GRI Supplementary Report 2017

B.2.2. Waste reused, re-manufactured and recycled

Definition

Among the options for waste treatment, one is reuse, re-manufacturing, and recycling.[50]

As explained also for the indicator B.2.1.:

- Reuse consists in the further use of a component, part or product after it has been removed from a clearly defined service cycle. Reuse does not involve a manufacturing process; however, cleaning, repair or refurbishing may be performed between uses.

- Re-manufacturing is the further use of a component, part or product after it has been removed from a clearly defined service cycle in a new manufacturing process that goes beyond cleaning, repair or refurbishing.

- Recycling is recovery and reuse of materials from scrap or other waste materials for the production of new goods. Energy recovery (called "thermal recycling") is not regarded as recycling but as incineration. Pre-treatment processes that condition the waste for recycling are regarded as part of the recycling path.

It is possible to further distinguish between open- and closed-loop reuse, re-manufacturing and recycling, where open-loop means that the recycled, reused or re-manufactured material is returned to the market, not to the processes of the reporting entity; while closed-loop means that the recycled, reused or remanufactured material is returned to the processes of the reporting entity.

Measurement methodology

Two different indicators can be calculated, depending on whether the un-normalized amount (m^3) or normalized amount (m^3 per € on net value added) of reused, remanufactured and recycled waste is used.

1) *Total amount of reused, remanufactured and recycled waste*

   Reused, remanufactured and recycled waste should be presented in absolute amounts (in terms of kilos or tons of waste). This indicator is calculated in this way:

   - Total reused, remanufactured and recycled waste generated at time t

   The amount of reused, re-manufactured, and recycled waste should be recognized

[50] UNCTAD/EEI "A Manual for the Preparers and Users of Eco-efficiency Indicators", p. 93, http://unctad.org/en/Docs/ iteipc20037 en.pdf. This indicator is also consistent with the spirit of GRI 301-2 on recycled input materials used.

in the period in which it is treated and should be measured in kilos and tons (see on this point indicator B.2.1. Reduction of waste generation).

When possible, it would be preferably to distinguish among the three options, and specifically, between reuse and recycling versus remanufacturing[51], so that it is possible to calculate the following two indicators:

- Total reused and recycled waste generated at time t
- Total remanufactured waste generated at time t

For example:

Let us refer to the below Table[52] to calculate the above-mentioned indicators.

Waste Generated	**Quality and classification**				TOTAL	
Treatment Technology	*Mineral*		*Non-mineral*			
	2018	2017	2018	2017	2018	2017
Open-loop reuse, remanufacturing, recycling	***83.7***	***23.7***	***105.8***	***74***	***189.5***	***97.7***
Reuse	58.6	10.8	15.2	21.5	***73.8***	***32.3***
Remanufacturing	8.3	5.4	8.4	8.1	***16.7***	***13.5***
Recycling	16.8	7.5	82.2	44.4	***99***	***51.9***
Incineration	***87.5***	***52.4***	***45.4***	***74.5***	***132.9***	***126.9***
Low-temperature	9.2	12.2	7.3	14.3	***16.5***	***26.5***
High-temperature	75.3	9.9	19	18.6	***94.3***	***28.5***
Cement kilns	3	30.3	19.1	41.6	***22.1***	***71.9***
Sanitary landfills	***78.2***	***104.5***	***130.5***	***21.3***	***208.7***	***125.8***

[51] This is because the System of Environmental-Economic Accounting (SEEA) considers re-manufacturing products as different from reuse and recycling. Recycling or reuse are considered as intermediate consumption of waste, while for re-manufacturing, when the economic unit receives a payment, the flow is considered a product flow of waste.
[52] This table has been adapted from UNCTAD/EEI "A Manual for the Preparers and Users of Eco-efficiency Indicators" https://unctad.org/en/docs/iteipc20037_en.pdf

Landfills for bioactive materials	35.8	10.3	22.5	10.4	***58.3***	***20.7***
Landfills for stablized materials	39.3	21.9	51.1	3	***90.4***	***24.9***
Landfills for inert materials	3.1	72.3	56.9	7.9	***60***	***80.2***
Open dumpsite	***67***	***0.2***	***12.3***	***5.4***	***79.3***	***5.6***
Temporary stored on-site	***14.6***	***42***	***46.8***	***55.2***	***61.4***	***97.2***
TOTAL	***331***	***222.8***	***340.8***	***230.4***	***671.8***	***453.2***
Closed-loop reuse, remanufacturing, recycling	***-10***	***-12***	***-5.2***	***-3***	***-15.2***	***-15***
Reuse	-10	-12	-2.1	-2	***-12.1***	***-14***
Remanufacturing	0	0	-1.5	-1	***-1.5***	***-1***
Recycling	0	0	-1.6	0	***-1.6***	***0***
TOTAL WASTE GENERATED	**321**	**210.8**	**335.6**	**227.4**	**656.6**	**438.2**

Assuming we are including both open-loop and closed-loop reused, remanufactured and recycled waste, in 2017, we would have:

- Total reused, remanufactured and recycled waste generated at time t (in 2017)

= 97.7 + 15.0 = 112.7

- Total reused and recycled waste generated at time t (in 2017)

= 32.3 + 51.9 + 14 + 0 = 98.2

- Total remanufactured waste generated at time t (in 2017)

= 13.5 + 1 = 14.5

2) *Total amount of waste reused, remanufactured and recycled normalized by the net value added*

This indicator should be calculated in the following way:

$$\frac{\text{Total amount of waste reused, remanufactured and recycled generated at time t}}{\text{Net value added at time t}}$$

In order to normalize data on waste generation figures and to be consistent with the way in which indicator “B.2.1. Reduction of waste generation” is calculated, reused, re-manufactured and recycled waste should be divided by the amount of net value added (expressed in €, $, £, etc.) generated in the same reporting period (see indicator A.1.3. Net Value added). So, in the end, the unit of measure of this indicator is kilos or tons of waste per €, per $ etc.

For example:

If we refer to the above Table and we want to calculate this indicator for year 2017 (assuming we are including both open-loop and closed-loop reused, remanufactured and recycled waste):

$$\frac{\text{Total amount of waste reused, remanufactured and recycled generated at time t}}{\text{Net value added at time t}}$$

Total reused, remanufactured and recycled waste generated at time t

= 97.7 + 15.0 = 112.7

Let us assume that the net value added in 2017 was equal to €1,100

So that this indicator is equal to = 112.7/1,100 = 0.102 tons per €

As suggested for the previous indicator, the difference between year t and year t-1 should be also computed for this indicator so that it is possible to monitor the level of progress the organization has made toward waste reuse, re-manufacture, and recycle efforts.

This indicator should be calculated in the following way:

$$\frac{\text{Total reused, remanufactured and recycled waste generated at time t}}{\text{Net value added at time t}} \quad \text{MINUS}$$

$$\frac{\text{Total reused, remanufactured and recycled waste generated at time t -1}}{\text{Net value added at time t-1}}$$

Potential sources of information

In many countries, various forms of waste treatment are required by law, and, normally, a waste disposal contractor is involved in open-loop recycling. Therefore, relevant information for a specific reporting period can be found on the bills from the waste management company (information provided by the waste disposal contractor usually includes, along with the type of waste, also the amount of waste managed (in kilos or tons)).

When the waste generated by a company can be sold (e.g., because it represents a suitable raw material for another manufacturing company), relevant information can be found on the invoice issued by the company selling waste materials (accounts receivable).

When the recycled, reused or remanufactured material is returned to the processes of the reporting entity (closed-loop), the related figures should be collected at each business site and reported through operational reporting.

The data required for the calculation of these indicators and the related information flows are normally managed by a Facility manager or a General services administrator or by a plant manager. The related information can also be found in the accounts receivable, when waste materials is sold to other companies, or in the bills of materials if waste is reused in the reporting entity processes.

Example n.14

> https://www.cemex.com/: CEMEX is a Mexican multinational building materials company headquartered in San Pedro. It manufactures and distributes cement, ready-mix concrete and aggregates in more than 50 countries. It is the second largest building materials company worldwide. Approximately one-third of the company's sales come from its Mexico operations, a quarter from its plants in the U.S., 15% from Spain, and smaller percentages from its plants around the world. CEMEX currently operates on four continents, with 66 cement plants, 2,000 ready-mix-concrete facilities, 400 quarries, 260 distribution centers and 80 marine terminals.

Advancing towards a circular economy

Our key contribution to a circular economy is our transformation of waste streams from other sectors into valuable materials. Beyond our use of alternative fuels, we consume large amounts of slag and fly ash as raw materials for our cement and concrete production. To reduce most of the waste generated from our processes, we maximize our reuse of clinker kiln dust in the production loop, largely avoiding its disposal in a landfill. To realize the financial and environmental benefits of waste, we seek to monitor, minimize, reuse, and recycle all of our wastes, whenever possible.

Our waste reduction efforts include:

- MONITORING hazardous and non-hazardous waste generated in all of our operations
- REPLACING primary aggregates with other discarded materials, including demolished concrete
- REUSING AND RECYCLING fresh concrete returned from construction sites.

In 2017, 95% of the waste generated by our production processes was recovered, reused or recycled. The remaining material was sent to disposal sites. As a result of our efforts, the disposal of our non-hazardous waste, the most abundant waste we generate, decreased more than 9% compared to last year.

Source: CEMEX's 2017 Integrated Report

B.2.3. Hazardous waste

Definition

Waste can be classified according to the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (Basel Convention) that has defined the following list of hazardous characteristics:

- 1 H1 Explosive: An explosive substance or waste is a solid or liquid substance or waste (or mixture of substances or wastes) which is in itself capable by chemical reaction of producing gas at such a temperature and pressure and at such speed as to cause damage to the surroundings.

- 3 H3 Flammable liquids: The word "flammable" has the same meaning as "inflammable". Flammable liquids are liquids, or mixtures of liquids, or liquids containing solids in solution or suspension (for example, paints, varnishes, lacquers, etc., but not including substances or wastes otherwise classified on account of their dangerous characteristics) which give off a flammable vapour at temperatures of not more than 60.5° C, closed-cup test, or not more than 65.6° C, open-cup test. (Since

the results of open-cup tests and of closed-cup tests are not strictly comparable and even individual results by the same test are often variable, regulations varying from the above figures to make allowance for such differences would be within the spirit of this definition.)

- 4.1 H4.1 Flammable solids: Solids, or waste solids, other than those classed as explosives, which under conditions encountered in transport are readily combustible, or may cause or contribute to fire through friction.

- 4.2 H4.2 Substances or wastes liable to spontaneous combustion: Substances or wastes which are liable to spontaneous heating under normal conditions encountered in transport, or to heating up on contact with air, and being then liable to catch fire.

- 4.3 H4.3 Substances or wastes, which, in contact with water, emit flammable gases: Substances or wastes, which, by interaction with water, are liable to become spontaneously flammable or to give off flammable gases in dangerous quantities.

- 5.1 H5.1 Oxidizing: Substances or wastes which, while in themselves not necessarily combustible, may, generally by yielding oxygen, cause, or contribute to, the combustion of other materials.

- 5.2 H5.2 Organic Peroxides: Organic substances or wastes, which contain the bivalent-OO-structure are thermally unstable substances which may undergo exothermic self-accelerating decomposition.

- 6.1 H6.1 Poisonous (Acute): Substances or wastes liable either to cause death or serious injury or to harm health if swallowed or inhaled or by skin contact.

- 6.2 H6.2 Infectious substances: Substances or wastes containing viable micro-organisms or their toxins, which are known or suspected to cause disease in animals or humans.

- 8 H8 Corrosives: Substances or wastes which, by chemical action, will cause severe damage when in contact with living tissue, or, in the case of leakage, will materially damage, or even destroy, other goods or the means of transport; they may also cause other hazards.

- 9 H10 Liberation of toxic gases in contact with air or water: Substances or wastes, which, by interaction with air or water, are liable to give off toxic gases in dangerous quantities.

- 9 H11 Toxic (Delayed or chronic): Substances or wastes, which, if they are inhaled or ingested or if they penetrate the skin, may involve delayed or chronic effects, including carcinogenicity.

- 9 H12 Ecotoxic: Substances or wastes which if released present or may present immediate or delayed adverse impacts to the environment by means of bioaccumulation and/or toxic effects upon biotic systems.

- 9 H13 Capable, by any means, after disposal, of yielding another material, e.g., leachate, which possesses any of the characteristics listed above.

Waste is classified as hazardous also when, as a result of being radioactive, is subject to other national or international control systems or when it is defined as, or considered to be, hazardous waste by the domestic legislation in the country where the waste is generated by the reporting entity.

Measurement methodology

Two indicators can be calculated depending on whether the un-normalized amount (m^3) or normalized amount (m^3 per € on net value added) of hazardous waste is used.

1) *Total amount of hazardous waste*

Total hazardous waste generated during a reporting period is defined as the sum of the amounts of all types of hazardous waste listed in the above definition and should be measured in kilos and tons (see on this point indicator B.2.1. Reduction of waste generation).

Treatment Technology	**Hazardous Waste**	
	2018	2017
Open-loop reuse, remanufacturing, recycling	***38***	***2.1***
Reuse	1.1	0
Remanufacturing	0.6	1.1
Recycling	36.3	1
Incineration	***12.2***	***26.8***
Low-temperature	5.7	10.3
High-temperature	5.2	9.6
Cement kilns	1.3	6.9

Sanitary landfills	***55.6***	***34.7***
Landfills for bioactive materials	12.8	33.3
Landfills for stablized materials	3.8	0.9
Landfills for inert materials	39	0.5
Open dumpsite	***0.4***	***5.2***
Temporary stored on-site	***1.4***	***0.3***
TOTAL	***107.6***	***69.1***
Closed-loop reuse, remanufacturing, recycling	***-0.1***	***-0.2***
Reuse	-0.1	-0.2
Remanufacturing	0	0
Recycling	0	0
TOTAL WASTE GENERATED	***107.5***	***68.9***

As shown in the above Table[53], when calculating the amount of hazardous waste generated over a certain reporting period, one should exclude the amount that is treated either on-site or off-site through closed-loop recycling, reuse or remanufacturing processes, i.e., the recycled, reused or remanufactured waste materials returned to the processes of the reporting entity.

If we refer to the above Table, the total amount of hazardous waste in year 2017 is then equal to:

69.1 MINUS 0.2 = 68.9 tons

The total amount of hazardous waste in year 2018 is equal to:

107.6 MINUS 0.1 = 107.5 tons

[53] This table has been adapted from UNCTAD/EEI "A Manual for the Preparers and Users of Eco-efficiency Indicators" https://unctad.org/en/docs/iteipc20037en.pdf

2) *Total amount of hazardous waste normalized by the net value added*

This indicator should be calculated in the following way:

$$\frac{\text{Total amount of hazardous waste generated at time t}}{\text{Net value added at time t}}$$

In order to normalize data on hazardous waste generation figures and to be consistent with the way in which the other indicators on waste are calculated the amount of hazardous waste should be divided by the amount of net value added (expressed in €, $, £, etc.) generated in the same reporting period (see indicator A.1.3. Net Value added). So, in the end, the unit of measure of this indicator is kilos or tons of waste per €, per $ etc.

For example:

If we refer to the above Table and we want to calculate this indicator for year 2017, knowing that the net value added for year 2017 is equal to € 1,100, this indicator is equal to:

68.9/1,100 = 0.063 tons per €

Similar to the other indicators on waste, also for hazardous waste, the difference between year t and year t-1 should be computed so that it is possible to monitor the level of progress the organization has made toward waste reuse, re-manufacture, and recycle efforts.

This indicator should be calculated in the following way:

$$\frac{\text{Total amount of hazardous waste generated at time t}}{\text{Net value added at time t}} \quad \text{MINUS}$$

$$\frac{\text{Total amount of hazardous waste generated at time t -1}}{\text{Net value added at time t-1}}$$

In addition, when possible, the total amount of hazardous waste should be broken down by disposal methods, e.g., reuse, recycling, composting, recovery, including energy recovery, incineration (mass burn), deep well injection, landfill, on-site storage, other (to be specified by the organization).

Information about the disposal destination reveals the extent to which an organization has managed the balance between disposal options and uneven environmental impacts.

Potential sources of information

Hazardous waste should be weighed or metered at each specific business site.

However, some entities might find it difficult to meter the quantity of hazardous waste produced. So, in line with what is advised for other indicators on waste management included in this guidance, it is suggested to use the bills from the waste management company to reconstruct the relevant information required to calculate this indicator. Information provided by the waste disposal contractor usually includes, along with the type of waste, also the amount of waste managed (in kilos or tons) and the disposal method. Usually, consignment notes to move hazardous waste are required and businesses need to keep records (known as a 'register') for a specific number of years at the premises that produced or stored the waste.

The related information flows are normally managed by a Facility manager or a General services administrator. When such positions are not present in an entity, such information is to be found in the accounts payable as part of the waste management costs calculation of the reporting period.

Example n.15

http://www.gpic.com/: Gulf Petrochemical Industries Company was established in December 1979 as a joint venture between GCC member states for the manufacture of fertilizers and petrochemicals. The joint venture is equally owned by the Government of the Kingdom of Bahrain, Saudi Basic Industries Corporation and Petrochemical Industries Company, Kuwait.

Total weight of waste by type and disposal method GRI 306-2

			2017	2016	2015	2014	2013	2012
Component	Unit	Type	Quantity	Quantity	Quantity	Quantity	Quantity	Quantity
The total amount of waste (hazardous & non-hazardous) in tonnes by type for composting.	tonnes		nil	nil	nil	nil	nil	nil
The total amount of waste (hazardous & non-hazardous) in tonnes by type for reuse.	tonnes		Not quantified	Not quantified	Not quantified	Not quantified	Not quantified	
The total amount of waste (hazardous & non-hazardous) in tonnes by type for recycling.	tonnes	Hazardous Waste						
		Spent Catalyst to overseas recycling agencies.	nil	267.5	103	nil	300	172
		Gas condensate to Bapco refinery	234	259	272	176	224	Not quantified
		Waste oil to recycling agencies	28	28	Not quantified	Not quantified	Not quantified	
		Non-Hazardous Waste						
		Metal Scrap	0	387	357	0	220	212
		Plastic & Aluminum cans	1.76	1.89	4.3	3.5	Not quantified	Not quantified
		Paper & card board	13.32	11.7	14.8	8.2	Not quantified	Not quantified
The total amount of waste (hazardous & non-hazardous) in tonnes by type for landfill.	tonnes	Hazardous waste (spent catalyst & Resins etc.) (M^3)	116.2	35.68	101	171	97.33	143
		Non-Hazardous General Waste (M^3)	9068	6846	9846	7381	Not quantified	Not quantified

Notes
Density for gasoline estimated 0.77kg/l
Density of used oil from MSDS 0.87kg/l
Urea Scrap 1 load= 5 tons and 1 skip is 7m3 (2017= 60 ton, 2016=114 ton)
Non Hazardous waste 2017 = 8830 m3 general waste, 203 m3 urea scap, 35 m3 spent garnet
Non Hazardous waste 2016 = 6621 m3 general waste, 168 m3 urea scap, 70 m3 spent garnet

Source: GPIC's 2018 Sustainability Report

Management Approach: Responsible management of hazardous and non-hazardous waste is one of the key focus areas within our environmental strategy. Our strategy is defined by Waste Minimization Hierarchy, which fundamentally includes waste reduction

at source (most preferred) to proper disposal (least preferred).

We have taken a number of steps over the years in enhancing recycling of paper, plastic and metals and have also introduced Cardboard Recycling in April 2015. An increase in the recycling target (10% increase over the 2014 baseline) was introduced in 2015 and was achieved successfully. The target has been increased to 20% for the year 2017 and was also achieved.

GRI 103: Management Approach Disclosures (103-1, 103-2, 103-3)

Catalysts are one of the main raw materials in our industry and we recycle spent catalysts (hazardous) by selling them to certified overseas recycling agencies. In 2016 we exported 267.5 tons of catalyst to overseas recycling agencies. We are fervently pursuing our ultimate goal of minimal waste to a landfill site. However, we still generate a significant amount of waste that goes to the landfill site locally. We have sent 35.68 tonnes in 2016 and 116.2 tonnes in 2017 of hazardous solid waste to the government monitored landfill site at a total fee of US$12,700. One of our latest initiatives to manage the hazardous liquid waste generated within our facility is, the construction and commissioning of a 1000 M3 double HDPE lined evaporation pond in 2014. The pond was effectively used during the turnaround in 2015 and also during 2016 and 2017 Some of our other initiatives include:

- *Reducing our hazardous waste (mainly catalysts) by operating the plants in an efficient way with minimum unplanned outages and thereby increasing the life of the catalysts.*

- *Reusing a number of items such as the catalyst drums from new catalysts. These drums are used to store spent catalyst.*

- *Some of the empty chemical drums are cleaned and reused to store spent resins prior to sending them to the landfill.*

- *Wood waste is reused to make wooden boxes for storing maintenance tools and also for storing rotary equipment such as compressor rotors before sending them to overseas OEM workshops.*

B.3 Greenhouse gas emissions

B.3.1. Greenhouse gas emissions (scope 1)

Definition

The indicator "Greenhouse gas emissions (scope 1)" is defined as direct greenhouse gas (GHG) emissions per unit of net value added.

Scope 1 covers emissions that occur inside an entity's organizational boundary and are also referred to as Direct GHG. They are "emissions from sources that are owned or controlled by the organization"[54], such as:

- Stationary Combustion: from the combustion of fossil fuels (e.g. natural gas, fuel oil, propane, etc.) for comfort heating or other industrial applications
- Mobile Combustion: from the combustion of fossil fuels (e.g. gasoline, diesel) used in the operation of vehicles or other forms of mobile transportation
- Process Emissions: emissions released during the manufacturing process in specific industry sectors (e.g. cement, iron and steel, ammonia)
- Fugitive Emissions: unintentional release of GHG from sources including refrigerant systems and natural gas distribution

Measurement methodology

This indicator is defined in the following way:

$$\frac{\text{Scope 1 GHG (tons of } CO_2\text{)}}{\text{Net value added}}$$

For most entities, the stationary and mobile combustion sources of Scope 1 GHG are the most relevant.

The calculation of GHG (scope 1) is most commonly and easily done by means of an excel file (a tool) that can be downloaded from www.ghgprotocol.org.[55]

[54] According to the GHG protocol, direct CO2 emissions from the combustion of biomass shall not be included in scope 1 but reported separately. Also GHG emissions not covered by the Kyoto Protocol, e.g. CFCs, NOx, etc. shall not be included in scope 1 but may be reported separately.

[55] UN Environment indicates that GHG emissions are one of the most commonly reported environmental areas and refers to the GHG Protocol in discussing comprehensive reporting methodology for this indicator. Also, UNCTAD/EEI (In the Raising the Bar report) also discusses the importance of accounting for GHG emissions. In addition, CDP, formerly known as the Carbon Disclosure Project, has published extensive guidance on corporate accounting and reporting for GHG emissions (https://www.cdp.net). The use of the GHG protocol is also in line with the

The calculation methodology is based on the use of some emissions factors that are specific for each fuel/material type. In fact, in the excel sheets, it is possible to find some conversion coefficients, i.e., the so-called Global Warming Potentials (GWPs), to translate different gases into emissions of carbon dioxide (CO_2). GWPs were developed to allow comparisons of the global warming impacts of different gases. It is a measure of how much energy the emissions of 1 ton of a gas will absorb over a given period of time, relative to the emissions of 1 ton of CO_2. GWP values convert GHG emissions data for non-CO_2 gases into units of CO_2 equivalent. Therefore, they provide a common unit of measure, which allows adding up emissions estimates of different gases. Companies can choose which GWPs to use by selecting a specific IPCC (Intergovernmental Panel on Climate Change) protocol.[56]

For example:

To apply the GHG Protocol stationary combustion spreadsheet tool, the following steps should be taken[57]:

Step 1

Collect data on the quantity of fuel combusted on a volume, mass, or energy basis. These data can be based on fuel receipts, purchase records, or metering of the amount of fuel entering the combustion device.

The following three are the most common methods to collect data (in order of accuracy):

- On-site metering (i.e., flow meters or scales) of the mass or volume flow of fuel at the input point to one or more combustion units.
- Purchase or delivery records of the mass or volume of fuel entering facility. This mass balance approach should also account for inventory stock changes.

  In this case:

  FuelB = FuelP + (FuelST – FuelSE)

  Where,

  FuelB = Fuel combusted during period

Recommendations of the Task Force on Climate-related Financial Disclosures (June 2017) at: https://www.fsb-tcfd.org/wp-content/uploads/2017/06/FINAL-TCFD-Report-062817.pdf

[56] There are other calculation tools that can be used for these purposes, such as https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator. As suggested in the GRI 305-1, entities should specify the source of the emission factors and the global warming potential (GWP) rates used or refer to the GWP source. The reporting organization should also apply emission factors and GWP rates consistently for the data disclosed.

[57] https://ghgprotocol.org/sites/default/files/Stationary_Combustion_Guidance_final_1.pdf

FuelP = Fuel purchased or delivered during period

FuelST = Fuel stock at beginning of period

FuelSE = Fuel stock at end of period

- Fuel expenditure data on the amount of fuel purchased in monetary units that is then converted to physical units (i.e., mass, volume, or energy content) based on average prices. This approach should also account for inventory stock changes.

  Companies should try to obtain data on the specific price paid for fuels from suppliers if it is not internally available. If specific price data is not available, then average or likely prices will have to be assumed.

Step 2

The calculation of the GHG emissions is automatically performed by the tool by inserting in the worksheet the amounts collected in Step 1.

Reporting entities need to insert the amount of fuels used during the reporting period, using the appropriate unit measures (e.g., natural gas, in cubic meters; lubricants in liters) and the tool automatically converts these amounts into GHG emissions.

For example:

Using the Stationary Combustion Worksheet, it is possible to choose:

- Industry
- Fuel type (e.g., solid fossil)
- Fuel
- Amount of fuel
- Units (e.g., kg or kWh)

By doing the following choices:

- Industry: construction
- Fuel type (e.g., solid fossil): liquid fossil
- Fuel: gas/diesel oil
- Amount of fuel: 1,000 for the reporting period
- Units (e.g., kg or kWh): liters

The tool automatically calculates the amount of GHG emissions (tons) that, in this case, are equal to 2,685 tons for the reporting period.

In order to normalize data on GHG, the above amount should be divided by the amount of net value added (expressed in €, $, £, etc.) generated in the same reporting period (see indicator Net Value added). So, in the end, the unit of measure of this indicator is tons of CO_2 per €, per $ etc.

So if the net value added for the reporting period is equal to 10,000 £, the indicator will be calculated in the following way:

2,685 tons of CO_2 / 10,000 £ = 0.2685 tons of CO_2 per £

It is also suggested to provide a breakdown of the direct (Scope 1) GHG emissions by: business unit or facility; country; type of source (stationary combustion, process, fugitive); type of activity.

Similarly to other indicators described in this chapter, the difference between year t and year t-1 can also be computed if the entity would like to monitor the level of progress the organization has made.

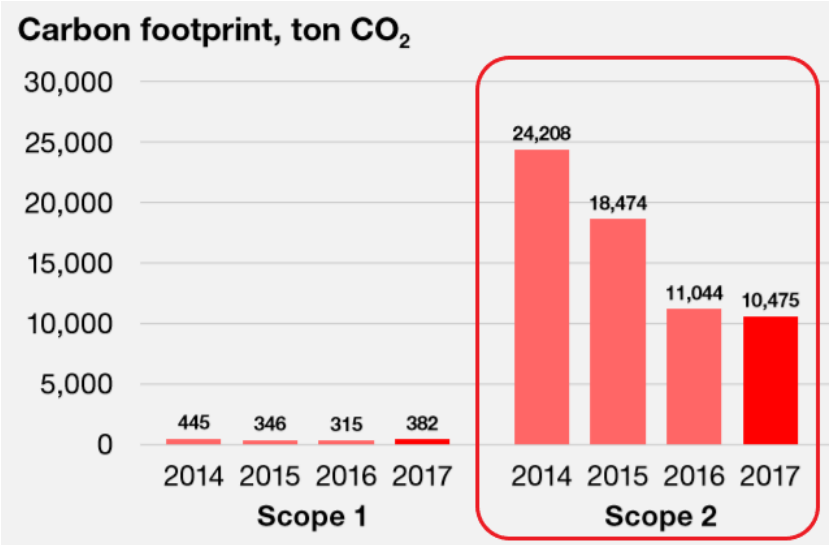
Potential sources of information

Data for the calculation of this indicator can be recovered from accounts payable, specifically from invoices of providers of fuels (where the unit of measure can be m_3 or liters).

The collection of these data needs to be done site by site, by a facility manager/general services administrator, by a quality manager or by an environmental/sustainability manager with the collaboration of the accounting department. Such data can then be cumulated both by legal entity and by country.

Example n.16

https://www.tokmanni.fi/ : Tokmanni is the largest general discount retailer in Finland measured by number of stores and revenue. We offer our customers an interesting and wide assortment at affordable prices in more than 175 stores around Finland and in online store.



Source: Tokmanni's Corporate Responsibility Report 2017

CO2 emissions are reduced through the use of renewable energy. In 2017 solar panels were installed at Tokmanni's store in Savonlinna. The solar power plant is expected to produce about 75–80 MWh of energy per year, which corresponds to about 10–15 per cent of the store's total annual electricity consumption. Tokmanni has an action plan to extend the use of solar energy to stores around Finland and its logistics centre in Mäntsälä.

Carbon dioxide emissions were also covered by renewable energy certificates. In 2017, renewable energy certificates equalling 62,190 MWh (66,065) were used at Tokmanni, which was 74 (77) per cent of Tokmanni's total electricity consumption. Electricity consumption at the Mäntsälä logistics centre and at the stores that were using electricity purchased by Tokmanni was covered in full by the certificates.

B.3.2. Greenhouse gas emissions (scope 2)

Definition

This indicator is defined as indirect GHG emissions (from consumption of purchased electricity, heat or steam) per unit of net value added.

Specifically, scope 2 covers emissions arising from the generation of secondary energy forms, e.g. electricity, that are purchased by the company for its own use. These emissions are considered 'indirect' because they are a consequence of activities of the reporting organization but actually occur at sources owned or controlled by another organization (i.e., owned or controlled by an electricity generator or utility). For many companies, the energy indirect (Scope 2) GHG emissions that result from the generation of purchased electricity can be much greater than their direct (Scope 1) GHG emissions. Scope 2 are also one of the largest sources of GHG emissions globally: the generation of electricity and heat accounts for a third of global GHG emissions[58].

Measurement methodology

To calculate scope 2 emissions, the GHG Protocol Corporate Accounting and Reporting Standard (Corporate Standard) [59] recommends multiplying activity data (MWhs of electricity consumption) by emission factors to arrive at the total GHG emissions impact of electricity use.

This approach uses the following calculation:

Emissions [tCO_2] = Activity data [MWh] * Emission factor [tCO_2/MWh]

Where:

- Activity data is the amount of electricity purchased and consumed in megawatt-hours (MWh). This value will generally be directly measured, specified in purchase contracts or estimated[60];

- Emission factor represents an average value, for a given period of time, of emissions per MWh, for either a specific grid (location), supplier or energy generation source.

To do so, there are two methods that can be used:

1) Market-Based Method
   It is a method to quantify the scope 2 GHG emissions of a reporter based on GHG emissions emitted by the generators from which the reporter contractually

[58] http://www.ghgprotocol.org/sites/default/files/ghgp/standards/Scope%202%20Guidance_Final_0.pdf
[59] http://www.ghgprotocol.org/sites/default/files/ghgp/standards/Scope%202%20Guidance_Final_0.pdf , p. 5.
[60] For potential problems of double counting in some particular situations when calculating activity data see chapter 6 of the guidelines at:
http://www.ghgprotocol.org/sites/default/files/ghgp/standards/Scope%202%20Guidance_Final_0.pdf

purchases electricity bundled with contractual instruments, or contractual instruments on their own. In this case, the emission factors are derived from the GHG emission rate represented in the contractual instruments that meet Scope 2 Quality Criteria. The market-based method is based on supplier-specific emission factors, i.e., emission rates provided by an electricity supplier to its customers, reflecting the emissions associated with the energy it provides.
Markets differ as to what contractual instruments are commonly available or used by companies to purchase energy or claim its specific attributes, but can include:

- Energy attribute certificates (Renewable Energy Certificates-RECs, Guarantees of Origin-GOs, International Renewable Energy Certificates-I-RECs, etc.)
- Direct contracts (for both low-carbon, renewable, or fossil fuel generation)
- Supplier specific emission rates (Suppliers offering differentiated products, e.g. a renewable energy product, should provide specific emission rates for each product)

2) Location-Based Method
This method quantifies scope 2 GHG emissions based on average energy generation emission factors for defined geographic locations, including local, subnational, or national boundaries. Under this approach, emission factors represent average emissions from energy generation occurring within a defined geographic area and a defined time period. In particular, it reflects the average emissions intensity of grids on which energy consumption occurs. This method applies to all locations where grids are used for the distribution of energy. The location-based method is based on statistical emissions information and electricity output aggregated and averaged within a defined geographic boundary and during a defined time period. Grid average factors are usually available for most countries or grids and are published by several organizations and government bodies, such as countries' ministries of environment and/or energy. The International Energy Agency (IEA) provides grid average data per country and per year. In some countries grid average data are available for much shorter periods. For example, RTE in France provides grid average figures in real time for every 30 minutes period[61]. Another useful source of grid average emission factor information is the Institute for Global Environmental Strategies.[62]
These data are often provided in tables and can be downloaded from the websites of specific country-level agencies and institutions.

Here below a couple of examples:

[61] http:// www.rte-france.com/en/eco2mix/eco2mix-co2-en
[62] https://pub.iges.or.jp/pub/iges-list-grid-emission-factors

UK Government GHG Conversion Factors for Company Reporting

UK electricity

Index

Why has the electricity factor changed?

The UK electricity factor is prone to fluctuate from year to year as the fuel mix consumed in UK power stations (and auto-generators) and the proportion of net imported electricity changes.

These annual changes can be large as the factor depends very heavily on the relative prices of coal and natural gas as well as fluctuations in peak demand and renewables. Given the importance of this factor, the explanation for fluctuations will be presented here henceforth.

In the 2017 GHG Conversion Factors, there was a 15% decrease in the UK electricity CO_2e factor compared to the previous year because there was a decrease in coal generation, and an increase in gas and renewables generation, in 2015 (the inventory year for which the 2017 GHG Conversion Factor was derived). In this 2018 update, the CO_2e factor has decreased again (compared with 2017) by 19% due to a decrease in coal generation and an increase mainly in natural gas and to a much lower extend renewable generation.

Example of calculating emissions from UK electricity

Company G reports the emissions from the electricity it uses, which can be found by reading its electricity meters or gathering data from utility bills.
The kWh electricity use is multiplied by the 'electricity generated' figure appropriate to the reporting year to produce company G's UK Scope 2 electricity emissions.

Activity	Country	Unit	Year	kg CO_2e	kg CO_2	kg CH_4	kg N_2O
Electricity generated	Electricity: UK	kWh	2018	0,28307	0,28088	0,00066	0,00153

- Downloaded from: https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2018[63]
  (last accessed on 26 March 2020)

[63] Carbon dioxide, or CO_2, is a natural, colourless and odourless greenhouse gas and is the proxy by which we measure GHG emissions. However, carbon dioxide is only one of many greenhouse gases that are emitted by entities. Other greenhouse gases include methane, nitrous oxide and ozone. To take into account the emission of other greenhouse gases when calculating the level of GHG emissions, scientists have devised an equivalent measure – CO_2e (which means carbon dioxide equivalent). When GHG emissions are expressed in terms of CO_2e, it means that all greenhouse gases have been included for each activity under scope, and therefore a fuller picture of an entity's carbon footprint has been captured (see on this: https://ecometrica.com/assets/GHGs-CO2-CO2e-and-Carbon-What-Do-These-Mean-v2.1.pdf).

3. State Output Emission Rates (eGRID2016)							
State	Total output emission rates (lb/MWh)						
	CO_2	CH_4	N_2O	CO_2e	Annual NO_x	Ozone Season NO_x	SO_2
AK	925.9	0.063	0.009	930.0	6.6	6.5	0.6
AL	912.9	0.069	0.010	917.5	0.4	0.4	0.4
AR	1,115.7	0.105	0.015	1,122.6	0.9	0.9	1.6
AZ	932.2	0.067	0.011	937.1	0.6	0.6	0.2
CA	452.5	0.026	0.003	454.1	0.5	0.4	0.0
CO	1,468.4	0.146	0.021	1,477.9	1.1	1.1	0.7
CT	498.5	0.061	0.008	502.1	0.3	0.3	0.0
DC	481.8	0.023	0.002	483.0	4.6	4.6	0.1
DE	887.4	0.033	0.004	889.3	0.4	0.4	0.1
FL	1,024.2	0.077	0.010	1,029.0	0.5	0.6	0.4
GA	1,001.8	0.086	0.013	1,007.4	0.4	0.3	0.4
HI	1,522.1	0.157	0.024	1,532.9	4.5	4.2	7.5
IA	997.9	0.051	0.016	1,003.9	0.8	0.9	1.0
ID	188.7	0.008	0.001	189.3	0.3	0.3	0.1
IL	811.3	0.048	0.012	816.0	0.4	0.4	1.0
IN	1,812.7	0.185	0.027	1,824.9	1.7	1.7	1.7

- Downloaded from: https://www.epa.gov/sites/production/files/2018-02/documents/egrid2016_summarytables.pdf
  (last accessed on 15 December 2019)

For example, let us assume the following case:

Company A is a globally integrated business that has operations in four different countries. To calculate their Scope 2 emissions, it uses the location-based method and they have collected data from each of the different sites.

- USA: US site consumed 350,000 MWh in the reporting period. They also purchased 20,000 RECs (1 REC=1MWh) from a solar firm.
- UK: UK office consumed 40,000 MWh in the reporting year.
- India: India office consumed 65,000 MWh during the reporting year.

To calculate Scope 2, each electricity figure would be multiplied by the grid average emissions factor (GAF)[64] in each country in the following way:

Scope 2 [tCO_2] = [350,000 (USA) x 0.05 + 20,000 (USA) x 0[65]] + [40,000 (UK) x 0.4] + [65,000 (INDIA) x 0.80]
Scope 2 [tCO_2] = 17,500 + 16,000 + 52,000 = 85,500 tons of CO_2

[64] The GAF used in this example are purely illustrative of the calculation approach. They do not refer to specific data actually reported by the countries mentioned in the example.
[65] Because solar electricity generates no emissions, we need to use a zero emissions factor, i.e., 20,000 x 0 = 0

Also the calculation of GHG (scope 2) can be done by means of an excel file (a tool) that can be downloaded from www.ghgprotocol.org where it is possible to download some customized tools, by industry and/or country, that convert activity data into emissions of carbon dioxide (CO_2)[66]. Refer to indicator B.3.1. for more details on this approach.

In order to normalize data on GHG Scope 2, the above amount should be divided by the amount of net value added (expressed in €, $, £, etc.) generated in the same reporting period (see indicator Net Value added). So, in the end, the unit of measure of this indicator is tons of CO_2 per €, per $ etc.

So if the net value added for the reporting period is equal to 1000 $, the indicator will be calculated in the following way:

85,500 tons of CO_2 / 1000 $ = 85.5 tons of CO_2 per $

The difference between year t and year t-1 can also be computed if the entity would like to monitor the level of progress the organization has made.

Potential sources of information

In order to obtain activity data (MWh), it is suggested to consult utility bills.

The collection of these data needs to be done site by site, by a facility manager/general services administrator, by a quality manager or by an environmental/sustainability manager with the collaboration of the accounting department. Such data can then be cumulated both by legal entity and by country.

Example n.17

https://www.ing.com/Home.htm: The ING Group (Dutch: ING Groep) is a Dutch multinational banking and financial services corporation headquartered in Amsterdam. Its primary businesses are retail banking, direct banking, commercial banking, investment banking, asset management, and insurance services.

[66] For country-based conversion factors see also: A Manual for the Preparers and Users of Eco-efficiency Indicators, UNCTAD/ITE/IPC/2003/7, from p.65.

CO_2e emissions

Climate change: ING sees climate change as one of the biggest challenges of our time. We are committed to reducing the impact of our own operations and helping clients reduce theirs. While we have actively measured and managed our carbon footprint for more than a decade, we still face challenges in measuring the indirect impact of our lending activities. In order to take the next step in tackling this challenge, in 2016, we conducted a pilot to measure the emissions performance of two specific asset classes within our lending portfolio. We worked closely with an external consultant who helped us develop a methodology and tool for carbon accounting.

This pilot yielded valuable insights into how we might measure the impact of our entire portfolio but also uncovered the challenge of data availability. Therefore, we welcome initiatives like the Financial Stability Board Taskforce for climate-related financial disclosure (TCFD) which aims to provide guidance to the financial sector on the topic of measuring and disclosing climate-related risk and impact. Such initiatives will help us and our clients achieve measurement with comparable results. We believe this level of awareness will steer action on climate change.

Our approach also outlines our 2020 targets for improving our operational eco-efficiency, namely:

- *We will reduce our CO2e emissions by 20% by 2020 (base year 2014) – achieved in 2016.*
- *We will reduce global residual waste by 20% by 2020 (base year 2014).*
- *We will reduce our water footprint by 20% by 2020 (base year 2014).*
- *We will remain carbon neutral by offsetting remaining carbon emissions.*

Carbon emissions extrapolated [1]			
in kilotonne CO_2e	2016	2015	2014
Coverage (% of employees)	96	95	90
Total carbon[2]	63	82	92
Total carbon per FTE in tonne	1.2	1.5	1.6
Total extrapolated carbon	74	94	101
Total carbon Scope 1[3]	20	22	23
Total carbon Scope 2[3]	14[4]	32[4]	42[4]
Total carbon Scope 3[3]	29	29	27

Source: ING Group's Annual Report 2016

B.4 Ozone-depleting substances and chemicals

B.4.1. Ozone-depleting substances and chemicals

Definition

This indicator aims at quantifying an entity's dependency on ozone- depleting substances (ODS) and chemicals per net value added.

ODS are all bulk chemicals/substances, existing either as a pure substance or as a mixture. These are generally chemicals containing chlorine and/or bromine. The most important ozone-depleting substances and chemicals are controlled under the Montreal Protocol and are listed in Annex A, B, C or E of the Protocol[67].

Measurement methodology

This indicator aims at quantifying an entity's dependency on ozone- depleting substances (ODS) and chemicals per net value added.

This indicator should be calculated in the following way:

$$\frac{\text{Total amount of ozone-depleting substances and chemicals at time t}}{\text{Net value added at time t}}$$

In the Annex of the Montreal Protocol every substance controlled is listed together with a value expressing the ozone depletion potential (although it is important to mention that some numbers have been updated as per amendments to the Protocol[68]).

[67] For a complete list see: http://ozone.unep.org/en/handbook-montreal-protocol-substances-deplete-ozone-layer/5

[68] See for example: https://www.epa.gov/ozone-layer-protection/ozone-depleting-substances

An ozone depletion potential value indicates how much impact a certain substance has on the depletion of the ozone layer relative to a reference substance. The reference substance normally taken is CFC-11 (i.e., chlorofluorocarbon) with an ozone depletion potential of 1; therefore, ozone depletion potential values are expressed in kg CFC-11 equivalents per kg of the respective substance.

For example:

Let's assume that

- during a certain reporting period, a company uses 200 kg of the ozone-depleting substance Halon-1211,
- Halon-1211 has an ozone depletion potential of 3 (as an example, see here below an extract of the table that can be downloaded from: https://www.epa.gov/ozone-layer-protection/ozone-depleting-substances#self).

Chemical Name	Lifetime, in years	ODP1 (Montreal Protocol)	ODP2 (WMO 2011)	GWP1 (AR4)	GWP2 (AR5)	CAS Number
Group I						
CFC-11 (CCl3F) Trichlorofluoromethane	45	1	1	4750	4660	75-69-4
CFC-12 (CCl2F2) Dichlorodifluoromethane	100	1	0.82	10900	10200	75-71-8
CFC-113 (C2F3Cl3) 1,1,2-Trichlorotrifluoroethane	85	0.8	0.85	6130	5820	76-13-1
CFC-114 (C2F4Cl2) Dichlorotetrafluoroethane	190	1	0.58	10000	8590	76-14-2
CFC-115 (C2F5Cl) Monochloropentafluoroethane	1020	0.6	0.5	7370	7670	76-15-3
Group II						
Halon 1211 (CF2ClBr) Bromochlorodifluoromethane	16	3	7.9	1890	1750	353-59-3
Halon 1301 (CF3Br) Bromotrifluoromethane	65	10	15.9	7140	6290	75-63-8
Halon 2402 (C2F4Br2) Dibromotetrafluoroethane	20	6	13.0	1640	1470	124-73-2

In order to understand the ozone-depleting contribution of Halon-1211, a reporting entity needs to multiply the amount of Halon-1211 (200 kg) by the ozone depletion potential value of 3 (kg CFC-11 equivalent/kg Halon-1211) to come to the ozone depletion contribution (ODC) as follows:

ODC = 200 kg X 3 = 600 kg CFC-11 equivalent

The dependency of an enterprise on ozone-depleting substances[69] is defined as:

Production of ODS + purchases of ODS + stocks of ODS

Where:

- Production of ODS means the amount of virgin (i.e., not recovered, reclaimed or recycled) ozone-depleting substances added by the reporting entity[70].
- Purchases of ODS can assume different forms:

- Ozone-depleting substances embodied in supplied goods
- Ozone-depleting substances embodied in equipment for own use
- Ozone-depleting substances embodied in traded goods
- Ozone-depleting substances as substances for goods manufactured
- Ozone-depleting substances as substances for own production process
- Ozone-depleting substances as substances for own equipment

- Stocks of ODS are defined as any ozone-depleting substance stored or accumulated on the reporting entity's premises for use, reclaim, recovery, recycling or destruction in the future. They include ODS substances in containers, in goods, in own equipment and in use as process agents.

In order to normalize data on ODS, the amount of kg CFC-11 equivalent should be divided by the amount of net value added (expressed in €, $, £, etc.) generated in the same reporting period (see indicator A.1.3. Net Value added). So, in the end, the unit of measure of this indicator is kg per €, $ etc.

In the below Table[71], this indicator for year 2017 is calculated through the following steps:

a) Conversion of specific substances into CFC equivalent

[69] Definitions of production, purchase and stocks of ODS can be found in UNCTAD/EEI (III.E). According to GRI Disclosure 305-6, the reporting organization should calculate the emissions of ODS, that can be derived by calculating the total dependency on ODS and subtracting the amount recovered, reclaimed, recycled, destroyed, used as feedstock, sold and in stock, from it.

[70] According to GRI standard 305-6, the production of ODS consists of the amount of ODS produced, minus the amount destroyed by approved technologies or used as feedstock in the manufacture of other chemicals.

[71] This table has been adapted from UNCTAD/EEI "A Manual for the Preparers and Users of Eco-efficiency Indicators" https://unctad.org/en/docs/iteipc20037en.pdf

HCFC-21 500 kg X 0.04 = 20 kg CFC-11 equivalent (production)

CFC-112 0 kg X 1 = 0 kg CFC-11 equivalent (purchase)

Halon-1301 1 kg X 10 = 10 kg CFC-11 equivalent (purchase)

Halon-1301 1,300 kg X 10 = 13,000 kg CFC-11 equivalent (stock)

HCFC-124 20 kg X 0.04 = 0.8 kg CFC-11 equivalent (stock)

b) Calculation of the dependency of an enterprise on ozone-depleting substances:

Production of ODS + purchases of ODS + stocks of ODS

20 + 0 + 10 + 13,000 + 0.8 = 13,030.8 kg CFC-11 equivalent

c) Assuming that the net value added in year 2017 is equal to 11,000 €, the indicator is then calculated in the following way:

$$\frac{\text{Total amount of ozone-depleting substances and chemicals in 2017}}{\text{Net value added in 2017}}$$

= 13,030.8/11,000 = 1.18 kg CFC-11 equivalent per €

			Total	
Purpose and form	**Substance**	**ODP**	***2018***	***2017***
Production				
produced ODS	HCFC-21	0.04	1000	500
Production of ODS			*1000*	*500*
Purchase				
purchased ODS embodied in				
- supplied goods				
- supplied equipment	CFC-112	1	100	
- traded goods				

purchased ODS for				
- goods manufactured				
- own production processes				
- own equipment	Halon-1301	10	2	1
- for trade				
Purchase of ODS			*102*	*1*
Stocks				
ODS in goods				
ODS as substance in containers			1	1
ODS in equipment	Halon-1301		1200	1300
ODS in use as process agent	HCFC-124		10	20
Stocks of ODS			*1211*	*1321*

The difference between year t and year t-1 should be also computed so that it is possible to monitor the level of progress the organization has made toward ozone-depleting substances and chemicals

This indicator should be calculated in the following way:

$$\frac{\text{Total amount of ozone-depleting substances and chemicals at time t}}{\text{Net value added at time t}} \quad \text{MINUS} \quad \frac{\text{Total amount of ozone-depleting substances and chemicals at time t -1}}{\text{Net value added at time t-1}}$$

Potential sources of information

ODS should be weighed or metered at each specific business site (ODS should be measured in kilograms, metric tons, litres and cubic metres). This is an area that is regulated in many countries and therefore the information regarding this indicator should be found:

When ODS are produced, in the operating information systems of each specific plant (as part of amounts of outcomes produced in a specific reporting period – see also the bills of materials);

When ODS are purchased/stocked

- o if it is ODS for production processes, in the accounts payable and in the operating information systems of each specific plant. The owner of such information in this case should be the plant manager/the purchasing manager;

- o if it is ODS embodied in equipment in use outside production processes and part of general services (e.g., air conditioning, firefighting equipment), it can be derived from the description of the specific equipment bought by the entity at each facility. The owner of such information in this case should be the facility manager/general services administrator.

Example n.18

https://www.petradiamonds.com/: Petra Diamonds Ltd is a diamond mining group headquartered in Jersey. It has a diversified portfolio, with interests in eight producing mines in South Africa and Tanzania and an exploration programme in Botswana. Petra Diamonds' focus has shifted from exploration to production, becoming one of the largest independent producers of diamonds in Africa.

Table 7: Ozone depleting substances

Element	Unit	FY 2017
1,1,1-trichloroethane ("TCA")	kg	—
Carbon tetrachloride ("CTC")	kg	—
Halon	kg	5.0
Methyl bromide	kg	—
R134a	kg	757.0
R22	kg	147.8
R-410		38.5
Halocarbon 22 chlorodifluoromethane	kg	—
Total ozone depleting subs	kg	948.3

Source: Petra Diamonds' Sustainability Report 2017

Significant air emissions: Petra has no significant sources of air emissions. Diamond mining does not involve any chemical process or smelting activities that lead to the generation of nitrous ("NOx") or sulphurous oxide ("SOx") emissions. Non-point sources (i.e. environmental drop-out dust and particulate matter) as a result of surface activities are strictly regulated and annual results are submitted to authorities for evaluation. Petra has never received any directives or fines as a result of excessive air emissions. Furthermore, Petra does not produce, import or export any ozone depleting substances.

B.5. Energy consumption

B.5.1. Renewable energy

Definition

This indicator is defined as the ratio of an entity's consumption of renewable energy to its total energy consumption during the reporting period. Types of renewable energy include, for example, solar energy, biomass, hydropower, geothermal energy, and ocean energy.

Measurement methodology

This indicator should be calculated in the following way:

$$\frac{\text{Total consumption of renewable energy at time t}}{\text{Total energy consumption at time t}}$$

To calculate the numerator, the company should consider only the amount of renewable energy consumed, comprising:

- renewable fuel sources (such as biofuels),
- solar energy,
- biomass,
- hydropower,
- geothermal energy,

- ocean energy[72]

The numerator should include heat from renewable sources and electricity from renewable sources.

- Renewable sources of electricity are comprised of: hydro, wind, solar (photovoltaic and solar thermal), geothermal, wave, tide and other marine energy, as well as the combustion of biofuels.

- Renewable sources of heat are: solar thermal, geothermal and the combustion of biofuels.

Thus, the numerator is the sum of all the sources of renewable energy (among the ones mentioned above) consumed by the reporting entity.

When computing the numerator, it is suggested to distinguish between different types of renewable energy resources, as these range from "infinite" renewable sources, such as solar power, to cyclical renewable resources, such as biomass.

The denominator of this indicator, i.e., total energy consumption within the reporting entity can be calculated as:

Non-renewable fuel consumed + Renewable fuel consumed + Electricity, heating, cooling, and steam purchased for consumption + Self-generated electricity, heating, cooling, and steam, which are not consumed - Electricity, heating, cooling, and steam sold[73] .

Fuel consumption is expressed in joules or multiples. Electricity, heating, cooling, and steam consumptions are expressed in joules, watt-hours or multiples. However, both the numerator and the denominator should be expressed in joules. Therefore, conversion factors are needed.

Different energy commodities have a different caloric content. To make them comparable they are converted into thermal equivalents using their respective net caloric content. If the energy commodity is used in a country for which specific values are listed (i.e., there are local conversion factors) then these values should be used. Otherwise the standard values should be applied[74].

---

[72] International Recommendations for Energy Statistics (IRES) can be used as a guide for this indicator as it provides a list of renewable energy sources (https://unstats.un.org/unsd/energy/ires/IRES-web.pdf). Also, UN/EEI (III.C) provides definitions on types of renewable energy.

[73] The difference between "Self-generated electricity, heating, cooling, and steam, which are not consumed" and "Electricity, heating, cooling, and steam sold" represents basically the own consumption of self-generated electricity, heating, cooling and steam.

[74] For factors see also: https://unctad.org/en/docs/iteipc20037_en.pdf from p.34; https://www.iea.org/stats/docs/statistics_manual.pdf; https://www.engineeringtoolbox.com/fuels-higher-calorific-values-d_169.html.

These values can be derived from different web-resources and are usually presented in Tables like the ones reported here below:

STANDARD NET CALORIFIC VALUES

(Terajoules per thousand metric tons, unless otherwise stated)

Hard coal	25.80
Brown coal	14.00
Peat	9.76
Oil shale	8.90
Coal coke	28.20
Patent fuel	20.70
Brown coal briquettes (BKB)	20.70
Coal tar	28.00
Coke-oven gas (original unit is TJ)	1.00
Gasworks gas (original unit is TJ)	1.00
Recovered gases (original unit is TJ)	1.00
Other coal products	20.00
Peat products	9.76
Conventional crude oil	42.30
Natural gas liquids	44.20
Additives and Oxygenates	30.00
Other hydrocarbons	36.00
Feedstocks	43.00
Refinery gas	49.50
Ethane	46.40
Liquefied petroleum gas	47.30
Naphtha	44.50
Aviation gasoline	44.30
Motor gasoline	44.30
Gasoline-type jet fuel	44.30

- Standard values downloaded from: https://unstats.un.org/unsd/energy/balance/2014/05.pdf (Last accessed on March 26 2020)

Table I

NET CALORIFIC VALUES OF ENERGY PRODUCTS
GJ/ton

PRODUCTION, EXPORTS AND CHANGES IN STOCKS

HARD COAL	2011	2012	2013	2014
Standard factor	**25.8**	**25.8**	**25.8**	**25.8**
Argentina	24.7	24.7	24.7	24.7
Australia	27.1	27.0	26.9	26.9
Bangladesh	20.9	20.9	20.9	20.9
Botswana	23.6	23.6	23.6	23.6
Brazil	18.6	18.6	18.6	18.6
Bulgaria	17.4	17.2	20.0	27.2
Canada	24.7	24.7	25.1	25.0
Chile	15.7	17.4	22.0	22.0
China	20.6	19.9	19.9	20.1
Colombia	27.2	27.2	27.2	27.2
Czechia	26.7	26.9	27.8	27.0
Egypt	25.5	25.5	25.7	25.7
France	26.0	26.0	26.0	26.0
Georgia	25.0	25.0	28.0	25.1
Germany	29.3	27.4	27.7	27.6
India	18.9	18.9	17.0	16.8
Indonesia	26.1	25.8	25.8	25.8
Italy	26.6	26.6	26.6	26.6
Kazakhstan	18.6	18.6	18.6	18.6
Korea, Democratic People's Republic of	26.2	26.2	26.3	26.3
Korea, Republic of	19.3	18.6	18.6	18.6
Kyrgyzstan	18.6	18.6	18.6	18.6
Malaysia	26.4	26.4	26.4	26.4
Mexico	28.9	29.0	28.9	28.9

- Local values downloaded from: https://unstats.un.org/unsd/energy/yearbook/2014/08i.pdf)

  (Last accessed on March 26 2020)

For example:

Let us assume that an entity has consumed at time t, during a certain reporting period:

- biomass fuels, in particular:
  - 10,000 kg of coconut shells
  - 22,000 kg of wood charcoal
- 35,000 m^3 of natural gas from Saudi Arabia
- 300 tons of hard coal from Albania

Assuming the following conversion factors[75]:

- 17.9 MJ/kg for coconut shells,
- 29 MJ/kg for wood charcoal,
- 34.20 MJ/m^3 for the natural gas from Saudi Arabia
- 27.21 GJ/t for the hard coal from Albania.

Knowing that:

1 Gigajoule = 1000 Megajoule

The total amount of energy consumed during a certain reporting period is calculated in the following way:

10,000 kg x 17.9 MJ/kg + 22,000kg x 29 MJ/kg + 35,000 m^3 x 34.20 MJ/m^3 + 300 tons x 27.21 GJ/t

179,000 MJ + 638,000 MJ + 1,197,000 MJ + 8,163,000 MJ = 10,177,000 MJ or 10,177 GJ

This is the denominator of the indicator, i.e., the total energy consumption at time t.

The numerator is only the sum of the biomass fuels (i.e., the renewable energy sources), i.e., the total consumption of renewable energy at time t is:

179,000 MJ + 638,000 MJ = 817,000 MJ or 817 GJ

The indicator is thus calculated in the following way:

Total consumption of renewable energy at time t = 817 GJ

Total energy consumption at time t =10,177 GJ

= 817/10,177 = 0.08

[75] The conversion factors used in this example are purely illustrative of the calculation approach. They do not refer to specific data actually reported for the energy commodities and for the countries mentioned in the example.

It would be preferable to report this indicator by business unit or facility; country; type of source (see the above definitions for non-renewable sources and renewable sources); type of activity.

In order to normalize data on renewable energy and to be consistent with the way the other environmental indicators are calculated, it is suggested to normalize the amount of joules of renewable energy by the amount of net value added (expressed in €, $, £, etc.) generated in the same reporting period (see indicator A.1.3. Net Value added). So, in the end, the unit of measure of this indicator is GJ or MJ per €, $ etc.

$$\frac{\text{Total consumption of renewable energy at time t}}{\text{Net value added at time t}}$$

Referring to the example used above and assuming that, at time t, the net value added is equal to $1,000, this indicator is calculated in this way:

$$\frac{\text{Total consumption of renewable energy at time t} = 817 \text{ GJ}}{\text{Net value added at time t} = \$1{,}000}$$

817/1,000 = 0.817 GJ per $

The difference between year t and year t-1 should be also computed so that it is possible to monitor the level of progress the organization has made toward the use of renewable energy.

This indicator should be calculated in the following way:

$$\frac{\text{Total consumption of renewable energy at time t}}{\text{Net value added at time t}} \quad \text{MINUS}$$

$$\frac{\text{Total consumption of renewable energy at time t -1}}{\text{Net value added at time t-1}}$$

Potential sources of information

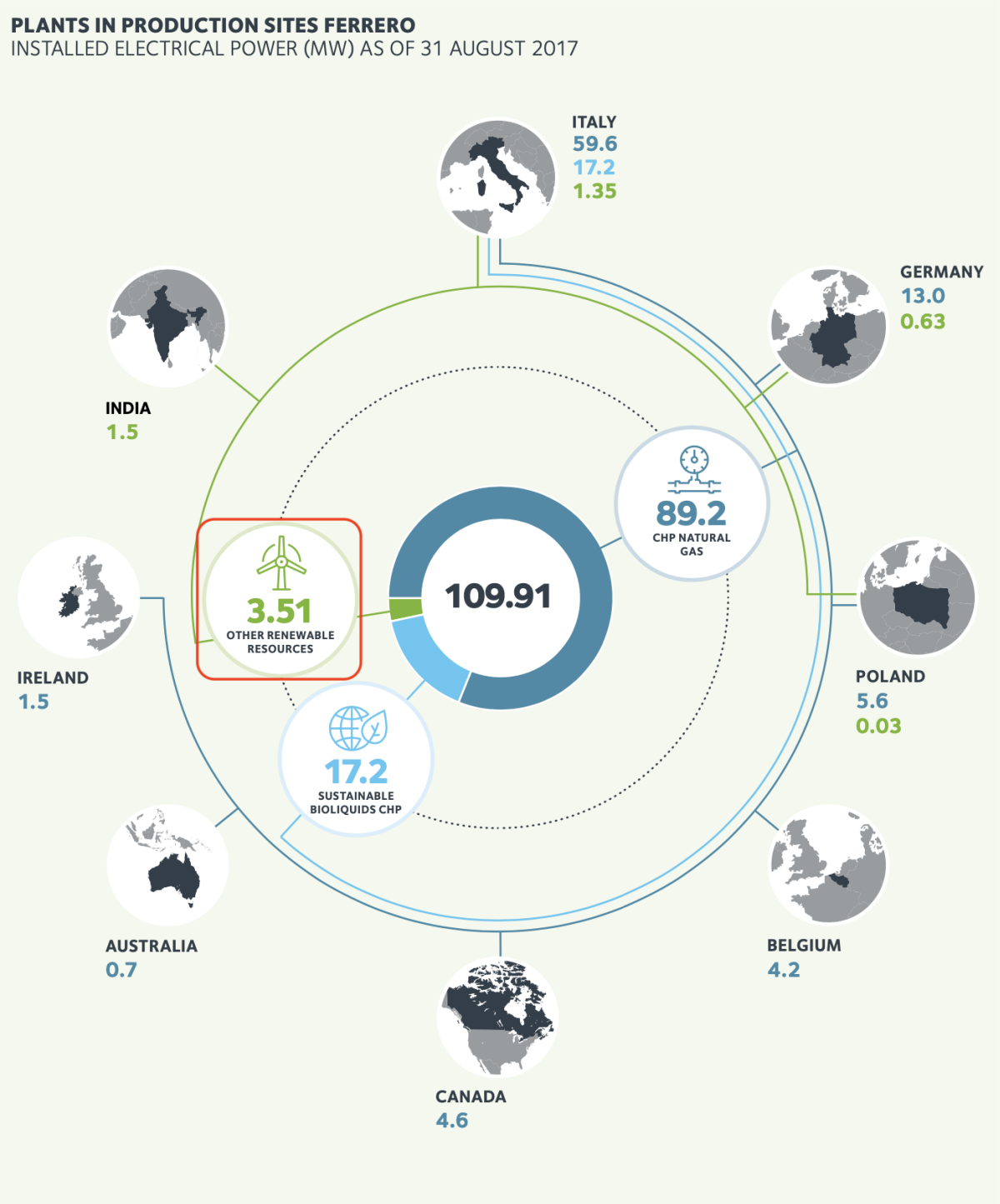
As the majority of entities purchase energy, the amount of energy consumed for a reporting period, subdivided into the different types, can be found by looking at the bills of the energy suppliers and of fuel providers.

In many countries, renewable energy certificates, or RECs, are used to claim to have purchased renewable energy. So specific information about renewable energy can also be derived from these certificates when present.

If the entity has an Energy manager, the collection of energy data is accomplished by this professional. Otherwise a facility manager/general services administrator can also be in charge of such information, with the collaboration of the accounting department (accounts payable for the energy bills). Such data should be collected at the level of each business unit/facility so that it can then be cumulated both by legal entity and by country.

Example n.19

> https://www.ferrero.com/: Ferrero SpA is an Italian manufacturer of branded chocolate and confectionery products and it is the second biggest chocolate producer and confectionery company in the world. It was founded in 1946 in Alba, Piedmont, Italy, by Pietro Ferrero. The Ferrero Group worldwide includes 38 trading companies, 18 factories, approximately 40,000 employees. Ferrero International SA's headquarters is in Luxembourg. Ferrero SpA is a private company owned by the Ferrero family.


PLANTS IN PRODUCTION SITES FERRERO
INSTALLED ELECTRICAL POWER (MW) AS OF 31 AUGUST 2017
ITALY
59.6
17.2
1.35
GERMANY
13.0
0.63
INDIA
1.5
89.2
CHP NATURAL GAS
109.91
3.51
OTHER RENEWABLE RESOURCES
IRELAND
1.5
POLAND
5.6
0.03
17.2
SUSTAINABLE BIOLIQUIDS CHP
AUSTRALIA
0.7
BELGIUM
4.2
CANADA
4.6

In FY 2016/2017, we self-produced about 50% of all the electricity we consumed and 99% of the thermal energy needs of our plants.

19% of our installed power capacity uses renewable energy sources (see the picture in the previous page).

The following examples demonstrate our commitment to using renewable energy sources in our factories.

Percentage of our installed power capacity using renewable sources

19%

GOOD PRACTICE

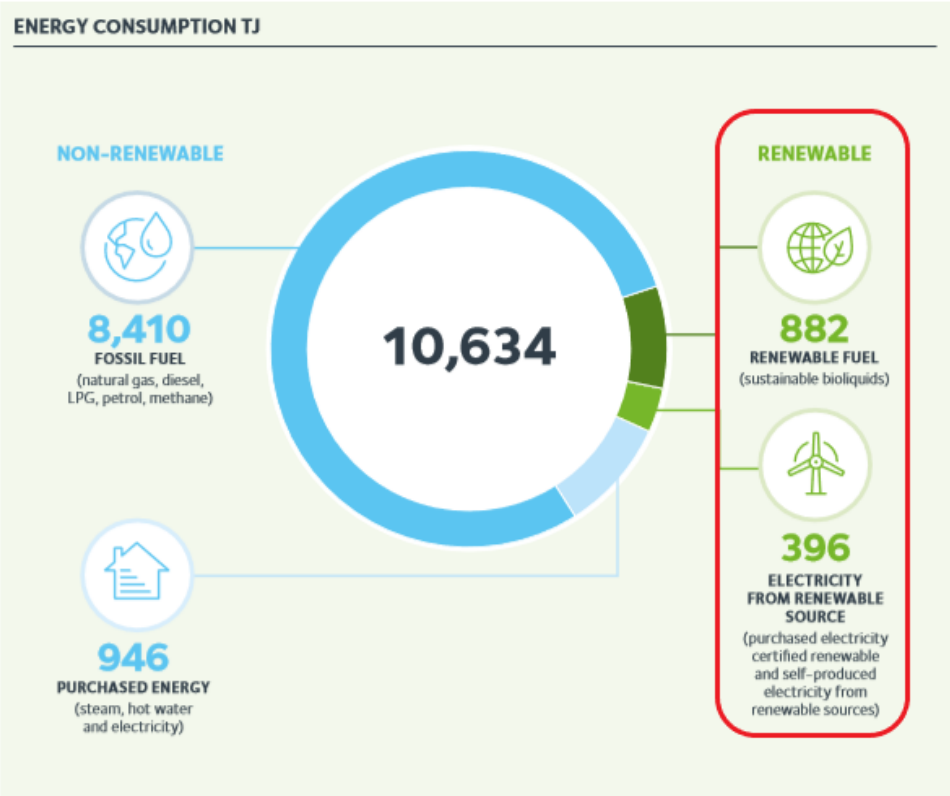
ROOF TOP SOLAR PROJECT
BARAMATI PLANT (INDIA)

Roof top solar panels at our Baramati factory provide enough renewable energy to meet the daily needs of about 1,500-2,000 houses

In March 2017, Ferrero India completed the installation of a roof top solar plant in Baramati factory, with a capacity of 1.5 MW, which makes it the most powerful plant installed in the State of Maharashtra.

This plant covers an area of 22,000 square meters and generates energy equal to 2,250 MWh per year, with an annual reduction of carbon dioxide emissions of 1,926 tons.

Roof top solar panels at our Baramati factory provide enough renewable energy to meet the daily needs of about 1,500-2,000 houses.



Resource use

Our production processes require energy in the following forms:

- electricity;
- heat
- both steam and hot water, at different temperatures;
- cooling, at different temperatures;
- compressed air;
- vacuum.

The chart above shows a breakdown of our energy sources. It includes energy used to run air condition in our production facilities, warehouses and offices.

Source: Ferrero's Corporate Social Responsibility Report 2016

B.5.2. Energy efficiency

<u>Definition</u>

Energy efficiency is defined as an entity's energy consumption divided by net value added.

Measurement methodology

This indicator should be calculated in the following way:

$$\frac{\text{Total consumption of energy at time t}}{\text{Net value added at time t}}$$

As already explained with reference to indicator B.5.1., total energy consumption within the reporting entity can be calculated as:

Non-renewable fuel consumed + Renewable fuel consumed + Electricity, heating, cooling, and steam purchased for consumption + Self-generated electricity, heating, cooling, and steam, which are not consumed - Electricity, heating, cooling, and steam sold[76] .

Fuel consumption is expressed in joules or multiples. Electricity, heating, cooling, and steam consumptions are expressed in joules, watt-hours or multiples. However, both the numerator and the denominator should be expressed in joules. Therefore, conversion factors are needed.

Different energy commodities have a different caloric content. To make them comparable they are converted into thermal equivalents using their respective net caloric content. If the energy commodity is used in a country for which specific values are listed (i.e., there are local conversion factors) then these values should be used. Otherwise the default value should be applied.[77]

These values can be derived from different web-resources and are usually presented in Tables like the ones reported here below:

[76] The difference between "Self-generated electricity, heating, cooling, and steam, which are not consumed" and "Electricity, heating, cooling, and steam sold" represents basically the own consumption of self-generated electricity, heating, cooling and steam.

[77] For factors see also: https://unctad.org/en/docs/iteipc20037_en.pdf from p.34; https://www.iea.org/stats/docs/statistics_manual.pdf; https://www.engineeringtoolbox.com/fuels-higher-calorific-values-d_169.html.

STANDARD NET CALORIFIC VALUES

(Terajoules per thousand metric tons, unless otherwise stated)

Hard coal	25.80
Brown coal	14.00
Peat	9.76
Oil shale	8.90
Coal coke	28.20
Patent fuel	20.70
Brown coal briquettes (BKB)	20.70
Coal tar	28.00
Coke-oven gas (original unit is TJ)	1.00
Gasworks gas (original unit is TJ)	1.00
Recovered gases (original unit is TJ)	1.00
Other coal products	20.00
Peat products	9.76
Conventional crude oil	42.30
Natural gas liquids	44.20
Additives and Oxygenates	30.00
Other hydrocarbons	36.00
Feedstocks	43.00
Refinery gas	49.50
Ethane	46.40
Liquefied petroleum gas	47.30
Naphtha	44.50
Aviation gasoline	44.30
Motor gasoline	44.30
Gasoline-type jet fuel	44.30

- Standard values downloaded from: https://unstats.un.org/unsd/energy/balance/2014/05.pdf (Last accessed on March 26 2020)

Table I

NET CALORIFIC VALUES OF ENERGY PRODUCTS
GJ/ton

PRODUCTION, EXPORTS AND CHANGES IN STOCKS				
HARD COAL	**2011**	**2012**	**2013**	**2014**
Standard factor	**25.8**	**25.8**	**25.8**	**25.8**
Argentina	24.7	24.7	24.7	24.7
Australia	27.1	27.0	26.9	26.9
Bangladesh	20.9	20.9	20.9	20.9
Botswana	23.6	23.6	23.6	23.6
Brazil	18.6	18.6	18.6	18.6
Bulgaria	17.4	17.2	20.0	27.2
Canada	24.7	24.7	25.1	25.0
Chile	15.7	17.4	22.0	22.0
China	20.6	19.9	19.9	20.1
Colombia	27.2	27.2	27.2	27.2
Czechia	26.7	26.9	27.8	27.0
Egypt	25.5	25.5	25.7	25.7
France	26.0	26.0	26.0	26.0
Georgia	25.0	25.0	28.0	25.1
Germany	29.3	27.4	27.7	27.6
India	18.9	18.9	17.0	16.8
Indonesia	26.1	25.8	25.8	25.8
Italy	26.6	26.6	26.6	26.6
Kazakhstan	18.6	18.6	18.6	18.6
Korea, Democratic People's Republic of	26.2	26.2	26.3	26.3
Korea, Republic of	19.3	18.6	18.6	18.6
Kyrgyzstan	18.6	18.6	18.6	18.6
Malaysia	26.4	26.4	26.4	26.4
Mexico	28.9	29.0	28.9	28.9

- Local values downloaded from: https://unstats.un.org/unsd/energy/yearbook/2014/08i.pdf)

  (Last accessed on March 26 2020)

For example:

Let' assume that an entity has consumed at time t, during a certain reporting period:

- 150,000 m^3 of natural gas from Saudi Arabia
- 900 tons of hard coal from Albania

Assuming the following conversion factors[78]:

- 34.20 MJ/m^3 for the natural gas from Saudi Arabia
- 27.21 GJ/t for the hard coal from Albania.

[78] The conversion factors used in this example are purely illustrative of the calculation approach. They do not refer to specific data actually reported for the energy commodities and for the countries mentioned in the example.

Knowing that:

1 Gigajoule = 1000 Megajoule

The total amount of energy consumed during a certain reporting period is calculated in the following way:

150,000 m^3 x 34.20 MJ/m^3 + 900 tons x 27.21 GJ/t

5,130,000 MJ + 24,489,000 MJ = 29,619,000 MJ or 29,619 GJ

This is the numerator of the indicator.

In order to normalize data on energy consumption and to be consistent with the way the other environmental indicators are calculated, the amount of joules of energy should be divided by the amount of net value added (expressed in €, $, £, etc.) generated in the same reporting period (see indicator A.1.3. Net Value added). So, in the end, the unit of measure of this indicator is joules per €, $ etc.

Assuming that the net value added is 10,000 £, the indicator is calculated in the following way:

29,619 / 10,000 = 2.96 GJ per £

Also, for this indicator it is suggested that entities report information by business unit or facility; country; type of source (see the previous indicator for a definition of non-renewable and renewable energy); type of activity.

Potential sources of information

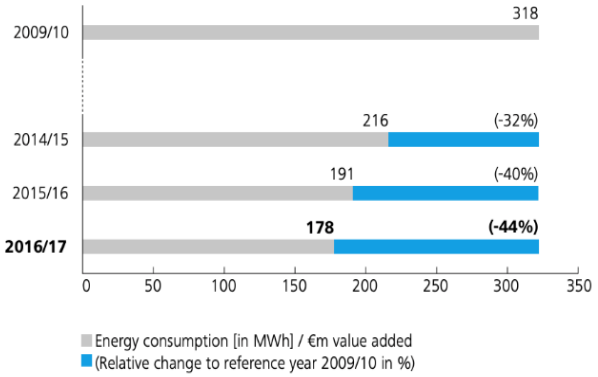
As the majority of entities purchase energy, the amount of energy consumed for a reporting period, subdivided into the different types, can be found by looking at the bills of the energy suppliers. If the entity has an Energy manager, the collection of energy data is accomplished by this professional. Otherwise a facility manager/general services administrator can also be in charge of such information, with the collaboration of the accounting department (accounts payable for the energy bills). Such data should be collected at the level of each business unit/facility so that it can then be cumulated both by legal entity and by country.

Example n.20

https://www.zeiss.com/corporate/int/home.html: ZEISS is an internationally leading technology enterprise operating in the fields of optics and optoelectronics. In the previous fiscal year, the ZEISS Group generated annual revenue totaling

more than 5.8 million euros in its four segments Industrial Quality & Research, Medical Technology, Consumer Markets and Semiconductor Manufacturing Technology (status: 30 September 2018).

Energy consumption



Fiscal year (FY)	**2016/17**	2015/16	2014/15	2009/10
Energy consumption [GWh]	504	483	485	500
Value added ZEISS overall [€m]	2,822	2,532	2,242	1,572
Energy consumption [in MWh] / €m value added	178	191	216	318
Relative change to reference year 2009/10 in %	-44	-40	-32	0

44 **percent reduction (relative to value added) in energy consumption in fiscal year 2016/17 compared to 2009/10**

Source: ZEISS Group Sustainability Report 2016 /17

Guidelines, structures and processes

ZEISS views compliance with high environmental standards as one of the company's fundamental duties. In order to minimize environmental impact and ensure that the company continuously improves its environmental performance, ZEISS drew up guiding environmental principles back in 1998. To implement them, the company utilizes an environmental management system in accordance with the international ISO 14001 standard. The environmental performance requirements that the ZEISS units need to

fulfill are laid out in an internal policy that all units worldwide must adhere to and implement.

The Chief Financial Officer of Carl Zeiss AG holds overall responsibility for implementation of the ZEISS Group's environmental management system. An environmental officer appointed at the Group level assists the business units with implementation and helps them identify suitable measures. Further persons are appointed at each site. At the end of the reporting period, 16 of the ZEISS Group's production facilities have been certified by external auditors pursuant to ISO 14001.

Energy

The objective of ZEISS energy management is to keep energy-related performance figures stable or even improve them, all while increasing production quantities. The focus here is on all of the company's worldwide business/production processes; energy-efficient machines, systems and equipment; and a modern infrastructure and building structure. This is how, despite an increasing number of employees and growing revenues, ZEISS has been able to keep energy consumption more or less constant and even significantly reduce consumption at certain facilities.

In addition, all of the company's business units in the European Union have used a certified energy management system in accordance with ISO 50001 since the end of 2015. Each of these units has appointed an energy manager who is responsible for adherence to the system with the goal of continuously improving energy-related performance. Systematically exploring and implementing measures to save energy is how ZEISS is also meeting the goals of the Paris Agreement.

Selected Reference

Selected references on Water indicators

https://www.wri.org/our-work/project/aqueduct/

https://www.nap.edu/read/10484/chapter/6

https://www.energystar.gov/buildings/tools-and-resources/energy-tracking-tool

https://www.energystar.gov/buildings/about-us/how-can-we-help-you/benchmark-energy-use/use-energy-star-benchmarking-tools

https://www.energystar.gov/buildings/facility-owners-managers/existing-buildings/use-portfolio-manager/update-energy-star-scores-cbecs

https://www.energystar.gov/buildings/tools-and-resources/datatrends-water-use-tracking

https://www.energystar.gov/sites/default/files/tools/DataTrends_Wastewater_20150129.pdf

https://www.energystar.gov/buildings/tools-and-resources/datatrends_energy_use_wastewater_treatment_plants

https://www.epa.gov/watersense/tools-ci-facilities

https://ec.europa.eu/eurostat/web/environment/water/database

http://www.project-platforms.com/files/productgallery-new.php

http://eippcb.jrc.ec.europa.eu/reference/BREF/CWW_Bref_2016_published.pdf

https://waterfootprint.org/en/resources/interactive-tools/product-gallery/

https://www.epa.vic.gov.au/our-work/publications/publication/2017/october/iwrg632-1

https://docs.wbcsd.org/2017/06/How_to_use_GWT%20July%202015.pdf

https://docs.wbcsd.org/2017/06/GWT-remoteCalls_additionalTechnicalDetails.pdf

https://www.wbcsd.org/Programs/Food-Land-Water/Water/Resources/Global-Water-Tool

https://www.wri.org/publication/aqueduct-global-maps-21-indicators

https://www.wri.org/applications/maps/aqueduct-atlas/#x=8.00&y=0.32&s=ws!20!28!c&t=waterrisk&w=def&g=0&i=BWS-16!WSV-4!SV-2!HFO-4!DRO-4!STOR-8!GW-8!WRI-4!ECOS-2!MC-4!WCG-8!ECOV-2!&tr=ind-1!prj-1&l=3&b=terrain&m=group&init=y

https://www.wri.org/applications/maps/aqueduct-atlas/#x=8.88&y=45.39&s=ws!20!28!c&t=waterrisk&w=tx&g=0&i=BWS-16!WSV-4!SV-2!HFO-4!DRO-4!STOR-8!GW-8!WRI-8!ECOS-2!MC-4!WCG-8!ECOV-2!&tr=ind-1!prj-1&l=8&b=terrain&m=group&init=y

https://waterfootprint.org/media/downloads/WFN_2013.Tata_Industrial_Water_Footprint_Assessment.pdf

https://waterfootprint.org/en/standard/global-water-footprint-standard/

https://sswm.info/glossary/r

https://www.globalreporting.org/standards/gri-standards-download-center/?g=599dcb6f-4557-4d2b-b7e8-985d4e57f42e

https://www.wbcsd.org/Programs/Food-Land-Water/Water/Resources/Global-Water-Tool

Selected references on Waste indicators

https://www2.calrecycle.ca.gov/WasteCharacterization/Study

http://ec.europa.eu/environment/waste/framework/list.htm

https://www2.calrecycle.ca.gov/wastecharacterization/general/rates

https://www2.calrecycle.ca.gov/WasteCharacterization/General/Rates

http://www.zerowastedesign.org/waste-calculator/

http://unctad.org/en/Docs/ iteipc20037 en.pdf

Selected references on GHG indicators

https://b8f65cb373b1b7b15feb-c70d8ead6ced550b4d987d7c03fcdd1d.ssl.cf3.rackcdn.com/cms/guidance_docs/pdfs/000/000/415/original/CDP-Accounting-of-Scope-2-Emissions.pdf?1479752807

http://www.ghgprotocol.org/sites/default/files/ghgp/standards/Scope%202%20Guidance_Final_0.pdf

for Country and regional guidance and resources see:

https://b8f65cb373b1b7b15feb-c70d8ead6ced550b4d987d7c03fcdd1d.ssl.cf3.rackcdn.com/cms/guidance_docs/pdfs/000/000/415/original/CDP-Accounting-of-Scope-2-Emissions.pdf?1479752807

https://www.ipcc.ch/publications_and_data/ar4/wg1/en/ch2s2-10-2.html
https://www.ipcc.ch/pdf/assessmentreport/ar5/wg1/WG1AR5_Chapter08_FINAL.pdf (p.

73-79)

https://ghgprotocol.org/sites/default/files/Global-Warming-Potential-Values%20%28Feb%2016%202016%29_1.pdf

https://ghgprotocol.org/calculation-tools

Selected references on ODS indicators

https://www.epa.gov/ozone-layer-protection/ozone-depleting-substances

http://www.environment.gov.au/protection/ozone/ozone-science/ozone-depleting-substances

https://www.eea.europa.eu/publications/ozone-depleting-substances-2018

http://www.mfe.govt.nz/more/hazards/risks-ozone-depleting-substances/what-are-ozone-depleting-substances

http://www.epa.ie/air/airenforcement/ozone/

https://www.canada.ca/en/environment-climate-change/services/air-pollution/issues/ozone-layer/depletion-impacts/substances.html

https://www.designingbuildings.co.uk/wiki/Ozone_depleting_substances

https://www.nea.gov.sg/our-services/pollution-control/chemical-safety/multilateral-environmental-agreements/ozone-depleting-substances

http://www.moef.nic.in/legis/ods/odssch1.html

http://archive.stats.govt.nz/browse_for_stats/environment/environmental-reporting-series/environmental-indicators/Home/Atmosphere-and-climate/global-ozone-depleting-substances.aspx

Selected references on Energy indicators

https://www.energystar.gov/buildings/facility-owners-and-managers/existing-buildings/use-portfolio-manager

https://www.energystar.gov/buildings/tools-and-resources/datatrends-water-use-tracking

https://www.energystar.gov/buildings/reference/research-reports/portfolio-manager-datatrends

https://www.energystar.gov/buildings/about-us/how-can-we-help-you/benchmark-energy-use/use-energy-star-benchmarking-tools

https://www.energystar.gov/buildings/tools-and-resources/energy-tracking-tool

Self-assessment questions

1. If we know that an entity recycles and/or reuses 0.10 m^3 of water per unit produced, and that the amount of units produced over a certain reporting period is equal to 1,000,000, the total volume of water recycled and reused at the end of the reporting period is:

- 100,000 m^3
- 1,000,000 m^3
- $100,000
- None of the above

2. Water use efficiency is defined as the water use per net value added in the reporting period.

- True
- False

3. If the volume of water used in year t per net value added (i.e., the water use efficiency) is equal to 30,000 m^3 per € and the volume of water used in year t-1 per net value added is equal to 35,000 m^3 per € the change of water use per net value added is equal to:

- 5,000 m^3 per €
- - 5,000 m^3 per €
- 5,000 €.
- - 5,000 €

4. A change in water use efficiency from year t-1 to year t equal to - 2,000 m3 per € signals an improvement in the water use efficiency

- True
- False

5. Water stress is defined as total water withdrawn with a breakdown by sources (e.g., surface, ground, sea) and with reference to water- stressed or water-scarce areas (expressed as a percentage of total withdrawals).

- True

- False

6. Waste reuse is the additional use of a component, part, or product after it has been removed from a clearly defined service cycle in a new manufacturing process that goes beyond cleaning, repair or refurbishing, cost of bought in goods and services equal to $450, and depreciation equal to $250, the gross value added (GVA) is:

- True

- False

7. If an entity has the following information: total mineral waste in year t = 400 tons; total non-mineral waste in year t = 200 tons; closed-loop re-used, remanufactured and recycled mineral and non-mineral waste in t = 100 tons, the total waste generated in year t is equal to:

- 200 tons

- 400 tons

- 600 tons

- 500 tons

8. Assuming that a reporting entity has an amount of total reused, remanufactured and recycled waste generated at time t equal to 200 tons, and that the net value added in year t is equal to €2,000, the total amount of waste reused, remanufactured and recycled normalized by the net value added is:

- 200 tons

- 10%

- 0,1 tons per €

- 0,1 tons

9. In many countries, various forms of waste treatment are required by law, and, normally, a waste disposal contractor is involved in open-loop recycling. Therefore, relevant information for a specific reporting period can be found on the bills from the waste management company.

- True

- False

10. Which of the following is/are hazardous characteristic/s as defined by the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (Basel Convention)?

- Organic Peroxides
- Infectious substances
- Flammable solids
- All of the above

11. Scope 2 covers GHG emissions that occur inside an entity's organizational boundary and are also referred to as Direct GHG. They are "emissions from sources that are owned or controlled by the organization".

- True
- False

12. Scope 2 covers emissions arising from the generation of secondary energy forms, e.g. electricity, that are purchased by the company for its own use (i.e., indirect GHG emissions)

- True
- False

13. Let us assume that an entity operates in two different countries, USA and UK. We know that the US site consumed 500,000 MWh and the UK site purchased 200,000 RECs (1 REC=1MWh) from a solar firm and consumed 100,000 MWh in the reporting period. Assuming that the grid average emissions factor (GAF) in USA is equal to 0.05 and in UK to 0.4, their Scope 2 emissions would be equal to:

- 105,000 tons of CO_2
- 65,000 tons of CO_2
- 800,000 MWh
- None of the above

14. ODS are all bulk chemicals/substances, existing either as a pure substance or as a mixture. These are generally chemicals containing chlorine and/or bromine. The most important ozone-depleting substances and chemicals are controlled under the Montreal Protocol

- True

- False

15. The dependency of an enterprise on ozone-depleting substances is defined as Production of ODS + purchases of ODS - stocks of ODS

- True
- False

16. Which of the following represent/s examples of renewable energy?

- hydropower
- biofuels
- solar energy
- hard coal

17. Let us assume that an entity has consumed at time t, during a certain reporting period, 50,000 m^3 of natural gas from Saudi Arabia and 500 tons of hard coal from Albania. Assuming the following conversion factors: 34.20 MJ/m^3 for the natural gas from Saudi Arabia and 27.21 GJ/t for the hard coal from Albania, what is the total amount of energy consumed during a certain reporting perio?

- 1,723,604 MJ
- 15,315,000 MJ
- 1,723,604 GJ
- 15,315,000 GJ

18. Assuming that an entity has consumed at time t, during a certain reporting period, 50,000 MJ of energy and records a net value added equal to $10,000, the indicator “Energy efficiency” is:

- 5 GJ per $
- 5 MJ per $
- 5$
- None of the above

Self-assessment questions with solutions

1. If we know that an entity recycles and/or reuses 0.10 m^3 of water per unit produced, and that the amount of units produced over a certain reporting period is equal to 1,000,000, the total volume of water recycled and reused at the end of the reporting period is:

- 100,000 m^3
- 1,000,000 m^3
- $100,000
- None of the above

0.10 m^3 x 1,000,000 = 100,000 m^3

2. Water use efficiency is defined as the water use per net value added in the reporting period.

- True
- False

3. If the volume of water used in year t per net value added (i.e., the water use efficiency) is equal to 30,000 m^3 per € and the volume of water used in year t-1 per net value added is equal to 35,000 m^3 per € the change of water use per net value added is equal to:

- 5,000 m^3 per €
- - 5,000 m^3 per €
- 5,000 €.
- - 5,000 €

30,000 – 35,000 = - 5,000 m^3 per €

4. A change in water use efficiency from year t-1 to year t equal to - 2,000 m3 per € signals an improvement in the water use efficiency

- True
- False

5. Water stress is defined as total water withdrawn with a breakdown by sources (e.g., surface, ground, sea) and with reference to water- stressed or water-scarce

areas (expressed as a percentage of total withdrawals).

- ☐ True
- ☐ False

6. Waste reuse is the additional use of a component, part, or product after it has been removed from a clearly defined service cycle in a new manufacturing process that goes beyond cleaning, repair or refurbishing, cost of bought in goods and services equal to $450, and depreciation equal to $250, the gross value added (GVA) is:

- ☐ True
- ☐ False

7. If an entity has the following information: total mineral waste in year t = 400 tons; total non-mineral waste in year t = 200 tons; closed-loop re-used, remanufactured and recycled mineral and non-mineral waste in t = 100 tons, the total waste generated in year t is equal to:

- ☐ 200 tons
- ☐ 400 tons
- ☐ 600 tons
- ☐ 500 tons

400 tons + 200 tons – 100 tons

8. Assuming that a reporting entity has an amount of total reused, remanufactured and recycled waste generated at time t equal to 200 tons, and that the net value added in year t is equal to €2,000, the total amount of waste reused, remanufactured and recycled normalized by the net value added is:

- ☐ 200 tons
- ☐ 10%
- ☐ 0,1 tons per €
- ☐ 0,1 tons

200 tons/€2000 = 0,1 tons per €

9. In many countries, various forms of waste treatment are required by law, and, normally, a waste disposal contractor is involved in open-loop recycling. Therefore, relevant information for a specific reporting period can be found on the bills from

the waste management company.

- ☐ True
- ☐ False

10. Which of the following is/are hazardous characteristic/s as defined by the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (Basel Convention)?

- ☐ Organic Peroxides
- ☐ Infectious substances
- ☐ Flammable solids
- ☐ All of the above

11. Scope 2 covers GHG emissions that occur inside an entity's organizational boundary and are also referred to as Direct GHG. They are "emissions from sources that are owned or controlled by the organization".

- ☐ True
- ☐ False

12. Scope 2 covers emissions arising from the generation of secondary energy forms, e.g. electricity, that are purchased by the company for its own use (i.e., indirect GHG emissions)

- ☐ True
- ☐ False

13. Let us assume that an entity operates in two different countries, USA and UK. We know that the US site consumed 500,000 MWh and the UK site purchased 200,000 RECs (1 REC=1MWh) from a solar firm and consumed 100,000 MWh in the reporting period. Assuming that the grid average emissions factor (GAF) in USA is equal to 0.05 and in UK to 0.4, their Scope 2 emissions would be equal to:

- ☐ 105,000 tons of CO_2
- ☐ 65,000 tons of CO_2
- ☐ 800,000 MWh
- ☐ None of the above

Scope 2 [tCO_2] = [500,000 (USA) x 0.05] + [200,000 x 0 + 100,000 (UK) x 0.4]
Scope 2 [tCO2] = 25,000 + 40,000= 65,000 tons of CO2

14. ODS are all bulk chemicals/substances, existing either as a pure substance or as a mixture. These are generally chemicals containing chlorine and/or bromine. The most important ozone-depleting substances and chemicals are controlled under the Montreal Protocol

- True
- False

15. The dependency of an enterprise on ozone-depleting substances is defined as Production of ODS + purchases of ODS - stocks of ODS

- True
- False

16. Which of the following represent/s examples of renewable energy?

- hydropower
- biofuels
- solar energy
- hard coal

17. Let us assume that an entity has consumed at time t, during a certain reporting period, 50,000 m^3 of natural gas from Saudi Arabia and 500 tons of hard coal from Albania. Assuming the following conversion factors: 34.20 MJ/m^3 for the natural gas from Saudi Arabia and 27.21 GJ/t for the hard coal from Albania, what is the total amount of energy consumed during a certain reporting perio?

- 1,723,604 MJ
- 15,315,000 MJ
- 1,723,604 GJ
- 15,315,000 GJ

50,000 m^3 x 34.20 MJ/m^3 + 500 tons x 27.21 GJ/t =

1,710,000 MJ + 13,605,000 MJ = 15,315,000 MJ

As 1 Gigajoule = 1000 Megajoule

18. Assuming that an entity has consumed at time t, during a certain reporting period, 50,000 MJ of energy and records a net value added equal to $10,000, the indicator “Energy efficiency” is:

- ☐ 5 GJ per $
- ☐ 5 MJ per $
- ☐ 5$
- ☐ None of the above

50,000 / 10,000 = 5 MJ per $

C. Social indicators manual

Introduction

This section provides definitions, measurement methodology, potential sources of information and examples to assist entities in reporting core SDG social indicators.

Economic area indicators
- Revenue
- Value added
- Net value added
- Taxes and other payments to the Government
- Green investment
- Community investment
- Total expenditures on research and development
- Percentage of local procurement

Social area indicators
- Proportion of women in managerial positions
- Average hours of training per year per employee
- Expenditure on employee training per year per employee
- Employee wages and benefits as a proportion of revenue, by employment type and gender
- Expenditures on employee health and safety as a proportion of revenue
- Frequency/incident rates of occupational injuries
- Percentage of employees covered by collective agreements

Environmental area indicators
- Water recycling and reuse
- Water use efficiency
- Water stress
- Reduction of waste generation
- Waste reused, re-manufactured and recycled
- Hazardous waste
- Greenhouse gas emissions (scope 1)
- Greenhouse gas emissions (scope 2)
- Ozone-depleting substances and chemicals
- Renewable energy
- Energy efficiency

Institutional area indicators
- Number of board meetings and attendance rate
- Number and percentage of female board members
- Board members by age range
- Number of meetings of audit committee and attendance rate
- Compensation: total compensation per board member (both executive and non-executive directors)
- Amount of fines paid or payable due to settlements
- Average hours of training on anti-corruption issues per year per employee

Social indicators are metrics for measuring, assessing, and tracking outcomes of businesses' relationships with people, organizations, institutions, communities and societies. In particular, the focus of this section is on a set of key social indicators that are typically used to track several aspects (such as diversity, equality, inclusion and safety of working conditions) of an entity's relationships with its employees. The core social indicators can be grouped as follows:

- ***Gender equality***
  - *Proportion of women in managerial positions;*
- ***Human capital***
  - *Average hours of training per year per employee;*
  - *Expenditure on employee training per year per employee;*

- *Employee wages and benefits as a proportion of revenue, by employment type and gender;*

- ***Employee health and safety***
  - *Expenditures on employee health and safety as a proportion of revenue;*
  - *Frequency/incident rates of occupational injuries; and*
- ***Coverage by collective agreements***
  - *Percentage of employees covered by collective agreements.*

For each one of the abovementioned social indicators a consistent set of information is presented and structured into:

- *Definition*
- *Measurement methodology (with illustrative, numerical examples)*
- *Potential sources of information*
- *Examples of how these indicators have been already incorporated in the reporting practices of companies around the world*

This section includes also a list of selected references and some self-assessment questions with solutions.

Learning objectives

a) By the end of the module you will:
   - Be able to define and calculate the following core indicators in the social area:
   - Proportion of women in managerial positions;
   - Average hours of training per year per employee;
   - Expenditure on employee training per year per employee;
   - Employee wages and benefits, by employment type and gender;
   - Expenditures on employee health and safety;
   - Frequency/incident rates of occupational injuries;
   - Percentage of employees covered by collective agreements.

b) Be able to critically assess existing potential sources of information to calculate social indicators in your company

c) Understand how to design a system to collect the information that is required to calculate social indicators

d) Refer to examples of companies already using and disclosing social indicators

C.1. Gender equality

C.1.1. Proportion of women in managerial positions

Definition

This indicator is expressed as the number of women in managerial positions divided by the total number of employees in a given reporting period[79].

Measurement methodology

In order to calculate this indicator, entities need to:

- Count the women in managerial positions (head count or full time equivalents - FTEs),
- Divide the number of female managers by the total number of employees in the company (head count or full time equivalents – FTEs, consistently with the numerator).

This indicator is thus expressed in percentage terms (%) and is calculated in the following way:

$$\frac{\text{Number of female managers}}{\text{Total number of employees}}$$

Both the numerator and the denominator should be calculated by taking into consideration the employee numbers at the end of the reporting period.

Employee numbers may be expressed as head count or Full Time Equivalent (FTE). This latter choice is especially suggested when an entity employs a substantial number of part-time staff. In any case, the approach chosen should be applied consistently between periods.

Different steps need to be undertaken to calculate this indicator:

Step 1:

As a first step, it is necessary to express the total amount of employees of the reporting entity at the end of the reporting period either in terms of headcount or FTE (denominator of the indicator).

[79] See on this point the Guidance on Corporate Responsibility Indicators in annual Reports, UNCTAD/CRI (indicator 5). This indicator is also consistent with indicator number 45 "Women's share of managerial positions" (ILO) in the EDGE (Evidence and Data for Gender Equality) project Minimum set of gender indicators (https://genderstats.un.org/#/home).

The FTE is calculated by summing up all the hours worked in one reporting period by both part-time and full-time employees and dividing this number by the number of hours worked by a full-time employee.

Usually, on an annual basis, an FTE is considered to be 2,080 hours, which is calculated as:

8 hours per day x 5 work days per week x 52 weeks per year =

2,080 hours per year

It is important to mention that the 2,080 hours do not take into consideration any deductions for holidays, sick time, and so forth. 2,080 hours is considered a theoretical standard, i.e., an amount of hours that can only theoretically be met if someone works through all holidays and takes no sick time. If the 2,080 figure is not used, i.e., the maximum amount of hours to be considered in the calculation, the exact number of hours for the FTEs calculation may vary by country, since the number of vacation days varies by country. In any case, the lowest number of hours to be possibly considered in the calculation is 1,680 hours per year.

Some examples of FTE calculations:

- If there are 8 working hours in one day, and the Eris Company staff works 136 hours during that day, the resulting FTEs is:

136 hours DIVIDED BY 8 hours = 17 FTEs.

- If there are 2,080 working hours in the year, and the XYZ Company staff works 22,880 hours during the year, the resulting FTEs is:

22,880 hours DIVIDED BY 2,080 = 11 FTEs

<u>Step 2:</u>

As a second step, it is required to identify all the employees that occupy managerial positions within the entity. In order to do so, it is suggested to use:

- internal job classifications;
- If not available, the occupational classification system of major, sub- major, minor and unit groups endorsed by the Meeting of Experts in Labour Statistics (the International Standard Classification of Occupations, 2008 (ISCO)) can be used as a check list. According to this system, jobs can be classified by occupation with respect to the type of work performed, and the criteria used to define the system of major, sub-major, minor and unit groups are the “skill level” and “skill specialization”. The following can be identified as “Managers”:

11 Chief executives, senior officials and legislators

111 Legislators and senior officials

1111 Legislators

1112 Senior government officials

1113 Traditional chiefs and heads of village

1114 Senior officials of special-interest organizations 112 Managing directors and chief executives

1120 Managing directors and chief executives

12 Administrative and commercial managers

121 Business services and administration managers 1211 Finance managers

1212 Human resource managers 1213 Policy and planning managers

1219 Business services and administration managers not elsewhere classified 122 Sales, marketing and development managers

1221 Sales and marketing managers

1222 Advertising and public relations managers 1223 Research and development managers

13 Production and specialized services managers

131 Production managers in agriculture, forestry and fisheries 1311 Agricultural and forestry production managers

1312 Aquaculture and fisheries production managers

132 Manufacturing, mining, construction, and distribution managers 1321 Manufacturing managers

1322 Mining managers

1323 Construction managers

1324 Supply, distribution and related managers

133 Information and communications technology service managers

1330 Information and communications technology service managers

134 Professional services managers

1341 Child care services managers

1342 Health services managers

1343 Aged care services managers

1344 Social welfare managers

1345 Education managers

1346 Financial and insurance services branch managers

1349 Professional services managers not elsewhere classified

14 Hospitality, retail and other services managers

141 Hotel and restaurant managers

1411 Hotel managers

1412 Restaurant managers

142 Retail and wholesale trade managers

1420 Retail and wholesale trade managers

143 Other services managers

1431 Sports, recreation and cultural centre managers

1439 Services managers not elsewhere classified

In any case, as reporting entities may use different taxonomies to classify managerial positions, the use of narrative disclosure could help contextualizing this indicator. Entities are encouraged to use taxonomies that are consistent with the Evidence and Data for Gender Equality (EDGE) project, a joint initiative of the United Nations Statistics Division and UN Women[80].

Step 3:

Finally, after having identified the managerial positions occupied by women in the reporting entity, it is necessary to express them in terms of either headcounts or FTEs (numerator of the indicator).

So, for example:

[80] For further information on the project, please consult: https://unstats.un.org/edge.

Let us assume that an entity has recorded the following data about its employees:

1) 4 Marketing employees, of which 1 working part-time (half-time). In total they work 7,280 hours per year
2) 60 Sales employees, of which 20 working part-time (half-time). In total they work 104,000 hours per year
3) 30 Production employees. In total they work 62,400 hours per year
4) 10 Finance employee, working in total 20,800 hours per year
5) 2 Innovation and technology employees, of which 1 working part-time (half-time). In total they work 3,120 hours per year

The female managers are the following:

1) 1 in Marketing, working in total 2,080 hours per year
2) 2 in Sales (1 of which working part-time). In total they work 3,120 hours per year
3) 1 in Finance, working in total 2,080 hours per year
4) 1 in Innovation and Technology, working part-time, i.e., working in total 1,040 hours per year

As a first step we need to calculate the number of total employees. As there are several part-time workers is better to express them in terms of FTEs.

The total amount of FTEs is calculated as:

(7,280 + 104,000 + 62,400 + 20,800 + 3,120) DIVIDED BY 2,080 =

197,600 hours DIVIDED BY 2,080 = 95 FTEs

Then, we need to calculate the FTEs for female managers, calculated as:

(2,080 + 3,120 + 2,080 + 1,040) DIVIDED BY 2,080 = 4 FTEs

Thus, this indicator, i.e., proportion of women in managerial positions, is calculated as:

4 FTEs DIVIDED BY 95 FTEs = 4.21%

When possible, it is suggested to report not only the breakdown of managerial positions by gender but also the breakdown of total workforce (either headcount or FTEs).[81]

[81] See on this point GRI indicator LA1 and the G4 10.

In addition, the reporting entity is encouraged to also calculate the breakdown of total workforce according to the following categories[82]:

- employees and supervised workers, where the supervised worker is a person who directly supplies work and services to the reporting organization but whose formal contract of employment is with another organization.
- type of employment contract
    - permanent: indefinite or permanent contract is a permanent contract of employment with an employee for full-time or part-time work for an indeterminate period;
    - temporary: fixed term or temporary contract is a contract of employment as defined above that ends when a specific time period expires, or when a specific task that has a time estimate attached is completed. A temporary contract of employment is of limited duration and terminated by a specific event, including the end of a project or work phase, return of replaced personnel, etc.
- employment type (full-time or part-time)
- age group: under 30 years old, 30-50 years old, over 50 years old
- region

So starting from the previous example, let us assume that we do not have any supervised worker and we have the following additional information:

1) 4 Marketing employees (in total working 7,280 hours per year)
    a. 1 male employee is part-time (half-time) and has a temporary contract,
    b. 3 (two males and one female) are 30-50 years old and 1 (the part-time employees) is under 30 years old,
    c. All 4 are from Spain
2) 60 Sales employees (in total working 104,000 hours per year)
    a. 20 (of which 1 female) are part-time (half-time), 10 of which (all males) have a temporary contract,
    b. 40 (one female and thirty-nine males) are 30-50 years old and 20 (all the part-time employees) are over 50 years old,
    c. 20 (all the part-time employees) are from Spain, 20 from Portugal (1 female and 19 males) and 20 from France (of which 1 is the female employee)
3) 30 Production employees (in total working 62,400 hours per year)
    a. All employees are males and full time, 10 have a temporary contract
    b. 20 are under 30 years old and 10 are 30-50 years old
    c. 20 are from Spain and 10 from Portugal
4) 10 Finance employee (in total working 20,800 hours per year)
    a. All employees are full time and have a permanent contract
    b. All employees are 30-50 years old

[82] Definitions on employment types and contracts based on the ILO's International Standard Classification of Occupations (ISCO) can be found at the following address: http://www.ilo.org/public/english/bureau/stat/isco/docs/resol08.pdf

c. 5 are from Spain (of which one is female) and 5 from France

5) 2 Innovation and technology employees (in total working 3,120 hours per year)
   a. 1 female, working part-time (half-time)
   b. Both employees have a permanent contract, 1 (the female) is under 30 years old and 1 is 30-50 years old
   c. They are both from Spain

To summarize this situation, the following excel table can be produced:

Marketing (3.5 FTE)

	Permanent	*Temporary*	*Part-time*	*Full-time*	*Under 30*	*30-50*	*Over 50*	*Spain*	*Portugal*	*France*
Female	1	0	0	1	0	1	0	1	0	0
Male	2	0.5	0.5	2	0.5	2	0	2.5	0	0
FTE		3.5		3.5			3.5			3.5

Sales (50 FTE)

	Permanent	*Temporary*	*Part-time*	*Full-time*	*Under 30*	*30-50*	*Over 50*	*Spain*	*Portugal*	*France*
Female	1.5	0	0.5	1	0	1	0.5	0.5	1	0
Male	43.5	5	9.5	39	0	39	9.5	9.5	19	20
FTE		50		50			50			50

Production (30 FTE)

	Permanent	*Temporary*	*Part-time*	*Full-time*	*Under 30*	*30-50*	*Over 50*	*Spain*	*Portugal*	*France*
Female	0	0	0	0	0	0	0	0	0	0
Male	20	10	0	30	20	10	0	20	10	0
FTE		30		30			30			30

	Permanent	*Temporary*	*Part-time*	*Full-time*	*Under 30*	*30-50*	*Over 50*	*Spain*	*Portugal*	*France*

Female	1	0	0	1	0	1	0	1	0	0
Male	9	0	0	9	0	9	0	4	0	5
FTE		10		10			10			10

Innovation and Technology (1.5 FTE)

	Permanent	*Temporary*	*Part-time*	*Full-time*	*Under 30*	*30-50*	*Over 50*	*Spain*	*Portugal*	*France*
Female	0.5	0	0.5	0	0.5	0	0	0.5	0	0
Male	1	0	0	1	0	1	0	1	0	0
FTE		1.5		1.5			1.5			1.5

Total (95 FTE)

	Permanent	*Temporary*	*Part-time*	*Full-time*	*Under 30*	*30-50*	*Over 50*	*Spain*	*Portugal*	*France*
Female	4	0	1	3	0.5	3	0.5	3	1	0
Male	75.5	15.5	10	81	20.5	61	9.5	37	29	25
	79.5	15.5	11	84	21	64	10	40	30	25
FTE		95		95			95			95

Starting from this table, the reporting entity can calculate a range of different indicators, taking into consideration all the relevant categories for the breakdown of the workforce as follows:

% of permanent employees (permanent employees FTE /total employees FTE)	**83.7%**
% of permanent female employees (permanent female employees FTE /total employees FTE)	**4.2%**
% of part-time employees (part time employees FTE / total employees FTE)	**11.6%**

% of part-time employees (part time female employees FTE / total employees FTE)	**1.1%**
% of under 30 employees (under 30 employees FTE /total employees FTE)	**22.1%**
% of 30-50 employees (30-50 employees FTE /total employees FTE)	**67.4%**
% of over 50 employees (over 50 employees FTE /total employees FTE)	**10.5%**
% of under 30 female employees (under 30 female employees FTE /total employees FTE)	**0.5%**
% of 30-50 female employees (30-50 female employees FTE /total employees FTE)	**3.2%**
% of over 50 female employees (over 50 female employees FTE /total employees FTE)	**0.5%**
% employees Spain (Spain employees FTE /total employees FTE)	**42.1%**
% employees Portugal (Portugal employees FTE /total employees FTE)	**31.6%**
% employees France (France employees FTE /total employees FTE)	**26.3%**
% female employees Spain (Spain female employees FTE /total employees FTE)	**3.2%**
% female employees Portugal (Portugal female employees FTE /total employees FTE)	**1.1%**
% female employees France (France female employees FTE /total employees FTE)	**0.0%**

Such level of detail regarding the composition of the workforce would help in assessing which issues may be of particular relevance to certain segments of the workforce. Entities are also encouraged to take into consideration broader measures of diversity, in particular with regard to the inclusion of people with disabilities into the workplace (e.g., number of workers with disabilities compared to the total number of workers). Nevertheless, this would imply very granular information, which is not always available at all entities. Moreover, these additional indicators should take into account potential legal restrictions on the collection of employee personal data. That is the reason why, these further segmentations are simply suggested.

Potential sources of information

Information to calculate this indicator is typically found in HR information systems (employee records, payroll information available at the national or site level).

Many entities use specialized software (Human Resource software[83]) for collecting and elaborating information regarding employees, including the other data that are necessary to calculate this indicator. The software and the related information flows are normally managed by the HR function.

If an equal opportunity committee exists, important information could also be found in the minutes of this committee's meetings.

Example n.21

https://www.cic.es/en/about-us/ /: CIC is an engineering and IT projects development company. In 1990 they began working in Spain and today we are present in more than 15 countries worldwide. They have a workforce of over 300 professionals. They are not listed.

Desglose de la plantilla

Por categoría

	Directivos	Gerentes	Expertos	Técnicos	Becarios
Hombres	8	10	60	120	25
Mujeres	1	4	6	49	7
Total	**9**	**14**	**66**	**169**	**32**

Por tipo

	Tiempo completo	Tiempo parcial
Hombres	195	28
Mujeres	54	13
Total	**249**	**41**

Por contrato

	Indefinido	Temporal
Hombres	124	70
Mujeres	42	17
Total	**166**	**87**

Por tramo de edad

	Hasta 30 años	Entre 30 y 50 años	Más de 50 años
Hombres	86	129	8
Mujeres	21	43	3
Total	**107**	**172**	**11**

Source: CIC's Corporate Social Responsability Report 2016

Starting from these data the following indicators could also be calculated and disclosed[84]:

[83] For an overview of some examples: https://www.capterra.com/human-resource-software/
[84] Source: our own calculations.

% female managers (female managers[85] FTE /total employees FTE)	**2%**
% of permanent employees (permanent employees FTE /total employees FTE)	**85,9%**
% of permanent female employees (permanent female employees FTE /total employees FTE)	**18,6%**
% of part-time employees (part time employees FTE / total employees FTE)	**30,0%**
% of part-time employees (part time female employees FTE / total employees FTE)	**5,9%**
% of under 30 employees (under 30 employees FTE /total employees FTE)	**36,9%**
% of 30-50 employees (30-50 employees FTE /total employees FTE)	**59,3%**
% of over 50 employees (over 50 employees FTE /total employees FTE)	**3,8%**
% of under 30 female employees (under 30 female employees FTE /total employees FTE)	**7,2%**
% of 30-50 female employees (30-50 female employees FTE /total employees FTE)	**14,8%**
% of over 50 female employees (over 50 female employees FTE /total employees FTE)	**1,0%**

[85] Mujeres (directivos y gerentes) divided by the total number of employees (i.e., 290).

C.2. Human capital

C.2.1. Average hours of training per year per employee

Definition

This indicator suggests the scale of an entity's investment in employee training (i.e., in human capital) and the degree to which this investment is made across the entire employee base, in terms of hours of training.

Measurement methodology

The indicator is calculated in the following way:

$$\frac{\text{Total number of training hours provided to employees}}{\text{Total number of employees}}$$

Both the numerator and the denominator should be calculated by taking into consideration the employee numbers at the end of the reporting period.

The first step is to calculate the numerator, i.e., the number of hours of training, by identifying all the training programs undertaken by an entity in a reporting period so that the related hours can be cumulated.

These may include:

- internal training courses;
- external training or education (supported by the entity);
- the provision of sabbatical periods with guaranteed return to employment (supported by the entity, e.g. paid educational leave provided by the reporting entity for its employees);
- training on specific topics such as health and safety.

The second step is to calculate the denominator, which should be expressed as either headcount or FTE, and apply the approach consistently in the period, and between periods. The data should be presented with breakdown by employment category and possibly by gender. On these points, refer to what has been already described for indicator C.1.1.

So, for example:

Assume that at the beginning of the reporting period an entity has 100 employees. During the period, 20 leave and 10 join, so, at the end of the reporting period, the entity has 90 employees. This information is useful to calculate the denominator of the indicator (i.e., the total number of employees).

To calculate the numerator, i.e., the number of training hours, the following steps are suggested:

a) Look up the employees' participation in training courses and workshops over a given time frame, i.e., the reporting period.
   Let us assume that an entity has 8 employees:
   - 1 participated in two half-day internal seminars,
   - 2 in one-week course at a business school.
   - 1 took a sabbatical month
   - 4 did nothing.

a) As explained with reference to indicator C.1.1, in most cases, a working day is 8 hours, and the hours of training can represent any fraction thereof. For example, a three-day seminar counts for 24 working hours, while a half-day lecture counts as 4 working hours.

b) Define the total hours of training by calculating the hours underlying the different training initiatives and multiplying those by the number of employees who participated in each training initiatives. In the example:

   Total number of training hours provided to employees = 1 X (2 seminars X 4 hours per seminar) + 2 X (1 course X 40 hours per course) + 1 X (1 sabbatical month X 160 hours)

   Total number of training hours provided to employees = 8 hours + 80 hours + 160 hours

   Total number of training hours provided to employees = 248 hours

c) Divide the total hours by the total number of employees. In the example:

   Total number of training hours provided to employees DIVIDED BY total number of employees = 248 / 8 = 31 hours per employee

   The average hours of training per year per employee in this entity is thus equal to 31

When possible, these indicators should be broken down by category[86] in the following way:

Average training hours per employee category = total number of training hours provided to each category of employees / total number of employees in category

Similar to what is recommended for other economic indicators included in this guidance, multinational entities are encouraged to disclose hours of training by country[87] and possibly by gender.

Potential sources of information

Information to calculate these indicators is typically found in HR information systems (employee records available at the national or site level). Many entities use specialized software (Human Resource software) for collecting and elaborating information regarding employees, including the other data that are necessary to calculate this indicator. The software and the related information flows are normally managed by the HR function that is also usually in charge of defining a training budget.

Management accounting systems/internal management reports can be also used for the hour specific, category specific and country-specific data (if an entity has a balanced scorecard these indicators are often included as key performance indicators in the Learning and growth perspective).

Example n.22

https://www.banpu.com/profiles/: With more than 35 years of experience in international and local businesses, Banpu has become an integrated energy solutions company operating in 10 countries in Asia-Pacific: Thailand, Indonesia, China, Australia, Lao PDR, Mongolia, Singapore, Japan, the United States of America and Vietnam, by creating growth throughout its 3 core groups of businesses, which are Energy Resources (coal and gas including related operations such as marketing, trading, logistics, fuel procurement, and transmission), Energy Generation (conventional and renewable power plants), and Energy Technology (total solar energy solutions, energy storage system and energy technology system).

By incorporating both conventional and unconventional or renewable businesses within the Group's portfolio structure, Banpu then has a stronger integration across its core business units resulting in more effective resources management and a balanced business expansion which offers sustainable energy solutions for consumers,

[86] For categories, see indicator C.1.1.

[87] This approach is in line with UNCTAD/CRI (indicators 10 and 11) and with the GRI Guidance G4-EC1 and GRI 404-1 and 404-2.

communities, society and the environment.

Data	Unit	2013	2014	2015	2016
Average Hours of Training per Year - by Country					
• Thailand	Hrs/Employee	28.8	62.8	36.8	-(1)
• Indonesia	Hrs/Employee	22.1	33.4	37.9	-(1)
• China	Hrs/Employee	32.0	33.4	24.5	-(1)
• Australia	Hrs/Employee	-	-	-	-(1)
• Mongolia	Hrs/Employee	-	-	-	-(1)
• Singapore	Hrs/Employee	-	-	-	-(1)
• Japan	Hrs/Employee	-	-	-	-(1)
• Lao PDR	Hrs/Employee	-	-	-	-(1)
Average Hours of Training per Year - by Level					
• Senior Management	Hrs/Employee	19.7	54.4	35.6	-(1)
• Middle Management	Hrs/Employee	35.8	41.4	32.1	-(1)
• Junior Management	Hrs/Employee	37.0	53.6	52.1	-(1)
• Staff and Supervisor	Hrs/Employee	22.4	32.2	24.0	-(1)

Source: Banpu's Sustainability Report2016

C.2.2 Expenditure on employee training per year per employee

Definition

This indicator suggests the scale of an entity's investment in employee training (i.e., in human capital) and the degree to which this investment is made across the entire employee base, in terms of hours of expenditures.

Measurement methodology

The indicator is calculated in the following way:

$$\frac{\text{Total amount of training expenses}}{\text{Total number of employees}}$$

Both the numerator and the denominator should be calculated by taking into consideration the amounts at the end of the reporting period.

The first step is to calculate the numerator, i.e., the total amount of training expenses, by identifying all the training programs undertaken by an entity in a reporting period so that the related costs can be cumulated.

In order to calculate the expenditure referred to training programs, it is suggested to consider direct and indirect costs of training, such as:

- training needs assessment fees (e.g., in case of assessment by external consultants),
- course fees,
- trainers' fees,
- training facilities rental costs,
- training materials development and equipment costs,
- related travel costs and/or living costs (e.g., meals and accommodation).

The second step is to calculate the denominator, which should be expressed as either headcount or FTE, and apply the approach consistently in the period, and between periods. The data should be presented with breakdown by employment category and possibly by gender. On these points, refer to what already described for indicator C.1.1.

So, for example:

Assume that an entity has incurred the following costs over a certain reporting period:

- tuition reimbursement for Executive Master = 30,000 € (for 2 managers)
- course fees = 4,000 € per participant (12 employees participated in the training course)
- travel expenses = 500 € per participant (12 employees participated in the training course)
- meals and accommodation = 1,000 € per participant (12 employees participated in the training course)
- consultants' costs for training assessment and development = 5,000 €
- materials development for internal training = 3,000 €
- rental cost for training facility = 500 €
- rental cost for PCs for business game = 1,500 €

The total amount of training expenses of the period is thus calculated as follows:

(30,000 € X 2) + (4,000 € X 12) + (500 € X 12) + (1,000 € X 12) + 5,000 € + 3,000 € + 500 € + 1,500 € + =

60,000 € + 48,000 € + 6,000 € + 12,000 € + 5,000 € + 3,000 € + 500 € + 1,500 € + = 136,000 €

Let us also assume that the company, at the end of the period, has 800 employees.

The indicator is calculated as:

Average training expenditures per employee = Total amount of training expenses DIVIDED BY Total number of employees

136,000 € DIVIDED BY 800 employees = 170 € per employee

When possible, these indicators should be broken down by category[88] in the following way:

Average training expenditures per employee category = total amount of training expenses for each category of employees/total number of employees in category

So, starting from the example above, let us assume the following additional information:

- Of these 800 employees
  - 500 have a permanent contract, of which 100 are females (300 temporary, of which 200 are females)
  - 700 are full-time, if which 200 are females (100 part-time, all females)
  - 200 are under 30 years old (of which 100 are females), 550 are 30-50 years old (of which 200 are females), and 50 are over 50 years old
- The 2 managers (1 female and 1 male) who attended the executive master (training expenses as calculated above = (30,000 € X 2) = 60,000 €) have a permanent contract, work full-time and are 30-50 years old.
- The 12 employees (2 females and 10 male) who attended the training course (training expenses as calculated above = 48,000 € + 6,000 € + 12,000 € = 66,000 €) have a permanent contract, work full-time and are all under 30 years old.
- The internal course (training expenses as calculated above = 5000 € + 3,000 € + 500 € + 1,500 € = 10,000 €) was attended by 20 employees (all males), with a temporary contract, working part-time, of which 10 under 30 years old and 10 30-50 years old.

These additional data can be summarized in an excel table as follows:

Total number of employees

	Permanent	*Temporary*	*Part-time*	*Full-time*	*Under 30*	*30-50*	*Over 50*
Female	100	200	100	200	100	200	0
Male	400	100	0	500	100	350	50
total number		800		800			800

Employees who participated in training

[88] For categories, see indicator C.1.1.

	Permanent	*Temporary*	*Part-time*	*Full-time*	*Under 30*	*30-50*	*Over 50*
Female	3			3	2	1	
Male	11	20	20	11	20	11	
total number		34		34			34

Training expenses

	Permanent	*Temporary*	*Part-time*	*Full-time*	*Under 30*	*30-50*	*Over 50*
executive master	60000			60000		60000	
training course	66000			66000	66000		
internal training		10000	10000		5000	5000	
Total amount	*126000*	*10000*	*10000*	*126000*	*71000*	*65000*	*0*

Based on these data, the following additional indicators can be calculated:

Average training expenditures for female employees	**13.666,67**
Average training expenditures for female employees	**2.097,74**
Average training expenditures for permanent employees	**9.000,00**
Average training expenditures for temporary employees	**500,00**
Average training expenditures for part-time employees	**500,00**

Average training expenditures for full-time employees	**9.000,00**
Average training expenditures for under 30 employees	**3.227,27**
Average training expenditures for 30-50 employees	**5.416,67**
Average training expenditures for over 50 employees	**-**

Similarly to what is recommended for other economic indicators included in this guidance, multinational entities are encouraged to disclose training expenditures and hours of training by country, and possibly by gender.

Potential sources of information

Training expenses can be found in the P&L as a specific line item part of the operating costs (general expenses). Companies usually employ a specific account to record training costs that can be called Employee Training Expenses (in the accounts payable).

Information to calculate this indicator is typically derived from HR information systems (employee records available at the national or site level). Many companies use specialized software (Human Resource software) for collecting and elaborating information regarding employees, including the other data that are necessary to calculate this indicator. The software and the related information flows are normally managed by the HR function that is also usually in charge of defining a training budget.

Management accounting systems/internal management reports can be also used for the hour specific, category specific and country-specific data (if a company has a balanced scorecard these indicators are often included as key performance indicators in the Learning and growth perspective).

Example n.23

https://www.banpu.com/profiles/: With more than 35 years of experience in international and local businesses, Banpu has become an integrated energy solutions company operating in 10 countries in Asia-Pacific: Thailand, Indonesia, China, Australia, Lao PDR, Mongolia, Singapore, Japan, the United States of America and Vietnam, by creating growth throughout its 3 core groups of businesses, which are Energy Resources (coal and gas including related operations such as marketing, trading, logistics, fuel procurement, and transmission), Energy Generation (conventional and renewable power plants), and Energy Technology (total solar energy solutions, energy storage system and energy technology system) By incorporating both conventional and unconventional or renewable businesses within the Group's portfolio structure, Banpu then has a stronger integration across its core business units resulting in more effective resources

management and a balanced business expansion which offers sustainable energy solutions for consumers, communities, society and the environment.

Data	Unit	2013	2014	2015	2016
Average Cost per Head of Training per Year - by Country[j]					
• Thailand	USD/Employee	-	-	-	1,613.51
• Indonesia	USD/Employee	-	-	-	108.48
• China	USD/Employee	-	-	-	282.99
• Australia	USD/Employee	-	-	-	-
• Mongolia	USD/Employee	-	-	-	-
• Singapore	USD/Employee	-	-	-	-[k]
• Japan	USD/Employee	-	-	-	-[k]
• Lao PDR	USD/Employee	-	-	-	-[k]
Average Cost of Training per Year - by Level[j]					
• Senior Management	USD/Employee	-	-	-	1,680.57
• Middle Management	USD/Employee	-	-	-	1,114.07
• Junior Management	USD/Employee	-	-	-	251.32
• Staff and Supervisor	USD/Employee	-	-	-	130.49

Source: Banpu's Sustainability Report 2016

C.2.3. Employee wages and benefits as a proportion of revenue, with breakdown by employment type and gender

Definition

This indicator should reflect the total costs of the employee workforce for the entity in the reporting period, segmented by employee type and gender, as a proportion of the total revenue.[89]

Measurement methodology

The indicator is calculated in the following way:

$$\frac{\text{Total costs of the employee workforce}}{\text{Total revenue}}$$

In order to calculate the numerator of this indicator, it is necessary to refer to total payroll. This is the sum of:

> employee salaries and amounts paid to government institutions on behalf of employees[90]
>
> +
>
> total benefits (excluding training, costs of protective equipment, or other cost items directly related to the employee's job function).

For both salaried and hourly employees, the calculation is based on an agreed-upon amount that should be in writing and signed by both the employee and the employer entity before the employee begins working. Depending on the country, for hourly employees, the pay rate might be negotiated by a union contract.

For salaried employees, the amounts included in the calculation are the agree annual pays, e.g., salary of $37,000 a year. Any other payments that the employee received in the form of benefits should also be added.

For example, if the salaried employee receives an annual salary of $37,000 and a yearly bonus of $ 5,000, and a health insurance paid by the employer of $1,500, the total amount to be included is $ 43,500.

For hourly employees, it is the amount of hours worked during the reporting period multiplied by the agreed hourly pay rate. If an entity has hourly employees, then, it needs

[89] This is in line with UNCTAD-CRI (indicator 6), IAS 19, GRI 201-1.

[90] Payments to the government, in this context, can include contributions pensions, employment taxes, levies and employment funds, among others.

to keep track of the hours they work. Wages are calculated by multiplying an hourly rate times the number of hours worked.

For example, an employee who worked 35 hours in a week at $10 per hour earned $350 for the week. If she/he worked for 30 weeks during the period, the total amount is $ 350 multiplied by 30, i.e., $ 10,500.

The calculated amount includes regular hourly or salaried pay and also includes any overtime paid to the employee during the pay period.

So, if an employee is paid at multiple hourly rates, it is necessary to keep a list of the number of hours at each hourly rate and to multiply the different amounts of hours at each rate by the applicable hourly rate and then add the amounts together.

For example, if an employee worked 24 hours at $10 per hour and another 16 hours at $11 per hour due to a night shift pay differential, he/she earned $ 416 for the week. Assuming that she/he did so for 22 weeks during the reporting period, the total amount is $ 416 multiplied by 22, i.e., $ 9,152.

If an entity prepares a Value-Added income statement, calculating the numerator of this indicator is easy as the total amount of employee wages and benefits is already disclosed there (among the items included in the Economic value distributed).

The total amount of employee wages and benefits needs to be broken down according to the following categories[91]:

- Employees and supervised workers[92],
- Type of employment contract (permanent[93] or temporary[94]),
- Employment type (full-time or part-time),
- Age group: under 30 years old[95], 30-50 years old, over 50 years old
- Region
- Gender[96]

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[91] Definitions on employment types and contracts based on the ILO's International Standard Classification of Occupations (ISCO) can be found at the following link: http://www.ilo.org/public/english/bureau/stat/isco/docs/resol08.pdf.

[92] Supervised worker: Person who directly supplies work and services to the reporting organization but whose formal contract of employment is with another organization.

[93] Indefinite or permanent contract is a permanent contract of employment with an employee for full-time or part-time work for an indeterminate period.

[94] Fixed term or temporary contract is a contract of employment as defined above that ends when a specific time period expires, or when a specific task that has a time estimate attached is completed. A temporary contract of employment is of limited duration and terminated by a specific event, including the end of a project or work phase, return of replaced personnel, etc.

[95] It would be important to give details in this category to highlight issues related to child and forced labor.

[96] Reporting on gender pay gap is becoming more common in some jurisdictions and could be incorporated into this indicator. Such indicator should highlight the differences in job categories among genders, focusing on actual job

So to break down the total amount of employee wages and benefits, it is necessary to refer to the employee database, where all the information, both on the type of contract and personal, are registered.

So, let us assume that you have the following employees (and no supervised worker), all working in the same region:

- Lucy, 29, permanent contract, full-time, annual salary plus benefits = $ 34,000
- Igor, 40, temporary contract, part-time, annual salary plus benefits = $ 17,000
- Molly, 55, permanent contract, full-time, hourly employee working 48 weeks, 35 hours in a week at $10 per hour = 48 X 35 X 10 = $ 16,800
- Luke, 35, temporary contract, full-time, hourly employee working 48 weeks, 35 hours in a week at $10 per hour, plus 20 night shifts over the period of 4 hours at $ 11 per hour = (48 X 35 X 10) + (20 X 4 X 11) = $ 16,800 + $ 880 = $ 17,680
- Tony, 60, permanent contract, part-time, annual salary plus benefits = $ 19,000

The total cost of the employee workforce for the entity is the sum of what it is paid to the above workers, i.e.:

34,000 + 17,000 + 16,800 + 17,680 + 19,000 = $ 104,480

We can then breakdown this amount by the various categories mentioned above, in the following way:

- Type of employment contract:
  - Permanent = 34,000 + 16,800 + 19,000 = $ 69,000
  - Temporary = 17,000 + 17,680 = $34,680
- Employment type
  - Full-time = 34,000 + 16,800 + 17,680 = $ 68,480
  - Part-time = 17,000 + 19,000 = $ 36,000
- Age group
  - under 30 years old = $ 34,000
  - 30-50 years old = 17,000 + 17,680 = $34,680
  - over 50 years old = 16,800 + 19,000 = $ 35,800
- Gender
  - Female = 34,000 + 16,800 = $ 50,800
  - Male = 17,000 + 17,680 + 19,000 = $ 53,680

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descriptions rather than titles. In order to calculate the mean gender pay gap in hourly pay, to obtain the mean hourly pay rate for men, it is necessary to add together the hourly pay rates of all male full-pay relevant employees and divide this figure by the number of male full-pay employees. Then, to obtain the mean hourly pay rate for women, it is necessary to add together the hourly pay rates of all female full-pay relevant employees and divide this figure by the number of female full-pay employees. To get the mean gender pay gap in hourly pay as a percentage of men's pay, it is necessary to subtract the mean hourly pay rate for women from the mean hourly pay rate for men, divide the result by the mean hourly pay rate for men and multiply the result by 100. This is also consistent with the indicator number 13) Gender gap in wages (ILO) in the EDGE project's minimum set of gender indicators.

To calculate the denominator, i.e., revenues, refer to what already explained for indicator A.1.1.

In the end, an entity should calculate as many different indicators as the different employee categories suggested above

$$\frac{\text{Total costs of the employee workforce per category}}{\text{Total revenue}}$$

Therefore, if we assume that the revenues for the entity whose employees are listed above are equal to $ 100,000, we are going to have the following indicators:

- Total costs of permanent employees divided by total revenues = $ 69,000 / $ 100,000 = 69%
- Total costs of temporary employees divided by total revenues = $34,680 / $ 100,000 = 34.68%
- Total costs of full-time employees divided by total revenues = $ 68,480 / $ 100,000 = 68.48%
- Total costs of part-time employees divided by total revenues = $36,000 / $ 100,000 = 36%
- Total costs of employees under 30 years old divided by total revenues = $34,000 / $ 100,000 = 34%
- Total costs of employees 30-50 years old divided by total revenues = $34,680 / $ 100,000 = 34.68%
- Total costs of employees over 50 years old divided by total revenues = $35,800 / $ 100,000 = 35.8%
- Total costs of female employees divided by total revenues = $50,800 / $ 100,000 = 50.8%
- Total costs of male employees divided by total revenues = $53,680 / $ 100,000 = 53.68%

Potential sources of information

Information to calculate these indicators is typically found in HR information systems (employee records available at the national or site level). Many entities use specialized software (Human Resource software) for collecting and elaborating information regarding employees, including the other data that are necessary to calculate this indicator. The software and the related information flows on wages and benefits are normally managed by the HR function in a specific module that is usually labelled Payroll accounting. Many firms also have a payroll accounting specialist in the accounting department who is the owner of this information.

If an entity does not prepare its own payroll in house, it is possible to use a professional payroll service to do the job.

The total revenue to calculate the denominator can be obtained from the P&L statement.

Example n.24

https://www.banpu.com/profiles/: With more than 35 years of experience in international and local businesses, Banpu has become an integrated energy solutions company operating in 10 countries in Asia-Pacific: Thailand, Indonesia, China, Australia, Lao PDR, Mongolia, Singapore, Japan, the United States of America and Vietnam, by creating growth throughout its 3 core groups of businesses, which are Energy Resources (coal and gas including related operations such as marketing, trading, logistics, fuel procurement, and transmission), Energy Generation (conventional and renewable power plants), and Energy Technology (total solar energy solutions, energy storage system and energy technology system) By incorporating both conventional and unconventional or renewable businesses within the Group's portfolio structure, Banpu then has a stronger integration across its core business units resulting in more effective resources management and a balanced business expansion which offers sustainable energy solutions for consumers, communities, society and the environment.

Economic Distributions

Stakeholder	Unit	2013	2014	2015	2016
Suppliers & Contractors[b]	USD thousand	1,763,849	1,563,105	1,137,075	1,033,909
Public Sector[c]	USD thousand	415,097	372,515	337,305	287,951
Shareholders[d]	USD thousand	123,439	96,120	91,810	71,823
Employee[e]	USD thousand	311,210	354,196	346,890	295,023
Financial Institutions[f]	USD thousand	126,694	131,541	130,197	130,080
Community, Society and Environment[g]	USD thousand	21,396	26,101	24,112	22,482

[b] Estimated from Cost of Sales less Employee Expense, Depreciation and Amortization
[c] Includes Royalty Fee, Corporate Income Tax, Local Maintenance Tax, Property Tax, Specific Business Tax and Other Taxes
[d] Dividends Paid
[e] Includes Salary, Wage, Welfare, Provident Fund Contribution and Employees Development Expense
[f] Includes Interest Expense, Financial Expense
[g] Includes Expense for Community Development, Environment and Land Compensation

Source: Banpu's Sustainability Report 2016

People

Data	Unit	2013	2014	2015	2016
Employee - Total	Person	6,268	6,167	5,505	5,675
Employee - by Country					
• Thailand	%	6.7	6.7	5.5	5.5
• Indonesia	%	48.7	51.2	49.7	49.8
• China	%	16.2	14.7	16.1	16.0
• Australia	%	28.4	25.3	25.6	26.0
• Mongolia	%	-	2.2	2.5	2.2
• Singapore	%	-	-	-	0.3
• Japan	%	-	-	-	0.1
• Lao PDR	%	-	-	-	0.1
Employee - by Gender					
• Male	%	87.7	86.6	85.9	86.2
• Female	%	12.3	13.4	14.1	13.8
Employee - by Nationality					
• Thai	%	6.7	6.6	7.2	7.1
• Indonesian	%	48.5	51.1	48.6	48.7
• Chinese	%	16.1	14.7	16.0	15.9
• Australian	%	28.5	25.4	25.7	26.0
• Mongolia	%	-	2.1	2.3	2.0
• Singaporean	%	-	-	-	0.1
• Japanese	%	-	-	-	0.1
• Others	%	-	-	-	0.1
Employee - by Age					
• Under 30	%	-	-	20.0	17.9
• 30-39	%	-	-	38.7	39.5
• 40-49	%	-	-	27.5	28.1
• Over 50	%	-	-	13.8	14.5
Employee - by Type					
• Permanent	%	93.5	95.9	94.9	91.7
• Temporary	%	6.5	4.1	5.1	8.3
Employee - by Level					
• Senior Management	%	0.7	0.8	0.9	0.8
• Middle Management	%	5.0	5.1	5.6	5.3
• Junior Management	%	24.9	27.8	29.1	28.3
• Staff and Supervisor	%	69.4	66.3	64.4	65.6
New Employee - Total[(i)]	Person	-	-	-	136
New Employee - by Gender[(i)]					
• Male	Person	-	-	-	103
• Female	Person	-	-	-	33
New Employee - by Country[(i)]					
• Thailand	Person	-	-	-	25
• Indonesia	Person	-	-	-	5
• China	Person	-	-	-	51
• Australia	Person	-	-	-	46
• Mongolia	Person	-	-	-	8
• Singapore	Person	-	-	-	1
• Japan	Person	-	-	-	0
• Lao PDR	Person	-	-	-	0

C.3. Employee health and safety

C.3.1. Expenditures on employee health and safety as a proportion of revenue

Definition

This indicator refers to the total expenses incurred by an entity to guarantee employees' health and safety as a proportion of total revenue. It is related to an important aspect of corporate responsibility as occupational accidents[97] not only lower productivity and divert management attention, but also undermine human capital development, and could be indicative of poor management quality and practice.[98]

Measurement methodology

This indicator is expressed as a percentage (%) and is calculated in the following way:

$$\frac{\text{Expenses on employee health and safety}}{\text{Total revenue}}$$

The numerator is calculated by adding up all the expenses for occupational safety and health-related insurance programmes, for health care activities financed directly by the entity, and all expenses sustained for working environment issues related to occupational safety and health incurred during a reporting period.

If an entity does not record these expenses systematically, it is suggested to start from the following check-list of elements that are related to employee health and safety to understand which expenses should be considered in the computation[99]:

a) Design, siting, structural features, installation, maintenance, repair and alteration of workplaces and means of access thereto and egress therefrom;
b) Lighting, ventilation, order and cleanliness of workplaces;
c) Temperature, humidity and movement of air in the workplace;
d) Design, construction, use, maintenance, testing and inspection of machinery and equipment liable to present hazards and, as appropriate, their approval and transfer;
e) Prevention of harmful physical or mental stress due to conditions of work;
f) Handling, stacking and storage of loads and materials, manually or mechanically;
g) Use of electricity;
h) Manufacture, packing, labelling, transport, storage and use of dangerous substances and agents, disposal of their wastes and residues, and, as

[97] Occupational accidents can refer to physical injuries in the case of certain sectors, but it can also include mental health issues in others.
[98] This indicator is in line with UNCTAD/CRI (indicator 12), ILO R164.
[99] This categorization is in line with UNCTAD/CRI and is based on the ILO's Occupational Safety and Health Recommendation, ILO R164, II, 3.

appropriate, their replacement by other substances or agents which are not dangerous, or which are less dangerous;

i) Radiation protection;
j) Prevention and control of, and protection against, occupational hazards due to noise and vibration;
k) Control of the atmosphere and other ambient factors of workplaces;
l) Prevention and control of hazards due to high and low barometric pressures;
m) Prevention of fires and explosions and measures to be taken in case of fire or explosion;
n) Design, manufacture, supply, use, maintenance and testing of personal protective equipment and protective clothing;
o) Sanitary installations, washing facilities, facilities for changing and storing clothes, supply of drinking water, and any other welfare facilities connected with occupational safety and health;
p) First-aid treatment;
q) Establishment of emergency plans;
r) Supervision of the health of workers.

Given the increasing importance of the services sectors and its intrinsic characteristics, this indicator should also reflect reporting on mental health and stress.

Some of these elements are related to operating costs, e.g., the entity's cost of health care activities financed directly by the entity as such, either through self-insurance or in operating the entity's own health care facilities or any other expense related to the supervision of the health of workers; some other elements are capital expenditures, e.g., investments in radiation protection equipment or in fire prevention kits.

For example, let us assume that an entity has incurred the following costs during a certain reporting period:

- Costs of OHS certification OHSAS 18001 = £ 15,000
- Expenses to make workplace safe (new fire alarms and fire extinguishers) = £ 30,000
- Plant safety insurance = £ 12,000
- Ventilation maintenance = £ 3,000
- Protective clothing for 100 workers = £ 2,000

The total expenses on employee health and safety is the sum of all the above costs, i.e.:

£ 15,000 + £ 30,000 + £ 12,000 + £ 3,000 + £ 2,000 = £ 62,000

Assuming that the entity has revenues equal to £ 500,000, the indicator is thus calculated as:

£ 62,000 DIVIDED BY £ 1,000,000 = 6.2%

Similar to what is recommended for other economic indicators included in this guidance, multinational entities are encouraged to disclose health and safety expenditures by country.

Potential sources of information

Some entities have occupational safety and health management and reporting system (OSHM&RS) that are used to collect all the relevant information for calculating this indicator. The related information flows are owned by the occupational safety and health manager/program administrator/committee when present. As part of this information system, depending on the specific legislation of the country where the entity operates, entities also keep specific registers, such as the Register of medical visits.

For those expenses that are material and can thus be capitalized by the entity, it is possible to use capital budgets in order to find the relevant amounts. On the contrary, when the amount spent on health and safety is immediately expensed in the reporting period, the related costs are to be found in the P&L statement as part of the operating costs of an entity (depending on the nature of the expenses they can be found as part of the production overheads or as part of the selling expenses, etc.)

The revenue (denominator) can be obtained from the P&L statement.

In larger companies the Occupational Health and Safety department is a staff function manned with a number of specialists and secretaries and functions under numerous policies, rules and regulations. Thus, when an accident occurs in larger companies more formal activities are initiated than in smaller companies. There are more people involved, there are more internal administrative processes that have to be complied with and more organizational levels have to be informed.

C.3.2. Frequency/incident rates of occupational injuries

Definition

This indicator is related to the number of work days lost due to occupational accidents, injuries and diseases during the reporting period where:

- occupational accidents and injuries are non-fatal or fatal injuries arising out of or in the course of work;
- occupational diseases are those arising from the work situation or activity (e.g. stress or regular exposure to harmful chemicals), or from a work-related injury.

This indicator suggests the effectiveness of an entity's employee health and safety policy and its ability to build a healthy, safe and productive work environment.

Measurement methodology

Two indicators are proposed.

The first one is the frequency rate, and it is calculated as follows[100]:

$$\frac{\text{Number of new injury cases in the reporting period}}{\text{Total number of hours worked by workers in the reporting period}}$$

In order to collect information to calculate the numerator, the reporting entity would need to have/develop an incident reporting system to facilitate reporting from the operational sites to the corporate offices. The incident reporting system would need to cover all kinds of injuries ranging from a near-miss incident to fatality, and the results of accident investigation in order to prevent repeat of work-related fatalities or injuries. For small entities, with few employees, the number of incidents that need to be recorded each year will be very small. It is thus very important that these entities also keep track of minor injuries or 'near-misses' to have more meaningful information to work with. Number and types of injuries and accidents can be simply tracked on a spreadsheet.

To calculate the denominator, it is possible to use the following equation:

[100] Some organizations use multipliers for calculating the frequency rate depending on the specific approach/conventions they apply e.g., they multiply the numerator by 1,000,000 or by 200,000 and they choose to calculate the number of new injury cases per 1 million or per 200,000 hours worked. The formula then becomes: Number of new injury cases in the reporting period x 1,000,000) / (Total number of hours worked in the reporting period) or Number of new injury cases in the reporting period x 200,000) / (Total number of hours worked in the reporting period). It is thus important to specify how this indicator is calculated to correctly interpret the resulting numbers. On this see: https://www.wikihow.com/Calculate-Accident-Incident-Rate; http://www.hse.gov.uk/statistics/adhoc-analysis/injury-frequency-rates.pdf

Average hours worked per week X number of weeks in the reporting period

X number of workers

So, let us assume that an entity has recorded the following information:

- The average hours worked per week per employee is 40, including also overtime (information from payroll data),
- The number of weeks worked in the given reporting period is 50,
- The number of workers at the end of the reporting period is 50,
- The number of recorded incidents is 5

The calculation of the indicator is then[101]:

5 DIVIDED BY (40 X 50 X 50) = 5 DIVIDED BY 100,000 = 0.00005 injuries per hour worked

1) The second indicator, the incident rate[102], is calculated in the following way:

$$\frac{\text{Total number of lost days expressed in terms of number of hours}}{\text{Total number of hours worked by workers in the reporting period}}$$

In calculating this indicator, lost days should be regarded as time off work by workers affected by occupational accidents, injuries and diseases. In other words, these are days that could not be worked, and are thus lost, as a consequence of workers being unable to perform their usual job because of an occupational accident, injury or disease.

When calculating lost days, the entity needs to specify whether “days” means “calendar days” or “scheduled work days” and at what point the “lost days” count begins (for example, the day immediately after the accident or three days after the accident).

So, let us assume that the denominator is calculated as in the previous example, i.e.:

40 X 50 X 50 = 100,000 Total number of hours worked by workers in the reporting period

[101] In case an entity uses a multiplier of 200,000, the calculation would be: (5 x 200,000) / 100,000 = 10 injuries every 200,000 hours worked.

[102] This indicator can be calculated also as: Number of cases / Number of workers.

For the numerator, let us refer to the same amount of incidents as in the previous example, i.e., number of recorded accidents is 5. It is important also to specify that the company counts lost working days (not calendar days) beginning from the day immediately after the accident. In addition, let us include the following assumptions:

- George was involved in the first accident and he had to stay home to recover from his injury for 4 working days,
- Annita was involved in the second accident, and she lost 1 working day to recover,
- Paul was severely injured in the third incident and he had to take 3 weeks off (i.e., 5 working days for each week),
- Richard was involved in the fourth accident but did not need any day off to recover,
- Rosemary was injured in the fifth accident and took 10 working days off.

Taking all this information into consideration, and assuming the 'standard' amount of hours (i.e., 8) for each working day, the indicator "incident rate" would be calculated in the following way:

Total number of lost days expressed in terms of number of hours =

(4 working days X 8 working hours) + (1 working days X 8 working hours) + (5 working days X 3 working weeks X 8 working hours) + 0 + (10 working days X 8 working hours) = 32 working hours + 8 working hours + 120 working hours + 0 working hours + 80 working hours = 240 working hours

Total number of hours worked by workers in the reporting period (as calculated above) = 100,000

240 DIVIDED BY 100,000 = 0.0024 i.e. 0.24%

Given the increasing importance of the services sectors and its intrinsic characteristics, this indicator should also reflect reporting on mental health and stress. Similar to what is recommended for other indicators in this guidance, multinational entities are encouraged to disclose this indicator by gender.

<u>Potential sources of information</u>

Entities need to set up arrangements, in accordance with national laws or regulations, to record occupational accidents, occupational diseases, commuting accidents, dangerous occurrences and incidents, including the identification of a competent person to prepare and keep records of all these occurrences. Organizations should prepare appropriate records for inspection purposes and as information for workers' representatives and health services. These accidents are typically recorded within a Register of accidents, in accordance with national laws or regulations. The records usually contains this information: (a) entity, establishment and employer: (i) name and address of the employer, and his or her telephone and fax numbers (if available); (ii) name and address of the entity; (iii) name and address of the establishment (if different); (iv) economic activity of the

establishment; and (v) number of workers (size of the establishment); (b) injured person: (i) name, address, sex and age; (ii) employment status; (iii) occupation; (c) injury: (i) fatal accident; (ii) non-fatal accident; (iii) nature of the injury (e.g. fracture, etc.); (iv) location of the injury (e.g. leg, etc.); (d) accident and its sequence: (i) geographical location of the place of the accident (usual workplace, another workplace within the establishment or outside the establishment); (ii) date and time; (iii) action leading to injury – type of accident (e.g. fall, etc.); (iv) agency related to the accident (e.g. ladder, etc.).[103]

Generally, the information and the operating information system that is used to track and report on health and safety accidents is owned by the HR function, which also owns the payroll data necessary to calculate the amount of hours worked.

Many entities use specialized software (Human Resource software) for collecting and elaborating health and safety information and all the other information regarding workers, including the other data that are necessary to calculate this indicator (e.g. hours worked during the reporting period, attendance records). The software and the related information flows are normally managed by the HR function.

When health and safety issues are material, entities also have an occupational safety and health manager/program administrator and a specific occupational safety and health reporting system. In this latter case, information to calculate this indicator can be also retrieved from this operating system.

Example n.25

https://www.banpu.com/profiles/: With more than 35 years of experience in international and local businesses, Banpu has become an integrated energy solutions company operating in 10 countries in Asia-Pacific: Thailand, Indonesia, China, Australia, Lao PDR, Mongolia, Singapore, Japan, the United States of America and Vietnam, by creating growth throughout its 3 core groups of businesses, which are Energy Resources (coal and gas including related operations such as marketing, trading, logistics, fuel procurement, and transmission), Energy Generation (conventional and renewable power plants), and Energy Technology (total solar energy solutions, energy storage system and energy technology system) By incorporating both conventional and unconventional or renewable businesses within the Group's portfolio structure, Banpu then has a stronger integration across its core business units resulting in more effective resources management and a balanced business expansion which offers sustainable energy solutions for consumers, communities, society and the environment.

[103] For more detailed information, please refer to "Recording and notification of occupational accidents and diseases", An ILO code of practice Geneva, International Labour Office, 1996. Available at: http://www.ilo.org/wcmsp5/groups/public/---ed_protect/---protrav/---safework/documents/normativeinstrument/wcms_107800.pdf

People

Data	Unit	2013	2014	2015	2016
Employee - Total	Person	6,268	6,167	5,505	5,675
Employee - by Country					
• Thailand	%	6.7	6.7	5.5	5.5
• Indonesia	%	48.7	51.2	49.7	49.8
• China	%	16.2	14.7	16.1	16.0
• Australia	%	28.4	25.3	25.6	26.0
• Mongolia	%	-	2.2	2.5	2.2
• Singapore	%	-	-	-	0.3
• Japan	%	-	-	-	0.1
• Lao PDR	%	-	-	-	0.1
Employee - by Gender					
• Male	%	87.7	86.6	85.9	86.2
• Female	%	12.3	13.4	14.1	13.8
Employee - by Nationality					
• Thai	%	6.7	6.6	7.2	7.1
• Indonesian	%	48.5	51.1	48.6	48.7
• Chinese	%	16.1	14.7	16.0	15.9
• Australian	%	28.5	25.4	25.7	26.0
• Mongolia	%	-	2.1	2.3	2.0
• Singaporean	%	-	-	-	0.1
• Japanese	%	-	-	-	0.1
• Others	%	-	-	-	0.1
Employee - by Age					
• Under 30	%	-	-	20.0	17.9
• 30-39	%	-	-	38.7	39.5
• 40-49	%	-	-	27.5	28.1
• Over 50	%	-	-	13.8	14.5
Employee - by Type					
• Permanent	%	93.5	95.9	94.9	91.7
• Temporary	%	6.5	4.1	5.1	8.3
Employee - by Level					
• Senior Management	%	0.7	0.8	0.9	0.8
• Middle Management	%	5.0	5.1	5.6	5.3
• Junior Management	%	24.9	27.8	29.1	28.3
• Staff and Supervisor	%	69.4	66.3	64.4	65.6
New Employee - Total[i]	Person	-	-	-	136
New Employee - by Gender[i]					
• Male	Person	-	-	-	103
• Female	Person	-	-	-	33
New Employee - by Country[i]					
• Thailand	Person	-	-	-	25
• Indonesia	Person	-	-	-	5
• China	Person	-	-	-	51
• Australia	Person	-	-	-	46
• Mongolia	Person	-	-	-	8
• Singapore	Person	-	-	-	1
• Japan	Person	-	-	-	0
• Lao PDR	Person	-	-	-	0

Source: Banpu's Sustainability Report 2016

Example n.26

http://www.saipem.com/sites/SAIPEM_en_IT/home/saipem-homepage.pagewww.amag-al4u.com/: Saipem S.p.A. (Società Anonima Italiana Perforazioni E Montaggi) is an Italian oil and gas industry contractor. It was a subsidiary of Italian energy company Eni, which owned approximately 30% of Saipem's shares until 2016. Its revenue amounts to €8.526 billion (2018).

		2015		2016		2017	
		Group total	Group consolidated	Group total	Group consolidated	Group total	Group consolidated
Man-hours worked	(millions of hours)	234.4	213.2	258.6	222.5	281.9	220.8
Fatal accident	(No.)	2	2	1	1	3	3
Lost Time Injuries (LTI)	(No.)	70	61	51	40	37	34
Man-hours worked	(No.)	4,439	4,065	3,106	1,705	1,857	1,380
Severity Rate	(ratio)	0.02	0.02	0.01	0.01	0.01	0.01
Total Recordable Incident (TRI)	(No.)	253	215	201	139	144	113
Absenteeism rate	(%)	4.6	4.8	4.9	4.2	4.1	4.7
Fatal Accident Frequency Rate (FTLFR)	(ratio)	0.85	0.94	0.38	0.45	1.06	1.36
LTI Frequency Rate (LTIFR)	(ratio)	0.31	0.30	0.20	0.18	0.14	0.17
TRI Frequency Rate (TRIFR)	(ratio)	1.08	1.01	0.78	0.62	0.51	0.51

Source: Saipem's Annual Report 2017

An explanation of the methodology for calculating the main indicators is shown below:

- the man-hours worked are the total number of hours worked by employees of Saipem and contractors working at the operating sites;

- lost days of work translate into the total number of calendar days in which the injured person was not able to do their job as a result of an LTI. The calculation for the lost days starts from the second day after an accident until the day when the person is capable of returning to work. The calculation does not include fatal accidents;

- FTLFR, LTIFR and TRIFR are calculated as the number of fatal accidents, LTI and TRI, divided by the hours worked, all multiplied by one million. These ratios include injuries both to employees of the Company and of contractors;

- the Severity Rate is calculated as days of work lost divided by the hours worked, multiplied by one thousand;

- the employee absenteeism rate is calculated as the ratio between the total hours of absence and the theoretical total annual hours to be worked. The theoretical annual hours of work are calculated proportionately to the total work force at December 31. The total hours of absence do not include parental leave and estimated holiday hours.

C.4. Coverage of collective agreements

C.4.1. Percentage of employees covered by collective agreements

Definition

This indicator is the ratio of employees covered by collective agreements to the total number of employees of the reporting entity.[104]

Measurement methodology

This indicator is calculated in this way:

$$\frac{\text{Number of employees covered by collective agreements}}{\text{Total number of employees}}$$

Collective bargaining refers to all negotiations which take place between one or more employers or employers' organizations, on the one hand, and one or more workers' organizations (trade unions), on the other, for determining working conditions and terms of employment or for regulating relations between employers and workers. Negotiations can take place at various levels. Collective agreements could comprise agreements at the sectoral, national, regional, organizational or workplace level. This standard is based on the Collective Bargaining Convention, 1981 (No. 154) by the International Labour Organization (ILO).[105]

This indicator should be calculated by taking into consideration the employee numbers at the end of the reporting period. Employee numbers may be expressed as head count or Full Time Equivalent (FTE) as already suggested for indicator C.1.1. In any case, the approach chosen should be applied consistently across indicators and between periods.

As a first step, it is necessary to express the total workforce of the reporting entity at the end of the reporting period either in terms of headcount or FTE (denominator of the indicator).

Then it is required to identify those employees who are covered by collective agreements and express them either in terms of headcount or FTE, consistently with the denominator.

So, let us say, for example, that the XYZ Company staff works 228,800 hours. Assuming that there are 2,080 working hours in a year (the theoretical standard that is used to calculate FTEs on an annual basis, calculated as: 8 hours per day x 5 work days per week x 52 weeks per year), the FTEs are calculated as follows:

228,800 hours DIVIDED BY 2,080 hours = 110 FTEs

[104] This indicator is in line with GRI standard 102-41 and with UNCTAD/CRI (indicator 8).
[105] http://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO::P12100_INSTRUMENT_ID:312299.

So if this entity employs

- 100 employees working full time and all covered by collective agreements
- 20 employees working part-time (exactly 4 hours per day x 5 work days per week x 52 weeks per year) and only 10 of these employees are covered by collective agreements

The numerator of the indicator is going to be calculated in the following way:

Number of employees covered by collective agreements =

(100 x 8 hours per day x 5 work days per week x 52 weeks per year) + (10 x 4 hours per day x 5 work days per week x 52 weeks per year) =

208,000 hours + 10,400 =

218,400 hours DIVIDED BY 2,080 hours = 105 FTE

Putting everything together:

$$\frac{\text{Number of employees covered by collective agreements} = 105\ \text{FTE}}{\text{Total number of employees} = 110\ \text{FTE}}$$

= 105 FTE divided by 110 FTE = 95.45%

Beyond the percentage figure, narrative information would be essential to provide details on the entity context, since in some instances agreements are not allowed by regulators, requested by employees, or reached among relevant stakeholders.

<u>Potential sources of information</u>

Entities need to set up arrangements, in accordance with national laws or regulations, to define collective employment agreements/contracts. These are usually negotiated "collectively" between management (on behalf of the entity) and the union representatives. Information relevant for calculating this indicator can be found in these contracts (number of employees covered by collective agreements).

Such information can be found also in HR information systems.

When involved, also the Legal affairs department can be one of the owner of such information.

Example n.27

https://www.banpu.com/profiles/: With more than 35 years of experience in international and local businesses, Banpu has become an integrated energy solutions company operating in 10 countries in Asia-Pacific: Thailand, Indonesia, China, Australia, Lao PDR, Mongolia, Singapore, Japan, the United States of America and Vietnam, by creating growth throughout its 3 core groups of businesses, which are Energy Resources (coal and gas including related operations such as marketing, trading, logistics, fuel procurement, and transmission), Energy Generation (conventional and renewable power plants), and Energy Technology (total solar energy solutions, energy storage system and energy technology system) By incorporating both conventional and unconventional or renewable businesses within the Group's portfolio structure, Banpu then has a stronger integration across its core business units resulting in more effective resources management and a balanced business expansion which offers sustainable energy solutions for consumers, communities, society and the environment.

Percentage of employees covered by collective bargaining agreements[h]					
• Thailand	%	-	-	0	0
• Indonesia	%	-	88	92	48
• China	%	-	-	0	0
• Australia	%	-	-	76	76
• Mongolia	%	-	-	0	0
• Singapore	%	-	-	0	0
• Japan	%	-	-	0	0
• Lao PDR	%	-	-	0	0

[h] Start consolidate data since 2014
[i] Start consolidate data since 2016
[k] The data is already included in Thailand performance
[l] Reporting system under standardization

Source: Banpu's Sustainability Report 2016

Example n.28

http://www.unitedplantations.com/: The Company's principal business activity is in the cultivation and processing of palm oil, coconut and other plantation crops in a sustainable manner. Its subsidiary companies are engaged in several downstream activities such as; processing palm oil; and manufacturing; packing/distributing of end products in the form of cooking oils, edible oils, specialty fats and soap products.

UP Group (Malaysia)	2017	2016	2015	2014	2013
% of workers as members of All Malayan Estates Staff Union (AMESU)	76	-	-	-	-
% of workers as members of National Union of Plantations Workers (NUPW)	14	23	24	22	24
% of workers as members of Food Industry Employees' Union	57	-	-	-	-
UP Group (Indonesia)	2017	2016	2015	2014	2013
% of workers as members of Union*	5	100	0	0	58

**In Indonesia, the union committee has been re-established and membership drive is in progress.*

Freedom to form a Union

(GRI 102-41, GRI 403-1)

Employees and workers have the rights to form and become members of labour unions. Through unions, workers have the right to carry out collective bargaining as permitted under Malaysia and Indonesia laws.

Minimum Notice Periods Regarding Operational Changes

(GRI 402-1)

United Plantations Berhad is a member of MAPA (Malayan Agriculture Producers Association) which has collective agreements with NUPW (National Union of Plantation Workers) and the All Malayan Estates Staff Union (AMESU).

The Company also engages with the Food Industry Employees Union for refinery workers. The collective agreements are renewed every three (3) years where either party may serve on the other three (3) months' written notice to negotiate on new terms and conditions of employment and other related matters but no such notice shall be served earlier.

The timely and meaningful collective bargaining allows the affected parties to understand the impacts of the changes. It also gives an opportunity for both parties to work collectively to avoid or mitigate negative impacts as much as possible. Consultative practices that result in good industrial relations help to provide positive working environments, reduce turnovers and minimize operational disruptions.

Source: United Plantations' Annual Report 2017

Selected references

http://www.socioeco.org/index_en.html

https://www.bcg.com/it-it/publications/2018/measuring-what-matters-gender-diversity.aspx

https://www.gedii.eu/just-counting-heads-some-considerations-on-how-to-measure-gender-diversity-in-research-teams-2/

https://www.sciencedirect.com/science/article/pii/S0959652615015528

http://www.arcom.ac.uk/-docs/proceedings/ar2012-0423-0432_Arewa_Farrell.pdf

https://ohsonline.com/articles/2018/10/01/the-economics-of-workplace-safety.aspx

https://www.safeworkaustralia.gov.au/system/files/documents/1802/measuring-and-reporting-on-work-health-and-safety.pdf

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4457121/

http://www.hse.gov.uk/statistics/adhoc-analysis/injury-frequency-rates.pdf

https://www.proliitto.fi/en/work/what-collective-agreement

https://www.asi.is/vinnurettarvefur/icelandic-labour-law/labour-market-and-trade-unions/collective-agreements/types-of-collective-agreements/

Self-assessment questions

1. In order to calculate the indicator “Proportion of women in managerial positions” entities need to count the women in managerial positions (head count or full time equivalents - FTEs) and divide the number of female managers by the total number of employees in the company (head count or full time equivalents - FTEs, consistently with the numerator).

☐ True

☐ False

2. Assuming that a reporting entity has 60 employees at the end of the reporting period and that 30 employees participate in a training symposium lasting four hours each day for three days during the reporting period, the indicator ‘average hours of training per year per employee’ is equal to:

☐ 4 hours per employee

☐ 12 hours per employee

☐ 6 hours per employee

☐ None of the above

3. Assume that a small entity spent $6,000 on training materials and $2,000 on new laptops for a training course for 4 employees and has in total 8 employees. The indicator ‘expenditure on employee training per year per employee’ is equal to:

☐ $2,000 per employee

☐ $1,000 per employee

☐ $ 8,000 per employee

☐ None of the above

4. In order to calculate the numerator of the indicator, it is necessary to sum employee salaries and amounts paid to government institutions on behalf of employees with total benefits.

☐ True

☐ False

5. Information to calculate the indicator on employee health and safety can be found in the occupational safety and health management and reporting system (OSHM&RS)

- ☐ True
- ☐ False

6. The incident rate of occupational injuries is calculated as number of new injury cases in the reporting period divided by the total number of hours worked by workers in the reporting period

- ☐ True
- ☐ False

7. After reviewing and compiling safety data, an entity has determined that there were six injuries in the past year and a total of 250,000 hours worked. The frequency rate of occupational injuries is:

- ☐ 6 / 250,000
- ☐ 6 x 250,000

8. If an entity employs 50 employees working full time and all covered by collective agreements and 20 employees working part-time (exactly 4 hours per day x 5 work days per week x 52 weeks per year) and only 5 of these employees are covered by collective agreements, the percentage of employees covered by collective agreements is:

- ☐ 100%
- ☐ 40%
- ☐ 55.5%
- ☐ 87.5%

Self-assessment questions with solutions

1. In order to calculate the indicator “Proportion of women in managerial positions” entities need to count the women in managerial positions (head count or full time equivalents - FTEs) and divide the number of female managers by the total number of employees in the company (head count or full time equivalents - FTEs, consistently with the numerator).

☐ True

☐ False

2. Assuming that a reporting entity has 60 employees at the end of the reporting period and that 30 employees participate in a training symposium lasting four hours each day for three days during the reporting period, the indicator ‘average hours of training per year per employee’ is equal to:

☐ 4 hours per employee

☐ 12 hours per employee

☐ 6 hours per employee

☐ None of the above

30 employees * 3 days/employee * 4 hours/day = 360 hours DIVIDED BY 60 employees

3. Assume that a small entity spent $6,000 on training materials and $2,000 on new laptops for a training course for 4 employees and has in total 8 employees. The indicator ‘expenditure on employee training per year per employee’ is equal to:

☐ $2,000 per employee

☐ $1,000 per employee

☐ $ 8,000 per employee

☐ None of the above

$6,000 + $2,000 DIVIDED BY 8 employees

4. In order to calculate the numerator of the indicator, it is necessary to sum employee salaries and amounts paid to government institutions on behalf of employees with total benefits.

☐ True

- False

5. Information to calculate the indicator on employee health and safety can be found in the occupational safety and health management and reporting system (OSHM&RS)

- True

- False

6. The incident rate of occupational injuries is calculated as number of new injury cases in the reporting period divided by the total number of hours worked by workers in the reporting period

- True

- False

7. After reviewing and compiling safety data, an entity has determined that there were six injuries in the past year and a total of 250,000 hours worked. The frequency rate of occupational injuries is:

- 6 / 250,000

- 6 x 250,000

8. If an entity employs 50 employees working full time and all covered by collective agreements and 20 employees working part-time (exactly 4 hours per day x 5 work days per week x 52 weeks per year) and only 5 of these employees are covered by collective agreements, the percentage of employees covered by collective agreements is:

- 100%

- 40%

- 55.5%

- 87.5%

(50 x 8 hours per day x 5 work days per week x 52 weeks per year) + (5 x 4 hours per day x 5 work days per week x 52 weeks per year) = 104,000 hours + 5,200 = 109,200 hours = 52,5 FTE

52,5 FTE divided by 60 FTE = 87.5%

D. Institutional indicators manual[106]

Introduction

This section provides definitions, a measurement methodology, potential sources of information and examples to assist entities in reporting core SDG institutional indicators.

- **Economic area indicators**
  - Revenue
  - Value added
  - Net value added
  - Taxes and other payments to the Government
  - Green investment
  - Community investment
  - Total expenditures on research and development
  - Percentage of local procurement
- **Social area indicators**
  - Proportion of women in managerial positions
  - Average hours of training per year per employee
  - Expenditure on employee training per year per employee
  - Employee wages and benefits as a proportion of revenue, by employment type and gender
  - Expenditures on employee health and safety as a proportion of revenue
  - Frequency/incident rates of occupational injuries
  - Percentage of employees covered by collective agreements
- **Environmental area indicators**
  - Water recycling and reuse
  - Water use efficiency
  - Water stress
  - Reduction of waste generation
  - Waste reused, re-manufactured and recycled
  - Hazardous waste
  - Greenhouse gas emissions (scope 1)
  - Greenhouse gas emissions (scope 2)
  - Ozone-depleting substances and chemicals
  - Renewable energy
  - Energy efficiency
- **Institutional area indicators**
  - Number of board meetings and attendance rate
  - Number and percentage of female board members
  - Board members by age range
  - Number of meetings of audit committee and attendance rate
  - Compensation: total compensation per board member (both executive and non-executive directors)
  - Amount of fines paid or payable due to settlements
  - Average hours of training on anti-corruption issues per year per employee

[106] In the institutional area, the following areas are to be covered: *Corporate governance disclosure* (including information on number of board meetings and attendance rate, number and percentage of female board members, board members by age range, number of meetings of audit committee meetings and attendance rate, and total compensation of board members and executives); and *Anti-corruption practices* (including amount of fines paid or payable due to settlements, and average number of training hours on anti-corruption issues per year per employee). These indicators are very important for accountability. However, they might not be applicable to all enterprises. Reporting on corporate governance is already a legal requirement in many jurisdictions for large listed entities. International benchmarks include the G20/OECD Principles of Corporate Governance published in 1999 and revised for the second time in 2015 (available at https://www.oecd-ilibrary.org/governance/g20-oecd-principles-of-corporate-governance-2015_9789264236882-en), as well as the Guidance on Good Practices in Corporate Governance Disclosure published by UNCTAD in 2006 (available at https://unctad.org/en/docs/iteteb20063_en.pdf).
Regarding SMEs, it is important to clarify that such entities would have the possibility of indicating the absence of mechanisms such as boards, without affecting their ability to report on the core indicators. When reliable information exists, the following indicators could also be disclosed with reference to the corporate governance area: number of external or independent board members over total number of board members; CEO duality (an indicator on the separation of roles between CEO and Chairperson); the number of times when sustainability issues in general and the adherence with SDGs were discussed as part of the board agenda; gender equality.

The focus of this section is on a set of key institutional indicators that can be grouped in two main areas:

- **Corporate governance disclosure**

  including information on number of board meetings and attendance rate, number and percentage of female board members, board members by age range, number of meetings of audit committee meetings and attendance rate, and total compensation of board members and executives;

- **Anti-corruption practices**

  including amount of fines paid or payable due to settlements, and average number of training hours on anti-corruption issues per year per employee.

Corporate governance indicators are included because of their high importance for accountability. Reporting on corporate governance is already a legal requirement in many jurisdictions for large listed entities. However, it is acknowledged that they might not be applicable to all enterprises. In particular, regarding small and medium enterprises, it is important to clarify that such entities would have the possibility of indicating the absence of mechanisms such as boards, without affecting their ability to report on the core indicators.

For each one of the institutional indicators a consistent set of information is presented and structured into:

- *Definition*
- *Measurement methodology (with illustrative, numerical examples)*
- *Potential sources of information*
- *Examples of how these indicators have been already incorporated in the reporting practices of companies around the world*

This section includes also a list of selected references and some self-assessment questions with solutions.

Learning objectives

By the end of the module you will:

a) Be able to define and calculate the following core indicators in the institutional area:
  - Number of Board meetings and attendance rate;
  - Number and percentage of female board members;
  - Board members by age range
  - Number of meetings of audit committee and attendance rate
  - Compensation: total compensation per board member (both executive and non- executive directors)
  - Amount of fines paid or payable due to settlements

- Average hours of training on anti- corruption issues per year per employee

b) Be able to critically assess existing potential sources of information to calculate institutional indicators in your company

c) Understand how to design a system to collect the information that is required to calculate institutional indicators

d) Refer to examples of companies already using and disclosing institutional indicators

D.1. Corporate governance disclosure

D.1.1. Number of Board meetings and attendance rate

Definition

This indicator is about the number of board meetings and their attendance rate.

Measurement methodology

In order to calculate this indicator, entities need to:

- Count the Board meetings during the reporting period (number),
- Add up the number of Board members who participate at each Board meeting during the reporting period and divide this by the total number of directors sitting on the Board multiplied by the number of Board meetings during the reporting period (attendance rate, %)

For example:

Let us assume that an entity has a Board whose meetings are held once a month.

The total number of Board meetings during a certain reporting period is then 12.

Let us also assume that there are 5 members. The attendance rate would be 100% if all members participated at all Board meetings during the reporting period. However, the attendance of the meeting was as follow:

	Board meeting 1	**Board meeting 2**	**Board meeting 3**	**Board meeting 4**	**Board meeting 5**	**Board meeting 6**
Board Member 1	YES	YES	YES	NO	YES	YES
Board Member 2	YES	YES	NO	YES	NO	YES
Board Member 3	YES	YES	NO	YES	YES	NO
Board Member 4	NO	YES	YES	YES	YES	YES
Board Member 5	YES	YES	YES	YES	NO	YES

ATTENDANCE PER MEETING	4 MEMBERS	5 MEMBERS	3 MEMBERS	4 MEMBERS	3 MEMBERS	4 MEMBERS

	Board meeting 7	**Board meeting 8**	**Board meeting 9**	**Board meeting 10**	**Board meeting 11**	**Board meeting 12**
Board Member 1	YES	YES	NO	YES	YES	YES
Board Member 2	YES	YES	YES	YES	YES	NO
Board Member 3	YES	YES	YES	YES	YES	YES
Board Member 4	YES	YES	YES	YES	YES	YES
Board Member 5	YES	YES	YES	YES	YES	NO
ATTENDANCE PER MEETING	5 MEMBERS	5 MEMBERS	4 MEMBERS	5 MEMBERS	5 MEMBERS	3 MEMBERS

The attendance rate will be calculated in the following way:

$$\frac{\text{Sum of Board members who participated at each Board meeting during the reporting period}}{\text{Total number of Board members multiplied by the number of Board meetings during the reporting period}}$$

So, the indicator is calculated in the following way:

Numerator: 4 + 5 + 3 + 4 + 3 + 4 + 5 + 5 + 4 + 5 + 5 + 3 = 50

Denominator: 5 x 12 = 60

Attendance rate = 50 / 60 = 83 %

Potential sources of information

As the amount of these meetings per reporting period is quite small (e.g., one per month), it is easy to keep track of the number of Board meetings. Furthermore, Board meetings are usually scheduled in advance (there is a Board meeting calendar that is communicated at the beginning of the reporting period) therefore locating this information is not difficult. Also, the number of Directors sitting on a Board is usually small and Directors need to communicate before the meeting whether they will participate or not. Therefore, tracing these figures is also unproblematic. The relevant information on this aspect is usually recorded by the Corporate Legal affairs, and/or by the Investor relator, and/or by the assistant to the CEO.

Example n.29

https://www.angloamerican.com/: Anglo American plc is a multinational mining company based in Johannesburg, South Africa and London, United Kingdom. It is the world's largest producer of platinum, with around 40% of world output, as well as being a major producer of diamonds, copper, nickel, iron ore and metallurgical and thermal coal. The company has operations in Africa, Asia, Australasia, Europe, North America and South America

BOARD AND COMMITTEE MEETINGS 2016 – FREQUENCY AND ATTENDANCE OF MEMBERS

The table below shows the attendance of directors at meetings of the Board and committees during the year. Attendance is expressed as the number of meetings attended out of the number eligible to be attended.

	Independent	Board	Audit	Sustainability	Remuneration	Nomination
Sir John Parker	n/a	6/6	–	4/4	–	6/6
Mark Cutifani	No	6/6	–	4/4	–	–
René Médori	No	6/6	–	–	–	–
Judy Dlamini[1]	Yes	4/4	3/3	–	2/3	–
Byron Grote[2]	Yes	6/6	4/4	–	4/4	1/1
Sir Philip Hampton	Yes	6/6	3/4	–	4/4	6/6
Tony O'Neill	No	6/6	–	4/4	–	–
Ray O'Rourke[3]	Yes	4/4	–	1/3	3/3	4/4
Mphu Ramatlapeng	Yes	6/6	–	4/4	–	–
Jim Rutherford	Yes	6/6	4/4	4/4	–	–
Anne Stevens[4]	Yes	6/6	4/4	–	1/1	6/6
Jack Thompson	Yes	6/6	–	4/4	4/4	–

(1) Resigned 30 August 2016.
(2) Appointed to the Nomination Committee on 21 October 2016.
(3) Resigned 25 July 2016.
(4) Appointed to the Remuneration Committee on 21 October 2016.

Source: Anglo America's Annual Report 2016

D.1.2. Number and percentage of female board members

Definition

This indicator is related to the number and percentage of female board members.[107]

Measurement methodology

In order to calculate this indicator, entities need to:

- Count the female Board members (number),
- Divide the number of female Board members by the total number of directors sitting on the Board.

This indicator is thus expressed in percentage terms (%).

For example:

Let us assume that an entity has a Board with 10 members, of which 3 are women. This indicator is calculated as 3/10, i.e., 30%.

Potential sources of information

As the number of Directors sitting on a Board is usually small, tracing these figures is unproblematic.

The relevant information on this aspect is usually recorded by the Corporate Legal affairs, and/or by the Investor relator, and/or by the assistant to the CEO, and/or by the HR function (Directors are paid by the entity and therefore their personal information is included in the employees' records).

Example n.30

> https://www.anz.com.au/about-us/our-company: The Australia and New Zealand Banking Group Limited, commonly called ANZ, is the third largest bank by market capitalisation in Australia. Australian operations make up the largest part of ANZ's business, with commercial and retail banking dominating. ANZ is also the largest bank in New Zealand. ANZ was named the most sustainable bank globally in the 2008 Dow Jones Sustainability Index making it the 2nd year in a row ANZ has been granted the title.

[107] This indicator is consistent with the GRI G4-LA12 (composition of Governance bodies) and provides a quantitative measure of gender diversity within an organization.

ACHIEVING GENDER BALANCE IN OUR BUSINESS

FY17 Target

Increase the representation of Women in Management by 3% from 2015 to 2018.

Commentary

Group-wide representation of Women in Management has remained steady at 41.5%, up 1.1% from 40.4% in 2015.

Relevant United Nations Sustainable Development Goals

ANZ is the principal sponsor of Chief Executive Women, a founding member of the Diversity Council of Australia, an Employer of Choice for Women (Workplace Gender Equality Agency), and a signatory to the United Nations Women's Empowerment Principles. Involvement in these initiatives provides a solid foundation that supports our focus on gender equality and ensures we are aligned with best practice policies and programs.

We have targets to improve the representation of women in management, with progress reviewed monthly by the CEO and the Group Executive Committee, with results informing the Group's bonus pool and performance outcomes. This year's percentage of women in management has remained steady at 41.5% overall. Whilst the percentage of females at the Manager level dropped marginally from 43.3% to 43%, the percentage of female Senior Managers, Executives, and Senior Executives increased by 0.8%, 2.4%, and 0.8% respectively.

Of the nine Senior Executive hires in 2017, six were female (66.7%), evidencing our commitment to improving the proportion of women in leadership roles. ANZ also has four women on its Group Executive Committee: the Chief Financial Officer, the Group Executive Talent and Culture, the Group Executive Digital Banking and the Group Executive Wealth Australia. Our Board has 37.5% female representation.

From 2018, instead of measuring women in management, we will be measuring women in leadership, targeting female representation at the Senior Manager, Executive and Senior Executive levels. This brings us in line with peers and ensures greater focus on improving gender equity at the most senior and influential levels of the organisation.

Source: ANZ's 2017 Corporate Sustainability Review

D.1.3. Board members by age range

Definition

This indicator consists of the board members, by age range[108]. This indicator provides a quantitative measure of diversity within an organization conducing to inclusivity and responsiveness of decision-making.

Measurement methodology

In order to calculate this indicator, entities need to define the age ranges that they want to map. In line with the other indicators, the following groups are suggested:

- under 30 years old,
- 30-50 years old,
- over 50 years old

The indicators then are calculated as the number of Board members of one specific age group divided by the total number of directors sitting on the Board (%).

For example:

Let us assume that the Board of an entity comprises the following members:

- John Donne, age 50
- Anita Red, age 43
- Bill Smith, age 28
- Oliver Twist, age 40
- Lucy Hail, age 66

The indicator will be calculated by age range in the following way:

- under 30 years old = 1/5 = 20%
- 30-50 years old = 3/5 = 60%
- over 50 years old = 1/5 = 20%

[108] This indicator is in line with the International <IR> Framework, 2013, available at: http://integratedreporting.org/wp-content/uploads/2015/03/13-12-08-THE-INTERNATIONAL-IR-FRAMEWORK-2-1.pdf It is also consistent with the GRI G4-LA12 (composition of Governance bodies) and GRI 405-1.

Potential sources of information

As the number of Directors sitting on a Board is usually small, tracing these figures is unproblematic.

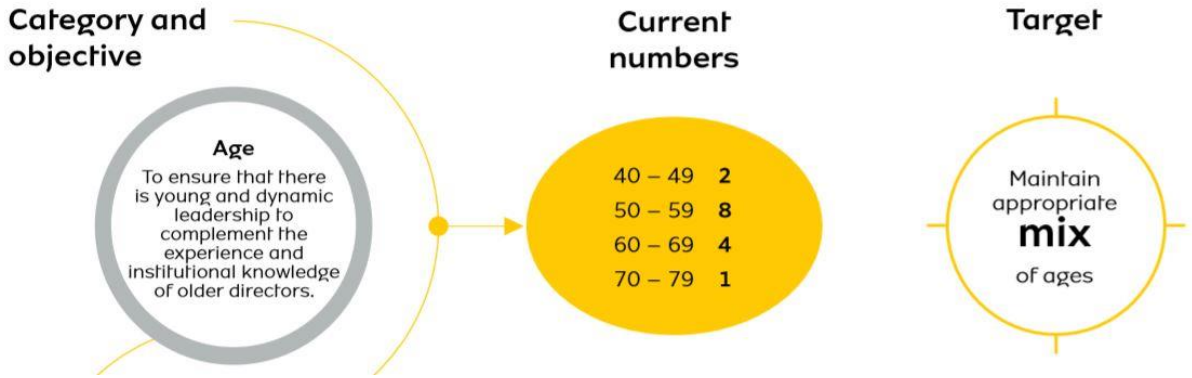
The relevant information on this aspect is/can be recorded by the Corporate Legal affairs, by the Investor relator, by the assistant to the CEO, by the HR function (Directors are paid by the entity and therefore their personal information is included in the employee records).

Example n.31

> https://www.mtn.com/: MTN Group Limited, formerly M-Cell, is a South Africa-based multinational mobile telecommunications company, operating in many African, European and Asian countries. Its head office is in Johannesburg. As of 30 June 2016, MTN recorded 232,6 million subscribers across its operations making it the eleventh largest mobile network operator in the world and the largest in Africa. Although MTN operates in over 20 countries, one-third of its revenues come from Nigeria, where it holds about 35% market share.

Diversity and composition of the board

MTN acknowledges that diversity gives the board the benefit of different perspectives and ideas. We have a unitary board, consisting of an appropriate mix of knowledge and skills. The board has executive and non-executive directors (including independent non-executive directors) who represent a broad spectrum of demographic attributes and characteristics. In the year, MTN adopted a diversity component which is included in the directors' appointment policy. The revised policy takes into consideration various categories of diversity as shown in the graphics that follow. The diverse perspectives of directors allow for proper strategic oversight as well as robust deliberation during board meetings. Since race and gender are important attributes that contribute to a balanced composition of the board, the board recognises the need to improve the representation of women on the board and ensuring that an appropriate mix of races is represented on the board.



Source: MTN's Integrated Report 2017

D.1.4. Number of meetings of audit committee and attendance rate

Definition

This indicator consists of the number of meetings of the audit committee, and their attendance rate. It provides a quantitative measure of whether the entity has developed effective, accountable and transparent governance mechanisms.

Measurement methodology

In order to calculate this indicator, entities need to:

- Count the Audit committee meetings during the reporting period (number),
- Add up the number of Audit committee members who participate at each Audit committee meeting during the reporting period and divide this by the total number of members sitting on the Audit committee multiplied by the number of Audit committee meetings during the reporting period (attendance rate (%)).

For example:

Let us assume that an entity has a Board whose meetings are held once every two months.

The total number of Board meetings during a certain reporting period is then 6.

Let us also assume that there are 3 members. The attendance rate would be 100% if all members participated at all Board meetings during the reporting period. However, the attendance of the meeting was as follow:

	Audit committee meeting 1	**Audit committee meeting 2**	**Audit committee meeting 3**	**Audit committee meeting 4**	**Audit committee meeting 5**	**Audit committee meeting 6**
Member 1	YES	YES	YES	NO	YES	YES
Member 2	YES	YES	YES	YES	NO	YES
Member 3	YES	YES	NO	YES	YES	NO

ATTENDANCE PER MEETING	3 MEMBERS	3 MEMBERS	2 MEMBERS	2 MEMBERS	2 MEMBERS	2 MEMBERS

The attendance rate will be calculated in the following way:

$$\frac{\text{Sum of Audit committee members who participated at each meeting during the reporting period}}{\text{Total number of Audit committee members multiplied by the number of meetings during the reporting period}}$$

So the indicator is calculated in the following way:

Numerator: 3 + 3 + 2 + 2 + 2 + 2 = 14

Denominator: 3 x 6 = 18

Attendance rate = 14 / 18 = 78 %

<u>Potential sources of information</u>

As the amount of these meetings per reporting period is quite small (e.g., one per month), it is easy to keep track of the number of Audit committee meetings. Furthermore, Audit committee meetings are usually scheduled in advance (there is an Audit committee meeting calendar that is communicated at the beginning of the reporting period) therefore locating this information is not difficult. Also, the number of people sitting on an Audit committee is usually small and members of the Audit committee need to communicate before the meeting whether they will participate or not. Therefore, tracing these figures is also unproblematic.

The relevant information on this aspect is /can be recorded by the Corporate Legal affairs, by the Investor relator, by the assistant to the CEO, by the Internal Audit function.

Example n.32

https://www.fnbnamibia.com.na: FirstRand Namibia Limited, formerly FNB Namibia Holdings Limited, is a financial services company and a holding company of the FNB Namibia group of companies. The Company's segments include Banking operations and Short-term insurance. The Banking operations segment is engaged in consumer and commercial banking; motor vehicle and installment finance, and corporate banking. The Banking operations segment offers banking packages for individuals and business. The Company's brands include First National Bank, WesBank and RMB. The Short-term insurance segment is engaged in short-term insurance. The Short-term insurance segment operates under OUTsurance brand. The holding company of FNB Namibia Holdings Limited is FirstRand EMA Holdings Limited.

Attendance register of the board and committees

Name of Director	Board	Meetings attended/ scheduled	Audit Committee	Meetings attended/ scheduled	Risk, Capital and Compliance Committee	Meetings attended/ scheduled	Directors' Affairs and Governance Committee	Meetings attended/ scheduled	Remuneration Committee	Meetings attended/ scheduled
II Zaamwani-Kamwi (Chairperson) INED	Chairperson	5/5					Member	3/3		
SH Moir INED	Deputy Chairperson	5/5	Chairperson	4/4	Chairperson	4/4	Chairperson	3/3	Member	2/2
CLR Haikali INED	Director	5/5	Member	4/4			Member	3/3	Chairperson	2/2
JR Khethe [1] NED	Director	4/5					Member	3/3		
PT Nevonga INED	Director	5/5								
SJ Van Zyl (CEO) ED	Director	5/5								
LJ Haynes [2] NED	Director	3/5	Member	2/4	Member	4/4	Member	3/3	Member	2/2
OLP Capelao (CFO) ED	Director	5/5								
ES Motala NED	Director	4/5							Member	0/2
GS Hinda [3] INED	Director	1/1								
JH Duan [4] INED	Director	1/1								
JH Hausiku [5] INED	Director	1/1								

[1] Mr J Khethe retired from the Group as Executive Director
[2] Mr LJ Haynes resigned as Remuneration Committee member and Alternate member of DAGC
[3] Mr GS Hinda appointed to the Board (February 2017)
[4] Ms JH Daun appointed to the Board (March 2017)
[5] Mr JH Hausiku appointed to the Board (April 2017)

INED – Independent non-executive director;
NED – Non-executive director; ED – Executive director

Changes to the Board and Board Committees

- **Mr Hausiku** – Appointed as member for Risk, Capital & Compliance Committee during the financial period.
- **Ms Daun** – Appointed as Audit Committee member during the financial period.
- **Mr Khethe** – Appointed as Remuneration Committee member during the financial period.
- **Mr L Haynes** – Resigned as Remuneration Committee member and Alternate member of DAGC.

Source: FNB's Integrated Annual Report 2017

D.1.5. Compensation: total compensation per board member (both executive and non-executive directors)

Definition

This indicator refers to total remuneration awarded to each board member, encompassing both executive and non-executive directors[109].

Measurement methodology

In order to calculate this indicator, entities need to compute the amount of total compensation referred to a specific reporting period summing up the following elements of the compensation package:

- fixed pay (base salary)
- variable pay (including performance-based pay, equity-based pay, bonuses, and deferred or vested shares)
- sign-on bonuses or recruitment incentive payments
- termination payments (i.e., all payments made and benefits given to a departing executive or member of the highest governance body whose appointment is terminated)
- clawbacks (i.e., repayment of previously received compensation required to be made by an executive to his or her employer in the event certain conditions of employment or goals are not met)
- retirement benefits.

For example:

Let us assume that

(1) In 2017, the Executive Chairman received a fixed remuneration of €1,000 thousand and a variable remuneration of €540 thousand; he also received Board meeting attendance fees of €117 thousand, as well as other items of remuneration in-kind amounting to €135 thousand.

The total amount for 2017 is €1,792 thousand.

(2) The Chief Executive Officer, in 2017, he received a fixed remuneration of €460 thousand and a variable remuneration of €215 thousand; he also received Board meeting

[109] This indicator is consistent with the GRI Disclosure 102-35.

attendance fees of €117 thousand, as well as other items of remuneration in-kind amounting to €26 thousand

The total amount for 2017 is €818 thousand.

Total annual compensation is calculated for each executive director and each non-executive director, where the former is a member of the Board of a firm who also has management responsibilities, while the latter is a Board member without responsibilities for an entity's daily management or operations.

Potential sources of information

The data required for the calculation of these indicators and the related information flows are normally managed by the HR function, typically within a Compensation & Payroll management information system. Many entities use specialized software for collecting and elaborating this type of information.

Another source of information is the Remuneration report where the compensation of Board members, both executives and non-executives, is described. The underlying information is owned by the Remuneration committee that, when present, is in charge of defining the compensation strategy and policy.

Example n.33

https://www.enagas.es/portal/site/enagas: Enagás, S.A. (originally an initialism for Empresa Nacional del Gas) is a Spanish energy company, which owns and operates the nation's gas grid. Nowadays, it is Spain's leading natural gas transmission company and Technical Manager of the Spanish gas system. It has around 12,000 Km of gas pipelines, three underground storage facilities in Serrablo (Huesca), Gaviota (Vizcaya) and Yela (Guadalajara) and four regasification plants in Barcelona, Huelva, Cartagena and Gijón. It also owns 50% of the BBG regasification plant in Bilbao and 72.5% of the Sagunto plant. In addition, Enagás holds the 100% of Gascan, a company in charge of the project to introduce natural gas into the Canary Islands. Since Enagás came to market in 2002, it has formed part of the Ibex 35 index. It currently has a free float of 95%, one of the highest on the Spanish continuous market.

Remuneration of the Board of Directors [GRI 102-35, GRI 102-36, GRI 102-37]

The Remuneration Policy for Board of Director members for 2016, 2017 and 2018 was approved in detail by the GSM of 18 March 2016.

The Enagás Board of Directors is empowered to adopt resolutions on Director remuneration.

The Appointments, Remuneration and CSR Committee proposes the remuneration criteria, within the limits set forth in the Articles of Association and pursuant to the decisions taken at the General Shareholders' Meeting. The Committee also monitors the transparency of remuneration.

Enagás has a Long-Term Incentive Plan for 2016–2018 that fulfils the criteria of independence, stakeholder involvement the remuneration report is put to a consultative vote at the General Shareholders' Meeting) and internal and external assessment (see the chapter on 'Our project for the future').

The two executive directors and members of senior management are beneficiaries of the approved 2016–2018 long-term incentive.

The Executive Directors and Senior Management are covered by the mixed group insurance policy for pension commitments. From the premium paid in 2017, 419 thousand euros corresponded to the Executive Directors and 708 thousand corresponded to Senior Management.

The remuneration payments made to each member of the Board of Directors, as described above, without inclusion of the insurance premium, were:

Remuneration of the Board of Directors in 2017 [GRI 102-35]

Directors	2017	2016
Mr Antonio Llardén Carratalá (Executive Chairman)[1]	1,793	1,839
Mr Marcelino Oreja Arburúa (Chief Executive Officer)[2]	818	693
Sociedad Estatal de Participaciones Industriales (Proprietary Director)[4]	140	127
Mr Luis García del Río (Independent Director)[3] [4]	98	-
Mr Ramón Pérez Simarro (Independent Director)[3] [4]	37	126
Mr Martí Parellada Sabata (External Director)[4]	148	142
Mr Luis Javier Navarro Vigil (External Director)[4]	144	126
Mr Jesús Máximo Pedrosa Ortega (Proprietary Director)[4]	144	126
Ms Rosa Rodríguez Diaz (Independent Director)[4]	144	127
Ms Ana Palacio Vallelersundi (Lead Independent Director)[4]	166	133
Ms Isabel Tocino Biscalorasaga (Independent Director)[4]	157	139
Mr Antonio Hernández Mancha (Independent Director)[4]	144	126
Mr Luis Valero Artola (Independent Director)[4]	144	127
Mr Gonzalo Solana González (Independent Director)[4]	144	127
Total	4,221	3,958

Source: Enaga'ss Annual Report 2017

D.2. Anti-corruption practices

D.2.1. Amount of fines paid or payable due to settlements

Definition

This indicator refers to the total monetary value of paid and payable corruption-related fines imposed by regulators and courts in the reporting period.

Corruption [110] includes practices such as: bribery, facilitation payments, fraud, extortion, collusion, and money laundering; the offer or receipt of gifts, loans, fees, rewards, or other advantages as an inducement to do something that is dishonest, illegal, or represents a breach of trust. It can also include practices such as embezzlement, trading in influence, abuse of function, illicit enrichment, concealment, and obstructing justice.

Corruption is broadly linked to several negative effects, such as damage to the environment, abuse of human rights, abuse of democracy, misallocation of investments, and undermining the rule of law.

Measurement methodology

The steps underlying the computation of this indicator are the following:

- identify all convictions for violations of corruption related laws or regulations,
- identify the amount of fines paid/payable for each of the convictions,
- sum up all the amounts identified with reference to the reporting period.

The calculation of this indicator is therefore very straightforward and there should not be many cases of corruption to be taken into consideration for each reporting period so that it is simple to sum up all the fines and penalties referred to a specific reporting period (that are usually traced in the accounting information system of a company in a separate expense account that is called Fines and penalties).

To calculate this indicator, an entity needs to include practices such as[111]:

- bribery,
- facilitation payments,
- fraud,
- extortion,
- collusion, and money laundering

[110] This definition is consistent with the GRI 205 and with UNCTAD/CRI (indicator 16).
[111] This definition is consistent with the GRI 205 and with UNCTAD/CRI (indicator 16).

- the offer or receipt of gifts, loans, fees, rewards, or other advantages as an inducement to do something that is dishonest, illegal, or represents a breach of trust.

The indicator can also include practices such as:

- embezzlement,
- trading in influence,
- abuse of function,
- illicit enrichment,
- concealment,
- obstructing justice.

It is suggested to report also the total number of convictions relevant to the reporting entity (the simple count)[112].

Moreover, it is suggested that the reporting entity provide narrative information about any actions taken in response to incidents of corruption, for example new or revised enterprise policies to prevent such incidents.

Potential sources of information

The amount of fines paid is to be found among the expenses included in the income statement during the reporting period. Such costs would be charged to the income statement immediately. They are often recorded in a separate expense account that can be called Fines and penalties.

When an obligation might likely arise to pay fines or penalties under the legislation because the obligating event has occurred, the company should set a provision account (the recording of the liability in the balance sheet is matched to an appropriate expense account in the company's income statement).

The owners of this information are usually, on the one hand, the Legal affairs department and, on the other hand, the Finance and Accounting department.

Example n.34

> http://www.gpic.com/: Gulf Petrochemical Industries Company was established in December 1979 as a joint venture between GCC member states for the manufacture of fertilizers and petrochemicals. The joint venture is equally owned by the Government of the Kingdom of Bahrain, Saudi Basic Industries Corporation and Petrochemical Industries Company, Kuwait.

[112] This is in line with GRI 205.

ANTI-CORRUPTION

GRI 103: Management Approach Disclosures (103-1, 103-2, 103-3)

GPIC's focus on sustainability is embedded in everything we do – our strategy, operations and daily actions; which also includes our critical stance as a responsible business against fraud and corruption within the marketplace and our communities. We strongly believe that 'how we make our profits' is a critical enabler towards our credibility amongst our stakeholders, and is a core element of our operational environment.

Investing towards anti-fraud and anti-corruption mechanisms and principles makes good business sense, and within GPIC, we start right at the top. The Board of Directors and Executive Management have a strong commitment toward operating and managing an ethical organisation with a strong sense of responsibility towards all stakeholders.

We believe that the "tone at the top" is absolutely critical for us to foster an ethical environment within the workplace; and it is the same tone from the top that establishes our leadership commitment throughout the organizations to positively influence our management and our people towards transparency, integrity, honesty and ethical behavior. In order to sustain our commitments throughout the organization, we enforce the following actions as a part of our daily operations:

- Communicating what is expected from our people and promoting ethical values: We clearly communicate the values and ethics of the organization, and how this should be performed consistently and continuously. We also make this formally available by means of a written 'Code of Ethics'.

- Leading by example: We believe in living our values, and we believe that this starts from right at the top of the organization. Our leadership and management are expected to go over and beyond to apply these values in their own day-to-day actions, whilst being a positive role model for our people.

- Providing a safe environment for reporting violations: We have established a safe environment for our people to be able to report on any unethical action or behaviors they have witnessed without the fear of reprisal. Our people also have a route to file a report anonymously, should they chose not to disclose their identity.

GRI 103: Management Approach Disclosures (103-1, 103-2, 103-3)

- Rewarding acts of integrity: We ensure that we recognize and reward ethical behavior within the organization including considering our people who have exhibited high levels of integrity and ethical behavior over and beyond their call of duty for organizational awards.

GPIC's pursuit of profit is underlined by a pervasive commitment to be ethical in all that we do. As a result, GPIC's work ethos embodies some of the highest standards of corporate governance. In fact, GPIC have voluntary aligned its corporate governance to the Bahraini law requirement, to ensure best practices.

Our pursuit of ethical behavior stems from a corporate governance strategy built upon mechanisms that ensure responsible behavior across all tiers of interaction throughout the organization's operations; including who we conduct business with, the employees of the organization, the people of the communities that host us, as well as the government representatives who regulate our business practices.

Our Corporate governance policy begins with a very simple and basic premise. All of GPIC's workings, ranging across all stakeholders, must and do, comply with the laws and regulations of Bahrain. However, as with everything that is GPIC, we aim to go beyond just mere legal compliance, and hold ourselves to an even higher standard.

GPIC's stringent policies ensure that we monitor the action of those connected to the organization in any capacity, thus preventing them having undue advantage of their access to information. Access to GPIC legal, compliance and internal audit function is made available to the business partner and trading organizations associated with GPIC to ensure liaison with the external parties to report any potential malpractice, fraud and corruption.

At GPIC, corporate governance is also about preventing a disadvantage to those who interact with the organization. The company makes it a point to pay suppliers on time, as well as fulfilling all other financial obligations without any delays. Additionally a strict pre-qualification process takes place before accepting any new trading organization.

Furthermore, our governance framework allows for a stringent, frequent and thorough audit of every department where financial transactions are scrutinized and system compliance audits are conducted. Each department is regularly audited and issued audit reports. Additionally an independent external auditor would also further audit the control system to ensure its effectiveness and elevate any potential wrongdoing or cases involving anti-corruption. We have always obtained an opinion from an independent external auditor. Moreover, a joint shareholders audit is conducted on GPIC every three years targeting a comprehensive scope which adds to our credibility, integrity, and ethical values.

In 2012, we were successfully able to improve our governance by issuing a revised Corporate Governance Policy.

In 2013 - 2014, the company has prepared a comprehensive Segregation of Duties (SOD) guidelines and matrix identifying positions that should be separated, positions that require compensating controls when combined, transaction codes that should not be combined with a single user and the risks arising from the conflicts. To ensure the compliance with SOD framework, a detailed and comprehensive compliance audits had been conducted in 2014 and 2015 which resulted in significant improvements. The SOD framework is considered to be another essential milestone toward enhancing the anti-corruption and anti-fraud programs and systems, which include the following areas:

Our pursuit of ethical behavior stems from a corporate governance strategy built upon mechanisms that ensure responsible behavior across all tiers of interaction throughout the organization's operations.

GRI 103: Management Approach Disclosures (103-1, 103-2, 103-3)

- The GPIC Corporate Governance Policy
- The Board of Directors' Charter
- The Board's Performance Assessment Framework
- The Board Sub-Committee Charters
- The Board Sub-Committee Performance Assessment
- The Directors Code of Conduct
- Board of Directors Conflicts of Interest and Disclosure Policies
- Director independence and conflict of interest to be declaration
- The Secretary to Board terms of reference
- Board of Directors Appointment Letter

To further enhance the anti-corruption framework, we have conducted a comprehensive compliance review with the Corporate Governance Policy. Such reviews are conducted on a yearly basis. In addition, the company prepared a detailed Code of Ethics Handbook which was presented to the Audit, Finance and Risks Committee in December 2015. The Handbook had been reviewed and approved by the Board of Directors in May 2016. This Handbook emphasizes working sincerely, honestly, acting responsibly and reaffirms GPIC's commitment to the UN Global Compact. The Handbook describes GPIC's ethical principles in relation to Human Rights, Labour Rights, the Environment and Anti-Corruption. The company will launch an awareness Code of Ethics campaign in mid-2018.

Following are some of our recent highlights reflecting our commitment to UN Global Compact's principles related to ant-corruption

- New Guidelines on segregation of duties have been issued and an audit has been conducted.
- The corporate governance framework was reviewed by the BoD in 2016.
- Every employee is given a code of business ethics booklet.
- Robust accountability and auditing system prevents any wrong doing.
- The three bids system for tendering is yet another step towards anti-corruption.

Over and above this, we are also a member of the Pearl Initiative, which is the leading independent not-for-profit, by-business for-business, institution working across the Gulf Region of the Middle East to influence and improve corporate accountability and transparency. One of the key aims of the Pearl Initiative is to positively influence and drive collaborative action on issues such as corporate governance, anti-corruption, codes of conduct, integrity and reporting across the region.

Eventually these practices will have a huge impact in reducing the intention of employees of engaging in any sort of corruption and fraud activities.

Operations assessed for risks related to corruption GRI 205-1

Our internal audit has carried out a process risk assessment that covers major functions in Finance, Human Resource and Marketing from fraud perspective. Our financial audits both internal and external across the organization ensure that no financial corruption is taking place. Our Enterprise Risk Management also covers the risk of a major fraud. Our Audit, Finance and Risk Committee along with an external audit, reviews our financial statements and legal/ regulatory compliance on quarterly / yearly basis.

Communication and training on anti-corruption policies and procedures GRI 205-2

As part of its commitment to the UNGC principles on anti-corruption recently, a number of our employees attended specific training and conferences related to corruption, bribery, fraud etc.

Confirmed incidents of corruption GRI 205-3

A review of the complaints and completed investigations in 2016/2017 revealed that:

- No GPIC employees were terminated for corruption-related behavior

SOCIO ECONOMIC COMPLIANCE

Non-compliance with laws and regulations in the social and economic area GRI 419-1

The Company did not pay any fines for non-compliance during the reporting period and there were no monetary sanctions.

SUPPLIER SOCIAL ASSESSMENT

New suppliers that were screened using social criteria GRI 414-4

GPIC's policy is to be lawful, highly-principled and socially responsible in all of its business practices. GPIC expects its suppliers to comply with all company policies and the applicable laws related to the labor rights and other social aspects of the business.

Negative social impacts in the supply chain and actions taken GRI 414-2

No cases of negative social impacts were identified during 2016 and 2017.

Source: GPIC's 2018 Sustainability Report

D.2.2 Average hours of training on anti- corruption issues per year per employee

Definition

This indicator refers to the average number of training hours that employees receive in the area of anti-corruption issues. For further information on the definition and context of corruption, please see indicator D.2.1.

Measurement methodology

The methodology for measurement of this indicator draws on the methodology for indicator C.2.1 on the average hours of training per employee.

In this case, the computation of hours of training should only take into account those hours of training related to anti-corruption issues. This classification could be undertaken either by the entity's overall training department (e.g. human resources), or by the legal department or other office dedicated to advancing anti- corruption efforts.

It is suggested that this indicator on anti-corruption could also cover the issue of codes of conduct used to remedy convictions and, more in general, that the reporting entity provide information about any actions taken in response to incidents of corruption, for example new or revised entity policies, training and initiatives to prevent such incidents.

Also the calculation of this indicator is very straightforward as it is the sum of all the training hours related to anti-corruption practices provided by the entity to its employees during the reporting period.

Potential sources of information

Please see indicators C.2.1 and D.2.1 for the sources of information for the measurement of this indicator.

Example n.35

https://www.hkex.com.hk/?sc_lang=en: HKEX Group is a leading financial market operator in the world. From the financial hub of Hong Kong and an additional base in London, they provide facilities for trading and clearing securities and derivatives in Equities, Commodities, Fixed Income and Currency.

Anti-bribery and Anti-corruption

In 2017, there were no confirmed incidents or public legal cases regarding corruption in relation to the Group or its employees except a former LME accountant was found guilty by a court in the UK in April after admitting two counts of fraud by abuse of position. There were also no confirmed incidents where contracts with business partners were terminated or not renewed due to violations relating to corruption during the year. In 2017, five Directors, which accounts for 38 per cent of the Board members, received training on anti-corruption.

Source: HKEX's Corporate Social Responsibility Report 2017

Selected References

https://www.iod.com/Portals/0/PDFs/Campaigns%20and%20Reports/Corporate%20Governance/GGI-report-2017-IoD.pdf

https://www.globalreporting.org/reportregistration/verifiedreports

https://core.ac.uk/download/pdf/78487755.pdf

https://womanforward.org/wp-content/uploads/2017/09/The-contribution-of-women-on-boards.pdf

https://eige.europa.eu/gender-statistics/dgs/indicator/ta_pwr_bus_bus__wmid_comp_compbm/bar

https://www.cpacanada.ca/en/business-and-accounting-resources/audit-and-assurance/enhancing-audit-quality/publications/guide-to-audit-quality-indicators

http://www.consob.it/documents/46180/46181/qdf85.pdf/0f2ee77d-4f3a-420b-b7cd-36f227d0d74c

https://gettingthedealthrough.com/area/2/article/29077/anti-corruption-regulation-calculating-penalties

https://www.oecd.org/daf/inv/mne/48004323.pdf

https://www.transparency.org/whatwedo/tools/business_principles_for_countering_bribery/1

http://www.transparency.org/research/cpi/overview

http://info.worldbank.org/governance/wgi/index.aspx#home

Self-assessment questions

1. In order to calculate the attendance rate at Board meetings entities need to add up the number of Board members who participate at each Board meeting during the reporting period and divide this by the total number of Board meetings

☐ True

☐ False

2. Let us assume that there are 3 members and that Board meetings are held once every two months. The first member has participated to 6 meetings, the second to 4 and the third to 3. The attendance rate is:

☐ 100%

☐ 65.55%

☐ 40%

☐ 72.22%

3. In order to calculate the percentage of female board members, entities need to divide the number of female Board members by the total number of directors sitting on the Board.

☐ True

☐ False

4. Let us assume that the Board of an entity comprises the following members: John aged 29, Tony aged 45, Laura aged 28, Luke aged 40, Tom aged 72, Grace aged 32, Liam aged 43 and Thomas aged 63. The percentage of Board members by age range is:

☐ under 30 years old = 25%; 30-50 years old = 50%; over 50 years old = 25%

☐ under 30 years old = 30%; 30-50 years old = 60%; over 50 years old = 10%

☐ under 30 years old = 15%; 30-50 years old = 70%; over 50 years old = 15%

☐ under 30 years old = 50%; 30-50 years old = 25%; over 50 years old = 25%

5. In order to calculate the indicator “Total compensation per board member”, entities need to include the following elements: fixed pay, variable pay, sign-on bonuses or recruitment incentive payments, termination payments, clawbacks and retirement benefits.

☐ True

☐ False

6. The amount of fines due to settlements/convictions is often recorded by entities in a separate account that can be called ‘Fines and penalties’.

- ☐ True
- ☐ False

Self-assessment questions with solutions

1. In order to calculate the attendance rate at Board meetings entities need to add up the number of Board members who participate at each Board meeting during the reporting period and divide this by the total number of Board meetings

☐ True

☐ False

2. Let us assume that there are 3 members and that Board meetings are held once every two months. The first member has participated to 6 meetings, the second to 4 and the third to 3. The attendance rate is:

☐ 100%

☐ 65.55%

☐ 40%

☐ 72.22%

1x6 + 1x4 + 1x3 DIVIDED BY 3x6= 72.22%

3. In order to calculate the percentage of female board members, entities need to divide the number of female Board members by the total number of directors sitting on the Board.

☐ True

☐ False

4. Let us assume that the Board of an entity comprises the following members: John aged 29, Tony aged 45, Laura aged 28, Luke aged 40, Tom aged 72, Grace aged 32, Liam aged 43 and Thomas aged 63. The percentage of Board members by age range is:

☐ under 30 years old = 25%; 30-50 years old = 50%; over 50 years old = 25%

☐ under 30 years old = 30%; 30-50 years old = 60%; over 50 years old = 10%

☐ under 30 years old = 15%; 30-50 years old = 70%; over 50 years old = 15%

☐ under 30 years old = 50%; 30-50 years old = 25%; over 50 years old = 25%

under 30 years old = 2/8, 30-50 years old = 4/8; over 50 years old = 2/8

5. In order to calculate the indicator “Total compensation per board member”, entities need to include the following elements: fixed pay, variable pay, sign-on bonuses or recruitment incentive payments, termination payments, clawbacks and retirement benefits.

- ☐ True
- ☐ False

6. The amount of fines due to settlements/convictions is often recorded by entities in a separate account that can be called ‘Fines and penalties’.

- ☐ True
- ☐ False