Accounting for trade in raw materials: usability of the existing datasets and indicators

Preliminary analysis of the trade-related data and indicators

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Table of contents

Acknowledgements ................................................................................................................. 3
Abstract ................................................................................................................................. 4
Introduction: accounting for trade in raw materials ............................................................... 5
Thematic data sources and indicators ...................................................................................... 8
1. Production of minerals and metals ....................................................................................... 8
   1.1 Ready-to-use datasets on production of mineral commodities .................................. 8
   1.2 Other sets of production data ....................................................................................... 9
2. Data and indicators of trade performance .......................................................................... 10
   2.1 Trade-related data sources ......................................................................................... 11
      2.1.1 Ready-to-use datasets ......................................................................................... 11
      2.1.2 Other trade data providers .................................................................................. 11
   2.2 Trade performance indicators ....................................................................................... 14
      2.2.1 Ready-to-use basic trade indicators ...................................................................... 14
      2.2.2 Other trade performances indicators ................................................................... 15
3. Data and indicators on tariff and non-tariff trade restrictiveness ......................................... 19
   3.1 Data and indicators on tariffs ....................................................................................... 19
   3.2 Data and indicators on non-tariff trade restrictiveness .................................................. 21
4. Trade agreements ................................................................................................................ 22
5. Foreign direct investments in mining sector ....................................................................... 22
6. Qualitative assessment of country’s investment attractiveness in the primary raw material sector ............................................................................................................................. 25
   6.1 General financial burden on the primary raw material sector ................................... 26
   6.2 Qualitative assessment of investment readiness/attractiveness of the extractive sector .......................................................................................................................... 28
   6.3 Assessment of the legislative framework (incl. environmental/health/safety regulations) ...................................................................................................................... 28
References and useful links ..................................................................................................... 34
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Authors of the report:
Viorel Nita (sections 1-5)
Cynthia Latunussa and Tamas Hamor (section 6)
Abstract

This report summarizes the outcome of the data-mapping step for identification of the most suitable country-, product- and material-specific data related to trade and of the most relevant indicators for raw materials. In a subsequent stage, the most suitable datasets and indicators will be used in the development of the Country submodule of Economics & Trade module of Raw Materials Information System (RMIS).

The RMIS’ Economics & Trade module aims at giving access to relevant datasets, organized in two large modules, i.e., Country and Product. The former is organized around six main thematic modules (as shown in Figure 1):

1. **Raw materials trade flows.** Indicative content: country’s top 20 HS 6-digit non-energy and non-food raw materials commodities exported/imported (monetary value; quantity; calculated share of total raw materials exported; calculated share of total HS commodities exported/imported); country’s top 10 country destinations of exports/imports of raw material commodities; country’s restrictions imposed on raw materials exports in place in 2014; country’s tariff profile.

2. **Trade agreements.** Indicative content: country’s participation in preferential and regional trade agreements.

3. **Production of minerals and metals.** Indicative content: country’s production of raw material commodities.

4. **FDI stocks and flows.** Indicative content: Country’s FDI stocks and flows over the last years; country’s FDI stocks and flows by industry and geographical origin.

5. **Trade performance indicators.** Indicative content: trade performance indicators by country or product group, e.g., market concentration degree by supply chain segment, country’s exports composition and diversification, revealed comparative advantages; etc.).

**Product module** structure is still to be developed.

**Figure 1: The main thematic modules of the RMIS trade section**

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1 http://rmis.jrc.ec.europa.eu/
Introduction: accounting for trade in raw materials

The increasing fragmentation and diversification of global value chains, recognized in the new EU trade strategy\(^2\), result in diversified commodity trade networks. Since this applies to the trade of raw-material-containing commodities as well, it entails accounting for data on their production and trade flows, alongside information on trade agreements in place and restrictiveness practices worldwide, at various value-chain stages.

Raw materials are incorporated and traded in varieties of commodity (Table 1), at different stages of fabrication (e.g., extraction, processing, etc. - Figure 2), broadly grouped into ores and concentrates, intermediates, unwrought metals, intermediates, final products and waste and scrap (Table 2).

Table 1. Selected 2017 Harmonised System (HS) 2-digit chapters relevant for raw material-containing commodities

<table>
<thead>
<tr>
<th>SECTION V: MINERAL PRODUCTS</th>
<th>SECTION VI: PRODUCTS OF THE CHEMICAL OR ALLIED INDUSTRIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>25 Salt; sulphur; earths and stone; plastering materials, lime and cement</td>
<td>28 Inorganic chemicals; compounds of precious metals, rare-earth metals etc.</td>
</tr>
<tr>
<td>26 Ores, slag and ash</td>
<td></td>
</tr>
<tr>
<td>27 Mineral fuels, mineral oils and products of their distillation; bituminous substances; mineral waxes.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SECTION VII: PLASTICS AND ARTICLES THEREOF; RUBBER AND ARTICLES THEREOF</th>
<th>SECTION IX: WOOD AND ARTICLES OF WOOD; WOOD CHARCOAL; CORK AND ARTICLES OF CORK; MANUFACTURES OF STRAW, OF ESPARTO OR OF OTHER PLAITING MATERIALS; BASKETWARE AND WICKERWORK</th>
</tr>
</thead>
<tbody>
<tr>
<td>40 Rubber and articles thereof</td>
<td>44 Wood and articles of wood; wood charcoal</td>
</tr>
<tr>
<td>45 Cork and articles of cork</td>
<td>45 Cork and articles of cork</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SECTION X: PULP OF WOOD OR OF OTHER FIBROUS CELLULOSIC MATERIAL; RECOVERED (WASTE AND SCRAP) PAPER OR PAPERBOARD; PAPER AND PAPERBOARD AND ARTICLES THEREOF</th>
<th>SECTION XIII: ARTICLES OF STONE, PLASTER, CEMENT, ASBESTOS, MICA OR SIMILAR MATERIALS; CERAMIC PRODUCTS; GLASS AND GLASSWARE</th>
</tr>
</thead>
<tbody>
<tr>
<td>47 Pulp of wood or of other fibrous cellulosic material; waste and scrap paper or paperboard</td>
<td>68 Articles of stone, plaster, cement, asbestos, mica or similar materials</td>
</tr>
<tr>
<td>48 Paper and paperboard; articles of paper pulp, of paper or of paperboard</td>
<td>69 Ceramic products</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SECTION XIV: NATURAL OR CULTURED PEARLS, PRECIOUS OR SEMI-PRECIOUS STONES, PRECIOUS METALS, METALS CLAD WITH PRECIOUS METAL AND ARTICLES THEREOF; IMITATION JEWELLERY; COIN</th>
<th>SECTION XV: BASE METALS AND ARTICLES OF BASE METAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>71 Pearls, precious or semi-precious stones, precious metals; imitation jewellery; coin</td>
<td>72 Iron and steel</td>
</tr>
<tr>
<td></td>
<td>73 Articles of iron or steel</td>
</tr>
<tr>
<td></td>
<td>74 Copper and articles thereof</td>
</tr>
<tr>
<td></td>
<td>75 Nickel and articles thereof</td>
</tr>
<tr>
<td></td>
<td>76 Aluminium and articles thereof</td>
</tr>
<tr>
<td></td>
<td>78 Lead and articles thereof</td>
</tr>
<tr>
<td></td>
<td>79 Zinc and articles thereof</td>
</tr>
<tr>
<td></td>
<td>80 Tin and articles thereof</td>
</tr>
<tr>
<td></td>
<td>81 Other base metals; cermets; articles thereof</td>
</tr>
<tr>
<td></td>
<td>82 Tools, implements, cutlery, spoons and forks, of base metal; parts thereof of base metal</td>
</tr>
<tr>
<td></td>
<td>83 Miscellaneous articles of base metal</td>
</tr>
</tbody>
</table>

---

Table 2 shows an overview of broad HS product categories relevant for raw materials is presented in the.

### Table 2: Groupings of HS products by category and by raw materials sector

<table>
<thead>
<tr>
<th>Product categories</th>
<th>HS codes / Number of products</th>
</tr>
</thead>
<tbody>
<tr>
<td>HS Standard Product Groups</td>
<td></td>
</tr>
<tr>
<td>Raw materials</td>
<td>This grouping contains also food- and energy-related HS 6-digit products</td>
</tr>
<tr>
<td>Intermediate goods</td>
<td>2049 HS 6-digit products</td>
</tr>
<tr>
<td>Consumer goods</td>
<td>1532 HS 6-digit products</td>
</tr>
<tr>
<td>Capital goods</td>
<td>905 1988/92 HS 6-digit products</td>
</tr>
<tr>
<td>Sectoral groupings</td>
<td></td>
</tr>
<tr>
<td>Minerals</td>
<td>25,26</td>
</tr>
<tr>
<td>Metals</td>
<td>HS 72,73,74,75,76,78,79,80,81,82,83</td>
</tr>
<tr>
<td>Wood</td>
<td>HS 44,45,46,47,48,49</td>
</tr>
<tr>
<td>Stone and glass</td>
<td>68,69,70,71</td>
</tr>
<tr>
<td>Chemicals</td>
<td>28,29,30,31,32,33,34,35,36,37,38</td>
</tr>
</tbody>
</table>

Source: World Integrated Trade System, Reference data

Accounting for raw materials production and trade requires the statistical translation of all commodities belonging to a specific value chain (an example in Figure 2) into stage-, sector- and product-specific statistical codes.

**Figure 2. Example of a simplified value chain for tungsten**

![Value chain diagram](image)

Source: Partly reproduced from European Commission (2017)

For further illustrating the diversity of products containing raw materials across a material’s value chain, Table 3 presents in a list of nickel-containing commodities and their associated HS and BEC3 codes.

---

Table 3. Nickel-containing products according to the HS and BEC classification

<table>
<thead>
<tr>
<th>HS code</th>
<th>Name</th>
<th>Stage of production (BEC classification)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SECTION V: MINERAL PRODUCTS</strong>&lt;br&gt;- 26 - Ores, slag and ash</td>
<td></td>
<td></td>
</tr>
<tr>
<td>26.04.00</td>
<td>Nickel ores and concentrates</td>
<td>210*</td>
</tr>
<tr>
<td><strong>SECTION VI: PRODUCTS OF THE CHEMICAL OR ALLIED INDUSTRIES</strong>&lt;br&gt;- 28 Inorganic chemicals; compounds of precious metals, rare-earth metals etc.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>28.25.40</td>
<td>Nickel oxides and hydroxides</td>
<td>220*</td>
</tr>
<tr>
<td>282735</td>
<td>Nickel chlorides</td>
<td>220</td>
</tr>
<tr>
<td>283324</td>
<td>Sulphates of nickel</td>
<td>220</td>
</tr>
<tr>
<td><strong>SECTION XV: BASE METALS AND ARTICLES OF BASE METAL</strong>&lt;br&gt;- 72 Iron and steel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>72.02.60</td>
<td>Ferro-nickel, in granular/powder form</td>
<td>220</td>
</tr>
<tr>
<td>72.04.21.10</td>
<td>Waste and scrap of stainless steel - nickel content 8% or greater</td>
<td>210</td>
</tr>
<tr>
<td>72.04.21.90</td>
<td>Waste and scrap of stainless steel - nickel content less than 8%</td>
<td>210</td>
</tr>
<tr>
<td><strong>SECTION XVI: MACHINERY AND MECHANICAL APPLIANCES; ELECTRICAL EQUIPMENT; PARTS THEREOF; SOUND RECORDERS AND REPRODUCERS, TELEVISION IMAGE AND SOUND RECORDERS AND REPRODUCERS, AND PARTS AND ACCESSORIES OF SUCH ARTICLES</strong>&lt;br&gt;- 85 Electrical machinery, equipment parts; sound and television recorders</td>
<td></td>
<td></td>
</tr>
<tr>
<td>850730</td>
<td>Nickel-cadmium accumulators</td>
<td>220</td>
</tr>
<tr>
<td>850740</td>
<td>Nickel-iron accumulators</td>
<td>220</td>
</tr>
<tr>
<td>850750</td>
<td>Nickel-metal hydride accumulators (excl. spent)</td>
<td>220</td>
</tr>
</tbody>
</table>

* 210: Industrial supplies n.e.s., Primary;  
** 220: Industrial supplies n.e.s., Processed;  

Source: World Customs Organisation, Harmonized System 2017
In order to link the product-level production and trade datasets, the existing statistical correspondence tables provided by international data providers can be used – e.g., Procom-HS-CN; ISIC Rev.4-CPC4; HS-CPA-CN; NACE-CPA-Prodcom.

**Thematic data sources and indicators**

1. **Production of minerals and metals**

This section describes the identified sources of mining and metals production data. Taking into account the stages of RMIS development process, they are divided into two categories:

i) ready-to-use datasets:

ii) sets of data that needing further processing.

1.1 **Ready-to-use datasets on production of mineral commodities**

1.1.1 **World Mining Data** provides comprehensive worldwide mineral production data in both metric tons and mil. USD on production of mineral raw materials, by region, producer country, commodity group and raw material, alongside country shares of world production.

1.1.2 **European Minerals Yearbook** is a web-based dataset developed within the EU 7th Framework Programme project “Minerals Intelligence Network for Europe” (Minerals4EU) project (Work Package led by BGS). It provides mining and refinery production by country (41 European countries) and primary raw material (in metric tonnes; time series 2004-2013).

1.1.3-4 British Geological Survey publishes annually two datasets: **World Mineral Production** (1.1.3) and **European Mineral Statistics** (1.1.4).

**World Mineral Production** set of data covers around 70 mineral commodities. Worldwide production data are grouped by mineral/metal and country.

**European Mineral Statistics** provides country-level and aggregate Europe-36 (i.e., EU members and EU candidate countries, plus Norway and Switzerland) data on production of minerals (in metal content) and metals in the EU (around 70). Two types of statistical tables are provided: by individual country and by mineral commodity. Country production tables – alongside World Mining Data - can be used in the construction of Country profile in the RMIS.

1.1.5 The **Study on the review of the list of Critical Raw Materials 2017** provides production data as follows:

- Part B, Critical and non-critical materials factsheets, contains data on global mining/refinery production of around 80 raw materials, as well as the world shares of the main producing countries.

- The material-specific Criticality Assessment Excel Worksheets accompanying the Study also provide data on global mining supply or production (in kg) for around 80 raw materials (“Supply” worksheet).

**Table 4: List of ready-to-use sets of production data**

<table>
<thead>
<tr>
<th>Dataset</th>
<th>Description</th>
<th>Web link</th>
</tr>
</thead>
</table>


1.2 Other sets of production data

1.2.1 Eurostat’s Prodcom provides statistics on the EU production of three NACE Rev. 2 sections, i.e., Mining and quarrying (B), Manufacturing (C), and Electricity, gas and water supply (D). It covers around 3900 8-digit code products; its geographical scope is European Union plus Norway and Iceland. The variables provided are (country-level data and EU-28 and EU-27 totals): Value, Total volume, Sold volume and Unit value\(^5\). Sold production for steel is provided separately. As far as its correspondence with other nomenclatures is concerned, Prodcom product codes are linked to the CPA 2008, NACE Rev. 2 and Combined Nomenclature headings (trade statistics).

1.2.2 UNSD’s Industrial Commodity Statistics Database provides production data in both metric tons and mil. USD. Time coverage of the online database covers is 1995-2013. Product data are provided according to UN’s 3-digit Central Product Classification, compatible with ISIC Rev.4 and Harmonized System.

1.2.3 UNIDO’s MINSTAT 2016 ISIC Revision 3 and MINSTAT 2016 ISIC Revision 4 provide data on the output of primary industry sectors. Data are presented by country and sector (at 2- and 3-digit levels of the ISIC Rev. 3 and 4). These two datasets are not accessible free of charge.

1.2.4 USGS Minerals Yearbook. Volume I, Metals and Minerals presents annually updated data and information on production of 90 raw materials, by commodity. Includes also country-level data on major operating companies and main facilities. Volume III, “Area Reports: International”, is an annual review of mineral commodities, including production data and industry structure for around 175 countries.

1.2.5 Federal Institute for Geosciences and Natural Resources (BGR) provides data on mining and refinery production worldwide, grouped by raw material (16).

1.2.6 S&P Market Intelligence (the former SNL) databases (1.11) contain the following data categories:
- Data on country-level production of commodities (Countries>Country profile> Metals & Mining Industry>Production by Commodity);
- Top Projects by Production Value, by country (Countries>Country profile>Metals & Mining)

\(^5\) Unit value is defined as value of production of an item divided by the quantity (source: OECD Glossary of Statistical Terms)
- Data on Top Producing Projects and Top Producing Companies, by commodity (Commodities>Top producing companies) S&P Market Intelligence (the former SNL) covers 2349 companies operating in Metals & Mining sector (2015 coverage).
SNL Metals and Mining Production Template (11.2) provides commodity-specific annual production data by country and region; it also includes the Top 15 producing country.

1.2.7 **BRGM’s Banque de données Economiques Mondiales des Mineraux et Métaux (BE3M)** provides data on global mining and metals production, by raw material, commodity and country. As far as the REEs are concerned, BRGM published *Panorama 2014 du marché des Terres Rares* in 2015.

1.2.8 **Roskill** provides commodity-specific market reports, including data on production (not freely available).

**Table 5: List of other sets of data on production**

<table>
<thead>
<tr>
<th>Dataset</th>
<th>Description</th>
<th>Web link</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.2.6 S&amp;P Market Intelligence, Metals and Mining Production Template</td>
<td>SNL Metals and Mining Production Template provides commodity-specific annual production data by country and region. Includes also the Top 15 producing country.</td>
<td>Excel Template Library, <a href="http://www.snl.com/">http://www.snl.com/</a></td>
</tr>
<tr>
<td>1.2.8 Roskill</td>
<td>Provides commodity-specific market reports, including data on production.</td>
<td>Roskill, Marlet Reports, <a href="https://roskill.com/product-category/market-reports/">https://roskill.com/product-category/market-reports/</a> (not freely accessible)</td>
</tr>
</tbody>
</table>

The identified datasets provide the basis for country-level production indicators such as: value and volume of mineral production; country’s mineral production relative to GDP; top minerals produced; active mining companies operating in a certain country (e.g., by using SNL data).

### 2. Data and indicators of trade performance

The trade-related data sets and indicators identified for the purpose of this report are also divided into two categories:

i) ready-to-use datasets and indicators:
ii) sets of data that need targeted gathering and/or further processing, or indicator that need own calculation.

2.1 Trade-related data sources

2.1.1 Ready-to-use datasets

2.1.1.1 European Minerals Yearbook (Minerals4EU) gives access to country- and material-specific import and export data for 41 European countries. For primary raw materials, data are provided in metric tonnes, time series 2004-2013, while for the secondary raw materials, data provided represent mineral-specific import and export flows of waste (data for 2010 and 2013 only).

2.1.1.2 Study on the review of the list of Critical Raw Materials. Each material-specific factsheet (Part B) includes a separate section on the EU-28 import and export flows. Only one value-chain stage is referred to (mostly ores & concentrates). Annual and average data are provided for the period 2010-2014. The material-specific criticality calculation Excel files contain data on the EU's actual suppliers on material-specific import dependency (most of them at ores & concentrates stage).

2.1.1.3 British Geological Survey’s European Mineral Statistics contains country-level and material-specific data on exports and imports flow of commodities for 36 European countries. For some metals the import and export flows at various value-chain stages are cumulated (e.g. chromium, tungsten, etc.), whereas for the other only unwrought metal data are presented.

2.1.1.4 BRGM’s Banque de données Economiques Mondiales des Minerais et Métaux (BE3M) provides data on global trade, by raw material, commodity and country. As to REEs, BRGM published world trade data in Panorama 2014 du marché des Terres Rares in 2015 (from p. 181 onwards).

2.1.1.5 Roskill provides commodity-specific market reports, including data on international trade (not freely accessible).

Table 6: Ready-to-use trade datasets

<table>
<thead>
<tr>
<th>Dataset</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>European Minerals Yearbook (Minerals4EU)</td>
<td>Country- and material-specific import and export data for 41 European countries.</td>
</tr>
<tr>
<td>Study on the review of the list of Critical Raw Materials</td>
<td>Includes data on EU trade flows and on material-specific import dependency (mostly at ores&amp;concentrates stage).</td>
</tr>
<tr>
<td>British Geological Survey’s European Mineral Statistics</td>
<td>Offers country-level and material-specific data on exports and imports flow of commodities for 36 European countries (time series 2010-2014)</td>
</tr>
<tr>
<td>BRGM</td>
<td>BRGM’s Banque de données Economiques Mondiales des Minerais et Métaux (BE3M) provides data on global trade, by raw material, commodity and country.</td>
</tr>
<tr>
<td>Roskill</td>
<td>Provides commodity-specific market reports, including data on international trade.</td>
</tr>
</tbody>
</table>

The web links to all these datasets are provided above, in Tables 4 and 5.

2.1.2 Other trade data providers

Among the most established trade-related data sets are Eurostat’s International Trade in goods, UN Comtrade, World Integrated Trade Solution (WITS) and International Trade
Centre’s Trade by Commodity Statistics. The data they provide allow for compilation and analysis of country-, sector- and product-level trade performance in primary and secondary raw materials.

2.1.2.1 **Eurostat’s International trade in goods** provides EU-related trade datasets such as:
- EU Trade since 1988 by HS2, 4, 6 and CN8 (value and quantity);
- EU Trade since 1988 by SITC;
- EU Trade since 1988 by BEC;
- EU Trade since 1988 by CPA_2008;
- EU Trade since 1988 by BEC-CPA;
- Adjusted EU-EXTRA Imports by tariff regime, by HS 2, 4 and 6.

International trade in goods (ITGS) dataset offers detailed data on the value and quantity of intra-EU and extra-EU trade of goods.

2.1.2.2 Run by United Nations Statistics Division, **UN Comtrade** is the most internationally established product trade database that gives access to the most detailed annual international trade statistics (imports, re-imports, exports, re-exports) by commodities and partner countries since 1962. **UN Comtrade Analytics** provides an interactive visualization tool of data on import, export and trade balance, by country and product group.

2.1.2.3 **United Nations, 2015 International Trade Statistics Yearbook**, Volume I - Trade by Country) offers data on imports and exports of individual countries (areas), by commodity and by partner country. Part 1 contains world trade tables by regions and countries or areas, and exports by provenance and destination. Part 2 presents country (and areas, including EU-28) trade profiles. Volume II - Trade by Product provides the latest trends of trade in goods and services for 257 individual commodities (3-digit SITC groups). Part 1 consists of 11 tables of world trade data; Part 2 contains the trade profiles for 257 commodities.

2.1.2.4 World Bank’s **World Integrated Trade Solutions** (WITS) gives access to trade, tariff and non-tariff data and indicators from various sources (UN Comtrade, UNCTAD Trade Analysis Information System, etc.). The main sections are: 
<TradeStats>, which provides summary trade, tariff and non-tariffs data and indicators, as follows:
- Top importing and exporting countries;
- Country’s top products exported/imported
- Country’s top export and import partners;
- Annual world, region- and country-specific trade data and indicators, by product, product group, trade partner and by trade performance indicator
- Trade indicators, such as Revealed comparative advantage (RCA), Trade balance as percentage of GDP, etc.
WITS also provides in-built applications to generate customized queries, calculate other country-level trade performance and competitiveness indicators.

2.1.2.5 **International Trade Center’s Yearly Trade by Commodity Statistics 2001-2015** offers direct and mirror trade data on imports and exports; trade balance and other trade variables, by product group and by country.
Country-level trade variables are provided by HS 2 and 4 product group and trade partner, such as:
- Value;
- Share in value (%);
- Unit value;
- Growth on unit value;
- Index on values;
- Index on unit values;
- Quantity;
- Growth in value and quantity;
- Ranking of partner countries in world exports;
- Share of partner countries in world exports (percentage);
- Total exports growth in value of partner countries between 2011-2015 (percentage).

2.1.2.6 **OECD International trade and balance of payments statistics** provides country-level monthly, quarterly and annual (monthly, cumulated) data on export, import and net import of goods, extracted from the UN Monthly Comtrade database. The International Trade (MEI) dataset contains predominantly monthly merchandise trade statistics. The datasets cover the OECD member countries and the EU.

2.1.2.7 **OECD’s 2016 International Trade by Commodity Statistics (Vol. 1-5)** provides country-level trade data, total and by HS 2012 2-digit product group, for the OECD member countries, based on UN Comtrade data.

2.1.2.8 **IHS Markit’s Global Trade Atlas**, Global Import/Export Commodity Trade Data, provides relevant data such as: global trade flows of products and product groups; country-specific import sources and export destinations.

### Table 7: Other trade data providers

| 2.1.2.2 United Nations Commodity Trade Statistics Database (UN Comtrade) | The UN Comtrade gives access to the most detailed annual international commodity trade statistics by commodity and partner country. UN Comtrade Analytics provides interactive visualization tools of trade flows data. | http://comtrade.un.org |
2.2 Trade performance indicators

2.2.1 Ready-to-use basic trade indicators

Based on the existing trade datasets, trade performance indicators can be collected/calculated, at various sophistication degrees. On short term, ready-to-use and basic trade performance indicators can be used in RMIS' Trade section.

Table 8: Ready-to-use trade performance indicators

<table>
<thead>
<tr>
<th>Dataset</th>
<th>Product cluster level</th>
<th>Indicators</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Export of goods</td>
<td>CN/HS codes</td>
<td>Country’s total export and imports of goods, i.e., without services (both value and quantity).</td>
<td>Eurostat’s International Trade database for the EU countries. World Bank DataBank for the third countries.</td>
</tr>
<tr>
<td>Country's share of world exports</td>
<td>country</td>
<td>Share of a country's total exports in the world's total exports</td>
<td>Eurostat’s International Trade database for the EU countries. UN COMTRADE for third countries.</td>
</tr>
<tr>
<td>Product (group) share in country's total exports</td>
<td>product</td>
<td>It calculates the share of each HS product (group) exported in the country’s total exports.</td>
<td>Eurostat’s International Trade database for the EU countries. UN COMTRADE for third countries.</td>
</tr>
<tr>
<td>Trade balance (TB) TB = Xi – Mi</td>
<td>country</td>
<td>Difference between a country's total exports and total imports.</td>
<td>Eurostat’s International Trade database for the EU countries. ITC for the rest of the world.</td>
</tr>
</tbody>
</table>

1. UN Comtrade Analytics indicators

<table>
<thead>
<tr>
<th>Dataset</th>
<th>Product cluster level</th>
<th>Indicators</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>2- and 3- digit HS groups</td>
<td>- Destination of exports - Annual average growth of exports - Net exporting countries/areas - Origin of imports - Annual average growth of imports - Net importing countries/areas - Trade balance</td>
<td>- By partner country or partner region - Chargeable data for 6-digit HS groups and Product tariff in line options - Chargeable data for company level data on export/import of products</td>
<td><a href="https://comtrade.un.org/labs/">https://comtrade.un.org/labs/</a></td>
</tr>
</tbody>
</table>

ITC’s Yearly Trade by Commodity Statistics 2001-2015, by country: imports or exports

<table>
<thead>
<tr>
<th>Dataset</th>
<th>Product cluster level</th>
<th>Indicators</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>- 4-digit HS groups</td>
<td>- Country list of products imported, exported or reexported - Product-specific yearly time series for import, export and reexport - Basic trade indicators: Value; Growth in value; Share in value; Quantity; Growth in quantity; Unit value; Growth on unit value; Index on values; Index on unit values; Trade balance, Share in country’s export/import, Share in world import/export, Ranking in world import/export, Tariff faced/applied, Trend in a 4-digit product groups, Average distance of partner countries, Market concentration</td>
<td>- By partner country or partner region - Chargeable data for 6-digit HS groups and Product tariff in line options - Chargeable data for company level data on export/import of products</td>
<td></td>
</tr>
</tbody>
</table>
**Basic trade indicators:**
country’s trade as percentage of GDP; country’s and region’s overview of imports and exports, tariff and non-tariff measures; country’s or region’s overall exports, imports and tariffs; export and import partner countries alongside their share; Most Favored Nation (MFN) and Effective Applied Tariff (AHS) tariffs imposed; total products exported/imported globally and with country partners; number of export and import partners; HHI; Export Market Penetration, RCA; taxes on exports; The comprehensive list of indicators is provided in the Table., Trade performance and competitiveness indicators

### Competitiveness indicators

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Formula</th>
<th>Description</th>
<th>Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Export Dependence (or Export propensity)</td>
<td>( XD = \frac{X_i}{GDP} )</td>
<td>It shows the degree of reliance of domestic producers on foreign markets. Defined as ratio of exports to GDP.</td>
<td>Eurostat’s International Trade database for the EU countries. UN COMTRADE for third countries; World Bank DataBank for GDP; UN (2007)</td>
</tr>
<tr>
<td>Import Dependence</td>
<td>1. ( ID = \frac{M_i}{GDP} ) 2. ( ID = \frac{M_i}{(M_i + P_i) - X_i} )</td>
<td>1. It indicates contribution of foreign supply to a country’s GDP. 2. It can be calculated for product groups or sectors. Pi is domestic production; ( (M_i + P_i) ) represents domestic availability.</td>
<td>Eurostat’s International Trade database for the EU countries. UN COMTRADE for third countries. World Bank DataBank for GDP</td>
</tr>
</tbody>
</table>

### BY PRODUCT

<table>
<thead>
<tr>
<th>Product Group</th>
<th>Formula</th>
<th>Description</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ores and metals exports (% of merchandise exports)</td>
<td>( OM_k = \frac{X_{ik}}{\sum_k X_{ik}} )</td>
<td></td>
<td>World Bank DataBank estimates based on data from the UN Comtrade</td>
</tr>
<tr>
<td>Ores and metals imports (% of merchandise imports)</td>
<td>( OM_k = \frac{M_{ik}}{\sum_k M_{ik}} )</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ITC’s Yearly Trade by Commodity Statistics 2001-2015, by product group: imports or exports</td>
<td>- 4-digit HS groups  - 6-digit HS groups (chargeable)</td>
<td>- Product-specific yearly time series for import, export, reexport and trade balance - Basic trade indicators: Value; Growth in value; Share in value; Quantity; Growth in quantity; Unit value; Growth on unit value; Index on values; Index on unit values; Trade balance, Share in country's export or import, Share in world import/export; Average tariff (estimated) applied by the country (%)</td>
<td>- Partner: world and individual countries - Downloadable tables, graphs and maps - Average tariff (estimated) applied by the country</td>
</tr>
<tr>
<td>WITS TradeStat Database, Quick Search, UN COMTRADE, By Product</td>
<td>2-, 4- and 6-digit codes</td>
<td>- Gross imports; Gross exports; Re-imports; Re-exports;</td>
<td>By country reporter (and EU) and trade partner</td>
</tr>
</tbody>
</table>

### 2.2.2 Other trade performances indicators

On long term, additional indicators can be collected or computed for measuring the performance of country-, sector- and product-level trade in raw materials. A tentative list of most suitable indicators for keeping track of trade performance, covering four trade-
related themes, is presented in Table 9. They are applicable to either country or product trade analysis (or both of them).

**Table 9: Additional indicators of performance of trade in raw materials (to be considered on long term)**

<table>
<thead>
<tr>
<th>Theme/Indicator</th>
<th>Formula</th>
<th>Level</th>
<th>Description</th>
<th>Sources of data</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A. Net trade</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Export value index (base year = 100)</td>
<td>((\Sigma X_i / \Sigma X_{base\ year}) \times 100)</td>
<td>country</td>
<td>It measures aggregate price change in a country’s exports of commodities.</td>
<td>World Bank’s DataBank</td>
</tr>
<tr>
<td>Import value index (base year = 100)</td>
<td>((\Sigma M_i / \Sigma X_{base\ year}) \times 100)</td>
<td>country</td>
<td>It measures aggregate price change in a country’s imports of commodities.</td>
<td>World Bank’s DataBank</td>
</tr>
<tr>
<td>Growth rate of exports</td>
<td>(CGRE = \left[\left(\Sigma X_i / \Sigma X_0 - 1\right)^{1/n} - 1\right])</td>
<td>country</td>
<td>Annual compound percentage change in the value of exports or imports between two periods</td>
<td>UN (2007); UN Comtrade</td>
</tr>
<tr>
<td>Normalized trade balance (NTB)</td>
<td>(NTB = (X_i - M_i) / (X_i + M_i))</td>
<td>country</td>
<td>It measures trade performance as trade balance fraction of total trade.</td>
<td>Eurostat’s International Trade database for the EU countries. UN COMTRADE for third countries.</td>
</tr>
<tr>
<td><strong>B. Market shares</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Normalized share balance (NSB)</td>
<td>(NSB_{ik} = \left[\left(\Sigma X_{ik} / \Sigma X_i\right) - \left(\Sigma M_{ik} / \Sigma M_i\right)\right] / \left[\left(\Sigma X_{ik} / \Sigma X_i\right) + \left(\Sigma M_{ik} / \Sigma M_i\right)\right])</td>
<td>country/product</td>
<td>It measures trade performance of trade in raw materials.</td>
<td>Eurostat’s International Trade database for the EU countries. UN COMTRADE for third countries.</td>
</tr>
<tr>
<td>Hummels-Klenow intensive export margin</td>
<td>(IM_j = X_j / \Sigma_j X_{Wis})</td>
<td>country/product groups</td>
<td>It measures the fraction of exports of country (j) to country (i) in product category ((&gt;0)); (X_j) = nominal exports of country (j) to country (i) in product category (s); &quot;The intensive export margin measures a country’s share of world exports in those market-categories in which it exports.&quot;(Hummels and Klenow, 2002)</td>
<td>Eurostat’s International Trade database for the EU countries. UN COMTRADE for third countries.</td>
</tr>
<tr>
<td>Hummels-Klenow extensive export margin</td>
<td>(EM_j = \Sigma_j X_{Wis} / X_w)</td>
<td>country/product groups</td>
<td>&quot;The extensive margin for country (j) measures the fraction of exports that occur in those world market categories in which country exports...Other things equal, if a country concentrates all of its exports in a small number of market categories, it will have a higher intensive export margin and a lower extensive margin. If that country spreads its exports thinly over many market-categories, it will have a lower intensive export margin and a higher extensive margin.” (Hummels and Klenow, 2002).</td>
<td>UN COMTRADE, accessed through World Integrated Trade Solutions (WITS) and/or International Trade Centre’s Trade statistics</td>
</tr>
<tr>
<td><strong>C. Competitiveness</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trade dependence or Trade openness TD</td>
<td>((X_i + M_i) / GDPI)</td>
<td>country</td>
<td>It is calculated as trade-to-GDP ratio; (0 \leq TD \leq 1). A value close to 1 shows that international trade features highly in the nation’s GDP profile.</td>
<td>Eurostat’s International Trade database for the EU countries. UN COMTRADE for third countries. World Bank DataBank for GDP.</td>
</tr>
<tr>
<td>Import Penetration</td>
<td>(IP = \Sigma M_i / [GDPI + \Sigma X_i + \Sigma M_i])</td>
<td>Country</td>
<td>Defined as ratio of total imports to domestic consumption (DC).</td>
<td>UN (2007)</td>
</tr>
</tbody>
</table>
**Net Trade Openness**

\[ \text{NTO} = \frac{(X_i - M_i)}{GDP_i} \]

It measures the trade balance’ share of the country’s GDP. UN COMTRADE, accessed through World Integrated Trade Solutions (WITS) and/or International Trade Centre’s Trade statistics.

**Revealed comparative advantage - sector**

\[ \text{RCA}_i = \left(\frac{X_i}{\sum X_i} / \left(\frac{X_i}{\sum X_i}ight)\right) \]

The numerator represents the percentage share of a certain product/sector in country’s exports; the denominator represents the percentage share of a certain sector in total exports.

UN COMTRADE, accessed through World Integrated Trade Solutions (WITS) and/or International Trade Centre’s Trade statistics.

**Revealed comparative advantage - product**

\[ \text{RCA}_{ij} = \left(\frac{x_{ij}}{X_i} / \left(\frac{x_{ij}}{X_{it}}\right)\right) \]

\[ \text{RCA}_{ij} < 1 \text{ means country’s revealed comparative disadvantage for the product; } \text{RCA}_{ij} > 1 \text{ means country’s revealed comparative advantage for the product.} \]

UN COMTRADE, accessed through World Integrated Trade Solutions (WITS) and/or International Trade Centre’s Trade statistics.

**Normalized / symmetric revealed comparative advantage index**

\[ \text{NRCA}_{ik} = \frac{\left(\text{RCA}_{ik} - 1\right)}{\left(\text{RCA}_{ik} + 1\right)} \]

It measures the competitiveness of a country’s trade portfolio for a certain group of goods/sectors. A NRCA value close or around to 1 means comparative advantage; a NRCA value close or around to 0 means comparative disadvantage in that product group or sector.

Eurostat’s International Trade database for the EU countries. UN COMTRADE for third countries.

**Export specialization index**

\[ \text{ESI} = \left(\frac{x_{ij}}{X_{it}}\right) / \left(\frac{M_{kj}}{M_{kt}}\right) \]

The denominator refers to specific markets or partners rather than world market. A ESI value close or around to 1 means specialisation in the market; a ESI value close or around to 0 means comparative disadvantage in exports of that product group or sector.

UN COMTRADE, accessed through World Integrated Trade Solutions (WITS)

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**D. Trade diversification, intensity, complementarity or similarity**

**Product export concentration - Herfindahl Index**

\[ H_i = \sqrt{\sum \left(\frac{x_{ik}}{\sum x_{ik}}\right)^2} \]

\[ x_{ik} \text{ is country } i’s \text{ exports of product } k. \]

A HA close to zero indicates a perfectly diversified export portfolio will have an index, whereas a country which exports only one export will have a value of 1 (least diversified). (Source: WITS)

UN COMTRADE, accessed through World Integrated Trade Solutions (WITS)

**Export Diversification / Concentration Index**

\[ \text{XDI} = \frac{\left(\sum |x_{ij} - x_i|\right)}{2} \]

\[ x_{ij} \text{ is the share of a commodity } x_i \text{ in the total exports of country } j \text{ and } x_i \text{ is the share of that commodity in world exports. } \]

0 < XDI < 1, where 1 indicates large variation from the world average.

World Integrated Trade Solutions (WITS)

**Herfindahl Hirschman Index (HHI)**

\[ \text{HHI} = \sum s_i^2 \]

\[ s_i \text{ is the share of a commodity. } \]

0 < HHI < 1; a higher value indicates a greater concentration of exports.

World Integrated Trade Solutions (WITS)
| Concentration index or Hirschman index (H) | \( HI = \sqrt{\sum (x_i/X_t)^2} \) | product / country | \( x_i \) is country j’s exports of product i; \( X_t \) is country j’s total exports. The lower the index, the less concentrated are a country’s exports. Used by UNCTAD for calculating the shares of all three-digit products in a country’s exports. (source: WITS, Trade indicators). | UN COMTRADE, accessed through World Integrated Trade Solutions (WITS) |
| Concentration ratio | \( CR = \sum S_i \) | \( i = 1, 2, ..., n; S = shares of export \) | CR measures the concentration share held by N-sectors within a country’s export portfolio. A low concentration ratio indicates that a country’s export portfolio comprises a greater variety of goods, whereas a ratio nearing 1 (100%) means that a country exports only one type of product. (Source: Delta Economics) | UN COMTRADE, accessed through World Integrated Trade Solutions (WITS) |
| Trade Intensity Index | \( TI_{ij} = \frac{(x_{ij}/X_{it})}{(x_{wj}/X_{wt})} \) | \( x_{ij} \) and \( x_{wj} \) are country i’s exports and those of world exports to country j; \( X_{it} \) and \( X_{wt} \) are total exports of country i and world exports to country j. | TI>1 indicates a bilateral trade flow that is larger than expected, given the partner country’s importance in world trade. (Source: Delta Economics) | UN COMTRADE, accessed through World Integrated Trade Solutions (WITS) |
| Finger-Kreinin index of trade similarity | \( FK_{ij} = 1 - \left[ \frac{1}{2} \sum_k |(x_{ik}/\sum_k x_{ik}) - (x_{jk}/\sum_k x_{jk})| \right] \) | FK measures the competition extent between two countries in terms of its exports. A FK closer to 0 indicates less similar export structure, whereas 1 represents close similarity. (Source: Delta Economics) | FK measures the competition extent between two countries in terms of its exports. A FK closer to 0 indicates less similar export structure, whereas 1 represents close similarity. (Source: Delta Economics) | UN COMTRADE |
| Trade Complementarity | \( TC_{ij} = 100 \left[ 1 - \sum_k |M_{ik} - X_{ij} / 2 | \right] \) | country / product / sector | TCI is an ‘overlap’ index which shows how well the structure of a country’s export-supply matches another country’s import-demand of a certain product/sector. \( x_{ij} \) is the share of good i in global exports of country j; \( M_{ik} \) is the share of good i in all imports of country k. TC=0 when no goods are exported by one country or imported by the other. TC=100 when the export and import shares are the same. A higher TC value shows high suitability for countries considering the conclusion of trade agreements. (Source: Delta Economics) | UN COMTRADE, accessed through World Integrated Trade Solutions (WITS) |
| Grubel-Lloyd index of intra-industry trade | \( GL_{ij} = 1 - \left[ \frac{1}{M_{jk}} \left( X_{jk} - M_{jk} \right) / (X_{jk} + M_{jk}) \right] \) | product / country | GL measures intra-industry trade degree; 0<GL<1; (Source: Delta Economics) | UN COMTRADE, accessed through World Integrated Trade Solutions (WITS) |
3. Data and indicators on tariff and non-tariff trade restrictiveness

3.1 Data and indicators on tariffs

3.1.1 **WTO Tariff Analysis Online (TAO)** tool and **Tariff Download Facility** offer data on member countries’ customs duties.

**Tariff Analysis Online**\(^6\) is an interactive tool providing tariff rates on products defined at 8-digit HS level (i.e., „tariff lines“). It allows for extracting and analysing data such as tariffs, tariff quotas and import commitments.

**Tariff Download Facility**\(^7\) provides simple tariff statistics – i.e., bound, applied and preferential tariffs - for downloading, less HS detailed but allows for quick comparability between countries. Information on bound rates is based on the WTO’s Consolidated Tariff Schedules (CTS) database, and applied rates is drawn from the WTO’s Integrated Database (IDB). Some data on preferential duties under free trade agreements or preferential schemes are available for some members.

It presents bound and applied information in a uniform and consolidated form (i.e., the same level HS codes) of for all member countries.

The country-level data provided by these two data services are:
- country’s legally „bound commitments“ on customs duties (i.e., tariff ceiling commitments by WTO member countries);
- country’s „applied rates“, i.e., charges on imports, lower than bound rates).

3.1.2 **WTO’s country-specific ceiling tariff commitments in goods** gives access to country’ maximum tariff levels (technically named “bound tariffs”), MFN applied tariffs for goods, by national tariff lines at HS-6 subheading, alongside ad-valorem duties (number, minimum, maximum, average and duty-free tariff lines) and country’s tariff profile.

3.1.3 **WTO’s Members and Observers** database country’s information on WTO commitments (bound and applied rates at HS 6-digit subheading level), disputes and notifications, as well as trade policy reviews.

3.1.4 **WTO, ITC and UNCTAD, World Tariff Profiles** is an annual publication based on Tariff Download Facility (point 1.5.1.1) which provides figures for more aggregated categories of products. It contains bound and applied import tariffs rates, as well as non-tariff measures imposed by around 170 countries (164 WTO members plus some others) for all products by HS nomenclature), by year of MFN applied tariff, duty range and sectors (including Minerals & Metals).

Provides indicators such as: binding coverage; tariff average; maximum duty; percentage of duty-free tariff lines; tariff dispersion (number of distinct duties and coefficient of variation of ad valorem duties).

Part A.1: Country/region’s tariffs and imports. Summary and duty ranges, containing:
- simple average final bound;
- simple average MFN applied;
- trade-weighted tariff average;
- binding coverage;

Part A.2: Country’s tariffs and imports by product groups (final bound duties and MFN applied duties): simple average; duty free; maximum; binding in %; product group’s share of imports; share of MFN duty-free imports;

Part B: Country’s exports to major trading partners and duties faced: bilateral imports; HS-2 and HS-6 trade diversification; MFN Average of traded tariff lines; preference margin; share of duty-free trade in per cent of all bilateral trade flows.

3.1.5 **WITS’ TRAINS dataset** gives access to data harmonized across the countries (at 6-digit-level of HS) on preferential and most-favored-nation (MFN) tariff rates from UNCTAD’s TRAINS database. UNCTAD method is used to convert specific duty rates into


\(^7\) [http://tariffdata.wto.org/](http://tariffdata.wto.org/)
ad-valorem equivalents (AVEs). It provides downloadable data at 6-digit HS code and computed indicators on tariff measures and preferential beneficiaries, by country and year. Variables: Reporter Name; Partner Name (country or group of countries to which the tariff rates are applicable); Tariff Year; Trade Year; Trade Source; Duty Type; Average tariff (estimated) applied by the country; Weighted Average; Standard Deviation; Minimum and maximum rate; Number of total lines; Number of domestic peaks; Number of international peaks; Imports value; Binding coverage.

3.1.6 UNCTAD Statistics, Import tariff rates on non-agricultural and non-fuel products gives access to data on country’s import tariffs, by country, product category, duty type and import origin. It provides data for the period 1988 – 2015.

3.1.7 DG TRADE database on Trade Defence Instruments includes data and information EU actions against the dumping and subsidy duties applied by the third countries.

3.1.8 DG TRADE Market Access Database includes information for exporting EU companies on the trade barriers, duties, taxes, etc. existing in third countries.

<table>
<thead>
<tr>
<th>Table 10: List of available sets of data on imposed tariff rates</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>3.1.1</strong> WTO Tariff Download Facility and Tariff Analysis Online</td>
</tr>
<tr>
<td><strong>3.1.2</strong> WTO’s country-specific ceiling tariff commitments</td>
</tr>
<tr>
<td><strong>3.1.3</strong> WTO’s Members and Observers database</td>
</tr>
<tr>
<td><strong>3.1.4</strong> WTO, ITC and UNCTAD, World Tariff Profiles 2016</td>
</tr>
<tr>
<td><strong>3.1.7</strong> DG TRADE database on Trade Defence Instruments (anti-dumping and anti-subsidy duties)</td>
</tr>
</tbody>
</table>
3.2 Data and indicators on non-tariff trade restrictiveness

3.2.1 WTO’s Integrated Trade Intelligence Portal (I-TIP) gives access to information on notified trade non-tariff measures (NTMs) applied by WTO members by type of NTM, HS section, and by country imposing the measure. The NTMs covered are: Anti-dumping, Countervailing, Quantitative restrictions, Safeguards, Sanitary and phytosanitary, Special safeguards, Technical barriers to trade, Tariff-rate quotas and Export subsidies. Data search options provided:
   i) tables by product - NTMs by HS section/chapter;
   ii) tables by country - NTMs by WTO member and geographical regions;
   iii) mixed query - customized combination of the five criteria: type of NTM, dates, country imposing, country affected, and product.
   iv) export summary and detailed NTM information.

3.2.2 OECD’s Inventory on export restrictions on Industrial Raw Materials provides the restrictions on exports of industrial raw materials (i.e., minerals, metals and wood) imposed by the governments worldwide, by commodity, and by restricting country, for the period 2009-2014. The there are 13 types of restrictions recorded such as export taxes, prohibitions, licensing requirements, etc. Product groups are defined at HS 4-, 6-, 8- and 10-digit codes and BEC stage of production.

3.2.3 WTO’s World Tariff Profiles provides information on the tariffs and non-tariff measures imposed by over 170 countries and customs territories.

3.2.4 World Bank’s Temporary Trade Barriers Database (TTBD). The Temporary Trade Barriers Database (TTBD) hosts detailed data on around 30 governments’ (e.g., Argentina, European Union, India, Mexico, Turkey, United States, China, etc.) use of import protection instruments such as antidumping, global safeguards, China-specific transitional safeguard measures, and countervailing duties, updated up to 2013. TTBD consists of 5 databases: Global Antidumping Database plus four databases of temporary trade barriers – i.e., Global Countervailing Duties Database (GCVD), China-Specific Safeguards Database (CSGD), WTO Disputes Database (DSUD), and Global Safeguards Database (GSGD).

<table>
<thead>
<tr>
<th>Table 11: Identified datasets on non-tariff trade restrictiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>3.2.1 WTO’s I-TIP Goods</strong></td>
</tr>
</tbody>
</table>
4 Trade agreements

As required in the Task 2.3, trade commitments data and information should reflect country’s international trade obligations relating to raw materials, such as WTO Membership (yes/no) and conclusion of bilateral or regional trade agreements. The results of mapping the most comprehensive and relevant data sources on the bilateral and multilateral trade agreements in force are listed in Table 12.

4.1 DG TRADE’s Agreements website offers up-to-date information on the free trade agreements concluded by the EU and customs union the EU takes part in.

4.2 World Trade Organisation’s RTA-IS and PTAs databases contain information on the agreements notified or announced to the GATT/WTO. It offers the ready-to-use list of all RTAs and PTAs in force, list of early announcements and pre-defined reports (based on criteria such as date of entry into force, agreement type, country, etc.). It also allows for retrieving information on RTAs by country/territory.

4.3 Part of WB’s WITS database, GPTAD contains the original text of preferential trade agreements (PTAs) concluded worldwide, including those not having been notified to the WTO (in total around 330 PTAs). Agreements in the database have been made compatible with the WTO’s classification criteria. The library allows for sorting PFAs by various criteria, such as membership, date of signature, in-force status, etc.

Table 12: Identified datasets on bilateral and multilateral trade agreements in force

<table>
<thead>
<tr>
<th>Data Source</th>
<th>Description</th>
<th>URL</th>
</tr>
</thead>
<tbody>
<tr>
<td>DG TRADE, Trade agreements</td>
<td>It is a DG TDADE’s dedicated website, giving access to up-to-date information on the free trade agreements concluded by the EU and customs union the EU takes part in.</td>
<td><a href="http://ec.europa.eu/trade/policy/countries-and-regions/agreements/">http://ec.europa.eu/trade/policy/countries-and-regions/agreements/</a></td>
</tr>
<tr>
<td>WTO’s Regional Trade Agreements Information System (RTA-IS) and Preferential Trade Agreements (PTAs)</td>
<td>RTA-IS database contains information on the agreements regional trade agreements between two or more partners notified or announced to the GATT/WTO.</td>
<td><a href="http://rtais.wto.org/UI/PublicMaintainRTAHome.aspx">http://rtais.wto.org/UI/PublicMaintainRTAHome.aspx</a> <a href="http://ptadb.wto.org/">http://ptadb.wto.org/</a></td>
</tr>
<tr>
<td>World Bank, World Integrated Trade Solution (WITS), Global Preferential Trade Agreements (GPTAD)</td>
<td>GPTAD database provides up-to-date information on worldwide preferential trade agreements (PTAs), including those agreements not having been notified to the WTO.</td>
<td><a href="http://wits.worldbank.org/gptad.html">http://wits.worldbank.org/gptad.html</a></td>
</tr>
</tbody>
</table>

5. Foreign direct investments in mining sector

According to the Task 2.3 requirements, the following data and information on Foreign direct investments (FDI) in mining sector should be collected:
- share of mining sector in total FDI that a country attracts per year and annual change;
- share of FDI in total mining investment in the country;
- country's inward FDI in the mining sector as share of world FDI.

The main sources of data identified are described below and summarized in Table 13.
5.1 **UNCTAD’s FDI Statistics, Foreign direct investment flows and stock dataset** contains data on FDI’s inward and outward flows and stock by country, continent, region (including EU-28) and free-trade area (e.g., OECD, NAFTA, MECOSUR, etc.).

Data are provided in million dollars, for the period 1970-2015. It also provide already computed FDI-related indicators, such as absolute FDI flows; FDI as percentage of GDP; FDI as percentage of Gross Fixed Capital Formation; FDI as percentage of total merchandise trade.

5.2 **UNCTAD’s Bilateral FDI Statistics** provides up-to-date and FDI data, covering FDI inflows, outflows, inward and outward stock, by region and country (206 countries).

5.3 **UNCTAD’s World Investment Report**, Country and Region Fact Sheets 2016, contains the most recent data on FDI flows and stocks, mergers and acquisitions, largest TNCs and regulatory changes.

5.4 **World Bank, World Development Indicators, Global Private Financial Flows** also provides several country-level FDI indicators such as: Foreign direct investment, net inflows; Foreign direct investment, net inflows (% of GDP); Portfolio equity, net inflows; Portfolio investment, bonds; Commercial banks and other lending.

5.5 **OECD, FDI Statistics database** gives access to data series according to OECD’s BMD4 classification, based on balance of payments statistics. It includes:

i) FDI financial flows by industry (BMD4, including B, Mining and quarrying, in aggregate):
- FDI financial flows by industry
- FDI financial flows by industry (BMD4)
- Inward and outward FDI by industry
- Inward FDI by instrument and by industry
- Outward FDI by instrument and by industry
- Inward and outward FDI by industry and by geographic region

ii) FDI income by industry (BMD4, including B, Mining and quarrying in aggregate)
- FDI income by industry BMD4
- Income on inward FDI (receipts) and income on outward FDI (payments) by industry
- Income on inward FDI (receipts) and income on outward FDI (payments) by industry AND by geographic region
- Income on inward FDI (receipts) by instrument and by industry
- Income on outward FDI (payments) by instrument and by industry

iii) FDI positions by industry (BMD4, including B, Mining and quarrying in aggregate)
- FDI positions by industry BMD4
- Inward and outward FDI by industry
- Inward and outward FDI by industry AND by geographic region
- Inward FDI by instrument and by industry
- Outward FDI by instrument and by industry.

5.6 **Eurostat’s European Union direct investments (bop_fdi6)** dataset contains data on and flows of Direct investment in the reporting economy and Direct investment abroad (DIA), and on stocks (assets and liabilities) by NACE activity, reporting country (including total EU-28) and partner (including extra-EU28), in 2013, 2014 and 2015.

Separate datasets:
- EU direct investment positions, breakdown by country and NACE activity (BPM6) (bop_fdi6_pos)
- EU direct investment income, breakdown by partner country and NACE activity (BPM6) (bop_fdi6_inc)
- EU direct investment flows, breakdown by partner country and NACE activity (BPM6) (bop_fdi6_flow)
- EU direct investment positions, flows and income, breakdown by partner countries (BPM6) (bop_fdi6_geo)

5.7 International Trade Centre (ITC), Foreign Direct Investment Statistics 2001-2013 provides access to FDI data as follows:
- by country: inward or outward
- by industry: inward or outward.

5.8 International Trade Centre’s Investment Map tool provides data on sectoral-level FDI data flows and stocks by country. It is linked to other ITC’s tools providing statistics on trade flows and tariff data (which includes data on MFN tariffs and ad-valorem tariffs; multilateral, regional and bilateral preferences; tariff quotas and anti-dumping duties), and activities of foreign affiliates of multinational companies.

It provides data and information on:
- Historical series of total FDI flows and stocks for around 200 countries and territories;
- Sectoral breakdown of FDI flows and stocks for around 110 countries;
- Information on the location and parent company for around 150,000 foreign affiliates
- Average tariff data applied by 187 countries and faced by 200 exporting countries and territories.

ISIC rev. 3 nomenclature is used for defining sectors; tariff data is available for more than 5,300 products (6-digit level of the Harmonized System); information on foreign affiliates covers 1,000 lines of business (US SIC nomenclature).

Several country- and sector-specific indicators can be directly obtained, such as Locations competing for investment attraction in a selected sector; Parent companies based in a certain country for a selected sector; Parent country of foreign affiliates operating in a selected sector.

### Table 13: Description of the identified sets of data on foreign direct investments

<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1 UNCTAD’s Foreign Direct Investment Statistics</td>
<td>This dataset contains region- and country-level information on (FDI) inward and outward flows and stock, alongside FDI-related indicators.</td>
<td><a href="http://unctadstat.unctad.org/wds/ReportFolders/reportfolders.aspx">http://unctadstat.unctad.org/wds/ReportFolders/reportfolders.aspx</a></td>
</tr>
<tr>
<td>5.4 World Bank, World Development Indicators, Global Private Financial Flows</td>
<td>Also provides several country-level FDI indicators.</td>
<td><a href="http://wdi.worldbank.org/table/6.9#">http://wdi.worldbank.org/table/6.9#</a></td>
</tr>
</tbody>
</table>
5.5 OECD, FDI Statistics
Offers FDI data on FDI inward and outward flows, FDI position and FDI income by industry (including BD4 section Mining and quarrying).

http://stats.oecd.org/
(under "Globalisation")

5.6 Eurostat, European Union direct investments (BPM6) (bop_fdi6)
Contains data on and flows of Direct investment in the reporting economy and Direct investment abroad (DIA), and on stocks (assets and liabilities) by NACE activity, reporting country (including total EU-28) and partner (including extra-EU28), in 2013, 2014 and 2015.


5.7 International Trade Centre (ITC), Foreign Direct Investment Statistics 2001-2013
Foreign Direct Investment Statistics 2001-2013 provides direct access to FDI data as follows:
- by country: inward or outward
- by industry: inward or outward

http://www.intracen.org/itc/market-info-tools/foreign-direct-investment/

5.8 International Trade Centre (ITC), Investment Map Tool
Provides data on sectoral-level FDI data flows and stocks by country. Several country- and sector-specific indicators can be obtained. Strength of the tool lies in its link to other datasets.

http://www.investmentmap.org/

There are already-computed FDI-related indicators that can be directly used in RMIS (Table 14).

**Table 14: Computed FDI-related from various sources**

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Providers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foreign direct investment, net</td>
<td>UNCTAD FDI Statistics; World Bank DataBank</td>
</tr>
<tr>
<td>Foreign direct investment, net inflows (current US$)</td>
<td>UNCTAD FDI Statistics; World Bank DataBank</td>
</tr>
<tr>
<td>Foreign direct investment, net inflows (% of GDP)</td>
<td>UNCTAD FDI Statistics; World Bank DataBank</td>
</tr>
<tr>
<td>Foreign direct investment, net outflows (current US$)</td>
<td>UNCTAD FDI Statistics; World Bank DataBank</td>
</tr>
<tr>
<td>Foreign direct investment, net outflows (% of GDP)</td>
<td>UNCTAD FDI Statistics; World Bank DataBank</td>
</tr>
<tr>
<td>Primary income on FDI, payments (current US$)</td>
<td>UNCTAD FDI Statistics; World Bank DataBank</td>
</tr>
<tr>
<td>Inward and outward flows and stock of foreign direct investment, 1980-2014</td>
<td>UNCTAD FDI Statistics</td>
</tr>
<tr>
<td>Mining FDI (stock, year) Major TNC presence Foreign ownership as share of total production</td>
<td>ITC, Foreign Direct Investment</td>
</tr>
</tbody>
</table>

6. Qualitative assessment of country’s investment attractiveness in the primary raw material sector

Task 2.3 also requires mapping the sources of data and information on the following three topics:
- (6.1) General financial burden on the primary raw material sector;
- (6.2) Qualitative assessment of investment readiness/attractiveness of the sector;
- (6.3) Assessment of the legislative framework (including environmental/health/safety regulations).

Several general data sources have been identified so far – work in progress (Table 15).

**Fraser Institute’s Annual Survey of Mining Companies: 2015** is an annually conducted survey of mining and exploration companies for evaluating how country’s natural resources endowment and public policy (taxation, regulatory framework) influence investments in mining exploration.
It also provides country-level Investment Provides Attractiveness Index and Policy Perception Index and tables containing data on various variables these indices are composed of.

**OECD FDI Regulatory Restrictiveness Index** measures country’s investment climate, by calculating the overall score of restrictions imposed on FDI in 22 economic sectors (including Mining and quarrying).

It takes into account four types of restrictions on FDI: 1) foreign equity limitations; 2) discriminatory screening or approval mechanisms; 3) restrictions on the employment of foreigners as key personnel; 4) other operational restrictions.

**Deloitte, Country’s Taxation and Investment profiles 2016** offers several taxation and investment country profiles, containing information on investment climate, business environment and taxation regime.

**Table 15: Sources of data and information on country’s investment attractiveness in the primary raw material sector**

<table>
<thead>
<tr>
<th>Source</th>
<th>Description</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>OECD FDI Regulatory Restrictiveness Index</td>
<td>The index measures country’s investment climate, by calculating the overall score of restrictions imposed on FDI in 22 economic sectors. It takes into account four types of restrictions on FDI.</td>
<td><a href="http://stats.oecd.org/under">http://stats.oecd.org/under</a> &quot;Globalisation”</td>
</tr>
<tr>
<td>Deloitte, Country’s Taxation and investment profiles 2016</td>
<td>Provides several country-specific information on investment climate, business environment and taxation regime.</td>
<td><a href="https://dits.deloitte.com/#TaxGuides">https://dits.deloitte.com/#TaxGuides</a></td>
</tr>
</tbody>
</table>

**6.1 General financial burden on the primary raw material sector**

In this study the financial burden is defined as all costs that are directly resulting from the fiscal and financial regulatory regime of a given country that a mining company is facing during the whole period of a mining project. In this regard, the extractive sector is specific as compared to other economic sectors due to the following characteristics:

- it has significantly longer investment period, and in association with this, high CAPEX, that is not limited to the construction cost of the installation but includes the extensive exploration costs, permitting costs (incl. acquisition of social license to operate), and collateral infrastructure development (roads, water works, power supply);
- during the operation phase (OPEX) environmental levies and taxes, high energy and water consumption (in relation either to extraction or transportation), and the mining royalties can be considered as specific burdens, as well as the costs of mine closure and the costs of active or passive environmental monitoring and necessary measures (aftercare).

Other financial burden such as corporate tax, healthcare and social fees, salaries, technical safety and occupations health related spending, amortization rates, etc. are not considered.
as specific to this sector. The trade related financial and administrative burden are discussed at other chapters of the study.

As a preliminary conclusion of the study, the best candidate indicator for the characterization of the financial burden of the primary raw materials sector is the mining royalty because:

- it reflects the related policy of the government of a country,
- it is based on 2-4 different calculation methods (profit-, value-, volume-based, resource rent, etc.);
- its definition, volume and percentage may be distinct for
  - different commodities,
  - ASMs, SMEs and major companies,
  - extracted volumes,
  - extraction methodologies;
- the collected royalty can feed either central, regional or local budget income.

The mining royalty is also considered as a constituent to the composite Mining Contribution Index (MCI) that is to indicate the contribution of the extractive sector to the macroeconomy of a given country.

Currently there is no one coherent and annually updated information source on mining royalties available in the world. Mining royalty can be a major income of the state budget, changes in mineral and fiscal policies are reflected in amendments of the mining and/or tax legislation. In this respect, authentic and up-to-date information on mining royalty can be accessed typically at mining authorities’, finance departments’ and national legislation e-library websites. Information on mining royalty is also available at commercial information services, such as SNL, Infomine, and IHS.

PWC operates an interactive benchmarking service, inter alia, on mining royalty comparison:


It also provides information on corporate income tax, amortization, tax on exports, social security costs, etc.

Comprehensive international review reports are published periodically by major industry associations (e.g. ICMM), international entities (e.g. World Bank), and finance consulting firms (e.g. Price Waterhouse), as listed below. Numerous of these cover the pilot countries of this study.

http://hub.icmm.com/document/7950
https://www.afdb.org/fileadmin/uploads/afdb/Documents/Publications/AEB%20VOL%203%20Issue%202012-Bis_AEB%20VOL%203%20Issue%2020%20avril%202012%20Bis_01.pdf
http://latinlawyer.com/reference/topics/46/jurisdictions/16/mexico/
6.2 Qualitative assessment of investment readiness/attractiveness of the extractive sector

Qualitative assessments are typically based on expert opinions that rely on both quantitative indicators and personal experience, and sometimes subjective perceptions as well. In this way, the statistical representativeness of the number of experts involved in the survey is even more relevant than in standard quantitative analysis. There are numerous international and commercial entities running and maintaining world-wide assessments on the investment attractiveness of a country in general, not specific for the extractive sector (e.g. World Bank). For the extractive sector there are a limited number of services focus on the country-scale dimension. One distinguished player in this regard the Fraser Institute’s annual report, the thematics of which covers topics such as corruption, streamlined permitting, lean legislation, good infrastructure, etc. The methodology is based on 300-500 expert opinion survey covering most of the world but in a few countries the figure is based on 8-10 answers.

6.3 Assessment of the legislative framework (incl. environmental/health/safety regulations)

**International entities’ informationbase with country profiles and/or relevant indicators on the countries**

World Bank,
World Bank country profiles, among which there are relevant sets on

**Worldwide Governance Indicators (WGI)**


Relevant indicators drawn from the World Development Indicators, reorganized according to the goals and targets of the Millennium Development Goals (MDGs).

**Doing Business (DB)**

Doing Business provides objective measures of business regulations and their enforcement across 189 economies. Each economy is ranked according to 10 sets of indicators. These are combined into an overall "ease of doing business" ranking.

**World Integrated Trade Solution (WITS)**

WITS is a trade software tool giving access to bilateral trade between countries based on various product classifications, product details, years, and trade flows. It also contains tariff and non-tariff measures data, as well as analysis tool to calculate effects of tariff reductions. In addition, users have access to many visualization tools.

Type: Time series | Periodicity: Quarter | Last Updated: 30-Dec-2016[See More +](https://wits.worldbank.org)

**Country Opinion Survey Data (COSD)**

Survey data about how the World Bank Group and its work in social and economic development are perceived by key stakeholders in client countries across the globe.

Type: Survey(Microdata) | Periodicity: n/a | Last Updated: 18-Mar-2014[See More +](https://esl.worldbank.org)

**Business Environment and Enterprise Performance Survey (BEEPS)**

The Business Environment and Enterprise Performance Survey provides firm-level data on a broad range of issues about the business environment and performance of firms, including business-government relations, firm financing, labor, infrastructure, informal payments and corruption, and other topics such as training and innovation.

Type: Survey(Microdata) | Periodicity: Annual | Last Updated: 01-Jun-2014[See More +](https://esl.worldbank.org)

**Exporter Dynamics Database (EDD)**
The Exporter Dynamics Database is the first database providing measures of exporter characteristics and dynamics across 70 countries in all geographic regions and at all income levels. The Exporter Dynamics Database contains more than 100 measures covering the basic characteristics of exporters, their distribution by size, the diversification in their products and markets, their dynamics in terms of entry, exit, and survival, and the average unit prices of the goods they trade.

Type: Time series, Transactions | Periodicity: Annual | Last Updated: 31-Mar-2016

Enterprise Surveys (ES)

Enterprise Surveys provide firm-level data from over 125,000 establishments in 139 countries. Data are used to create over 100 indicators that benchmark the quality of the business environment across the globe. Each country is surveyed every 3 to 4 years.

Type: Survey (Microdata) | Periodicity: Annual | Last Updated: 03-Jan-2017

Indonesia Database for Policy and Economic Research (INDO-DAPOER)

The Indonesia Database for Policy and Economic Research (INDO-DAPOER) contains relevant economic and social indicators at the province- and district-level, which span across four main categories: fiscal, economic, social and demographic, as well as infrastructure. Please note that data and metadata are currently under review and will be revised shortly.

Type: Cross sectional, Time series | Periodicity: Annual | Last Updated: 08-Jun-2015

Country Policy and Institutional Assessment (CPIA)

Rating of countries against a set of 16 criteria grouped in four clusters: economic management, structural policies, policies for social inclusion and equity, and public sector management and institutions.

Type: Cross sectional | Periodicity: Annual | Last Updated: 30-Jun-2015

Millennium Development Goals Tables (MDG Tables)

Millennium Development Goals tables provide data for MDG indicators from 1990 to the most recent year available in five year increments.

Type: Time series | Periodicity: Annual | Last Updated: 16-Dec-2016

Export Value Added Database (EVAD)

The Export Value Added Database provides information on the domestic value-added content of domestic output and exports for 118 countries across 27 sectors of the economy, including 9 commercial services sectors, 3 primary sectors, and 14 manufacturing sectors, spanning intermittent years between 1997 and 2011.

Type: Cross sectional, Time series | Periodicity: Annual | Last Updated: 10-May-2016

Socio-Economic Database for Latin America and the Caribbean (SEDLAC)

This web site includes statistics on poverty and other distributional and social variables from 25 Latin American and Caribbean (LAC) countries. All statistics are computed from microdata of the main household surveys carried out in these countries using a homogenous methodology (data permitting).

Type: Time series | Periodicity: Annual | Last Updated: 23-Jun-2015

IFC Investment By Industry - Annual Summary

IFC Industries (Sectors) are in charge of processing IFC transactions. They also provide the Regional Departments with the expertise and knowledge needed to process new
FY10 data has been revised to be consistent with IFC's FY11 re-organizational changes across Industry departments. Note: Dollars in millions, for the year ended June 30. Short-term finance investments are included in figures prior to 2015.

Type: Time series | Periodicity: Annual | Last Updated: 17-Jan-2017

OECD Environmental Data Compendium (for all countries):

as well, on competition, public governance, investment, regulatory reforms, trade indicators, and more

Trading Economics information service (global coverage country profiles, with greater variety of thematics)
http://www.tradingeconomics.com/countries

Central Intelligence Agency (basic country factsheets with selective benchmarking options)

International Monetary Fund (IMF)
http://data.imf.org/?sk=471DDDF8-D8A7-499A-81BA-5B332C01F8B9

macroeconomic, fiscal and financial statistics some of which are restricted

EXIOBASE (environmental information on 43 countries)
http://www.exiobase.eu/

FocusEconomics is a leading provider of economic analysis and forecasts for 127 countries in Africa, Asia, Europe and the Americas, as well as price forecasts for 33 key commodities
http://www.focus-economics.com

UN Conference on Trade and Statistics (with downloadable data on different topics)

UN International Trade Centre (country profiles, reports)
http://www.intracen.org/

UN Industrial Development Organization (country profiles with limited thematics)
http://www.unido.org/

UN Economic Commission for Latin America and Caribbean (country profiles and data with different thematics)
http://estadisticas.cepal.org/cepalstat/web_cepalstat/Portada.asp?idioma=i

UN Economic Commission for Asia and the Pacific (country profiles and data with different thematics)
http://www.unescap.org/
http://data.unescap.org/escap_stat/

Mineral Rents Indicator (World Development Indicator)
Natural Resource Governance Institute, (https://resourcegovernance.org/)
It developed and updates the Resource Governance Index, with good but not complete coverage of countries. Methodology and glossary is available.

ILO

The below data are available for countries in annual time series in order to characterize the efficiency of the national health and safety legislation and enforcement (http://www.ilo.org/ilostat/faces/wcnav_defaultSelection?_afrLoop=108178952970554&_afrWindowMode=0&_afrWindowId=lrbifmlek_102#!%40%40%3F_afrWindowId%3Dlrbifmlek_102%26_afrLoop%3D108178952970554%26_afrWindowMode%3D0%26_adf.ctrl-state%3Dlrbifmlek_122).

Occupational injuries -- Time lost

- Days lost due to cases of occupational injury with temporary incapacity for work by economic activity

Occupational injuries -- Fatal

- Cases of fatal occupational injury by economic activity
- Fatal occupational injuries per 100'000 workers by economic activity

Occupational injuries -- Non-fatal

- Cases of non-fatal occupational injury by economic activity
- Non-fatal occupational injuries per 100'000 workers by economic activity

OECD

Environmental Indicators of OECD countries (http://www.oecd.org/site/envind/) with the following indicators:

List of indicators presented in the country profiles

- Climate Change: emissions of greenhouse gases and CO₂
- Air Quality: emissions of SO₂ and NOₓ
- Waste Generation: municipal waste generation and treatment
- Biodiversity: threatened species
- Water Quality: population connected to a waste water treatment plant
- Water Resource: intensity of use of freshwater resources
- Forest Resources: intensity of use of forest resources and forest area
- Energy Resources: energy intensity and mix
- Environmentally Related Taxes
The Environmental Performance Index (EPI) is a composite indicator that measures how well a country is performing environmentally. It compares the environmental pressures and environmental state of the country to national and/or international policy and scientific target values (proximity-to-target approach). It is developed annually by the Yale University. EPI is based on indicators on environmental health – protection of human health from environmental harm – and on indicators on ecosystem vitality – ecosystem protection and resource management. EPI values range from 0 to 100, with the closer a value is to 100, the closer is a country is to the target values. a
(http://epi.yale.edu/,http://epi.yale.edu/downloads)

Natural protected areas include both terrestrial and marine nationally designated areas. Terrestrial protected areas are areas of at least 1000 hectares that are totally or partially protected. These areas include e.g. scientific reserves with limited public access, national parks, natural monuments, nature reserves, wildlife sanctuaries, protected landscapes, etc. Marine protected areas are areas of intertidal or subtidal terrain whose environment is protected by effective means (e.g. by law).

Based on the United Nations Environmental Program and the World Conservation Monitoring Centre, as compiled by the World Resources Institute and as provided by the World Bank (https://data.worldbank.org/indicator).

Latin Lawyer (commercial site for business law, incl. environmental and public administration thematics)
http://latinlawyer.com/reference/topics/46/jurisdictions/16/mexico/

**National information services in the pilot countries**

**Japan**
With annual reports and statistics, including material flows and recycling, only in pdf.
Ministry of Finance: http://www.customs.go.jp/toukei/info/index_e.htm
Trade statistics of Japan in xls, csv.
http://www.tradingeconomics.com/japan/mining-production
with national statistics downloadable
with thematic reports in pdf

**United States**
US Environmental Protection Agency: https://www.epa.gov/
with legislation searchable for sectors, and topics
US Mining Health and Safety Authority: https://www.cdc.gov/niosh/mining/index.html
USGS mineral statistics: https://minerals.usgs.gov/minerals/pubs/state/
Infomine legal site: http://technology.infomine.com/lawmine/

**Selected Latin American countries**
Chile
Servicio Nacional de Geología y Minería (Chile) (SERNAGEOMIN) Site in Spanish
Gobierno de Chile: Ministerio de Minería
Site in Spanish
Empresa Nacional de Minería (ENAMI)
Sociedad Nacional de Minería (SONAMI) National Mining Society, site in Spanish
Instituto de Innovación en Minería y Metalurgia Site in Spanish
Federación de Trabajadores del Cobre Chile (FTC) Site in Spanish
Chile Mining Concessions Registry Visualization System (SERNAGEOMIN) Visualization map for the Chilean Mining Concessions Registry and cadastral data

Peru
LatinFocus - Peru News, Economy
Stock Exchanges in Peru
Instituto Geografico Nacional Site in Spanish
Instituto Geofísico del Perú Site in Spanish
Instituto Geológico Minero y Metalurgico de Perú Site in Spanish
Instituto de Ingenieros de Minas del Perú Site in Spanish
Centro de Promoción de Usos del Cobre Peru ProCobre
Sociedad Nacional de Minería Petróleo y Energía - Peru (SNMPE) Site in Spanish
Peru GEOCATMIN Online map viewer (website in Spanish)

Brasil
Brasil Mining Site portal da mineração brasileira. Site in Portuguese
Brasil Mineral Magazine, in Portuguese
Serviço Geológico do Brasil Geological survey. Site in Portuguese and English
CETEM: Centro de Tecnologia Mineral Centre of Mineral Technology
Departamento Nacional de Produção Mineral National Department of Mineral Production. Site in Portuguese
Associação Brasileira do Alumínio - Brazilian Aluminum Association (Site in Portuguese, English, and Spanish)
IBRAM - Instituto de Brasileiro de Mineração Brazilian National Mining Association
ProCobre - International Copper Association Latin America Site in Portuguese
References and useful links

- UNCTAD (2011), How to Attract and Benefit from FDI in Mining: Lessons from Canada and Chile.
Europe Direct is a service to help you find answers to your questions about the European Union.
Free phone number (*): 00 800 6 7 8 9 10 11
(*) Certain mobile telephone operators do not allow access to 00 800 numbers or these calls may be billed.

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Joint Research Centre
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