ICA Sustainable Development Indicators

Methodological guidelines

Methodology sheets have been drafted for each indicator proposed based on well-established methodologies. These sheets are condensed versions primarily based on the Global Reporting Initiative (GRI) definitions.

A number of required inputs are necessary to develop the indicators:

- All the inputs, that are necessary to calculate the indicators, should relate only to copper production.
- The environmental indicators (i.e. CO_2 emissions, Energy intensity, and Water recycled and reused) should relate only to the processes leading to copper production. Experience from ICA life cycle activity recommends using: a) for mining, allocation by mass (metal content or total mass depending on data availability) between the different base metals; and b) for smelting/refining, allocation by market value for the precious metals and allocation by system expansion for the non-metals co-products e.g., sulfuric acid. For more information on allocation, please refer to tables 1, 2 and 3 "*Harmonization of LCA methodologies for the metal and mining industry*" (2016).
- For financial indicators (e.g., Investment in sustainable operations and Economic Value Distributed) that are reported at the group level, a proxy (e.g., Cu revenues/Total revenues) can be used to provide estimate only for the copper business unit.
- Tons of copper content should only include the weight of the copper content in each one of the products (concentrates, cathodes, wire rod, etc.) in order to have a common denominator.

In order to evaluate the relative importance of each part of the value chain represented it is necessary to report the following values separately:

- Mine production = total Cu content in concentrates produced. Please include the concentrates that will be further processed internally into refined copper.
- Refined production = total Cu content in refined copper (cathodes, cakes, billets, etc.) produced. Please include the refined copper that will be further processed internally into semis. There can be "double counting" with the Mine production.
- Semis production = total Cu content in semi-fabricates and products (wire rod, sheets, strips, tubes, etc.) produced. There can be "double counting" with the Refined production.

Many operations amongst companies are more diversified in their production, as they produce other commodities or products other than copper. To avoid double counting with assets shared between member companies it is recommended for the company operating the asset to report 100% of each indicator (even if the operating company is not the major shareholder).

For instances when a company has a data gap from year to year, averages of the past years may be used until data gap is filled.

1. CO_2 equivalent emissions

1.1. Definitions and remarks

Greenhouse gas emissions are the main cause of climate change and are governed by the United Nations Framework Convention on Climate Change (UNFCC) and the subsequent Kyoto Protocol. As a result, different national and international regulations and incentive systems (such as trading climate certificates) aim to control the volume and reward the reduction of greenhouse gas emissions.

To identify all GHG emissions, the sources of emission are classified in direct sources or Scope 1, indirect sources or Scope 2, and other related indirect sources or Scope 3.

Direct emissions (scope 1) of greenhouse gases are those from all sources owned or controlled by the reporting organization, including:

- Generation of electricity, heat, or steam;
- Other combustion processes such as flaring;
- Physical or chemical processing;
- Transportation of materials, products, and waste;
- Venting; and
- Fugitive emissions.

Indirect emissions (scope 2) are those of greenhouse gases resulting from the generation of purchased electricity, heat, or steam.

Other indirect emissions (e.g., from organizational travel) are not included. Other related indirect sources (scope 3) related to purchased goods such as pre-processed raw materials or credits from by-products (slag excluded) sold to other industries, which enable them to use their GHG emissions are not included.

1.2. Required Inputs

- GHG emissions in metric tons of CO2 equivalent from direct sources
- GHG emissions in metric tons of CO2 equivalent from indirect sources
- Tons of copper content produced

1.3. Calculation and unit of measure

CO_2 emission intensity = (Total CO_2 equivalent emissions) / (Tons of copper content produced)

Unit: Ton of CO_2e / Ton of Cu

Where:

- Total CO_2e emissions = sum of (Direct + Indirect - Credit) = sum of (scope 1 + scope 2)

1.4. Practically

This indicator is reported under the GRI as the sum of Disclosure 305-1 and Disclosure 305-2.

Source: GRI 305: EMISSIONS 2016

2. Energy intensity

2.1. Definitions and remarks

The ability of the reporting organization to use energy efficiently can be revealed by calculating the amount of energy it consumes. Energy consumption has a direct effect on operational costs and exposure to fluctuations in energy supply and prices. The environmental footprint of the organization is shaped in part by its choice of energy sources. Changes in the balance of these sources can indicate the organization's efforts to minimize its environmental impacts. Information on the consumption of primary energy sources supports an assessment of how the organization might be affected by emerging environmental regulations such as the Kyoto Protocol.

The total energy consumption is the sum of direct energy consumption and indirect energy consumption. Direct energy consumption is the main factor and it measures the organizations consumption of direct primary energy sources; it can be broken down into energy sources purchased, direct energy sources produced and direct energy sources sold. Indirect energy consumption measures the energy required to produce and deliver purchased electricity and any other intermediate energy products (such as district heat) that involve significant energy consumption upstream from the organization's reporting boundary.

Information can be obtained from invoices, measured (or calculated) heat/fuel accounting, estimations, defaults, etc. Amounts of joules can be taken directly or converted from invoices or delivery notes. Information about the combination of primary sources used to generate intermediate energy can be obtained from suppliers.

2.2. Required Inputs

- Direct energy purchased, Direct energy sources produced, Direct energy sources sold
- Indirect energy consumption
- Tons of copper content produced

2.3. Calculation and unit of measure

Energy Intensity = (Total Energy Consumption) / (Tons of copper content produced)

Unit: GJ / Tons of Cu

Where:

- Total energy consumption (GJ) = Direct Energy Consumption + Indirect energy consumption
- Direct energy consumption (GJ) = Direct Primary Energy Purchased + Direct Primary Energy Produced - Direct Primary Energy Sold
- Energy consumption should be expressed in Joules or multiples, preferable Giga Joules. Equivalence tables can be used to convert volumes of primary sources (i.e. tons of fuel) in Giga Joules.

2.4. Practically

This indicator is reported under the GRI as 302-1. They cover, respectively, scopes 1 and 2 of the WRI/WBCSD GHG. Scope 3 is not included.

Source: GRI 302: ENERGY 2016

3. Water recycled and reused

3.1. Definitions and remarks

The rate of water reuse and recycling can be a measure of efficiency and can demonstrate the success of the organization in reducing total water withdrawals and discharges. Increased reuse and recycling can result in a reduction of water consumption, treatment, and disposal costs. The reduction of water consumption through reuse and recycling can also contribute to local, national, or regional goals for managing water supplies.

Recycling and reuse is defined as the act of processing used water/wastewater through another cycle before discharge to final treatment and/or discharge to the environment. In general, there are three types of water recycling/re-use:

- Wastewater recycled back in the same process or higher use of recycled water in the process cycle;
- Wastewater recycled/re-used in a different process, but within the same facility;
- Wastewater re-used at another of the reporting organization's facilities.

Information can be obtained from water meters, water bills, or (if neither water meters nor bills exist) calculations based on a water audit or inventory, or from water retailer.

3.2. Required Inputs

- Water recycled
- Water reused

3.3. Calculation and unit of measure

Total volume of water used that is being recycled and reused for copper production

Unit: Cubic meters (m^3) and also as a percentage (%) of the total water withdrawal

3.4. Practically

This indicator is reported under the GRI as 303-3.

Note: Calculate the volume of recycled/reused water based on the volume of water demand satisfied by recycled/reused water rather than further withdrawals. For example, if the organization has a production cycle that requires 20 cubic meters of water per cycle, the organization withdraws 20 cubic meters of water for one production process cycle and then reuses it for an additional three cycles. The total volume of water recycled/reused for that process is 60 cubic meters.

There is a large consensus supporting the "Water recycled and reused" relevant indicator for the industry. This indicator should be reported in cubic meters and as a percentage of the total water withdrawal [G4-EN10].

Source: GRI 303: WATER 2016.

4. Total workforce

4.1. Definitions and remarks

The size of a workforce provides insight into the scale of impacts created by labor issues. Breaking down the workforce by employment type, employment contract, and region (region refers to “country” or “geographical area”) demonstrates how the organization structures its human resources to implement its overall strategy. It also provides insight into the organization’s business model, and offers an indication of job stability and the level of benefits the organization offers.

A rise or fall in net employment, evidenced by data reported over the course of three or more years, is an important element of the organization’s contribution to the overall economic development and sustainability of the workforce.

The total workforce may vary depending on the country and the different definition of part-time full time contract. It should be reported the total workforce break down in direct employees and supervised (indirect) employees. Models, assumptions and estimation may be needed to balance the workforce in different countries. This should be based on a calendar year.

4.2. Required Inputs

- Yearly average employee number

4.3. Calculation and unit of measure

Total workforce = sum of (direct employees + supervised/indirect workers)

Unit: Per capita

4.4. Practically

Ideally, the total workforce number would correlate to the same workers as described below for the total workable hours portion of the injury rate calculation (6.). However, some companies are only able to report the number of direct employees, without contractors. If this is the case, it should be noted by the company with their submission.

This indicator is reported under the GRI as GRI 102-8.

Source: GRI 102: GENERAL DISCLOSURES 2016.

5. Injury rate

5.1. Definitions and remarks

Health and safety performance is a key measure of an organization's duty of care. This indicator will show whether health and safety management practices are resulting in fewer occupational health and safety incidents. There are two primary inputs to the injury rate calculation as defined below.

Recordable work-related injury or ill health definition:

Work-related injury or ill health that results in any of the following:

- death,
- days away from work,
- restricted work or transfer to another job,
- medical treatment beyond first aid, or
- loss of consciousness;
- or significant injury or ill health diagnosed by a physician or other licensed healthcare professional, even if it does not result in death, days away from work, restricted work or job transfer, medical treatment beyond first aid, or loss of consciousness.

Total workable hours definition:

- Total workable hours is defined as the total number of hours worked by workers carrying out work-related activities during the recording period (typically a calendar year). Workers are employees, contractors or third parties who are engaged in work-related activities on behalf of an employer.
    - **Employee** - An employee is a worker who is paid by the employer.
    - **Contractor** - A contractor is a person contracted by the employer to do work on its behalf and under its control with respect to location, work practices and application of health and safety standards.
    - **Third party** - A third party is someone present within an employer's controlled location but who is neither an employee nor a contractor. Third party individuals may be workers, members of the public or visitors.
    - Contractors and third parties are also called "supervised workers" or "indirect employees".

The total recordable work-related injury or ill health cases and total workable hours should be consistent, including all types of workers.

5.2. Required Inputs

- Total recordable work-related injury or ill health cases
- Total workable hours = hours worked by (employees + contractors + third parties) in one year

5.3. Calculation and unit of measure

Injury rate = 1,000,000 * (total recordable work-related injury or ill health cases) / (total hours worked)

Unit: Injuries / 1,000,000 hours worked

5.4. Practically

This indicator is reported under the GRI as 403-9 as the Rate of recordable work-related injuries .

Source: GRI 403: Occupational Health and Safety 2018 and ICMM Health and safety performance indicators (2014)

6. Investment in sustainable operations

6.1. Definitions and remarks

Capital expenditure includes money invested to acquire new assets or improve long term assets, such as property, plant and equipment. Research & development (R&D) expenditure, includes money invested for discovering new knowledge about products, processes, and services, and then applying that knowledge to create new and improved products, processes, and services that fill market needs.

Environmental protection expenditure include money invested to prevent, reduce, control, and document environmental aspects, impacts, and hazards. It also includes disposal, treatment, sanitation, and clean-up expenditure (see GRI G4-EN31). Occupational health and safety expenditure include money invested for the physical protection and well-being of people at work (including education, training, counseling, prevention, and risk-control programs).

Notes:

- Expenditures should be based on direct company spending and included in the year they were made.
- R&D expenditure should include direct costs (e.g., payroll and overhead allocated to R&D). Direct costs should not include government tax credits.
- R&D expenditure should not include indirect costs (e.g., contributions in kind to a university) as these make the calculations too cumbersome and less consistent (and the data is hard to come by).

6.2. Required Inputs

- Capital expenditure
- Research and development expenditure
- Environmental protection expenditure
- Occupational health and safety expenditure

6.3. Calculation and unit of measure

Capital expenditure + Research & Development expenditure + Environmental protection expenditure + Occupational health and safety expenditure

Unit: $US

6.4. Practically

Typically, capital expenditure is reported on a Consolidated Statement of Cash Flows: Cash Flows from Investing Activities expenses \ Acquisition of or Purchases of property, plant and equipment and other intangibles. Research and development expenditure is reported on a Consolidated Income Statement under operating expenses. Environmental protection expenditure was previously reported under the GRI as G4-EN31, however this indicator was discontinued in the revised GRI Standards, so there is not a specific GRI reference for this indicator. Only one consolidated number will be reported i.e. inputs will not be reported separately.

Note: This indicator is based on the methodology developed by the World Steel Association and G4 Sustainability Reporting Guidelines Implementation Manual G4-EN31. Capital investments are included since they are strongly tied with resource efficiencies (e.g., a new water treatment plant or new filters will benefit from the latest technologies and be more efficient) and thus have a positive impact on the sustainability of operations.

Source: World Steel Association, G4 Sustainability Reporting Guidelines Implementation Manual.

7. Economic value distributed

7.1. Definitions and remarks

Data on the creation and distribution of economic value provide a basic indication of how the organization has created wealth for stakeholders. Several components of the Economic Value Distributed (EVD) table also provide an economic profile of the reporting organization, which may be useful for normalizing other performance figures. If presented in country-level detail, EVD can provide a useful picture of the direct monetary value added to local economies.

7.2. Required Inputs

The indicator is based in the following:

Component	Comment
b) Operating costs	Payments to suppliers, non-strategic investments, royalties, and facilitation payments
c) Employee wages and benefits	Total monetary outflows for employees (current payments, not future commitments)
d) Payments to providers of capital	All financial payments made to the providers of the organization's capital (incl. dividends to all shareholders, interest payments made to providers of loan)
e) Payments to government	Gross taxes (corporate, income, property, etc.)
f) Community investments	Voluntary contributions and investment of funds in the broader community (includes donations, charities, NGOs, research institute, etc.)

7.3. Calculation and unit of measure

Economic value distributed = b + c + d + e + f

Unit: $US

7.4. Practically

Typically, dividends paid to all shareholders are reported on a Consolidated Statement of Cash Flows:

- Cash Flows from Financing Activities
- Payment of dividends

Income tax expense can be used as a proxy for gross taxes. This metric is typically reported on a Consolidated Income Statement under earnings before tax (EBT).

This indicator is reported under the GRI as GRI 201-1.

Note: The EVD will be reported and put into perspective by comparing it to the EVG (Total Revenue).

Source: GRI 201: ECONOMIC PERFORMANCE 2016.

8. Sustainability reporting

8.1. Definitions and remarks

The successful company of tomorrow will have an integrated strategy to achieve financial results and create lasting value for itself, its stakeholders and society. The value created by this company cannot be expressed by isolated financial and sustainability reports, with no clear links between the “single bottom line” and the sustainability impacts or the value created in order to generate its financial results.

Understanding the links between financial results and sustainability impacts is critical for business managers, and increasingly connected to long- and short-term business success. To understand these links, organizations must identify the material sustainability topics to monitor and manage to ensure the business survives and expands. This step is at the core of the sustainability reporting process.

A Reporting Framework - that includes the Reporting Guidelines, Sector Guidelines and other resources - enables greater organizational transparency about economic, environmental, social and governance performance. This transparency and accountability builds stakeholders’ trust in organizations, and can lead to many other benefits. Thousands of organizations, of all sizes and sectors, use recognized and widespread reporting systems, such as GRI, Global 100, EITI or Down Jones, in order to understand and communicate their sustainability performance.

The report is usually published for a yearly period and it is published in the shape of a report or more recent digitally.

8.2. Required Inputs

- Total number of companies that develop a reporting framework for sustainability
- Total number of companies participating in the SD Indicators work

8.3. Calculation and unit of measure

Sustainability Reporting = 100 * (Companies that develop a reporting framework for sustainability) / (Total number of companies)

Unit: %

8.4. Practically

Note: In the questionnaire, it will be asked if these sustainability reports are certified by a third-party.

Source: GRI, Global 100, EITI, Down Jones