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**Environmental and Climate
Change Impacts
of Extractive Industries
and Extractive
Industries Transparency
Initiative (EITI)**

RESEARCH



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RESEARCH

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1. EXECUTIVE SUMMARY	5
2. INTRODUCTION	6
2.1. Climate change and mitigation and adaptation solutions	6
2.2. EITI and climate change	8
2.3. Scope, methodology and other research-related information	9
3. GENERAL PART	13
3.1. Main aspects of environmental and climate change impacts of extractive industries	13
3.2. Evidence of environmental, climate change and social impacts of mining	24
3.3. Current environment protection requirements of the EITI Standard	33
4. SPECIAL PART: TOOLS FOR ADAPTING THE EXTRACTIVE INDUSTRIES TO CLIMATE CHANGE AND REDUCING THEIR NEGATIVE IMPACTS ON CLIMATE CHANGE	36
4.1. Decarbonisation of the economy, transformation of coal regions - environmental, economic and social aspects	36
4.2. Relationship between the current EITI requirements and environmental and climate change impacts of extractive industries	44
4.3. EU Climate Finance Mechanisms	49
5. CONCLUSIONS AND RECOMMENDATIONS	56
6. APPENDIX	61

Glossary of Terms

CO₂	– Carbon dioxide or carbon dioxide gas
Fossil CO₂	– CO ₂ originating from coal (42%), oil (33%), gas (19%), cement (6%) and gas flaring (1%) ¹ .
NO_x	– Nitrogen Oxide
MSG	– Multi-stakeholder group
CSOs	– Civil society organizations
EITI	– Extractive Industries Transparency Initiative
IPCC	– Intergovernmental Panel on Climate Change
CBAM	– Carbon border adjustment mechanism
NDCs	– Nationally determined contributions under the Paris Agreement
GHG	– Greenhouse gases
ETS	– Emissions trading system
UNEP	– United Nations Environment Programme

¹ CO2.Earth, Global Carbon Emissions: <https://www.co2.earth/global-co2-emissions>

1. EXECUTIVE SUMMARY

The *Environmental and Climate Change Impacts of Extractive Industries and the Extractive Industries Transparency Initiative (EITI) Research* was supported by the International Renaissance Foundation and commissioned by the Democratic Practice Program and EPAIU between October, 2020 and March, 2021.

The findings served as a basis for establishing **climate change links to the extractive industries**, that is based on two main approaches:

- Extractive industries begin a life cycle that leads to climate change;
- Extractive industries are a direct contributor to emissions and other climate change impacts. *(For example, according to Global Resource Outlook 2019², metals and non-metallic minerals extraction and primary processing made up 10 percent each of the global climate change impact, while the corresponding indicator for fossil fuels (oil, gas and coal) was 16 percent in 2017.*

The EITI Standard 2019, as it reads now, requires disclosure of all material environmental payments to governments and encourages the disclosure of information related to environmental impacts of extractive industries.

To enhance the EITI Standard and align its content with the identified climate change impacts of extractive activities, the authors of the research **have proposed the following amendments:**

- Set up an annual CO₂ emission threshold, and recommend the MSG to include specialised expertise in climate change, whenever a threshold is crossed
- Expand EITI Requirement 6.4 and recommend companies to disclose any relevant climate change laws, tax regulations and other climate policy related instruments, extractive waste management laws and policies, extractive waste disposal programs, and any information on air and groundwater emissions by extractive industries;
- Remove the relationship between the disclosure of environmental payments and materiality thresholds (EITI Requirement 6.1) and recommend participating countries to disaggregate environmental payments (any climate-related payments to be included separately) and disclose the revenues of extractive companies from climate policy fiscal

² Global Resource Outlook 2019, the Factsheet: <https://www.resourcepanel.org/reports/global-resources-outlook>

instruments and the use of funds received from extractive companies through environmental payments.

- Consider using multi-stakeholder groups to address issues in climate policy implementation.

The views expressed in this report solely belong to the authors and do not necessarily reflect the views of the International Renaissance Foundation.

2. INTRODUCTION

2.1. Climate change and mitigation and adaptation solutions

Climate change until recently was not a topic of widespread public discussion, while environmental protection was considered a responsibility of scientists, environmentalists and activists. However, the world does not depend on what people think of it. Anthropogenic activity, in particular industrial sources, leads to increased emissions of carbon dioxide and other harmful air pollutants, destroys the ozone layer, and causes the greenhouse effect and global warming. An important feature of this chain reaction is that emissions may occur anywhere on the planet but affect all territories together, even those countries that produce little to no emissions. It is therefore important to come together and join efforts to mitigate the negative environmental impacts and adapt to the climate change that is already happening. Tackling climate change has become one of the 17 United Nations sustainable development goals and every government will include this goal in its strategic documents.

The UN Framework Convention on Climate Change and the Kyoto Protocol were adopted in 1992 in response to climate challenges. In 2015, the Paris Agreement³ was concluded within the United Nations Framework Convention on Climate Change (entered into force on 4 November 2016), whose objectives are:

- **Holding** the increase in the global average temperature within 1,5°C - 2°C compared to pre-industrial levels;
- **Increasing the ability to adapt** to the adverse impacts of climate change and foster climate resilience and low greenhouse gas emissions development, in a manner that does not threaten food production;
- **Making finance flows consistent** with a pathway towards low greenhouse gas emissions and climate-resilient development.

³ The Paris Agreement: <https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement>

With the view to achieving these goals, each Party to the Agreement shall independently determine and communicate a nationally determined contribution (NDC) every five years that reflects its climate objectives. Each successive NDC shall be more ambitious than the Party's then current NDC. To achieve the Paris Agreement goals and their respective NDCs, countries apply various climate policy instruments, including fiscal ones, which can be divided into the following categories:

- **Tax laws and regulations** – this category includes environmental and carbon taxes, as well as a new EU carbon border adjustment mechanism;
- **Emissions trading** – for example, the EU emissions trading system;
- **Green investments** – green tariff, green bonds, bonds, etc.;
- **Strategy development, education, etc.**

All of these instruments aim to encourage polluters to reduce CO₂ and other greenhouse gas emissions and to invest in ecological modernization of their companies.

2.2. EITI and Climate Change

The Extractive Industries Transparency Initiative - an independent and globally supported reporting standard for extractive industries that is implemented in 55⁴ countries, including Ukraine, - should respond accordingly.

In 2015, a group of international and national environmental organizations addressed the EITI Board with an **Open Letter⁵ to call on EITI to include climate risks in reporting standards** (see Section 4.2 for more information). However, at that time the EITI was not ready to accommodate all the requests of the environmental community.

In 2017, the EITI reviewed⁶, how some EITI implementing countries were disclosing environmental information in their EITI reporting and identified a number of opportunities for implementing countries and their multi-stakeholder groups (MSGs) to undertake further work on environmental issues, namely:

- Monitoring compliance with mandated procedures, policies and voluntary guidelines at the national and international level;
- Monitoring government resources for enforcing environmental-related regulations;
- Reporting on timeliness and availability of evidence of specific environmental-related obligations by companies and government agencies such as reports/documents that have to be published/made available;
- Highlighting environmental-related contributions within wider social contributions.

However, the review highlighted that “there is no expectation that MSGs would cover all of these issues, or that the EITI would require implementing countries to report on environmental aspects ...”. The review only noted the growing interest in environmental reporting related to the extractive sector by different countries and made an attempt to collate existing practices from EITI reporting for MSGs that take an interest in environmental issues.

However, this has contributed to the formation of new EITI Standard

⁴ Hereinafter, 55 refers to the number of the EITI implementing countries as of December 24, 2020.

⁵ Letter from Civil society organisations - call on EITI to consider climate risks in reporting standards for extractive: <https://eiti.org/document/letter-from-civil-society-organisations-call-on-eiti-to-consider-climate-risks-in-reporting>

⁶ Coverage of environmental information in EITI reporting: https://eiti.org/files/documents/eiti_brief_coverage_of_environmental_reporting.pdf

requirements. **The revised edition of the EITI Standard⁷ was adopted in 2019, reiterating that the EITI reporting must cover environmental payments to governments, and governments should encourage companies to disclose the information on potential environmental impacts of extractive industries** (See Sections 3.3. and 4.2 for more information). This is an important step in recognizing potential environmental impacts of extractive industries at the global level.

As far as climate change impacts of extractive industries are concerned, this aspect has been reviewed by the international community. **The EITI, focusing on a range of environmental issues, does not currently devote attention to climate change.**

When developing respective strategies and concepts for climate change adaptation and planning climate-neutral economies, countries focus mainly on such sectors as energy, agriculture and transport, where contribution to climate impact is significant, understandable and measurable. When it comes to climate change, mining companies also take a wait-and-see approach⁸.

The exception is a recognized impact on climate change by coal mining activities, which is discussed in many domestic and foreign studies.

This research will examine the links between climate change and extractive industries and assess the role of EITI in these trends.

2.3. Scope, methodology and other research-related information

Based on the above, the **subject** of this research is environmental and climate impacts of extractive industries, the experience of the EITI implementing countries and EU states as well as recognition of such impact and its management.

The research **is aimed at** formulating arguments and making recommendations for possible expansion of the environmental scope of EITI reporting, taking into account the links between climate issues and extractive activities.

⁷ EITI Standard 2019: https://eiti.org/files/documents/2019_eiti_standard_-_ukrainian.pdf

⁸ BCG, Mining Needs to Go Faster on Climate: <https://www.bcg.com/ru-ru/publications/2020/mining-needs-to-go-faster-on-climate>

2.3.1. Research Methodology

This research examines environmental and climate impacts of oil, gas, metals and non-metallic minerals extraction to draw conclusions and recommendations. Particular attention is paid to the environmental and climate impact of coal mining, since this impact is considered the most significant.

Mineral resources covered in this study are identified based on:

- Extraction method (mining, quarrying, etc.) and the extent to which it effects the environment, human health and climate change.
- The most common minerals selected by the EITI implementing countries for EITI reporting.

The research also explores some climate policy tools and compares them with the 2019 EITI Standard requirements, insofar as they may relate to extractive industries and / or EITI.

The following **data sources** were studied for the purpose of this research:

- The EITI Standard and other key documents related to the governance of the EITI;
- Laws and regulations of Ukraine and other countries;
- Studies and research of Ukrainian and foreign CSOs, governments, donor organizations and international environmental and climate change groups;
- Relevant conference materials, media reports and other open data sources;
- National and foreign scholarly articles and monographs;
- EITI reports.

The number of the EITI implementing countries used for the calculations and graphs herein shall be 55 (as of December 24, 2020):

- 1.** Afghanistan
- 2.** Albania
- 3.** Armenia
- 4.** Argentina
- 5.** Burkina Faso
- 6.** Cameroon
- 7.** Central African Republic
- 8.** Chad
- 9.** Colombia
- 10.** Ivory Coast
- 11.** Democratic Republic of the Congo
- 12.** Dominican Republic
- 13.** Ethiopia
- 14.** Ecuador
- 15.** Germany
- 16.** Ghana
- 17.** Guatemala
- 18.** Guinea
- 19.** Guyana
- 20.** Honduras
- 21.** Indonesia
- 22.** Iraq
- 23.** Kazakhstan
- 24.** Kyrgyzstan
- 25.** Liberia
- 26.** Madagascar
- 27.** Malawi
- 28.** Small
- 29.** Mauritania
- 30.** Mexico
- 31.** Mongolia
- 32.** Mozambique
- 33.** Myanmar
- 34.** Netherlands
- 35.** Niger
- 36.** Nigeria
- 37.** Norway
- 38.** Papua New Guinea
- 39.** Peru
- 40.** Philippines
- 41.** Congo
- 42.** Senegal
- 43.** Seychelles
- 44.** Sierra Leone
- 45.** Suriname
- 46.** Sao Tome and Principe
- 47.** Tajikistan
- 48.** Tanzania
- 49.** Timor-Leste
- 50.** Togo
- 51.** Trinidad and Tobago
- 52.** Ukraine
- 53.** Uganda
- 54.** United Kingdom
- 55.** Zambia

In drawing the conclusions and recommendations provided herein, the authors use percentage values for climate change impacts of resource extraction and processing, provided in the following data sources:

- **Global Resource Outlook 2019**, UN Environment, International Resource Panel.
- **Global Resource Outlook 2019, Fact Sheet**, Natural Resources for the Future We Want, UN Environment, International Resource Panel.
- **Global Resource Outlook 2019, Key messages**, Natural Resources for the Future We Want, UN Environment, International Resource Panel.

Lead authors of the aforementioned sources: Bruno Oberle, Stefan Bringezu, Steve Hatfield-Dodds, Stefanie Hellweg, Heinz Schandl and Jessica Clement.

Electronic resource: <https://www.resourcepanel.org/reports/global-resources-outlook>

2.3.2. Geography and research time frame

The research reviewed selected practices of the EITI implementing countries and EU member states (insofar as they are applicable to the EITI implementing countries).

Research timeframe: October 2020 through March 2021.

3. GENERAL PART

3.1. Main aspects of environmental and climate change impacts of extractive industries

3.1.1. Direct and indirect environmental and climate impacts of extractive industries

If a climate footprint of extractive industries is the subject of research and debate, there is no doubt that the use (combustion) of extractive industry products affects the climate. According to the UN Environment Programme (UNEP), fossil carbon dioxide (CO₂) emissions dominated total GHG emissions including LUC and made up 65 per cent or 38.0 GtCO₂⁹ in 2019.

It is important to understand that **extractive industries are at the heart of CO₂ emissions**, as the extracted minerals are used for fuel production and / or processing (enrichment). Fuels, in turn, are burned by various industries (power industry, transport, heavy industry, etc.) and households (cooking). Also, a number of these products generate waste which, coupled with waste from extractive industries, also has an effect on the environment.

For example, in the “Fossil CO₂ Emissions of All World Countries, 2020” Report¹⁰ by the European Commission Joint Research Centre, fossil CO₂ emissions include sources from:

- Combustion sources (in particular, from coal, oil and natural gas consumption);
- The fugitive emissions (emissions from coke production, oil and gas extraction, flaring lights);
- The metal industry (emissions from blast furnaces, which include CO₂ emissions from the coke/coal input);
- Non-metal minerals (CO₂ emissions from carbonates used in cement clinker production, and from chemicals production, including the ammonia, fertilizers):

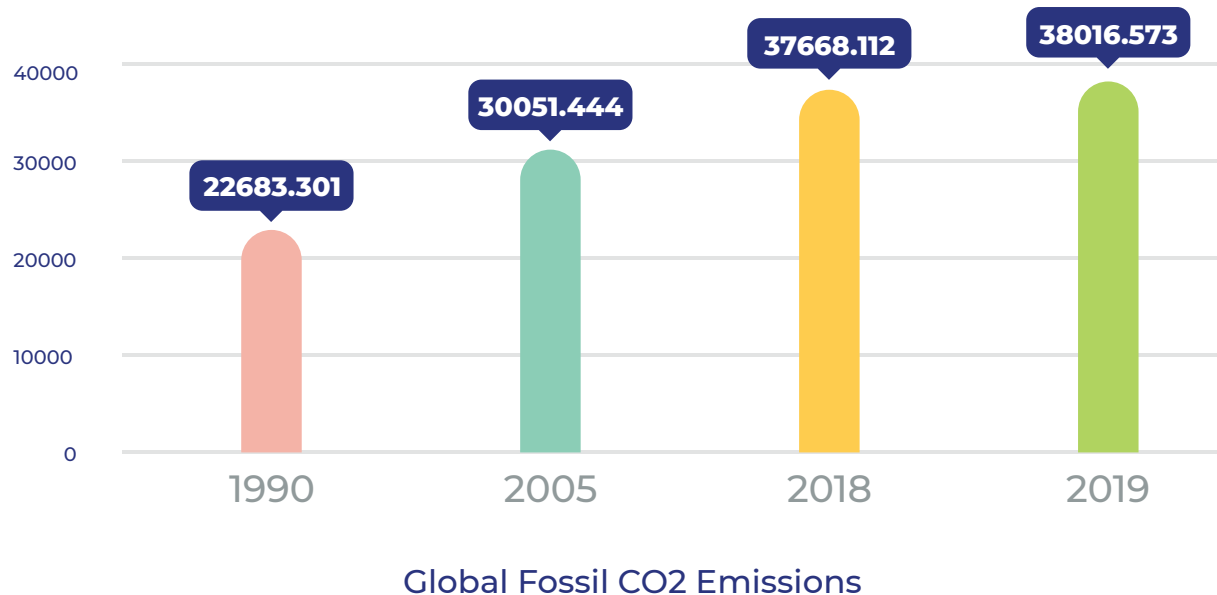
⁹ Emissions Gap Report 2020: <https://www.unenvironment.org/emissions-gap-report-2020>

¹⁰ Fossil CO₂ emissions of all world countries, JRC SCIENCE FOR POLICY REPORT: <https://publications.jrc.ec.europa.eu/repository/handle/JRC121460>

- Transport (including road, rail, ship and aviation);
- Buildings;
- Other sectors (Industrial process emissions, agriculture and waste).

Fossil CO₂ emissions continue to increase every year. Figures 1 and 2 show the growth trend and emissions distribution by sector.

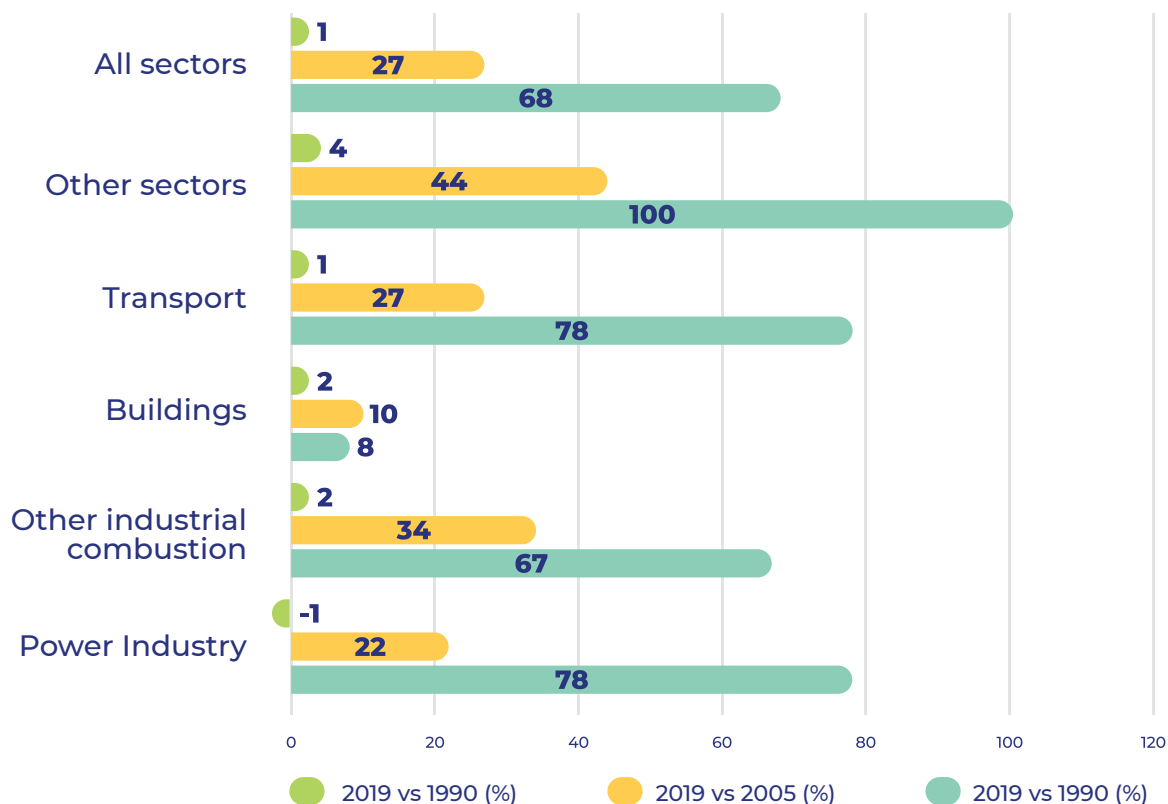
Figure 1. Global fossil CO₂ emissions, 1990 – 2019.



Source:

Fossil CO₂ emissions of all world countries, JRC¹¹.

¹¹ Fossil CO₂ emissions of all world countries, JRC SCIENCE FOR POLICY REPORT: <https://publications.jrc.ec.europa.eu/repository/handle/JRC121460>

Figure 2. Fossil CO2 emissions by sector**Data Source:**

Fossil CO2 emissions of all world countries, JRC¹².

Thus, when determining environmental and climate change impacts of extractive industries, **it is important to look at the entire supply chain of CO2 emissions, not limit to the direct impact of extractive activities.**

3.1.2. Mineral resources within the scope of EITI disclosures and their impacts on the environment and climate change

To determine whether the EITI Standard should be extended to cover climate change aspects, it is important to examine environmental and climate impacts from extraction of the minerals within the scope of EITI disclosures.

In 2019, a total fossil CO2 emission from the EITI implementing countries was 4,059.322 Mt CO2. Germany was the highest emitter of carbon dioxide

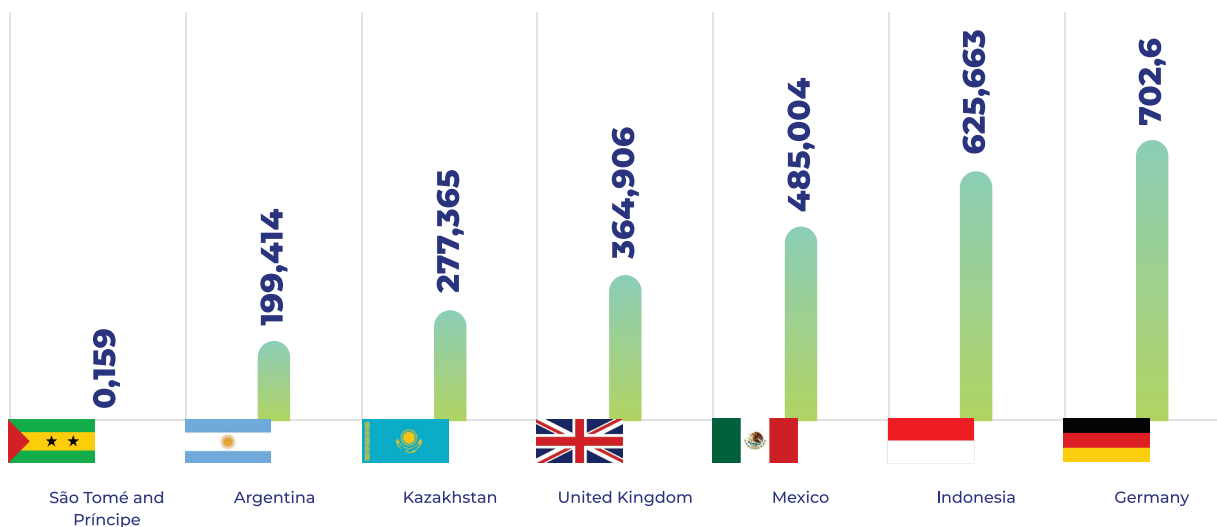
¹² Fossil CO2 emissions of all world countries, JRC SCIENCE FOR POLICY REPORT: <https://publications.jrc.ec.europa.eu/repository/handle/JRC121460>

(702.6 Mt CO₂e emissions mainly generated by power industry, transport and industrial combustion) and Sao Tome and Principe was the lowest one (0.159 Mt CO₂e emissions). In general, Germany was responsible for 1.8% of the global fossil CO₂ emissions in 2019¹³.

Among the EITI implementing countries, Germany made the greatest progress in reducing emissions compared to 2018 (-6%), while the largest increase in emissions was observed in Tajikistan (+ 18%). However, if we compare 2019 emissions by country, Germany (702.6 Mt CO₂e) remains a more significant emitter compared to Tajikistan (8.919 Mt CO₂e emissions).

See Appendix 1 for detail.

Figure 3.
Fossil CO₂ emissions by EITI implementing countries.



Data Source:
Fossil CO₂ emissions of all world countries, JRC¹⁴.

¹³ Fossil CO₂ emissions of all world countries, JRC SCIENCE FOR POLICY REPORT: <https://publications.jrc.ec.europa.eu/repository/handle/JRC121460>

¹⁴ Fossil CO₂ emissions of all world countries, JRC SCIENCE FOR POLICY REPORT: <https://publications.jrc.ec.europa.eu/repository/handle/JRC121460>

As of December 24, 2020, 47 out of 55 EITI implementing countries cover oil in their EITI reporting, 47 countries - other mining resources (metal ores, coal, clay, building and precious stones, mineral water, etc.) and 38 countries - gas. See Appendix 2 for more information.

Let's take a look at the environmental and climate impact of these mineral resources. Despite the great value of the extractive industry, from the state economy perspective, it causes substantial environmental damage by destroying the integrity of subsoil, disturbing ecosystems, leading to anthropogenic pollution of air, water and land¹⁹. Illegal mining is a separate issue. It is difficult to estimate damage from such activities due to the lack of official comprehensive data about environmental impacts of illegal mining²⁰.

Mining activities have the following types of potential adverse effects on the environment:

- ◆ *Geomechanical* – rock shattering by explosions, topographical changes, deforestation, and disfigurement of surface terrain.
- ◆ *Hydrological* - changes in groundwater reserves, movement, quality and levels, release of harmful substances from the surface and subsoil into water.
- ◆ *Chemical* - changes in atmosphere and hydrosphere composition and properties (acidification, salinization, water and air pollution).
- ◆ *Physical and mechanical* - environmental pollution by dust, changes in soil properties.
- ◆ *Noise pollution and soil vibration.*

Environmental and climate change impacts can be different and depend on the mineral resource and extraction method. **The Global Resource Outlook 2019**²¹ outlines various negative environmental and climate change impacts of extractive activities.

The extraction and processing of **metals**, which are usually included in the scope of EITI reporting, have a significant impact on the environment and climate change. In 2011, metals were responsible for 18 per cent of resource-

¹⁹ Environment Protection in the Mining Industry in Ukraine: Regulatory Framework and Practical Application, O. Haulyak, Ye. Ivanov, N. Blazhko, O. Polunina, Ya. Haulyak: https://stream.elreg.com.ua/uploads/HMAPO2020/EITI%20research%202020_environmental2.pdf

²⁰ Influence and Role of Civil Society Organizations on Use and Preservation of Natural Resources in Ukraine, O. Polunina, R. Kushtym, H. Levina: https://www.irf.ua/vplyv-i-rol-igs-u-sferi-vykorystannya-ta-ohorony-pryrodnyh-resursiv-v-ukrayini/?fbclid=IwAR2FOV1kjWCHR4ZLx3-7j0i8IFVYvrvwTohdeZ79ZGr_xpCz0OgE8OboErc

²¹ Global Resource Outlook 2019: <https://www.resourcepanel.org/reports/global-resources-outlook>

related climate change and 39 per cent of PM health impacts²². Among various metal industries, iron and steel industry is responsible for the greatest share of climate change impact, as it is the most power consuming.

Among metals, the global **iron-steel** production chain causes the largest climate change impacts. This is due to the large volumes of steel produced yearly and the energy-intensive processing of the ore into iron and steel. Further significant contributions to the total climate change impacts arise from **aluminium** production, due to considerable production amounts and high-energy requirements for the smelting of aluminium via electrolysis.

The mining and processing of **copper** and precious metals cause high toxicity impacts compared to their production amounts. Sulfidic mining tailings are the main source of toxicity impacts for both metals. Processed materials are stored in tailing impoundment dams, but can nevertheless involve continuous leaching of pollutants into the soil and groundwater and might additionally present risks of contamination from spills in case of failure.

Gold and precious metals are mined at much lower concentrations than bulk metals such as iron or aluminium. However, as physical separation methods typically require higher ore grades, sodium cyanide compounds are used in the industrial extraction of gold, with an estimated 18 per cent of world cyanide production dedicated to the formal gold mining sector²³. Artisanal and small-scale gold mining is considered to be the largest anthropogenic source of Hg emissions, accounting for about 37% of annual emissions in 2010²⁴.

Recycling (instead of extraction of new ores) represents one possible pathway towards decreased environmental impacts deriving from metal use. For example, the climate change impacts of steel recycling are between 10 and 38 per cent of that of primary production and for aluminium recycling between 3.5 and 20 per cent²⁵.

²² Pursuant to Global Resource Outlook 2019

²³ Alternatives to cyanide in the gold mining industry: what prospects for the future? Hilson & Monhemius: <https://www.sciencedirect.com/science/article/abs/pii/S0959652605000636?via%3Dihub>

²⁴ UNEP Technical Background Report for the Global Mercury Assessment 2013: <https://www.amap.no/documents/download/1265/inline>

²⁵ Pursuant to Global Resource Outlook 2019

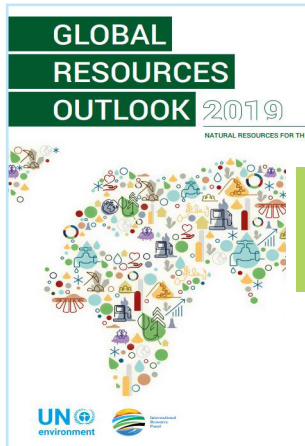
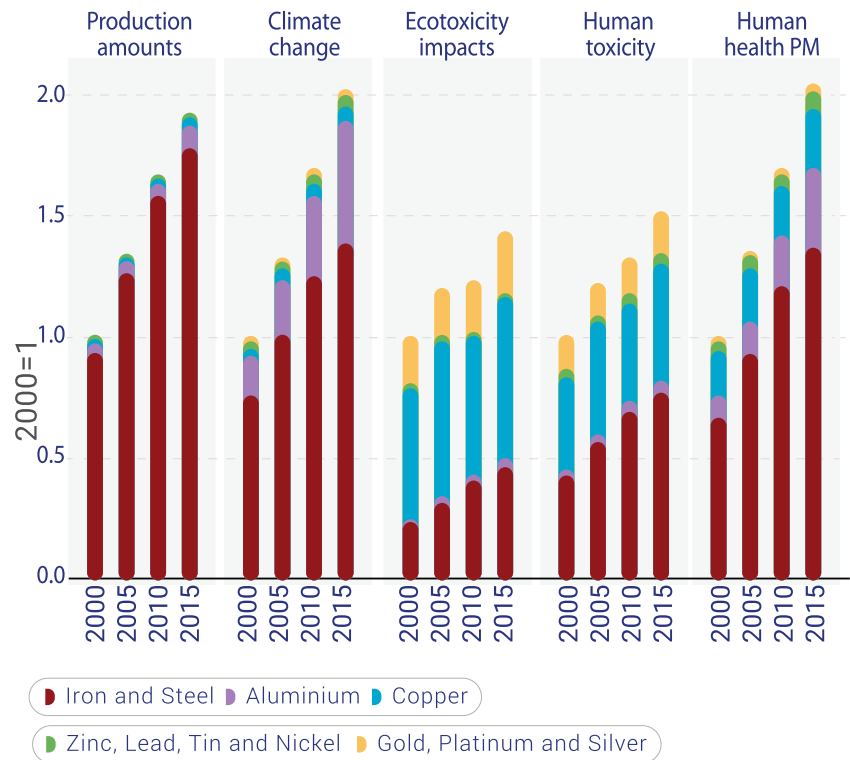


Figure 5. Climate change and PM health impacts of metals extraction.

Metal production amounts and environmental impacts of metal mining and processing from 2000 to 2015

(selection of 10 metals covering > 95 per cent of global domestic extraction of metal ores in 2015, MFA database).



Data sources: BGS, USGS, ecoinvent 3.4, World Steel. Note that secondary aluminium was not included for the ecotoxicity score due to a mistake in ecoinvent 3.4.

Data source:
Global Resource Outlook 2019

Non-metallic mineral resources are quite rarely covered in national EITI reporting, although non-metallic mineral resource extraction makes up more than 45 per cent of the total mass of extracted resources and displays one of the highest growth rates of all resource groups. Its contribution to climate change impacts and other impact categories remains limited. The majority of

impacts of non-metallic minerals come from their processing, not extraction. For example, the production of clinker, the main ingredient of cement, is responsible for the greatest share of climate change impact and a substantial share of the other impacts. Nevertheless, mining activities, in particular, sand mining, may have local impacts on ecosystems²⁶.

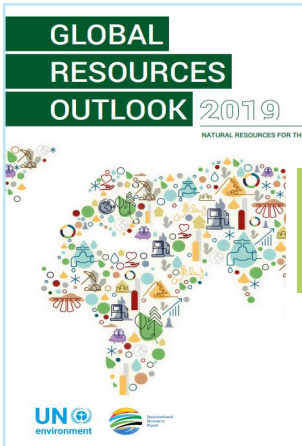
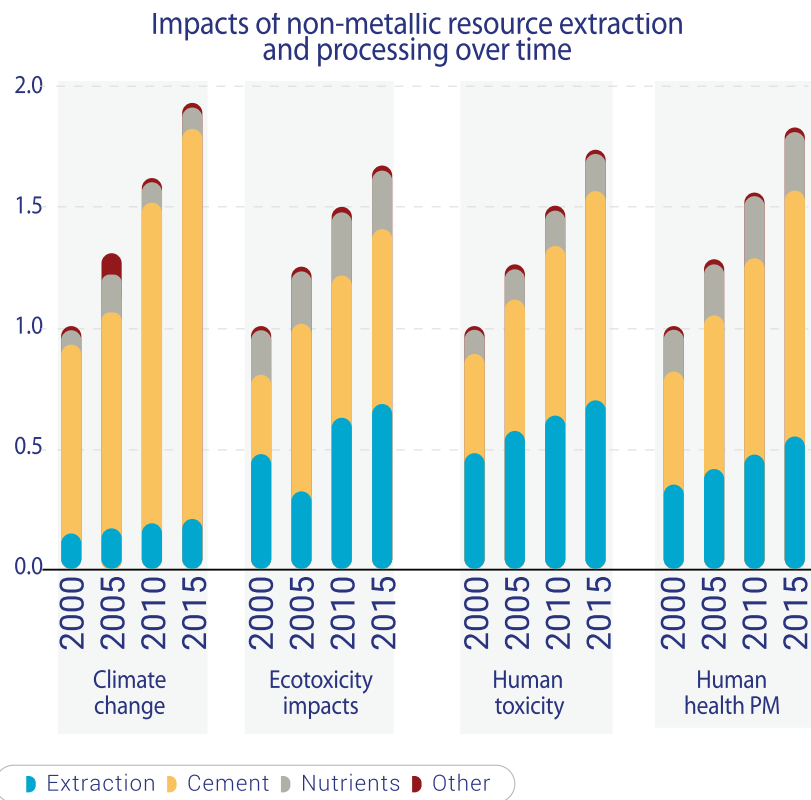


Figure 6. Climate change and PM health impacts of non-metallic minerals extraction.

Development of impacts from non-metallic minerals extraction and processing
(values from 2000 indexed to 1)



Calculations based on data from IRP MFA database, WBSCD, FAOSTAT, ecoinvent 3.4 (processing impacts include cement, fertilizer and brick production; glass and ceramics production were disregarded).

Data Source:
Global Resource Outlook 2019

²⁶ Global Resource Outlook 2019: <https://www.resourcepanel.org/reports/global-resources-outlook>

It is a commonly shared view that the environmental impact of **oil and gas** production on the environment is minimal, because these minerals are extracted from deep and narrow wells, and flaring emissions are not significant. However, in fact, the contribution from oil and gas production is comparable to similar impacts of coal, peat and lignite extraction (see Figure 7).

The environmental impact of gas and oil production is also reflected in the use of large areas of land for drilling rigs, parking spaces and manoeuvring areas for trucks, equipment, gas processing and transportation facilities, etc. The main potential adverse effects include air pollution emissions, groundwater contamination with flowing gas and fluids, leakage of the drilling fluid and wastewater discharges. Extracted fluids contain hazardous substances, and wastewater contains heavy metals and radioactive materials from deposits²⁷.

Overall, the total greenhouse gas emissions for oil and gas are in a similar range to that of coal extraction and processing impacts. Mostly, they arise from venting, flaring and local energy supply, as well as other sources of fugitive emissions²⁸. Mercury is released into the environment during oil and gas extraction. Additionally, environmental impacts from extraction of fossil fuels may also come from the release of other toxic compounds in drilling fluids to air, soil and water bodies.

A key pollutant in the extraction of fossil fuels is methane, which burns to give off carbon dioxide, and contributes to air pollution and, accordingly, to climate change impacts. Fugitive methane leaking from hydraulic fracturing can have a huge impact on the greenhouse gas balance. According to the existing estimates, the range of emissions is 18 - 23 g CO₂ eq./ MJ from exploration and extraction of unconventional natural gases. Methane emissions into ground waters have not been estimated yet. However, emissions at individual sites can vary by tenfold depending on the well performance²⁹.

²⁷ Environmental and human health impacts of shale gas and shale oil production, Environment People Law: <http://epl.org.ua/environment/vplyv-diialnosti-po-vydobutku-hazu-i-nafty-iz-slantsiv-na-dovkillia-i-zdorov-ia-liudei/>

²⁸ 2006 IPCC Guidelines for National Greenhouse Gas Inventories: <https://www.ipcc-nggip.iges.or.jp/public/2006gl/russian/index.html>

²⁹ Environmental and human health impacts of shale gas and shale oil production, Environment People Law: <http://epl.org.ua/environment/vplyv-diialnosti-po-vydobutku-hazu-i-nafty-iz-slantsiv-na-dovkillia-i-zdorov-ia-liudei/>

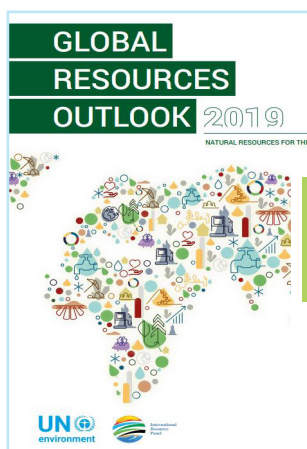
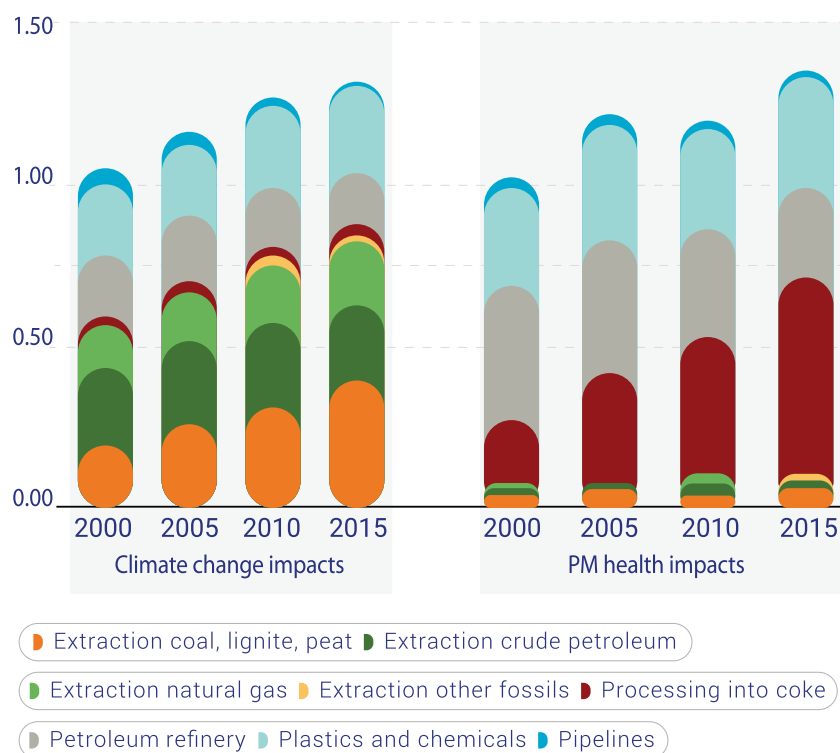


Figure 7. Climate change and PM health impacts of fossil resource extraction.

Climate change and PM health impacts of fossil resource extraction and processing



From Exiobase 3.4 (Exiobase, n.d.; Stadler et al., 2018). Impacts of the year 2000 indexed to 1.

Data Source:
Global Resource Outlook 2019

Polluting dust emissions occur from **coal** mining activities and represent a health risk to workers and residents primarily due to fine particulate matter release. Fine particle matters (in particular, PM2.5) penetrate into the human respiratory system and affect cardiovascular, respiratory and nervous systems. This is relevant for underground and open-pit mining. Generally, coal extraction has particularly large impacts on the environment, human health and climate change and is therefore discussed in more detail in the next section.

Coal, oil and natural gas provide various forms of energy while also constituting the raw materials for numerous chemicals like pharmaceuticals, plastics, paints and many more. As noted earlier, it is important to consider the entire life cycle, including waste disposal process, to assess environmental impacts of fossil fuel extraction and carbon-bearing mineral processing. Environmental and health impacts from the final use of fossil fuels play a crucial role in their life cycle.

3.2. Evidence of environmental, climate change and social impacts of mining

Extractive industries affect not only the environment but also social wellbeing of local communities. Environmental pollution, greenhouse gas emissions and related climate change have negative consequences for human health - especially those living in mining, quarrying, etc., regions.

Mining is responsible for the greatest share of environmental and social impacts. Therefore, this section will focus on the consequences.

3.2.1. Environmental impact of coal mining:

Pit Water

Water is used directly or indirectly at all stages of mining activity and for domestic purposes. Though the quantity of water may be intercepted or pumped out thereby lowering the water table and affecting the water's original direction of flow. Groundwater quality is affected when wastewater infiltrates through surface water into groundwater³⁰, thus causing problems with water quality and availability for local communities.

As a result of mining activities, natural rocks are exposed which contain the sulphur-bearing minerals, in particular iron sulphide FeS₂ (Pyrite)³¹. After being exposed to air and water, oxidation of Pyrite generates sulfuric acid³². Катализатором цього процесу стає Rain becomes a catalyst in this process. When it rains, water enters the mine, raising the groundwater level. The diluted acid gets into rivers and streams and can even seep into underground

³⁰ Jhariya, Dalchand & Khan, Rubia & Thakur, G.S. (2016). Impact of Mining Activity on Water Resource: An Overview study: https://www.researchgate.net/publication/301522857_Impact_of_Mining_Activity_on_Water_Resource_An_Overview_study

³¹ Laboratory Study on Bioleaching of Heavy Metals in Acid Mine Drainage: <http://znp.nmu.org.ua/pdf/2020/60/PDF/15.pdf>

³² "Environmental Impacts of Coal Mining". World Coal Institute. Archived from the original on 23 October 2008. Retrieved 22 October 2008.

sources of water after the mining operations are complete³³. Therefore, acid mine water pollutes the region's water resources.

The pit water must still be pumped away even after mining activities have been discontinued. In some regions, pumping stations are installed to prevent polder areas caused by mine subsidence. Groundwater protection facilities operate in the former mining regions³⁴. Thus, monitoring and protection of water reserves must continue even after active mining has ended.

For most mining projects, the potential of soil and sediment eroding into and degrading surface water quality is a serious problem³⁵. Waste residues and piles can also enter water streams. As a result, surface waters become unsuitable for agriculture, drinking, bathing or other household needs³⁶. In particular, wastewater released directly into the Jiu River (Romania) has led to extinction of aquatic life³⁷.

To prevent such negative impact, waste stabilization ponds are created to act like filtering barriers. However, since their bottoms are not isolated, aquifers still get contaminated from seepage³⁸.

Thus, for example, due to high content of fine particles (up to 0.1 g/l) and increased mineral concentration (up to 7 g/l) of mine waters, over 3 million tons of salts and other substances are discharged into water reservoirs and rivers of Donetsk region every year. Mineral concentration of many surface water sources has increased to 2.2–2.6 g/l, and they got contaminated with heavy metals³⁹. As a result, water in most small rivers (Kalmius, Mius, Bakhmut, Solona, and Samara) is now not suitable for agriculture and domestic use⁴⁰.

³³ The Worldcounts, "A cheap but dirty fuel source...": <https://www.theworldcounts.com/stories/negative-effects-of-coal-mining>

³⁴ Ground Water Purification: <https://www.rag-stiftung.de/en/perpetual-obligations/ground-water-purification>

³⁵ Guidebook for Evaluating Mining Project EIAs: <https://www.elaw.org/files/mining-eia-guidebook/Chapter1.pdf>

³⁶ Tiwary, R. K. (1 November 2001). "Environmental Impact of Coal Mining on Water Regime and Its Management". *Water, Air, & Soil Pollution*. 132 (1–2): 185–199. Bibcode:2001WASP..132..185T. doi:10.1023/A:1012083519667. ISSN 1573-2932. S2CID 91408401

³⁷ Transformation Experiences of Coal Regions: Recommendations for Ukraine: <https://ecoaction.org.ua/wp-content/uploads/2019/06/transformation-experiences-ua-full.pdf>

³⁸ The Real Price of Coal in the Wartime Donbas: a Human Rights Perspective: https://ua.boell.org/sites/default/files/real_price_of_coal_in_war_time_donbas.pdf

³⁹ 6 Environmental safety of coal reserves in Ukraine, ed. Rudko, H.I., Bondar O.I., Kyiv-Chernivtsi, Bukrek, 2016. – pp. 190–191.

⁴⁰ The Real Price of Coal in the Wartime Donbas: a Human Rights Perspective: https://ua.boell.org/sites/default/files/real_price_of_coal_in_war_time_donbas.pdf

Spoil Tips

A spoil tip is a pile built of loose waste, coal and other minerals removed during mining⁴¹. They are usually conical in shape, and their structure provides the greatest flow of air into the middle of the pile. The oxidation of coal and other carbonaceous materials leads to spontaneous combustion in the spoil piles. The main disadvantage of conical waste piles is inability to dispose waste and implement preventive measures against spontaneous combustion at the same time⁴².

The temperature inside waste tips can rise to 1,200 C°. As a result of chemical reactions, sulfur and sulfuric acid are generated. At the same time, toxic gases such as hydrogen sulfide, carbon monoxide, sulfur dioxide and nitrogen are released on the surface and pollute the air⁴³.

The largest waste tips have been built on the territory of Donbass. They contain up to 4 billion tons of waste rocks. Some of them are burned and used as fillers in the construction industry for building roads, stop banks, etc⁴⁴.

About 400 tons of rock dust containing a large number of toxic compounds, are emitted in the air from the surface of one waste tip, and 8 tons of salts are washed into the soil and groundwater⁴⁵. Activities of mines and coal enrichment factories in Luhansk and Donetsk region led to formation of 1185 spoil tips and waste rock piles, as well as approximately 170 slime and slurry ponds, which continue to pollute water basins and air. Over a third of all spoil tips are burning, including 211 in Donetsk region and 186 in Luhansk region⁴⁶. Spoil tip burning is of a protracted nature and extinguishing is often complicated, thus contributing to air pollution from combustion products.

⁴¹ R. W. Sarsby; T. Meggyes (2001). The Exploitation of Natural Resources and the Consequences: The Proceedings of Green 3 : the 3rd International Symposium on Geotechnics Related to the European Environment Held in Berlin, June 2000. Thomas Telford. pp. 7

⁴² Great Ukrainian encyclopedia: [https://vue.gov.ua/%D0%92%D1%96%D0%B4%D0%B2%D0%B0%D0%BB_\(%D0%B3%D1%96%D1%80%D0%BD%D0%B8%D1%87%D0%BE-%D1%82%D0%B5%D1%85%D0%BD%D1%96%D1%87%D0%BD%D0%B0_%D1%81%D0%BF%D0%BE%D1%80%D1%83%D0%B4%D0%B0\)](https://vue.gov.ua/%D0%92%D1%96%D0%B4%D0%B2%D0%B0%D0%BB_(%D0%B3%D1%96%D1%80%D0%BD%D0%B8%D1%87%D0%BE-%D1%82%D0%B5%D1%85%D0%BD%D1%96%D1%87%D0%BD%D0%B0_%D1%81%D0%BF%D0%BE%D1%80%D1%83%D0%B4%D0%B0))

⁴³ Voice of Ukraine, "Volcanoes of the Coal Region": <http://www.golos.com.ua/article/53191>

⁴⁴ Encyclopedic Dictionary of Mining: 3 Volumes / ed. V. S. Biletskiy. – D. : Eastern Publishing House, 2001–2004.

⁴⁵ Ye. A. Yakovlev. Influence of industrial waste on environmental risks of Donbass subsurface pollution due to a mass closure of coal mines / Ye. A. Yakovlev, V. A. Sliadniev // Partnership On Waste Management: IV International Conference (January 31– February 1, 2007). – Kharkiv, 2007. – pp. 28–29.

⁴⁶ Environmental safety of coal reserves in Ukraine, ed. Rudko, H.I., Bondar O.I., Kyiv-Chernivtsi, Bukrek, 2016. – p. 193.

Dangers of illegal mining – bootleg mines

When the mines are closed down, another problem appears - illegal surface coal mining. Artisanal mining, in particular, took place before the Great Depression in the United States⁴⁷. Bootleg mining is still an unresolved issue in Ukraine⁴⁸.

According to some estimates, in 2013, the volume of illegal coal mining in Ukraine reached millions of tons or about 10% of all mined coal in the country⁴⁹. According to the Independent Trade Union of Miners of Ukraine, the total number of bootleg mines and quarries was about 2.5 thousand back then⁵⁰. The largest numbers of surface mines are located within the Shakhtarsk-Torez-Snizhne agglomeration⁵¹. Most of them are currently on the territories outside the control of the Ukrainian government.

The main negative environmental impacts of illegal coal mining include as follows:

- Surface mining causes additional environmental pollution with heavy metals, in particular on cultivated agricultural lands.
- Surface mining contributes to groundwater pollution, increases groundwater seepage into rocks and further affects hydrogeological conditions.
- In some cases, coal is extracted from shallow depths directly under residential buildings and infrastructure facilities, which causes damage and destruction due to surface subsidence.
- Road transportation of large volumes of coal from bootleg mines, primitive sorting methods, enrichment and open-air coal transshipment (so-called reseeded) have created numerous additional sources of dust pollution.
- Lack of safety measures in illegal mining poses an additional threat to wellbeing and health of local population involved in these activities.

⁴⁷ "The Bootleg Coal Rebellion". Coal, Corn & Country: <https://web.archive.org/web/20170421060454/https://coalcorncountry.com/the-bootleg-coal-rebellion/>

⁴⁸ https://ua.boell.org/sites/default/files/real_price_of_coal_in_war_time_donbas.pdf

⁴⁹ BBC "Illegal coal-mining threatening Ukraine's economy". – Access Mode: https://www.bbc.com/ukrainian/news/2013/04/130409_illegal_mines_ag

⁵⁰ The Lost Ecology War. How Flooding Donbas Mines Affects Environment: <https://hromadske.ua/posts/vijna-progranoyi-ekologiyi-yak-zatoplennya-shaht-na-donbasi-vplivaye-na-dovkillya-intervyu-z-gidrogeologom>

⁵¹ BBC "Illegal coal-mining threatening Ukraine's economy". – Access Mode: http://www.bbc.com/ukrainian/news/2013/04/130409_illegal_mines_ag.

3.2.2. Climate change impacts of coal mining

Mining and burning of coal increase the amount of carbon dioxide (CO₂) in the air⁵². Carbon is the main chemical component of coal. During combustion (for example, in spoil tips), carbon reacts with oxygen in the air to produce carbon dioxide, which is a greenhouse gas and affects the heat transfer in the Earth's atmosphere.

This research paper has repeatedly referred to the role of CO₂ in climate change. By trapping outgoing infrared radiation from the Earth's surface, it alters the planet's climate and enhances the greenhouse effect⁵³. Therefore, when the amount of carbon dioxide in the atmosphere is higher than land ecosystems can absorb, the Earth temperature rises to 1.2°C above pre-industrial levels. Consequences of global warming include drought, sea level rise, flooding, extreme weather, and species loss. The severity of those impacts is tied directly to the amount of carbon dioxide we release, including from coalmines and power plants⁵⁴.

Coal power plants produce much more greenhouse gases (109 gCO₂e/kWh) compared to renewable energy (6gCO₂e/kWh – solar and 4gCO₂e/kWh – wind)⁵⁵. Pollutants include particulate matter, sulfur dioxide, nitrogen oxides, carbon dioxide, mercury and arsenic. The burning of coal emits hazardous air pollutants that can spread for hundreds of kilometres. After all, pollutants emitted into the atmosphere do not stay over the areas where coal is mined or burned, but spread to neighbouring regions and even countries. For example, in France, over 1,380 premature deaths per year are caused by emissions from neighbouring countries such as Germany, Britain, Poland, Spain and the Czech Republic⁵⁶.

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⁵² James Hansen (2007). "Testimony of James E. Hansen at Iowa Utilities Board" (PDF). Iowa Utilities Board, Columbia University. http://www.columbia.edu/~jeh1/2007/IowaCoal_20071105.pdf

⁵³ Petty, G.W.: A First Course in Atmospheric Radiation, pages 229–251, Sundog Publishing, 2004

⁵⁴ Coal Power Impacts: <https://www.ucsusa.org/resources/coal-power-impacts>

⁵⁵ Solar, wind and nuclear have 'amazingly low' carbon footprints, study finds: <https://www.carbonbrief.org/solar-wind-nuclear-amazingly-low-carbon-footprints>

⁵⁶ Scientific Evidence of Health Effects from Coal Use in Energy Generation: https://noharm-uscanada.org/sites/default/files/documents-files/828/Health_Effects_Coal_Use_Energy_Generation.pdf

from neighbouring countries such as Germany, Britain, Poland, Spain and the Czech Republic⁵⁷.

3.2.3. Impact on social wellbeing of towns

Single industry towns and lack of economic alternatives

A single industry town is a municipality where a single economic activity dominates the livelihood of its citizens. Thus, more than 30% of its local labour force is tied directly to a single industry sector⁵⁸.

A single industry town is largely controlled by outside interests. Education and skills of the local labour force are tied to one industry or even to one enterprise. As a norm, wages within the local workforce tend to be relatively high as an incentive to attract and retain workers. Social isolation and limited provision of a diverse range of services affect quality of life. In addition, coal mining is usually associated with 'male labour force', and therefore mining monotowns have a male-dominated power structure with men's interests and needs being a priority. Domination by the interests, issues, and needs specific to the male population. Women have typically been engaged in housekeeping, with little opportunity to access formal (waged) employment⁵⁹. Separate job opportunities are sometimes created for women to engage female workforce⁶⁰.

Topography of towns - it is all for the mine

The single industry nature of mining towns is also reflected in the topography. Zoning and urban planning depends on coal enterprises, because they are main employers⁶¹. Such towns are mostly small with total areas of between 5 km² and 15 km² and surrounded by many satellite settlements⁶². Therefore, these towns have underdeveloped infrastructure, except for transport connections with the mine. Local houses and buildings are not connected to

⁵⁷ The Worldcounts, "A cheap but dirty fuel source...": <https://www.theworldcounts.com/stories/negative-effects-of-coal-mining>

⁵⁸ Facilitating Sustainability and Economic Prosperity Within Single Industry Municipalities: International and Ukrainian Experience: http://www.mled.org.ua/media/docs/Single_Industry_Town_Guide_2014_UKR.pdf

⁵⁹ The same.

⁶⁰ Examples of mobile and immobile behavior of small town residents, I. Matsko-Demydenko: https://i-soc.com.ua/assets/files/journal/specrada/dis_matsko-demydenko.pdf

⁶¹ The war and energy transition: problems and prospects of Donbass mining towns: <https://mistosite.org.ua/articles/viina-ta-enerhetychnyi-perekhid-problemy-i-perspektyvy-shakhtarskykh-mist-donbasu?locale=uk>

⁶² The same.

a gas supply, because they are heated with extracted coal⁶³.

Impacts on public health: physical and mental

In terms of social development of local communities, it is important to consider public health impacts of extractive industries, in particular, the physical, mental and social well-being⁶⁴.

Factors contributing to **public health problems** include not only extraction and transportation of coal, but also waste disposal, which cause pollution of:

- Water: Surface and ground water contamination with metals and other harmful elements;
- Air: Exposure to high concentrations of sulfur dioxide, particulate matter (including the most harmful fraction PM2.5), heavy metals, including lead, mercury and cadmium, compounds of fluorine, zinc, arsenic, nickel, etc.;
- Soil: Deposition of toxic elements from air emissions⁶⁵.

Exposure to these pollutants can damage people's cardiovascular, respiratory and nervous systems, increasing the risk of lung cancer, stroke, heart disease, chronic respiratory diseases and lethal respiratory infections. Children, the elderly, pregnant women, and people with already compromised health suffer most⁶⁶.

Indirect effects of mining on public health can include increased incidence of tuberculosis, asthma, chronic bronchitis, and gastrointestinal diseases⁶⁷. For example, the infant mortality and tuberculosis rates in Jiu Valley in Romania are considerably higher, and life expectancy is lower than the nationwide average⁶⁸.

The single industry nature of mining towns, on the other hand, affects availability and safety of food and increases the risk of poor nutrition⁶⁹.

Mental health is also at risk. Air pollutants that affect coronary arteries also

⁶³ About Dobropilla: <https://theukrainians.org/mm-dobropillia/>

⁶⁴ World Health Organization. 1946. Preamble to the Constitution of the World Health Organization. Official Records of the World Health Organization No. 2, p. 100.

⁶⁵ Guidebook for Evaluating Mining Project EIAs: <https://www.elaw.org/files/mining-eia-guidebook/Chapter1.pdf>

⁶⁶ EndCoal Health: <https://endcoal.org/health/>

⁶⁷ The same.

⁶⁸ Sandu, Dumitru & Stanculescu, Manuela. (2004). Livability in Jiu Valley Region. 10.13140/RC.2.1.3474.6968.

⁶⁹ The same.

affect the arteries that nourish the brain. These include stimulation of the inflammatory response and oxidative stress, which in turn can lead to stroke and other cerebral vascular disease⁷⁰.

Coal contains trace amounts of mercury that, when burned, enter the environment and act on the nervous system to cause loss of intellectual capacity. Although the EU managed to ban and / or reduce mercury emissions with stringent limits on industrial emissions, in other countries the coal and gold mining industries are the main producers of this toxic substance. Thus, around 50 % of the anthropogenic mercury deposited annually in Europe originates from outside Europe, with 30 % originating from Asia alone⁷¹. The study results suggest that, within the EU, nearly 1.9 million children are born every year with MeHg exposures above the safe limit. This can have an adverse impact on IQ level and cause neurodevelopmental disorders. The total damage caused is estimated to exceed €9,000 million per year⁷².

Social well-being: Overall, coal is responsible for over 800,000 premature deaths per year globally and many millions more serious and minor illnesses⁷³. The economic costs of the health impacts from coal combustion in Europe are estimated at up to \$70 billion per year with 250,600 life years lost⁷⁴.

Hazardous working conditions and, in some cases, non-compliance with occupational safety rules are the causes of work-related injuries and death accidents. For example, Germany has 40 million employees in coal mining and recorded more than one million work accidents in 2017⁷⁵.

According to the statistics, Ukraine has 16 million employees but recorded only 4,313 work accidents⁷⁶. The figures are slightly lower, but, according to experts, this is due to improper reporting or lack of data, for example, in the temporary occupied territories of Ukraine. Moreover, as mentioned earlier, illegal coal

⁷⁰ Alan Lockwood, Kristen Welker-Hood, Molly Rauch, Barbara Gottlieb, "Coal's Assault on Human Health" Physicians for Social Responsibility Report, November 2009, <https://www.psr.org/wp-content/uploads/2018/05/coals-assault-on-human-health.pdf>

⁷¹ Mercury in Europe's environment. A priority for European and global action, European Environment Agency: https://www.eea.europa.eu/publications/mercury-in-europe-s-environment/at_download/file

⁷² Bellanger, M., et al., 2013, 'Economic benefits of methylmercury exposure control in Europe: Monetary value of neurotoxicity prevention', Environmental Health: A Global Access Science Source, 12(1), pp. 1-10 (<https://doi.org/10.1186/1476-069X-12-3>)

⁷³ EndCoal Health: <https://endcoal.org/health/>

⁷⁴ The unpaid health bill. How coal power plants make us sick, Health and Environment Alliance: http://www.env-health.org/IMG/pdf/heal_report_the_unpaid_health_bill_how_coal_power_plants_make_us_sick_final.pdf

⁷⁵ Occupational safety and health in the mining industry in Ukraine, ILO: https://www.ilo.org/wcmsp5/groups/public/--europe/--ro-geneva/--sro-budapest/documents/publication/wcms_670764.pdf

⁷⁶ The same.

mining is a common practice. According to the State Labour Service, 68.7 per cent of workers in mining (158,000 out of 230,000) have been working in conditions, which fail to meet the sanitary and hygienic standard⁷⁷.

Thus, the coal mining industry, compared to other industries, has an extremely high impact on the environment by causing water, air and soil pollution. Toxic substances, combustion risks and unsafe working conditions in the mining sector have adverse health effects both for workers and local residents, while environmental impacts from mining spread to neighbouring territories and countries.

⁷⁷ The same.

3.3. Current environment protection requirements of the EITI Standard

As noted in previous sections, a new version of the EITI International Standard was approved in 2019⁷⁸. Pursuant to the new EITI Standard, the EITI reports shall include information on all material payments to the government related to the environment, and governments are encouraged to disclose information on the potential environmental impact of the extractive industries:

«6.1 Social and environmental expenditures by extractive companies.

...

b) Where, **material payments by companies to the government related to the environment are mandated by law, regulation or contract that governs the extractive investment, implementing countries must disclose such payments.**

c) The multi-stakeholder group is required to agree a procedure to address data quality and assurance of information on social and environmental expenditures, in accordance with Requirement 4.9.

d) Where the multi-stakeholder group agrees that **discretionary social and environmental expenditures and transfers are material**, the multi-stakeholder group is encouraged to develop a reporting process with a view to achieving transparency commensurate with the disclosure of other payments and revenues. The multi stakeholder group is encouraged to agree a procedure to address data quality and assurance of the information set out above, in accordance with Requirement 4.9”.

Hence, the EITI requires disclosure of all material payments by companies to the government related to the environment that are mandated by law. The MSGs may also include voluntary environmental expenditures and agree a respective procedure for them.

What does this mean in the context of environmental protection?

Information about how much an extractive company pays to the government during a reporting year in relation to the environment will become public. The EITI does not require companies to report on revenues from various fiscal

⁷⁸ 2019 EITI Standard: https://eiti.org/files/documents/2019_eiti_standard_-_ukrainian.pdf

climate policy instruments, and the government – on public spending of earmarked environmental revenues (payments by companies). Thus, the EITI covers only the monetary contribution of the extractive sector.

What does this mean in the context of climate change? When a country has opted for carbon or other taxes and levies as a climate policy instrument, and the extractive companies are taxable, the national EITI report will cover this element of the climate policy. However, since the EITI does not require separate disclosure of climate-related taxes / levies / duties, most countries report aggregate indicators of environmental payments.

It is also important to understand that this data is conditionally required, and, as it follows from the EITI requirement, these are material payments that are recognized as such by the MSG. For example, in 2015, Norway⁷⁹ recognized the CO₂ and NO_x taxes as material payments, but they were no longer material in 2017.

«6.4. Environmental impact of extractive activities.

Implementing countries are encouraged to disclose information on the management and monitoring of the environmental impact of the extractive industries. This could include:

a) An overview of relevant legal provisions and administrative rules as well as actual practice related to environmental management and monitoring of extractive investments in the country. This could include information on environmental impact assessments, certification schemes, licences and rights granted to oil, gas and mining companies, as well as information on the roles and responsibilities of relevant government agencies in implementing the rules and regulations. It could further include information on any reforms that are planned or underway.

b) Information on regular environmental monitoring procedures, administrative and sanctioning processes of governments, as well as environmental liabilities, environmental rehabilitation and remediation programmes”.

In this section of the EITI Standard, it is recommended to disclose information on the environmental impact of extractive industries.

⁷⁹ The EITI open data for 2017 suggests that based on the second validation in 2018, this requirement (environmental payments) is not applicable to Norway.

What does this mean in the context of environmental protection? It provides an opportunity to record the environmental impact of the extractive industries and compare it against environmental payments to the government (provided the payments are recognized by the MSG as material and mandated by law).

What does this mean in the context of climate change? As part of the disclosure of environmental impacts of the extractive industries, some countries may disclose information on emissions of CO₂ and other GHGs, but the EITI Standard also does not require segregating climate-related data.

General Part of Research: Summary

- When assessing environmental and climate impacts of extractive industries, it is important to consider the full supply chain of CO₂ and other GHG emissions, in particular fossil CO₂. The extractive sector is responsible for some carbon footprint, but the main environmental and climate impact is exerted by the industries stimulated and enabled by the extractive sector, such as power industry, transport, agriculture, production sector, etc.
- Coal mining is responsible for the greatest share of environment and climate change impacts, including the impact on the environment, social wellbeing and human health.
- Civic society organizations have requested to include climate aspects into the EITI reporting and adopt environmentally sound decisions within the EITI framework. The EITI currently requires companies to disclose any material payments to the government related to the environment and encourages the EITI implementing countries to disclose information on the environmental impact of extractive industries. However, the EITI Standard does not cover the actual impact of a specific extractive company on the environment and climate change or the role of the government.

4.1. Decarbonisation of the economy, transformation of coal regions - environmental, economic and social aspects

4. SPECIAL PART: TOOLS FOR ADAPTING THE EXTRACTIVE INDUSTRIES TO CLIMATE CHANGE AND REDUCING THEIR NEGATIVE IMPACTS ON CLIMATE CHANGE

The international legal framework for combating climate change includes a number of international agreements: the UN Framework Convention on Climate Change (1992), the Kyoto Protocol (2005) and the Paris Agreement (2015). In 2006, the Energy Community was established with the goal of extending the EU internal energy market rules and principles to countries in South East Europe and the Black Sea region⁸⁰. Therefore, the laws and regulations of the Energy Community Member States must be brought in line with the EU energy-related laws and regulations⁸¹.

Ukraine has also acceded to these international agreements thus committing to implement climate change policies. They can be divided into two groups: climate change mitigation policies and climate change adaptation policies. The first group aims to reduce greenhouse gas emissions (decarbonisation), while the other group proposes strategies on adaptation to climate change effects.

As mentioned in previous sections, the Paris Agreement, signed by 189 parties, sets out the main regulatory framework for decarbonisation⁸².

To achieve the Paris Agreement goal of 1,5 (2)^oC⁸³, the countries must achieve carbon neutrality by 2050, which means that greenhouse gas emissions should not exceed the capacity of ecosystems to absorb these emissions. Therefore, carbon dioxide emissions by companies shall be actually net zero in 2050⁸⁴. In other words, the ratification of the Paris Agreement laid out the foundation for the transition to a low-carbon economy, which involves replacing carbon-intensive technologies with low-carbon energy technologies through modernization of enterprises (especially large combustion plants)

⁸⁰ Treaty establishing the Energy Community: https://zakon.rada.gov.ua/laws/show/994_926#Text

⁸¹ A key driver for energy and related environmental policy in south-eastern Europe is the European Energy Community: <https://bankwatch.org/the-european-energy-community>

⁸² Paris Agreement - Status of Ratification: <https://unfccc.int/process/the-paris-agreement/status-of-ratification>

⁸³ Romain Poivet (2018), What decarbonisation really means, <https://www.sustainablegoals.org.uk/decarbonisation-really-means/>

⁸⁴ Special Report: Global Warming of 1.5 °C: <https://www.ipcc.ch/sr15/chapter/spm/>

and transition from fossil fuels to renewable energy.

And it's not only about future. According to the IEA statistics, in the face of pollution and environmental concerns, coal consumption already decreased by 1.2% worldwide in 2019. However, the dynamics in the many countries were different: the United States, the European Union and India decreased their coal consumption whilst major Asian economies such as China and Indonesia increased their coal consumption. Total world coal production increased by 1.5% in 2019, half the growth rate of the previous years. According to statistics, Asia produced what Europe and US did not. Despite more coal being used in the electricity and heat generation sector, the share of coal-fired generation in the power mix is decreasing in several economies, namely in the United States and most of the European countries, but also in China.

According to Article 4 of the Paris Agreement, decarbonisation shall be reached on the basis of equity, and in the context of sustainable development and efforts to eradicate poverty.

This process is called **Just Transition**. Just transition is an economic restructuring model based on locally designed public policies to create the context for a decent life for all workers and communities affected by pollution reduction measures. Furthermore, the just transition concept links to 14 of the 17 Sustainable Development Goals⁸⁵, explicitly drawing together SDGs 12 – climate action, 10 – reduced inequalities, 8 – decent work and economic growth, and 7 - affordable and clean energy. Just transition is a long-term process consisting of various components, including economic, social and environmental.

4.1.1. Economic transition of coalfield regions

The decarbonisation of the world economy, that is required to avoid catastrophic climate change, will improve human well-being globally but also cause losses to a variety of stakeholder groups:

- Owners of carbon-intensive business assets;
- Workers in mining sectors;
- Local communities that use coal for heating homes and for passenger

⁸⁵ Sustainable Development Goals: <https://www.ua.undp.org/content/ukraine/uk/home/sustainable-development-goals.html>

vehicles⁸⁶.

Given the role coal plays in total power generation and balancing the energy system, reducing coal production may pose challenges for the energy sector, while coal mining-dependant local economies and the lack of effective system for monetizing environmental externalities will entail costs to offset social and environmental consequences of mine closures.

Anticipating such difficulties, the EU has developed a special financial mechanism - the Just Transition Mechanism - within the European Green Deal⁸⁷. It includes three main elements:

- The Just Transition Fund;
- Credit package for individual regions from the European Investment Bank
- A scheme for stimulating private investments⁸⁸.

It will help mobilise at least €150 billion over the next 6 years to ensure that the socio-economic transition of coal regions happens in a fair way⁸⁹.

The majority of the EITI implementing countries, like Ukraine, are not members of the European Union, so they need to look for other opportunities, in particular, by applying for international technical assistance and attracting international investment, including setting up a fund similar to the Energy Efficiency Fund. From this perspective, a just transition can be interpreted as an opportunity to decommission out-dated thermal power plants and develop new, sustainable and more efficient power capacities, for example, by investing into renewable energy sources. Finally, a robust long-term climate and energy framework, in line with Energy Community requirements, would offer a unique opportunity for developing Ukraine's own low carbon technologies and attracting investments⁹⁰.

By developing enterprises other than coal mining, a government will diversify the economy of single industry regions.

⁸⁶ Transition policy for climate change mitigation: Who, what, why and how: https://ccep.crawford.anu.edu.au/sites/default/files/publication/ccep_crawford_anu_edu_au/2018-07/green_f_2018_transition_policy_for_climate_change_mitigation-who_what_why_and_how_ccep_working_paper_1807_0.pdf

⁸⁷ A European Green Deal: https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en

⁸⁸ European Parliament Think Tank, Just Transition Fund: [https://www.europarl.europa.eu/thinktank/en/document.html?reference=EPRS_BRI\(2020\)646180](https://www.europarl.europa.eu/thinktank/en/document.html?reference=EPRS_BRI(2020)646180)

⁸⁹ The Just Transition Mechanism: making sure no one is left behind: https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal/actions-being-taken-eu/just-transition-mechanism_en

⁹⁰ Developing a National Energy and Climate Plan for Ukraine: Key Objectives, Strategic Questions and Options: https://www.lowcarbonukraine.com/wp-content/uploads/LCU_PP02_2019-03_en.pdf

Silesia is moving towards gradual transition – along with restructuring the mining sector, it is shifting to the service sector. The inflow of investment contributes to developing the automobile sector and high technology. Urban renewal is progressing along the following lines: less pollution, museums and cultural entities dedicated to mining, and reshaping housing in mining areas⁹¹.

During the coal crisis, Germany applied two strategies: subsidizing existing mines and diversifying the Ruhr region's economy (stimulating innovation in all industries other than coal)⁹². Although subsidies alone restrain decarbonisation and cost a lot of money, economic diversification is a good example of building cooperation and engaging various market players: mining unions, banks, chambers of commerce and small and medium enterprises. Through such cooperation, a series of interventions were prepared to restructure and retrain the workforce, promote technological innovation and redesign residential areas. As a result, the region has managed to develop new sectors of economic activity, mainly oriented towards information technology, biomedicine or environmental protection technology⁹³.

When planning economic consequences and results of the transition, it is important to keep in mind the industries / enterprises that are in one way or another related to the mining sector, although not directly (equipment suppliers, service providers, etc.).

For example, the rubber conveyor belt producer Artego in Romania, after its main client Oltenia Energy Complex was liquidated, increased its exports, thus avoiding bankruptcy. At the same time, many workers could keep their jobs, as Artego was the second biggest employer in lignite-rich Gorj in Romania⁹⁴.

Thus, transition financing mechanisms and instruments should be well

⁹¹ 6 Regeneration Of Coalfield Regions Good Practices Guidelines: <https://archive.org/details/6RegenerationOfCoalfieldRegionsGoodPracticesGuidelinesRECOREEN>

⁹² Transformation Experiences of Coal Regions: Recommendations for Ukraine: <https://ecoaction.org.ua/wp-content/uploads/2019/06/transformation-experiences-ua-full.pdf>

⁹³ Eight steps for a just transition: <https://bankwatch.org/wp-content/uploads/2017/11/eight-steps-just-transition.pdf>

⁹⁴ Territorial just transition plan checklisttjtp-checklist-1: <https://bankwatch.org/wp-content/uploads/2020/07/TJTP-checklist-1.pdf>

planned and prepared in advance to prevent adverse economic consequences for the regions, primarily by diversifying the local economy.

4.1.2. Social transition of coalfield regions

A single industry economy (see Section 3.2) makes local communities very sensitive to transition. This process will lead to the closure of mines - the main employer in the region, so people should be provided with new jobs. As we have already mentioned, this can be achieved through economic diversification, when the laid-off mine workers are placed in other industries and / or employed by other enterprises.

As a result of the economic restructuring of the Loos-en-Gohelle coal region in northern **France**, a business centre and a research centre on sustainable development resources have been built which has generated about 350 jobs⁹⁵.

Clearly, employment within the industries other than coal mining will require additional knowledge and skills. Therefore, the social aspect of transition includes **retraining and social protection** of laid-off mine workers as well as development and restructuring of education in the region. Especially since mostly men are employed in the mining sector⁹⁶. Therefore, Territorial Just Transition Plans should also provide for gender equality in the region.

⁹⁵ Eight steps for a just transition: <https://bankwatch.org/wp-content/uploads/2017/11/eight-steps-just-transition.pdf>

⁹⁶ Romano, R., & Papastefanaki, L. (2020). Women and Gender in the Mines: Challenging Masculinity Through History: An Introduction. *International Review of Social History*, 65(2), 191-230. doi:10.1017/S0020859019000774

The Ruhr Valley in Germany can be taken again as an example of good practices, where education was developed during the transition period with 5 universities and 8 technical schools being opened and technological parks established, which increased investment attractiveness of the region⁹⁷. In particular, a science centre specialized in developing new technologies on both energy efficiency and the use of solar energy and clean fuels was built in the city of Gelsenkirchen. In this way, up to 26 000 jobs have been created and the region has grown into a large student and research hub⁹⁸.

Inadequate infrastructures are another problem facing the mining towns. This includes transport networks and communications, water and electricity supply, land and factories, communications and local production. For many regions, the transport network is outmoded; the sub-regional transport networks are not linked up with the main national and international road and network.

The rehabilitation of the old Frantisek mine in Czech Republic (25 hectares, with 43,000 m² of buildings) aimed at creating an industrial park and revamping the infrastructure. Roads, various networks and the grounds themselves have been improved⁹⁹.

Another good example of infrastructure development projects is the industrial district of Rybnik in Silesia, Poland. The landscape is distorted by wastelands, slag heaps, scurries and floods. The air is hardly breathable. Today, the sites are being transformed into leisure centres (ANNA mine in Pszow). The area being transformed stretches over 50 ha and contains an amphitheatre (seating 550) and sports infrastructure (cyclocross track, volleyball and tennis fields)¹⁰⁰.

⁹⁷ Transformation Experiences of Coal Regions: Recommendations for Ukraine: <https://ecoaction.org.ua/wp-content/uploads/2019/06/transformation-experiences-ua-full.pdf>

⁹⁸ Eight steps for a just transition: <https://bankwatch.org/wp-content/uploads/2017/11/eight-steps-just-transition.pdf>

⁹⁹ 6 Regeneration Of Coalfield Regions Good Practices Guidelines: <https://archive.org/details/6RegenerationOfCoalfieldRegionsGoodPracticesGuidelinesRECOREEN>

¹⁰⁰ 6 Regeneration Of Coalfield Regions Good Practices Guidelines: <https://archive.org/details/6RegenerationOfCoalfieldRegionsGoodPracticesGuidelinesRECOREEN>

Retraining of workforce in the region should be well planned in advance to prevent a social crisis in attempt to prevent climate change. First of all, it is necessary to restructure the education system, providing training and skills development opportunities for laid-off workers. Another important step is building infrastructure in the region.

4.1.2. Environmental transition of coalfield regions

Even today, despite technological advances, coal extraction techniques are not efficient enough to compensate for the negative environmental consequences, outlined in Section 3.2 hereof. The main environmental concerns are associated with mining slag heaps and the lack of proper care and control as well as further reclamation of waste materials; dust, noise and methane pollution, which coupled with habitat degradation poses a threat to local biodiversity; and groundwater contamination affecting surrounding ecosystems. There are no effective mechanisms in place to incorporate and prevent environmental externalities at the inception of coal mining activities and finance mine site reclamation and rehabilitation after mine closure.

Generally, each of the countries with coal transition regions focuses on the same issues: clean-up, rehabilitation of the sites;

- Surveillance of safety and the environment on the sites considering the dangers linked to gases (methane),
- Management of hydraulic problems (pollution of mine water and consequences for ground water)¹⁰¹.

Thus, for example, polluted mine water can be purified and fed into the networks or be used as service water. The stable temperature and relatively low enthalpy of mine water have the potential to form a geothermal resource to be used in conjunction with heat pumps to provide heating and cooling for buildings. It can be classified as a low carbon technology and if heat pump is powered by solar or wind energy it can be classified as a truly renewable technology¹⁰².

Within the just transition framework, special attention is paid to the rehabilitation of rivers located within the mining regions. Since rivers are interconnected (estuary, groundwater), contamination of one river leads

¹⁰¹ 6 Regeneration Of Coalfield Regions Good Practices Guidelines: <https://archive.org/details/6RegenerationOfCoalfieldRegionsGoodPracticesGuidelinesRECOREEN>

¹⁰² Anup P. Athresh, Amin Al-Habaibeh, Keith Parker, Innovative Approach for Heating of Buildings Using Water from a Flooded Coal Mine Through an Open Loop Based Single Shaft GSHP System, Energy Procedia, Volume 75, 2015, Pages 1221-1228, ISSN 1876-6102, <https://doi.org/10.1016/j.egypro.2015.07.162>.

to contamination of the entire water system. Cleaning up a polluted water reservoir helps to maintain the ecological balance.

For example, the Nalón River (Spain) runs through the central and western part of the region of Asturias and empties into the Bay of Biscay (Cantabrian Sea) of the Atlantic Ocean. The largest mines placed along the river basin cause groundwater pollution thus resulting in the river pollution. However, the water now goes through special treatment (pumping, purification and disinfection), and there are a lot of different varieties of fish there. The trout and salmon fishing is a good example of new leisure activities that attract tourists. Restoration of water quality in this river is part of the logic behind a just transition concept¹⁰³.

In addition to water pollution, mining operations contribute to the change in topography and stripping of vegetation, thus leading to top soil layer destruction and soil erosion - not only washing precious nutrients away and clogging up waterways with run-off, but also creating lands unsightly and unusable for the agriculture. This is why rehabilitation of mining sites is so important; it's important to establish new growth as quickly as possible and allow any land destroyed by mining to be put to better use for forestry or grazing purposes¹⁰⁴. Moreover, the reclaimed land can be used for recreational activities and industrial facilities¹⁰⁵.

The danger of methane emissions was discussed in Section 3.2. Let us be reminded that this gas is extremely flammable, which makes it very dangerous. Abandoned coal mines continue to emit methane even after their closure. The site in a Polish city of Wodzisław Śląski, where abandoned mines are located, has become dangerous to visit because of emanations of methane¹⁰⁶. However, new technical solutions allow converting this gas to useful energy¹⁰⁷.

Just Transition for the coal-mining regions involves not only creating new jobs at new enterprises, but also taking a comprehensive approach that includes

¹⁰³ Framework agreement for a fair transition of coal mining and sustainable development of the mining communities for the period 2019-2027: http://www.industrial-union.org/sites/default/files/uploads/documents/2018/SPAIN/spanish_plan_for_coal_eng_oct_2018.pdf

¹⁰⁴ Rehabilitating old mining sites: <https://www.mining-technology.com/features/feature-rehabilitating-old-mining-sites-biosolids/>

¹⁰⁵ ENIschool energy&environment: http://www.eniscuola.net/wp-content/uploads/2011/02/pdf_coal_2.pdf

¹⁰⁶ 6 Regeneration Of Coalfield Regions Good Practices Guidelines: <https://archive.org/details/6RegenerationOfCoalfieldRegionsGoodPracticesGuidelinesRECOREEN>

¹⁰⁷ Frequent Questions About Coal Mine Methane: <https://www.epa.gov/cmop/frequent-questions#q7>

building / replanning infrastructure, redeveloping existing and opening new schools, retraining local mine workers, and also ensuring proper recovery of waters and land affected by coal mining. The experience of different regions also shows that while a just transition should be based on policies adopted by the central government, it still should be driven by local authorities in cooperation with local communities, trade unions and CSOs.

After all, we cannot ignore the climate crisis, which depends on the amount of carbon dioxide emitted into the atmosphere. Therefore, a deadline should be set for the countries to quit coal, stop investing in the fossil fuel industry and give priority to the projects consistent with the principles of sustainable development.

4.2. Relationship between the current EITI requirements and environmental and climate change impacts of extractive industries

As mentioned in previous sections, in 2019, the EITI Standard set up a mandatory requirement to disclose all material environmental payments to the government and encourages implementing countries to disclose the information on environmental impacts of extractive industries, without focusing on climate concerns. However, countries are not restricted to cover these and any other issues they deem appropriate.

At the same time, one of the first steps towards the EITI greening was made by introducing climate change risk related disclosures in extractive industries and by modernizing the activities covered by EITI reporting.

In 2015, a group of international and national environmental organizations addressed the EITI Board with **Open Letter¹⁰⁸ to include climate risks in EITI reporting standards**, in particular, making the following recommendations:

1. Develop a new Principle of the EITI, focusing on the special and unique position of the fossil fuel sector in the context of climate change.

¹⁰⁸ Letter from Civil society organisations - call on EITI to consider climate risks in reporting standards for extractive: <https://eiti.org/document/letter-from-civil-society-organisations-call-on-eiti-to-consider-climate-risks-in-reporting>

- 2.** Enhance the Standard in relation to the way in which civil society groups are engaged, ensuring certain expertise is represented within the multi stakeholder group and to ensure important issues are addressed with due consideration of climate risks. It was recommended to ensure this aspect prior to a country becoming a compliant country.
- 3.** Undertake reform to the contextual information that EITI Reports contain, in particular ensuring the disclosure of descriptions of legal frameworks and fiscal regimes governing the climate change policies; and whether or not, each extractive project is economically viable under global carbon budget constraints that would be imposed to hold the global mean temperature rise to 1.5°, or 2°C. It was recommended to include a summary economic explanation of the basis for a project's viability along with disclosure of subsidies.
- 4.** Undertake amendments to the EITI Standard concerning revenue streams to include carbon taxes including taxes (or levies) on emissions or extraction, bunker fuels; and repayment of climate finance received.

In response to the above-mentioned letter, the EITI Board wrote¹⁰⁹ the following:

*“The EITI of course agrees that there is an urgent need for a substantial increase in the level of transparency for the sector. Transparency, openness, good governance and strong accountability are good for a wide range of reasons. One of these reasons is indeed to fight corruption, and the stakeholders behind the EITI agree on this. **There is significantly less agreement about a number of other reasons why transparency is good.** Take energy subsidies as an example, which you refer to. The EITI has no policy related to subsidies and it would be difficult to achieve consensus amongst our stakeholders. However, in countries like Nigeria and Indonesia we have seen how EITI information has significantly contributed towards the political momentum in favour of removing these subsidies.*

*The extent to which the EITI has been successful is in part due to the ability of keeping its wide group of stakeholders together. This has to some degree been achieved by the EITI’s relatively narrow focus. **The EITI’s experience is that ambition and impact can often be accomplished by doing less better.** In our case, this translates into a focus on ensuring meaningful transparency. Whether someone is working to limit climate change, increase taxes, attract foreign direct investments by providing tax incentives or whatever it may be, we urge them to use the growing amount of information that is made available through the EITI and other developments. The EITI implementation also requires that implementing countries have a national EITI commission – an EITI multi-stakeholder group - whose responsibility it is to oversee implementation. Some of these national commissions have decided to cover environmental taxes, levies and other payments related to the environment in EITI reports. Some of this reporting has simply been agreed at national level, i.e., it goes beyond what the EITI Standard requires from EITI compliant countries. In other cases, like for example Norway’s EITI reporting on CO₂ and NO_x¹¹⁰, taxes paid by companies, has been deemed ‘material’ and therefore part of their obligations under the EITI Standard.*

¹⁰⁹ Letter from Civil society organisations - call on EITI to consider climate risks in reporting standards for extractive: <https://eiti.org/document/letter-from-civil-society-organisations-call-on-eiti-to-consider-climate-risks-in-reporting>

¹¹⁰ The EITI open data for 2017 suggests that based on the second validation in 2018, this requirement (environmental payments) is not applicable to Norway. The 2017 Report is not available yet.

*The EITI is a global Standard, which has to be designed to be relevant in Togo as well as the United States. As I have indicated above, there are many different users of transparency and openness. **It could be problematic for the EITI Standard to demand the inclusion of certain types of civil society organizations.** It would potentially undermine country ownership, it would raise demands from other groups and it would create a straight-jacket for implementing countries. **By insisting on that certain groups need to be part of the national commission, it is also likely to undermine the essential role civil society has in itself determining how it wishes to be represented on the national commission.** So while there may well in many countries be strong reasons for civil society groups with expertise in climate risk, climate law and climate science to be part of the EITI multi-stakeholder group, I can see reasons for why it should not be required across the world. The same logic applies to a number of your other recommendations. It may well indeed be that a national commission may decide to refer to laws related to climate risks, climate laws and policy, but it may not be relevant in all circumstances and therefore it may not have all stakeholder's support."*

Thus, in 2015, the EITI was **not quite ready** to fully agree with the recommendations of the environmental and climate change organizations and incorporate climate change into its policies and activities, in particular in the Standard.

Based on the analysis of current reports and practices of the EITI implementing countries, **climate change disclosures** include as follows:

- ◆ **Albania** discloses carbon tax in the 2016 EITI Report;
- ◆ **Germany** covers information on RES, recycling in the 2017 EITI Report. The contextual information also includes data on CO2 emissions;
- ◆ **Mexico** provides general information and discloses laws on climate change in the contextual part of the 2017-2018 Report;
- ◆ **Mongolia** discloses information on pollution levy in the contextual part of the 2018 Report and provides the total annual revenue from the pollution levy;
- ◆ **The Netherlands** discloses detailed information on energy transition (transition to a carbon-free economy according to its national climate goals), sustainable energy subsidies and its climate pledges to cut greenhouse gas emissions in the 2017 Report.

- ◆ **Norway** disclosed information on CO₂ and NO_x taxes¹¹¹ in 2015.
- ◆ **Trinidad and Tobago** disclosed information on CO₂ emissions from the transport and energy sectors and descriptions of projects to reduce CO₂ emissions (for example, developing forest eco-systems to sequester the CO₂, establishing and enforcing pollution control for extractive industries and other sectors, etc.) in the 2016-2017 Reports.

Based on recommendations made by the civil society members in 2017, the **Trinidad and Tobago** EITI Steering Committee considers including the following elements in the EITI reporting:

- Evidence of receipt of Town and Country Planning Approvals;
- Compliance with the Environmental Management Authority's Air Pollution Rules and Water Pollution Rules;
- The inclusion of the Certificate of Environmental Clearance (CEC) process;
- Disclosure of the sector's 'Carbon Foot Print' (GHG emissions) and disclosure of the amount of water and electricity consumed by the extractive sector;
- Major environmental 'incidents' such as oil spills.

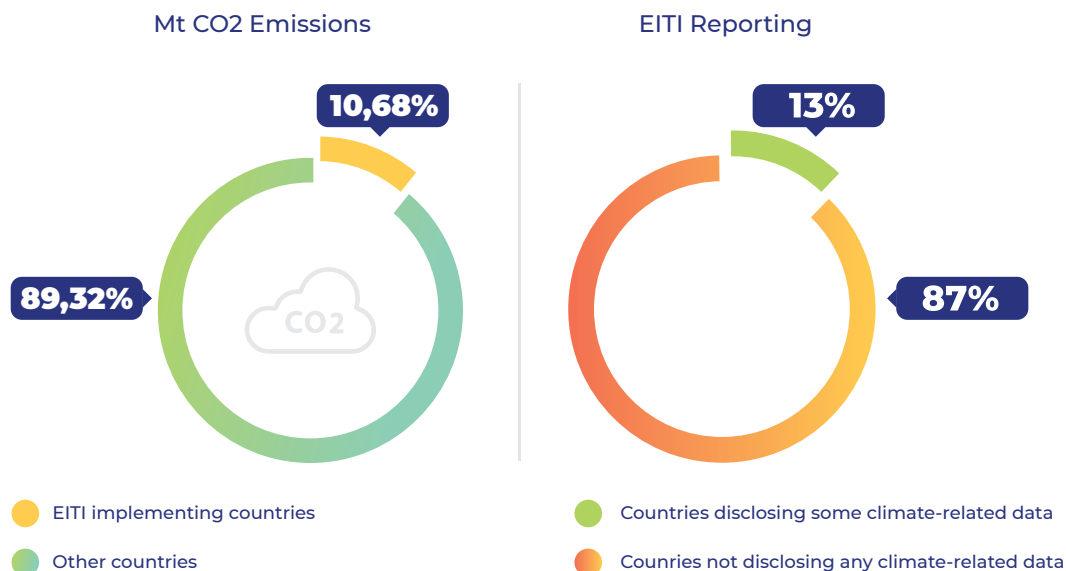
The TTEITI Steering Committee together with related stakeholders is still assessing how environmental reporting can be included in the EITI implementation¹¹².

Even though the EITI implementing countries produced a total of **4059.322** Mt fossil CO₂e emissions or **10.68%** of the global annual emissions (38,016.573 Mt fossil CO₂e emissions¹¹³), in 2019, **only 7** (!) out of 55 countries disclose certain climate change issues as outlined in the new EITI reporting guidelines for 2019 (See Figure 8.). None of the countries discloses complete information on environmental and climate change impacts of the extractive industries.

¹¹¹ The EITI open data for 2017 suggests that based on the second validation in 2018, this requirement (environmental payments) is not applicable to Norway. The 2017 Report is not available yet.

¹¹² 2017 Trinidad and Tobago EITI Report: : <https://eiti.org/document/trinidad-tobago-eiti-report-2017>

¹¹³ Fossil CO₂ emissions of all world countries, JRC SCIENCE FOR POLICY REPORT: <https://publications.jrc.ec.europa.eu/repository/handle/JRC121460>

Figure 8. EITI Climate Reporting¹¹⁴ and CO2 Emissions in 2019¹¹⁵

Source: Fossil CO2 emissions of all world countries, JRC SCIENCE FOR POLICY REPORT and Summary data from EITI Reports.

“Carbon footprint” of the EITI implementing countries compared to corresponding EU indicators:

The total fossil CO₂ emissions produced by the EITI implementing countries is on par with the corresponding EU contribution. Thus, for example, the EU27+UK¹¹⁶ produced 3303.975 Mt fossil CO₂e emissions. Even though it is less than China (11535.200 Mt fossil CO₂e emissions) or the USA (5107.261 Mt fossil CO₂e emissions), it is still a significant contribution to global greenhouse gas pollution and, consequently, to climate change. This contribution requires the issue to be recognized and respective steps to be implemented.

4.3. EU Climate Finance Mechanisms

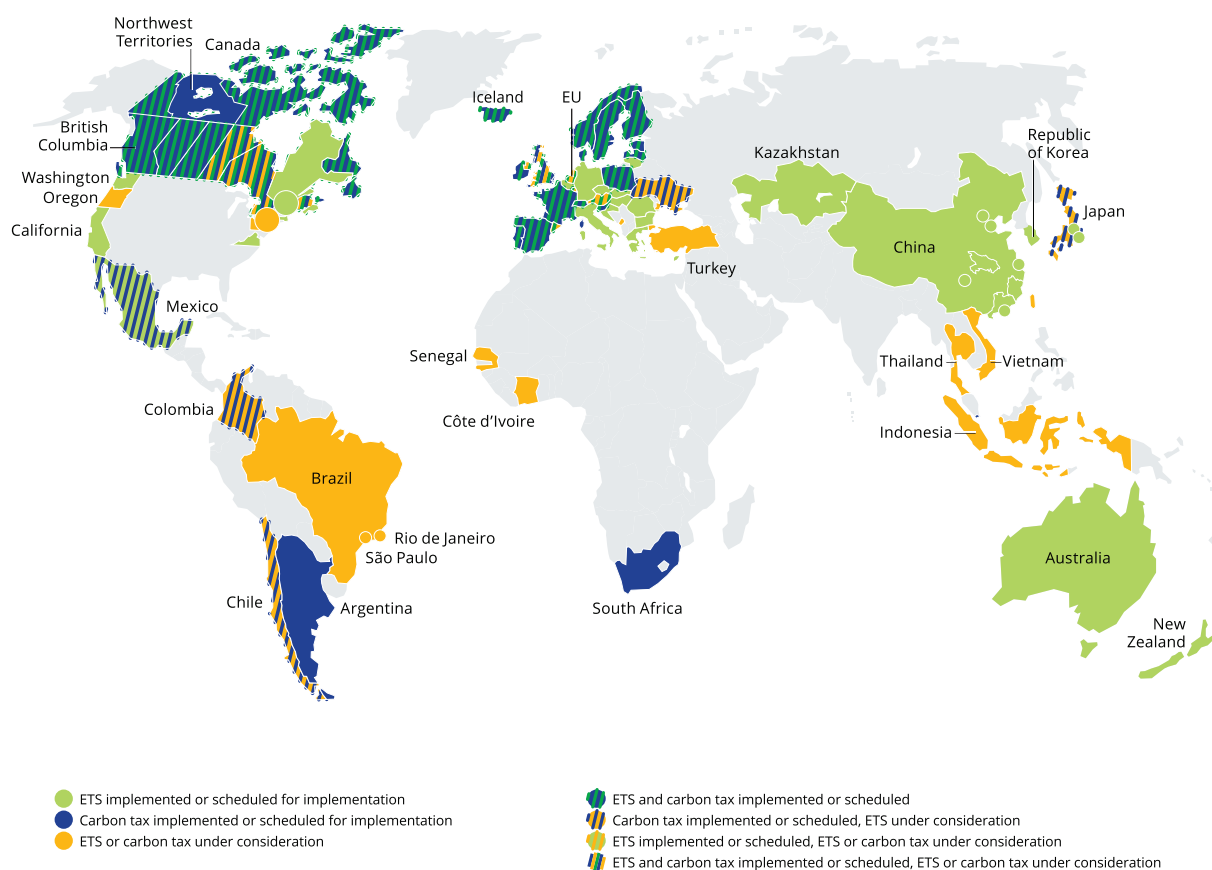
Several carbon pricing initiatives are implemented around the world to reduce greenhouse gas emissions: an emissions trading system (ETS), a carbon tax and a carbon border adjustment mechanism (under consideration for EU). As of 2020, there are now 61 carbon pricing initiatives in place or scheduled for implementation at the national and subnational levels, consisting of 31 ETs and 30 carbon taxes, covering 12 GtCO₂e or about 22 per cent of global GHG emissions .

¹¹⁴ Summary data from EITI Reports: <https://eiti.org/summary-data>

¹¹⁵ Fossil CO₂ emissions of all world countries, JRC SCIENCE FOR POLICY REPORT: <https://publications.jrc.ec.europa.eu/repository/handle/JRC121460>

¹¹⁶ According to JRC methodology.

Figure 9. Carbon pricing initiatives implemented, scheduled for implementation and under consideration (ETS and carbon tax)¹¹⁷



Such mechanisms will be implemented more widely in order to achieve the Paris Agreement goals and prevent the worst-case climate change scenarios. Therefore, further development of any industry (including extractive industries), as well as cooperation among countries under international initiatives (such as EITI) should include efforts for reducing the carbon footprint.

Carbon Border Adjustment Mechanism

The European Commission has set a goal of becoming climate neutral by 2050 under the European Green Deal. The goal applies not only to EU member states, but to the entire European continent. It has also impacted the EU's climate ambitions for 2030, and the EU emission reduction target has increased to 55%, compared to 1990 levels¹¹⁸.

Unfortunately, other international partners do not share the EU's ambitions thus posing a risk to the goal.

¹¹⁷ World Bank, 2020: State and Trends of Carbon Pricing. <https://openknowledge.worldbank.org/bitstream/handle/10986/33809/9781464815867.pdf?sequence=4&isAllowed=y>

¹¹⁸ EU climate action and the European Green Deal: https://ec.europa.eu/clima/policies/eu-climate-action_en

For example, Ukraine's climate ambitions are recognized by experts as «Critically insufficient»¹¹⁹. In 2015, Ukraine prepared a nationally determined contribution under the Paris Agreement with a target of achieving a 40% reduction in greenhouse gas emissions, compared to 1990 levels¹²⁰, which actually means an increase in emissions from the current level.

In addition to non-ambitious targets, there are other risks, such as carbon leakage when production is transferred from the EU to other countries with lower ambition for emission reduction, or when EU products are replaced by more carbon-intensive imports.

Therefore, a number of strategic documents and mechanisms have been developed under the European Green Deal to influence further development of carbon neutrality and increase the capacity to achieve the goal. A carbon border adjustment mechanism (CBAM) will help other countries to achieve their climate goals. The CBAM is part of the EU Commission's plan to modernize the Energy Tax Directive 2003/96/EC and would counteract the above-mentioned risks by **putting a charge proportionate to the carbon emitted during the production of certain goods from outside the EU. It is expected that the mechanism will be introduced no later than 2023.** It would ensure that the price of imports reflects more accurately their carbon content.

Since resource extraction and processing activities contribute to about half of global greenhouse gas emissions¹²¹, such a mechanism is likely to have a significant impact on reputational risks of the sector, because:

- (1) European consumers will prefer countries and suppliers with a lower carbon footprint, and
- (2) It will create additional fiscal burden on producers.

The final version of the CBAM should be prepared in 2021. There are many alternative concepts to such a mechanism. Discussions with stakeholders are still under way to develop the best option to stimulate low carbon development and achieve a climate neutral world in the second half of this century, as pledged by the signatories to the Paris Climate Agreement.

¹¹⁹ Climate action Tracker, Ukraine: <https://climateactiontracker.org/countries/ukraine/>

¹²⁰ Intended Nationally-Determined Contribution (INDC) of Ukraine to a New Global Climate Agreement: <https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Ukraine%20First/Ukraine%20First%20NDC.pdf>

¹²¹ UN Global Resources Outlook 2019: Natural Resources for the Future We Want: <https://wedocs.unep.org/handle/20.500.11822/27517>

Will it affect Ukraine?

The EU is Ukraine's largest trading partner, accounting for 41.5% of Ukraine's total exports in recent years, including products of the extractive industry. With twice the average carbon intensity of GDP, almost all Ukraine's exports exceed the carbon intensity of similar products in Europe. For example, when it comes to Ukraine's electric power exports, the carbon intensity of electricity generated at Burshtyn coal power plant is 3 times greater than in the EU¹²².

Ukraine announced its intention to join the European Green Deal, hoping that harmonizing existing climate legislation with European standards and requirements will exempt the country from additional duties. According to experts, if the mechanism is introduced, the additional financial burden on companies exporting to the EU may increase by 566 billion euros per year. Almost 94% of this amount will have to be paid by enterprises of the metallurgical and power industries⁴. Thus, Ukraine should make every effort to reduce carbon intensity, including in the mining industry that will be affected by this mechanism.

Even if the mechanism is not adopted or is partially implemented, such privileges will be granted only to the countries that meet the climate neutrality goals and, in fact, gradually reduce greenhouse gas emissions, including from the extractive industry.

The Emissions Trading System (ETS) covers about 45% of the EU's greenhouse gas emissions from approximately 12,000 installations, power industries, production and aviation. All EU countries are part of the ETS.

EU carbon permits hit 34.25 euros (\$41.99) per tonne of CO₂ in the beginning of 2020¹²³. More stringent EU's emissions reduction targets for 2030 will lead to the annual carbon dioxide emissions cap under the EU ETS, as well as other changes that have been already introduced to the EU legal framework, including the targeted allocation of quotas to industrial sectors. This will be an alternative to free allowances or compensation for increased electricity costs and eliminate the risk of carbon leakage through carbon pricing in the EU ETS.

¹²² Ukraine has an opportunity for mitigating the CBA impact on its exports: <https://gmk.center/ua/news/ukraina-maie-shansi-pom-yakshiti-vpliv-sva-na-svoih-eksporteriv/>

¹²³ EU price on pollution hits record high in early 2021 <https://www.reuters.com/article/us-eu-carbontrading-idUSKBN29A1WQ>

Ukraine has made a commitment to implement the GHG emissions trading system under the EU-Ukraine Association Agreement. According to the plans of the Ministry of Environmental Protection and Natural Resources, the system should be fully operational by 2025. So far Directive 2003/87/EC (October 13, 2003), that establishes the ETS, has been partially implemented by Ukraine. The Law of Ukraine on the Principles of Monitoring, Reporting and Verification of Greenhouse Gas Emissions has become effective in 2021. It allows obtaining accurate information on greenhouse gas emissions from production installations; ensure control over and reduce emissions; introduce a mandatory method for calculating GHG emissions for all installations producing such emissions.

Carbon Taxes

16 European countries implement carbon taxes. In 1990, Finland was the world's first country to introduce this mechanism. Carbon tax rates depend on the country and range from less than €1 per metric ton of carbon emissions in Poland to over €100 in Sweden¹²⁴.

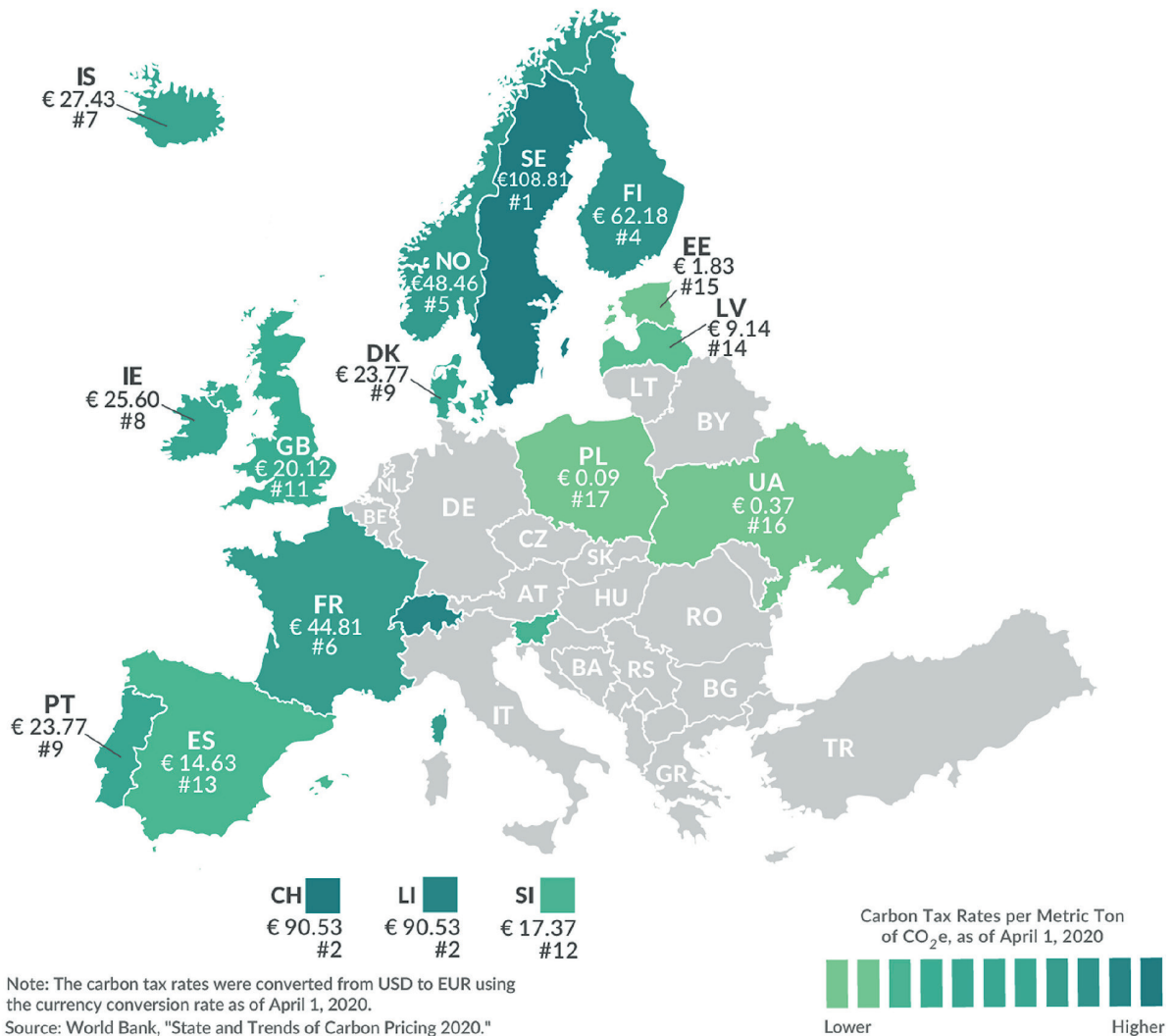
In Ukraine, a general environmental tax rate for carbon dioxide (CO₂) emissions by stationary sources increased in 2019 compared to 2018. Starting from January 1, 2019, the tax rate was raised from 0.41 UAH/ton to 10 UAH/ton. It is the lowest carbon tax in the world at only 0.30 EUR, as of today.

The Carbon Pricing Leadership Coalition noted that, in order to achieve the Paris Agreement's goals, countries should set a carbon price of US\$40-80 per ton of CO₂ by 2020 and US\$50-100 per ton by 2030¹²⁵.

¹²⁴ Tax Foundation, Carbon Taxes in Europe: <https://taxfoundation.org/carbon-taxes-in-europe-2020/>

¹²⁵ Economists Call for Strong Carbon Price to Deliver on Paris Climate Goals, SDGs: <http://sdg.iisd.org/news/economists-call-for-strong-carbon-price-to-deliver-on-paris-climate-goals-sdgs/>

Figure 10. Carbon tax rates in Europe as of April 1, 2020



Thus, available climate finance mechanisms only indirectly impact the extractive industry. Since the industry is part of the most carbon-intensive supply chain and directly effecting climate change, this situation is temporary. The carbon border adjustment mechanism will, for the first time, influence the entire supply chain starting with extraction. More initiatives can be expected to comprehensively limit carbon intensity of economies and projects. Therefore, if the EITI rejects incorporating climate aspects in reporting standards for the second time (after rejecting the 2015 letter from CSOs on climate risks), a further failure to address current economic challenges and a reputational crisis should be expected, which will ultimately make further EITI expansion impossible.

When introduced, the CBAM, which is scheduled for the second half of 2021 as of March 2021, will require detailed analysis to understand the implications for the extractive sector.

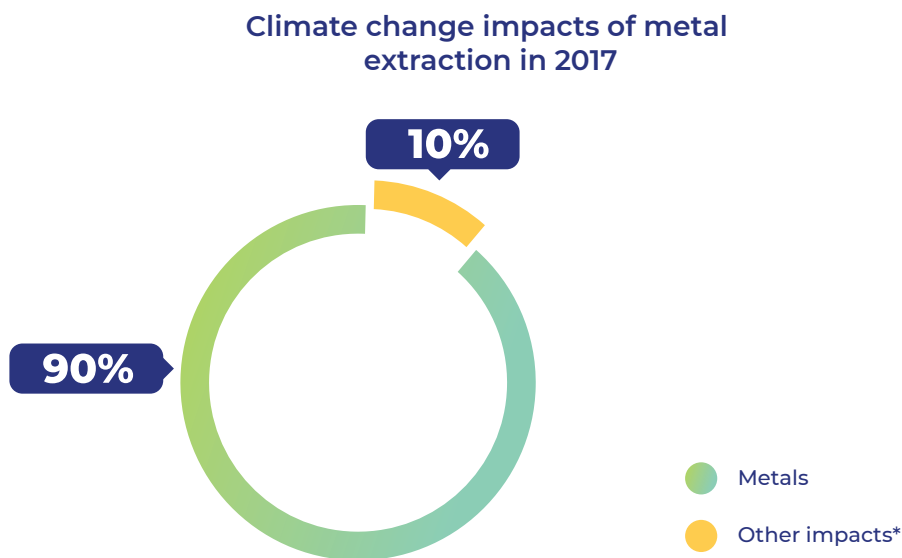
Special Part of Research: Summary:

- Successful implementation of decarbonisation and transition policies requires incorporating environmental, economic and social aspects.
- A number of climate finance instruments are available and operated in particular within the EU, such as CO2 emissions taxes and emissions trading systems. The EU plans to introduce a carbon border adjustment mechanism in 2021 to reduce its carbon footprint.
- The EITI has considered extending the reporting standards to environmental and climate issues since 2015. Despite a significant contribution to global fossil CO2 emissions in 2019 (10.68%), only 7 EITI implementing countries disclose partial information relevant to climate change.

5. CONCLUSIONS AND RECOMMENDATIONS. SHOULD THE EITI STANDARD BE CHANGED?

The research has demonstrated that **climate change is linked to extractive industry**. However, the direct environmental and climate change impact of extractive industries is lower compared to such sectors as energy supply, production and transport

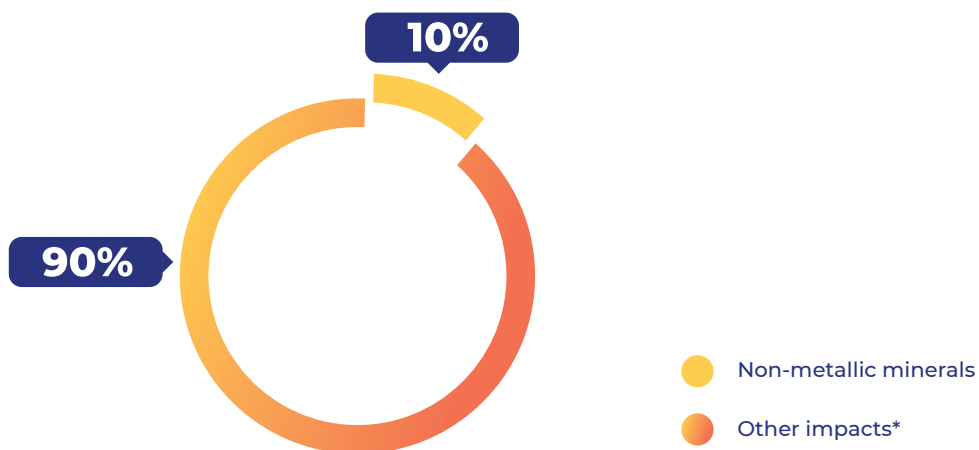
In particular, pursuant to Global Resource Outlook 2019¹²⁶, in 2017:



Metal extraction and primary processing account for **10%** of global climate change impacts

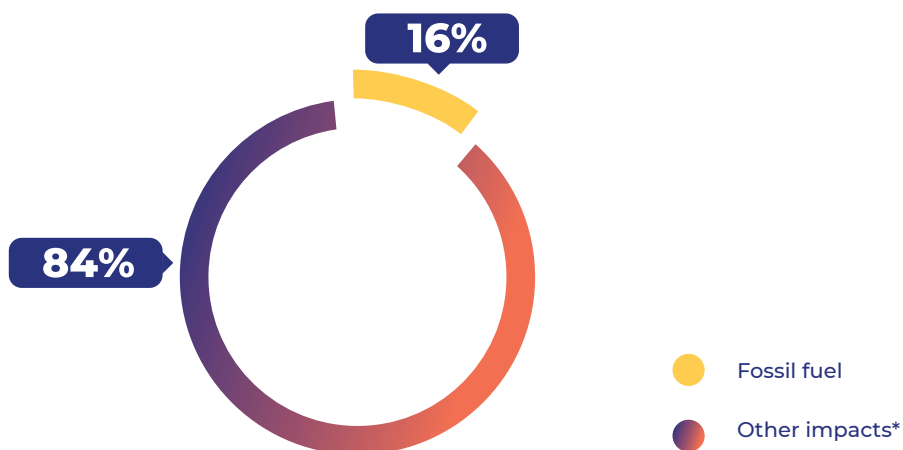
¹²⁶ Global Resource Outlook 2019, the Factsheet: <https://www.resourcepanel.org/reports/global-resources-outlook>

Climate change impacts of non-metallic minerals extraction in 2017



Non-metallic minerals extraction and primary processing account for **10%** of global climate change impacts

Climate change impacts of fossil fuel extraction in 2017



Fossil fuel (oil, gas, coal) extraction and primary processing account for **16%** of global climate change impacts

* Other impacts include impacts, which are not mentioned in the diagram, of minerals extraction and processing, biomass resources, households, agriculture and other industries.

The basic conclusion is that the link of extractive industries with climate change **requires countries to implement respective policies and economic regulatory mechanisms**, since each country is responsible for meeting its climate pledges.

The Extractive Industries Transparency Initiative is not a mechanism to require governments to put certain policies in place (unless they are directly related to transparency in the extractive sector), establish any regulation or limit or discontinue certain extractive activity, because it is likely to affect the environment and threaten climate change.

However, by supporting sustainable development and transparency, particularly in the extractive sector, **the EITI can help implementing countries to disclose existing climate policies and regulations and thus promote good practices and indirectly encourage other countries to have similar policies in place.** Also, the EITI's experience in consolidating the efforts of the government, private sector and civil society can contribute to implementing global climate policy.

The EITI Standard is the main practical tool for implementing the Initiative, and it is important to consider two key approaches when preparing conclusions and recommendations for further development of the Standard:

- ◆ The extractive industries are at the heart of the full supply chain of emissions underlying climate change (CO₂, waste), which means they **begin the life cycle (extraction-processing / burning, transportation-emissions (methane) / waste), leading to climate change and causing a number of environmental and social impacts;**
- ◆ The extractive industries themselves are **a source of emissions and other climate impacts.**

If we focus exclusively on the first approach, it will be difficult to keep the EITI focus on extractive industries, because, as we can see from previous sections, fossil CO₂, which originates from extracting, becomes CO₂ mostly in other industries, such as processing, power generation, transporting, plastics manufacturing, etc. The EITI, obviously, cannot require reporting for all of these sectors, nor can it influence them in any way. Therefore, all future recommendations should stay focused on the extractive sector. However, in order to facilitate change that goes even beyond the EITI, it is important to understand that the role of extractive industries in climate change is not limited to their direct impacts.

It is equally important to ensure that recommendations are consistent with the EITI principles and objectives. The EITI is a voluntary standard of transparency, and its activities generally place no regulations or rules / restrictions for the extractive resource policies. This focus of the EITI activities should remain unchanged.

The same conclusion indicates another evaluation criterion for future recommendations - to determine whether the requirement is relevant in all countries, and how it should read in the Standard.

Similar arguments were once offered by the EITI Board in response to the letter on climate risk from environmental groups¹²⁷. Given the preliminary analysis of these and other recommendations for the EITI Standard, previously provided by the civil society groups, (see Appendix 4) and based on the research findings, we recommend the following

Amendments to the EITI Standard:

1

Set up **an annual CO2 emission threshold, and recommend the MSG to include specialised expertise in climate change, whenever a threshold is crossed:**

- ◆ Such experts would help assess the contextual information to ensure that climate policies, laws and regulations (or their absence) are fully covered in the reports, thus adding transparency to climate policy, and prepare recommendations on further EITI reporting for their specific country;
- ◆ This provision is proposed as a recommendation of the Standard and, therefore, whether absent or present in the MSG, such expertise should not be considered in the overall assessment of compliance with the EITI Standard during Validation. This rule should be purely stimulating to encourage the largest polluting countries to engage climate expertise in their MSGs;
- ◆ A threshold value can be either absolute or relative, or calculated by a formula (for example, a certain percentage of total fossil CO2 emissions produced by the EITI implementing countries).

¹²⁷ Letter from Civil society organisations - call on EITI to consider climate risks in reporting standards for extractive: <https://eiti.org/document/letter-from-civil-society-organisations-call-on-eiti-to-consider-climate-risks-in-reporting>

2 **Expand EITI Requirement 6.4 and recommend countries to disclose, in particular:**

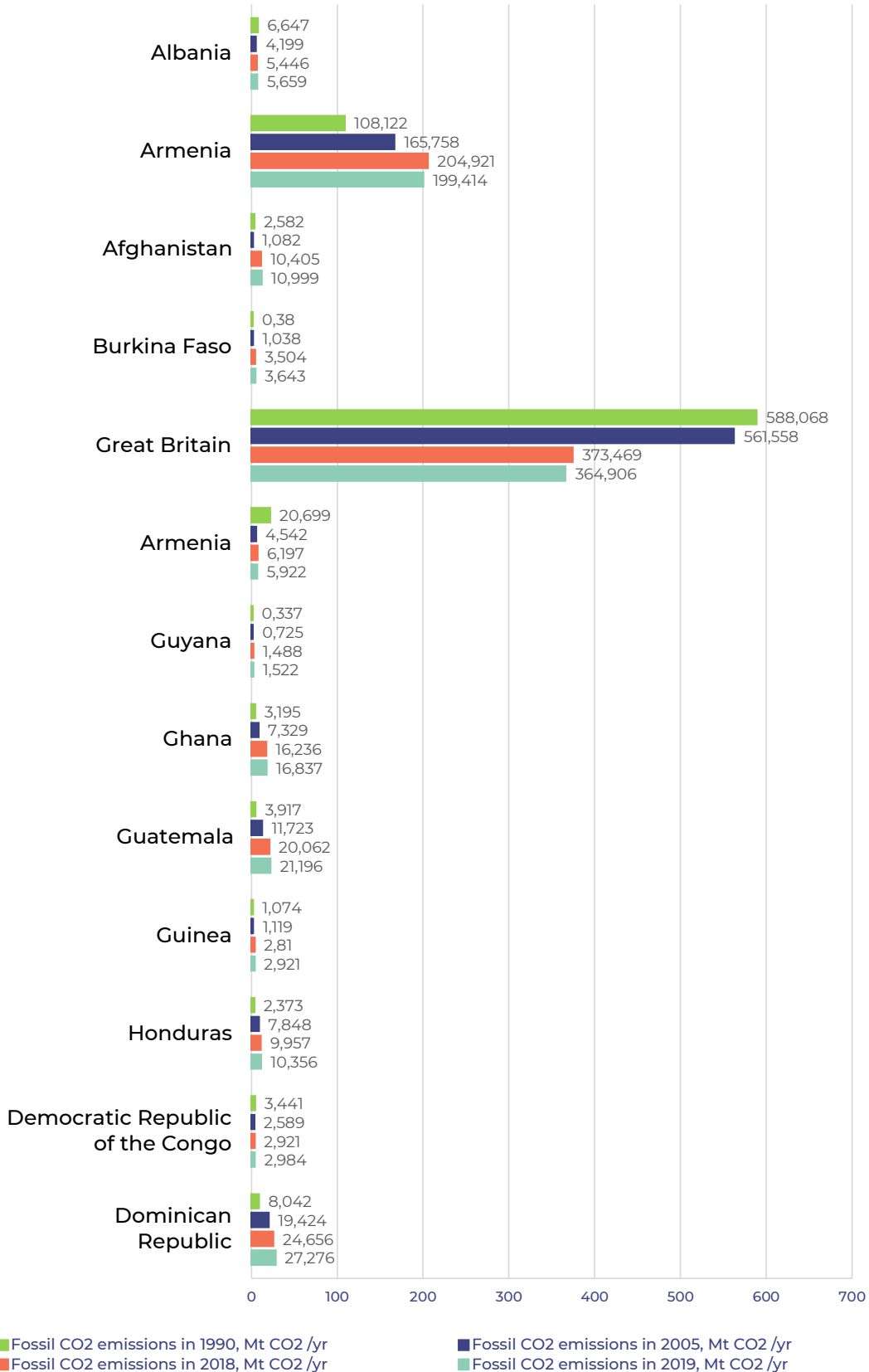
- ◆ Any relevant climate change laws, tax regulations and other climate policy related instruments, if any;
- ◆ Extractive waste management laws and policies (if applicable) and extractive waste disposal programs (improper waste management and / or burning can lead to an increase in greenhouse gas emissions, thus, affecting the climate);
- ◆ Any information on greenhouse gas or other hazardous substance emissions to the atmosphere and groundwater by extractive industries.

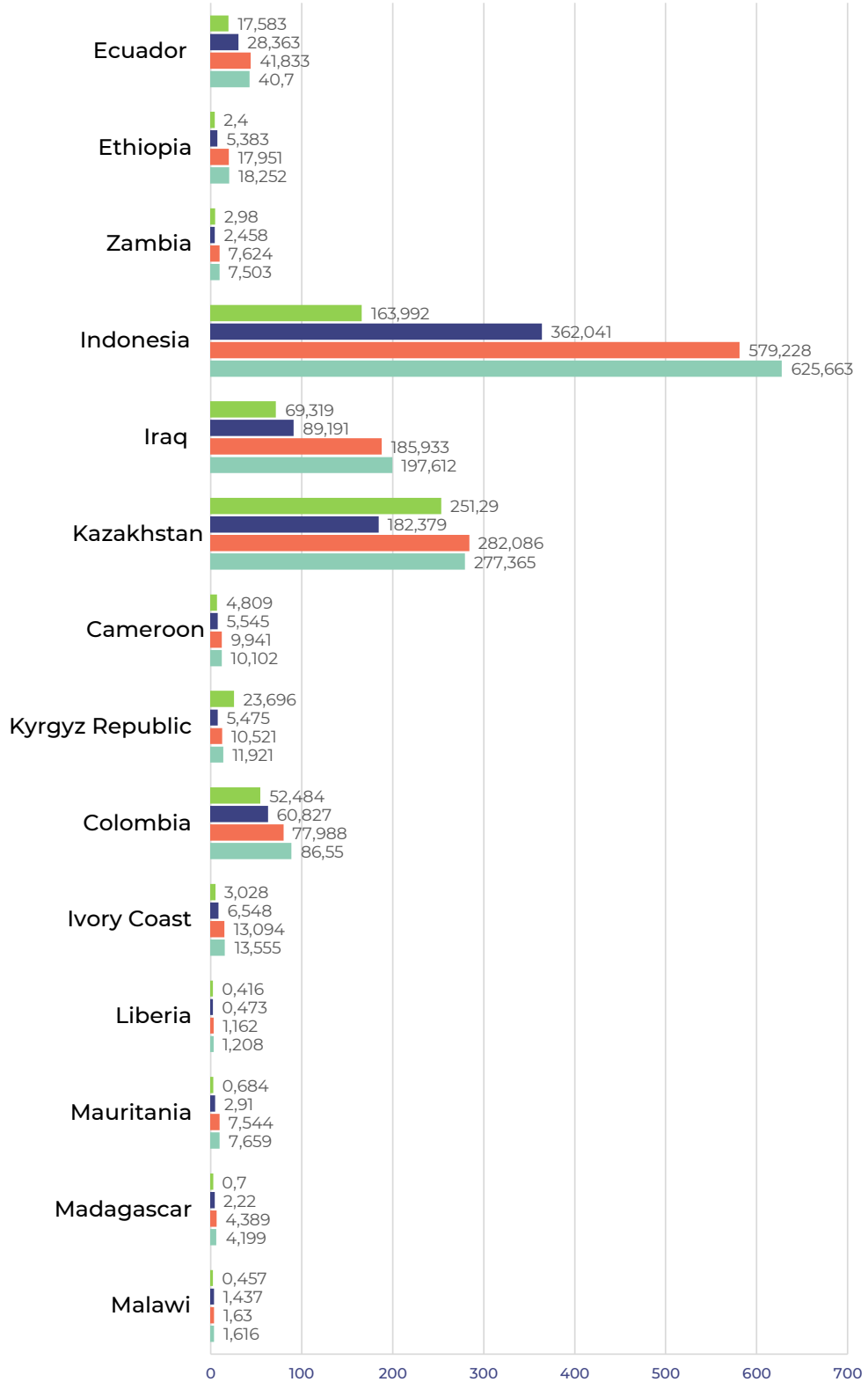
3 **Revise Requirement 6.1 of the current EITI Standard** to remove relationship between the disclosure of environmental payments and materiality thresholds, thus setting up an overriding obligation to disclose all environmental payments made to the government, and recommend participating countries to include the following information in their reports:

- ◆ To disaggregate environmental payments with any climate-related payments to be included separately (e.g., taxes and duties levied on CO₂ and other GHG emissions);
- ◆ To disclose the revenues of extractive companies from climate policy fiscal regimes (e.g., from emissions trading, environmental funds, etc.);
- ◆ To disclose the use of funds received from extractive companies through environmental taxes and levies.

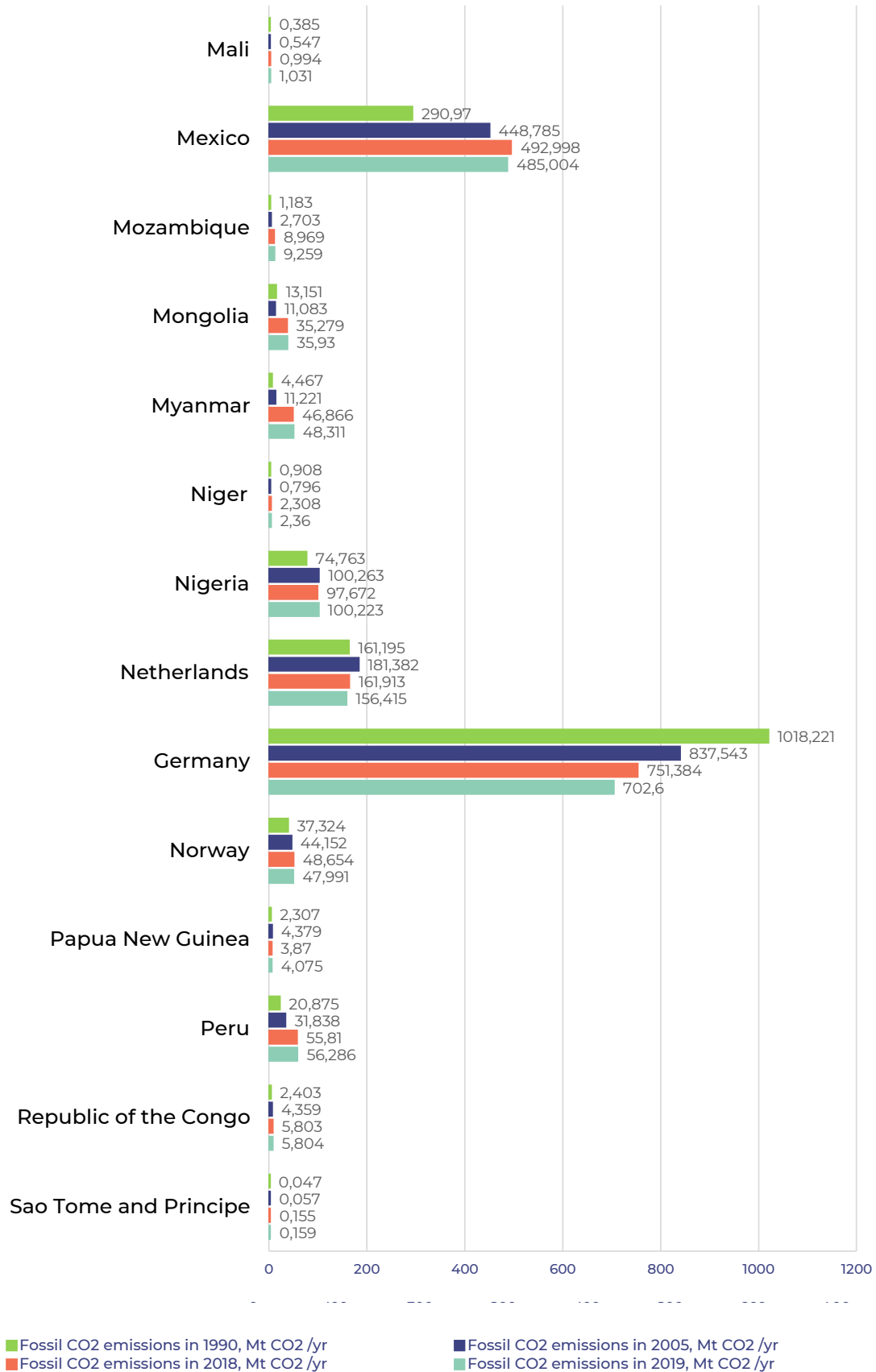
4 The EITI Standard may also recommend implementing countries in some cases **using multi-stakeholder groups to address issues in climate policy implementation, that are often unpopular.** The EITI's experience in building interagency and cross-sectoral dialogue can also be used to address climate issues, if deemed appropriate by the MSG.

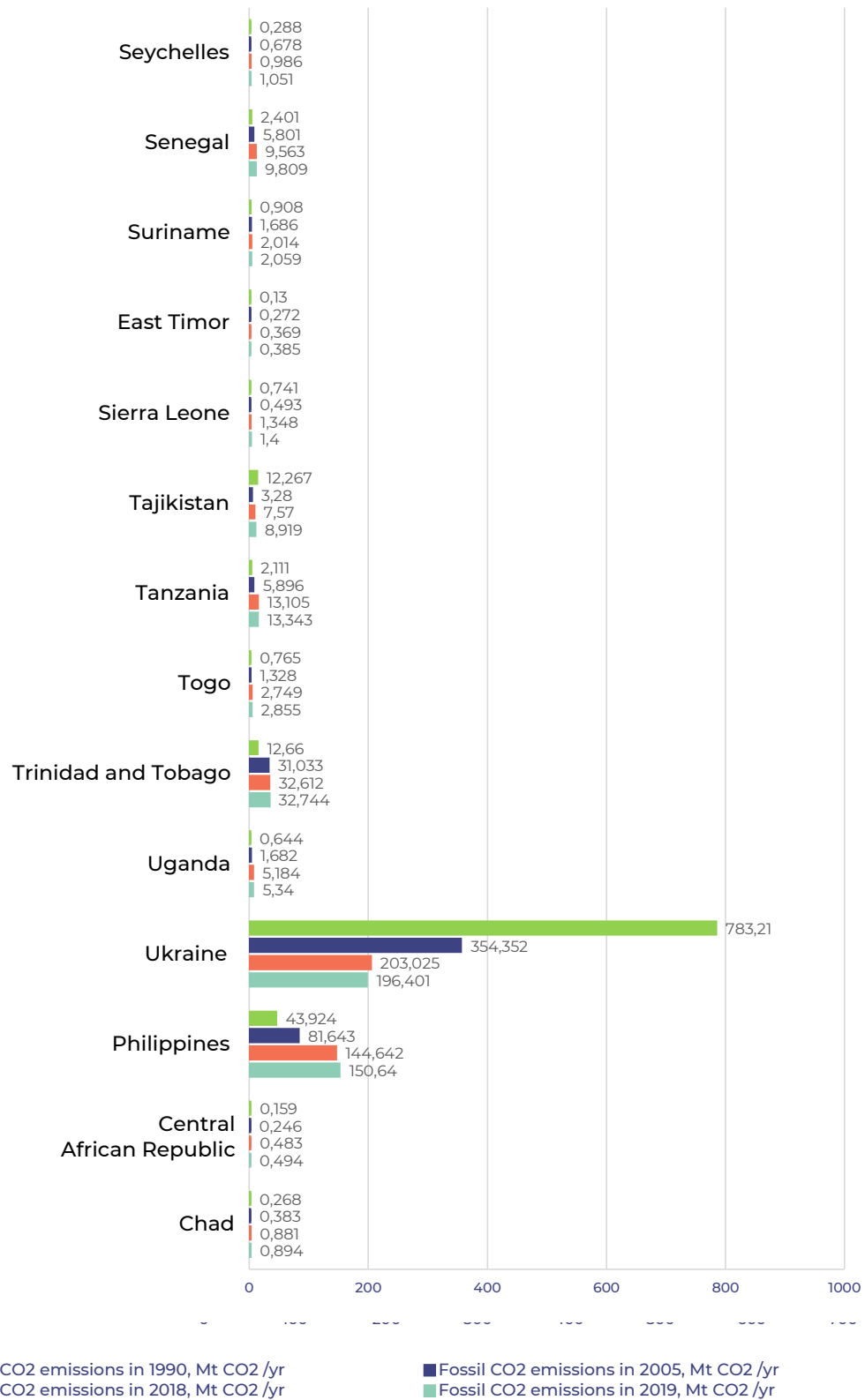
Appendix 1.
Fossil CO2 Emissions by EITI Implementing Country





■ Fossil CO2 emissions in 1990, Mt CO2 /yr
 ■ Fossil CO2 emissions in 2005, Mt CO2 /yr
■ Fossil CO2 emissions in 2018, Mt CO2 /yr
 ■ Fossil CO2 emissions in 2019, Mt CO2 /yr





Source: Fossil CO2 emissions of all world countries, JRC¹²⁸.

¹²⁸ Fossil CO2 emissions of all world countries, JRC SCIENCE FOR POLICY REPORT: <https://publications.jrc.ec.europa.eu/repository/handle/JRC121460>

Appendix 2 Minerals Covered by the EITI Reports

	Country	Mineral resources in EITI reporting¹²⁹	Year¹³⁰
1	Afghanistan	Oil, Gas, Mining (incl. Quarrying)	2017
2	Albania	Oil, Gas, Mining (incl. Quarrying), other	2018
3	Armenia	Mining (incl. Quarrying)	2018
4	Argentina	Oil, Gas, Mining (incl. Quarrying)	2018
5	Burkina Faso	Mining (incl. Quarrying)	2018
6	Cameroon	Oil, Gas, Mining (incl. Quarrying), Pipeline Transportation	2017
7	Central African Republic	Mining (incl. Quarrying)	2010
8	Chad	Oil, Mining (incl. Quarrying)	2018
9	Colombia	Oil, Gas, Mining (incl. Quarrying)	2019
10	Côte d'Ivoire	Oil, Gas, Mining (incl. Quarrying)	2018
11	Democratic Republic of the Congo	Oil, Gas, Mining (incl. Quarrying)	2017
12	Dominican Republic	Oil, Gas, Mining (incl. Quarrying)	2018
13	Ethiopia	Oil, Gas, Mining (incl. Quarrying)	2017
14	Ecuador	No data available	-
15	Germany	Oil, Gas, Mining (incl. Quarrying)	2017
16	Ghana	Oil, Gas, Mining (incl. Quarrying)	2018
17	Guatemala	Oil, Mining (incl. Quarrying)	2017
18	Guinea	Oil, Gas, Mining (incl. Quarrying), Subcontractors in mining sector / Transport / Mining infrastructure	2018
19	Guyana	Oil, Gas, Mining (incl. Quarrying), Production of Precious Metals, Forestry, Fishing	2017
20	Honduras	Oil, Gas, Mining (incl. Quarrying)	2018
21	Indonesia	Oil, Gas, Mining (incl. Quarrying)	2017
22	Iraq	Oil, Gas, Mining (incl. Quarrying)	2016
23	Kazakhstan	Oil, Gas, Mining (incl. Quarrying)	2019
24	Kyrgyzstan	Oil, Gas, Mining (incl. Quarrying)	2017
25	Liberia	Oil, Gas, Mining (incl. Quarrying)	2018
26	Madagascar	Oil, Gas, Mining (incl. Quarrying)	2018

¹²⁹ Compare key figures in EITI Reports: <https://eiti.org/explore-data-portal#compare-key-figures-in-eiti-reports>

¹³⁰ Summary data from EITI Reports: <https://eiti.org/summary-data>

27	Malawi	Oil, Gas, Mining (incl. Quarrying)	2017
28	Mali	Oil, Gas, Mining (incl. Quarrying), Mineral Waters	2016
29	Mauritania	Oil, Mining (incl. Quarrying)	2018
30	Mexico	Oil, Gas, Mining (incl. Quarrying)	2018
31	Mongolia	Oil, Gas, Mining (incl. Quarrying)	2019
32	Mozambique	Oil, Gas, Mining (incl. Quarrying)	2019
33	Myanmar	Oil, Gas, Mining (incl. Quarrying)	2018
34	Netherlands	No data available	2017
35	Niger	Oil, Mining (incl. Quarrying)	2014
36	Nigeria	Oil, Gas, Mining (incl. Quarrying)	2017
37	Norway	Oil, Gas, Mining (incl. Quarrying)	2017
38	Papua New Guinea	Oil, Gas, Mining (incl. Quarrying)	2018
39	Peru	Oil, Gas, Mining (incl. Quarrying)	2016
40	Philippines	Oil, Gas, Mining (incl. Quarrying)	2018
41	Congo	Oil, Gas, Mining (incl. Quarrying)	2018
42	Senegal	Oil, Gas, Mining (incl. Quarrying)	2019
43	Seychelles	Oil, Gas	2018
44	Sierra Leone	Oil, Gas, Mining (incl. Quarrying)	2018
45	Suriname	Oil, Gas, Mining (incl. Quarrying)	2017
46	São Tomé and Príncipe	Oil	2017
47	Tajikistan	Oil, Gas, Mining (incl. Quarrying)	2016
48	Tanzania	Oil, Gas, Mining (incl. Quarrying)	2018
49	Timor-Leste	Oil, Gas, Mining (incl. Quarrying)	2018
50	Togo	Oil, Gas, Mining (incl. Quarrying)	2017
51	Trinidad and Tobago	Oil, Gas, Mining (incl. Quarrying)	2018
52	Ukraine	Oil, Gas, Mining (incl. Quarrying)	2019
53	Uganda	No data available	-
54	United Kingdom	Oil, Gas, Mining (incl. Quarrying)	2018
55	Zambia	Oil, Gas, Mining (incl. Quarrying)	2019

Appendix 3

Disclosure of Environmental and Climate-Related Data and Fossil CO₂ Emissions in 2019 by EITI Participating Countries

Country	Environmental payments	Legal provisions and administrative rules	Databases that include environmental impact assessments, certification schemes or similar documents related to environmental	Other relevant information on environmental management and monitoring processes	CO ₂ emissions in 2019, Mt CO ₂ /yr
Afghanistan	Social and environmental payments combined	Yes	No	No	10.999
Albania	Carbon tax	Yes	No	No	5.659
Armenia	Environmental tax not included separately in the report. However, the following payments are disclosed by companies and governments: payments to the Environmental Protection Fund, partially monitoring payments. Edo-taxes and separately eco-taxes on imports, environmental payments, monitoring payments. Waste disposal charges.	Yes	Yes	Yes	5.922
Argentina	No data available	No data available	No data available	No data available	199.414
Burkina Faso	Payments to the rehabilitation fund	Yes	No	No	3.643

Country	Environmental payments	Legal provisions and administrative rules	Databases that include environmental impact assessments, certification schemes or similar documents related to environmental	Other relevant information on environmental management and monitoring processes	CO2 emissions in 2019, Mt CO2/yr
Cameroon	No	Yes	No	No	10.102
Central African Republic	No	No	No	No	0.494
Chad	No	No	No	No	0.894
Colombia	Water and Forest fees, other environmental payments	No	No	No	86.550
Côte d'Ivoire	Yes, combined	No	No	No	13.555
Democratic Republic of the Congo	Environmental payments, combined	Yes	Yes	Yes	2.984
Dominican Republic	No	Yes	No	No	27.276
Ethiopia	No	No	No	No	18.252
Ecuador	No data available	No data available	No data available	No data available	40.700
Germany	No	Yes	Yes	RES, water intake, safety rules, information on compensation payments, recycling	702.600
Ghana	Environmental permitting fees	Yes	No		16.837
Guatemala	No	Yes	No	CO2 emissions are disclosed sporadically in the contextual information	21.196
Guinea	No	No	No	No	2.921

Country	Environmental payments	Legal provisions and administrative rules	Databases that include environmental impact assessments, certification schemes or similar documents related to environmental	Other relevant information on environmental management and monitoring processes	CO2 emissions in 2019, Mt CO2/yr
Guyana	Yes, environmental payments, combined	Yes	Some	No	10.356
Honduras	Environmental permitting fees	Yes (+additional forest resources and fisheries)	Some	No	1.522
Indonesia	Environmental costs	Yes	Some	Some	625.663
Iraq	No	No	No	Some (forest resources and fisheries)	197.612
Kazakhstan	No	Yes	No	Some	277.365
Kyrgyzstan	Environmental pollution charges, combined	Yes	No	No	11.921
Liberia	No	Yes	No	Some	1.208
Madagascar	Environmental assessment and monitoring payments	Yes	Only contextually (it is stated that this information is not disclosed)	No	4.199
Malawi	No	No	No	No	1.616
Mali	No	Some	Some	Some	1.031
Mauritania	Payments to the Environmental Commission	Yes	Some	No	7.659

Country	Environmental payments	Legal provisions and administrative rules	Databases that include environmental impact assessments, certification schemes or similar documents related to environmental	Other relevant information on environmental management and monitoring processes	CO2 emissions in 2019, Mt CO2/yr
Mexico	Land, forest and water use charges	Yes (+additional contextual information and climate change laws)	Yes	No	485.004
Mongolia	Environmental payments (+contextual information on air pollution fees and the total fee per year)	Yes	No	No	35.930
Mozambique	Environmental permitting fees	Yes	No	Yes	9.259
Myanmar	Environmental tax, combined	Yes	No	Yes	48.311
Netherlands	Eco-tax, only contextually	Yes + information on energy transition, sustainable energy subsidies, climate pledges to reduce emissions	Yes	No	156.415
Niger	No data available	No data available	No data available	No	2.360
Nigeria	Environmental payments, combined	Yes	Yes	No	100.223
Norway	In 2015, information on the CO2 and NOx taxes was disclosed ¹³¹	Yes	Yes	No data available	47.991

¹³¹ The EITI open data for 2017 suggests that based on the second validation in 2018, this requirement (environmental payments) is not applicable to Norway. 2017 Report not available yet.

Country	Environmental payments	Legal provisions and administrative rules	Databases that include environmental impact assessments, certification schemes or similar documents related to environmental	Other relevant information on environmental management and monitoring processes	CO2 emissions in 2019, Mt CO2/yr
Papua New Guinea	Environmental permitting fee and environmental resource use charges, and environmental payments as part of social payments.	Yes	Yes	Yes	4.075
Peru	Sanctions of Environmental Court	Yes	Yes	Yes	56.286
Philippines	Payments to the environmental trust fund, payments for extractive waste and tailings, payments to the rehabilitation fund, contributions to the annual environment programme	Yes	Some	Yes	150.640
Congo	No	Yes	Some	Yes (strategic environmental assessment, various impact studies (except for EIA), environmental conflicts)	5.804

Country	Environmental payments	Legal provisions and administrative rules	Databases that include environmental impact assessments, certification schemes or similar documents related to environmental	Other relevant information on environmental management and monitoring processes	CO2 emissions in 2019, Mt CO2/yr
Senegal	Payment to the Ministry of Environment as part of social payments, voluntary contribution to environmental development (environmental support and community training) and separate environmental payments (pollution tax included, but not separated)	Yes	Yes	Some	9.809
Seychelles	No	No	No	No	1.051
Sierra Leone	EIA license fees, monitoring payments	Yes	Yes	Yes	1.400
Suriname	No	Yes	Yes	No	2.059
São Tomé and Príncipe	No	No	Some	Some	0.159
Tajikistan	Only royalties on water use, but not included in environmental payments	No	No	Yes	8.919
Tanzania	No	Some	No	No	13.343
Timor-Leste	No	Some	No	No	0.385
Togo	No	No	No	No	2.855

Country	Environmental payments	Legal provisions and administrative rules	Databases that include environmental impact assessments, certification schemes or similar documents related to environmental	Other relevant information on environmental management and monitoring processes	CO2 emissions in 2019, Mt CO2/yr
Trinidad and Tobago	Green fund levies	Yes + information on CO2 emissions from the transport and energy sectors and CO2 emission reduction projects (e.g., absorption of CO2 by developing forest ecosystems and regulating extractive and other activities, etc.)	No	No	32.744
Ukraine	Yes	Деякі	Деякі	No	196.401
Uganda	No data available	Немає даних	Немає даних	Some	5.340
United Kingdom	No	Ні	Ні	Ні	364.906
Zambia	Contributions to the Environmental Protection Fund	Так	Деякі	Так	7.503

Source:
Summary data from EITI Reports¹³²
and Fossil CO2 emissions of all world countries, JRC¹³³.

¹³² Summary data from EITI Reports: <https://eiti.org/summary-data>

¹³³ Fossil CO2 emissions of all world countries, JRC SCIENCE FOR POLICY REPORT: <https://publications.jrc.ec.europa.eu/repository/handle/JRC121460>

Appendix 4

Analysis of previous civil society recommendations on changes to the EITI Standard

Proposals to supplement the EITI Standard with the requirements that would allow assessing climate change impacts of extractive industries and / or climate risks from extractive activities are not new. As noted in earlier sections of this document, the initiative group of CSOs has already approached the EITI Board with such requests¹³⁴. After having studied the environmental component of EITI reporting¹³⁵, a group of Ukrainian researchers also made a number of recommendations on environmental information disclosure for Ukraine, including climate-related data.

However, the EITI Standard, as it reads now, requires disclosure of only material environmental payments to governments and encourages the disclosure of information related to environmental impacts of extractive industries. **Under the existing EITI requirements, the countries can disclose climate aspects, but this disclosure remains discretionary.**

¹³⁴ Letter from Civil society organisations - call on EITI to consider climate risks in reporting standards for extractive: <https://eiti.org/document/letter-from-civil-society-organisations-call-on-eiti-to-consider-climate-risks-in-reporting>

¹³⁵ Environmental component of EITI: : <https://www.rac.org.ua/uploads/content/610/files/eitiandenvironmentua.pdf>

All previously proposed changes to the EITI Standard can be grouped as follows:

Groups	Proposed Changes ¹³⁶
<p>Group I.</p> <p>Basic principles of EITI and the work of MSGs</p>	<ol style="list-style-type: none"> 1. An international group of environmental CSOs, that supported the letter to the EITI Board, proposed to develop a new Principle of the EITI, focusing on the special and unique position of the fossil fuel sector in the context of climate change. 2. The above-mentioned international group of environmental CSOs also recommends to engage specialised expertise in climate issues in the multi stakeholder group and to ensure important issues associated with 'climate risk' are considered prior to a country becoming a compliant country. 3. The Ukrainian researchers recommended building a proper dialogue among all stakeholders to determine what information should be included in the next reports of Ukraine and ensuring that their views are taken into account throughout the decision-making process. 4. They also recommended improving engagement of the relevant Ministry of Environmental Protection and strengthening inter-agency cooperation, especially with the Energy Agency. 5. Ukrainian researchers also suggested verifying environmental information submitted by companies for EITI reporting against the data collected by public authorities.

¹³⁶ Climate-related recommendations have been selected.

Groups	Proposed Changes ¹³⁶
<p>Group 2. Reform of the contextual information in EITI Reports.</p>	<p>1. The international group of environmental CSOs proposed ensuring the disclosure of the legal frameworks and fiscal regimes associated with climate change; information on economic viability of each extractive project under global carbon budget constraints coming into play to hold the global mean temperature rise to 1.5°, or 2°C. They proposed to make an economic analysis of the full project lifespan and include, among other things, disclosure of subsidies.</p> <p>2. The Ukrainian researchers suggested the disclosure of both quantitative and qualitative information. For example, information on social environmental projects, corporate environmental management (e.g., environmental policies, environmental goals, environmental activities, dedicated personnel involved in environmental issues, etc.).</p> <p>3. The Ukrainian researchers also recommend disclosing information that would reflect environmental impacts of extractive companies. EITI Reports may also include information on waste generation and disposal, air emissions and water use, since such information is already collected by companies and reported to government agencies, and information reflecting contributions of extractive companies to climate change, including data on greenhouse gas emissions.</p>
<p>Group 3. Amendments to the EITI Standards concerning revenue streams</p>	<p>1. The international group of environmental CSOs proposed amendments to the EITI to include the disclosure of environmental taxes or levies on emissions or extraction, including bunker fuels and repayment of climate finance received.</p>

Analysis of Proposed Changes to the EITI Standard by Group

In order to develop climate-effective and feasible recommendations for the EITI Standard, let us look again at the approaches outlined in Section 5 hereof:

- The role of extractive industries in emissions supply chain;
- Extractive industries directly impact climate change;
- Recommendations stay focused on the extractive sector;
- Recommendations are consistent with the EITI principles and objectives;
- The requirement is relevant in all countries.

Group I.

Basic principles of EITI and the work of MSGs

The first recommendation in this Group is not entirely applicable to this research, as it proposes changes to the global principles of the Initiative, and not to the EITI Standard itself. However, since this study is focused on building the link between extractive activities and climate, we might all agree that this link does exist.

We should, however, determine whether the EITI would contribute to improving the climate situation by merely recognizing the link between climate change and extractives but without introducing respective changes to its main instrument of influence - the EITI Standard. Apparently not. Therefore, in order for the EITI to make a genuine contribution to global climate policy, respective amendments to the EITI Standard should be developed.

The second recommendation was once rejected by the EITI Board, because it is likely to undermine the freedom civil society has in determining how it wishes to be represented on the MSG.

Indeed, if the Standard imposes restrictions for a particular group of stakeholders, it will place that group on an unequal footing with other groups.

At the same time, the Standard allows for “soft” regulation in establishing a multi-stakeholder group when it comes to ensuring gender equality. In accordance with Requirement 1.4 of the EITI Standard 2019, for example, “the multi-stakeholder group and each constituency should consider gender balance in their representation to progress towards gender parity”¹³⁷. However, this recommendation applies to all stakeholder groups, not just one, thus maintaining equality among different stakeholder groups.

¹³⁷ THE EITI STANDARD 2019: https://eiti.org/files/documents/eiti_standard_2019_en_a4_web.pdf

Assuming that the EITI recommends all stakeholder groups to consider not only gender balance but also climate-related competencies in their representation, the real question is this: **what will three environmental or climate experts represented on the MSG from the government, companies and civil society do?**

Their role in the multi-stakeholder group would make sense, if the MSGs were responsible for making decisions on extractive projects - they would assess climate risks. However, the EITI Standard does not assign such a task to a MSG. Its job is to oversee the implementation of the EITI Standard and promote transparency in the extractive sector, and, therefore, the role of representatives with specialized expertise within the MSG seems uncertain.

In addition, this research shows that a fairly large number of the EITI implementing countries produce low annual fossil CO₂ emissions (10.68% of the global annual emissions for all EITI implementing countries), so this measure may not be relevant to all the countries.

However, **if the EITI sets up an annual CO₂ emission threshold, and recommends the MSGs to consider including specialised expertise in climate change, whenever a threshold is crossed**, this recommendation would make sense. Such experts would help assess the contextual information to ensure that climate policies, laws and regulations (or their absence) are fully covered in EITI reports, thus adding transparency to climate policy. The advantages of this approach are measurability of the criterion and an individual approach to each country.

For example, it would be beneficial for the United States (no longer member of the EITI) to have such specialised expertise represented within the MSG, because in 2019, the United States was responsible for 13.4% of global fossil CO₂ emissions¹³⁸.

The third recommendation, apparently, has to do with the implementation of the EITI Standard 2019 in Ukraine, as the provisions described therein are already included in the Standard and successfully implemented. The information to be included in Ukraine's EITI Reports is determined by the MSG, which ensures that all stakeholders are engaged in dialogue.

The fourth recommendation pertains to the government engagement in the MSG, and therefore the reasons provided in the overview of the first recommendation also apply hereto.

The fifth recommendation requires verifying any environmental information submitted by companies for EITI reporting against the information collected by public authorities. The idea of verifying environmental information in EITI

¹³⁸ Fossil CO₂ emissions of all world countries, JRC SCIENCE FOR POLICY REPORT: <https://publications.jrc.ec.europa.eu/repository/handle/JRC121460>

reports needs further consideration.

First, in terms of reports on payments made to the government, all environmental payments are subject to reconciliation and do not require further verification. It would be challenging to verify the contextual information, because the government and extractive companies may have different data sets. Such verification may only apply to certain types of information, such as pollution data.

Second, by recommending to verify any environmental information reported by extractive companies against the data collected by public authorities, we presume that the information collected by the government is more reliable and / or accurate. This is not always the case, because many governments do not disclose or collect environmental information. There are also many cases when emissions data of individual countries are inconsistent with the estimates of international organizations.

Brief efficiency analysis of Group I recommendations:

Recommendation	Linked to extractives	Consistent with the EITI principles	Relevant
1. Develop a new Principle of the EITI, focusing on the special and unique position of the fossil fuel sector in the context of climate change.	+/-	+	+/-
2. Engage specialised expertise in climate issues in the multi stakeholder group and to ensure important issues associated with 'climate risk' are considered prior to a country becoming a compliant country.	+	-	-
3. Build a proper dialogue among all stakeholders to determine what information should be included in the next reports of Ukraine and ensure that their views are taken into account throughout the decision-making process.	n/a	n/a	n/a

4. Improving engagement of the relevant Ministry of Environmental Protection and strengthen inter-agency cooperation, especially with the Energy Agency.	+	-	-
5. Any environmental information submitted by companies for EITI reporting should be verified against the data collected by public authorities.	+ /-	+/-	-

+ Yes;

- No;

+/- Difficult to identify;

n/a - Already in the Standard.

Group 2.

Reform of the contextual information in EITI Reports

The first recommendation suggests disclosing the following information in the contextual part of EITI Reports:

- relevant laws and regulations and fiscal regimes associated with climate change;
- whether or not, each extractive project is economically viable under global carbon budget constraints coming into play to hold the global mean temperature rise to 1.5°, or 2°C. It suggests making an economic analysis of the full project lifespan and including, among other things, disclosure of subsidies.

Disclosing information on climate policies, relevant laws and regulations is a good practice that will make these processes more transparent, and the changes are in line with the EITI objectives. In 2017 EITI Report¹³⁹, the Netherlands disclosed information on the energy transition, sustainable energy subsidies and the climate pledges.

Pursuant to Requirement 6.4 of the EITI Standard 2019, implementing countries may disclose this information, if they deem it necessary. However,

¹³⁹ Netherlands 2017 EITI Report: https://eiti.org/files/documents/nl-eiti_report_2017_en_web.pdf

Requirement 6.4 concerns the environmental impact of the extractive industries in general, without separating the climate-related component.

It will be quite difficult to ensure the disclosure of the information on economic viability of extractive projects along with an economic analysis, primarily because the EITI is not involved in extractive activities, and neither MSGs nor independent administrators have sufficient information to calculate economic viability of each extractive project. Such activity, just like subsidies, is not the focus of the Initiative and is not consistent with the EITI objectives.

However, if implementing countries disclose the information about their climate policies and pledges (or about their absence), potential investors can calculate the full lifespan of a potential extractive project.

The second recommendation, similar to the previous ones, most likely concerns the implementation of the EITI Standard 2019 in Ukraine, as the provisions described therein are already included in EITI Requirement 6.4. We can only consider making this requirement mandatory, which may become possible after an optional requirement has been implemented for several years and EITI reports have been assessed by the EITI International Secretariat. To ensure that this recommendation is linked to the climate change and extractives in general, it can be expanded to include the disclosure of the following information in the contextual part of EITI Reports:

- Descriptions of the legal frameworks and policies governing waste management of the extractive industries (if any), as well as the extractive waste disposal programmes. This study did not focus on the management of waste from the extractive industries. However, it is widely known that extractive waste is generated in the process of extraction and has an adverse impact on the environment if not handled and disposed properly. Improper waste management and / or incineration can lead to an increase in greenhouse gas emissions and, thus, this activity is related to climatic change. This type of environmental information is tied to extraction and is always available to extractive companies that generate waste from their activities, so it is technically not difficult to disclose.
- Emissions of greenhouse gases and releases of other hazardous substances from extractive industries into the air and groundwater. This information is also linked to extractives and climate change and is measurable.

The third recommendation also involves the disclosure of the above information.

Brief efficiency analysis of Group II recommendations:

Recommendation	Linked to extractives	Consistent with the EITI principles	Relevant
1. Ensure the disclosure of the legal frameworks and fiscal regimes associated with climate change; information on economic viability of extractive projects, including the disclosure of subsidies.	+	+	-
2. Include the disclosure of both quantitative and qualitative data. For example, information on social environmental projects, corporate environmental management (e.g., environmental policies, environmental goals, environmental activities, dedicated personnel involved in environmental issues, etc.).	n/a	n/a	n/a
3. Ensure the disclosure of information that would reflect environmental impacts of extractive companies. EITI Reports may also include information on waste generation and disposal, air emissions and water use, since such information is already collected by companies and reported to government agencies, and information reflecting contributions of extractive companies to climate change, including data on greenhouse gas emissions.	+/-	+/-	+/-

+ Yes;

- No;

+/- Difficult to identify;

n/a - Already in the Standard.

Group 3.

Amendments to the EITI Standards concerning revenue streams

The Group includes only one recommendation - ensuring the disclosure of environmental taxes or levies on emissions or extraction, including bunker fuels and repayment of climate finance received.

As far as this recommendation is concerned, the current EITI Standard 2019 requires disclosure of all material environmental payments to governments - both various payments and environmental taxes in general. **The EITI does not require disclosure of climate-related payments or revenues from fiscal climate policy regimes** (for example, from emissions trading) are required. Governments are not required to disclose the use of funds received from extractive companies through environmental taxes and levies.

Thus, **the EITI can calculate government revenue streams received from extractive companies, but cannot claim that the funds have been used for environmental purposes**, even though the Standard clearly states that these payments are related to the environment. Extending these requirements, albeit at the optional level, would contribute to increasing transparency in environmental finance.

Perhaps, not every implementing country separates climate taxes from environmental taxes and can show how the money is spent. However, **this approach can be compared to project-level disclosures under the EITI, which cannot be fulfilled by every country, but is nevertheless required by the EITI Standard** (Requirement 4.7). Replicating this practice for environmental payments will allow tracking the full cycle of environmental revenues in the extractive industries and also assessing monetary contributions of the extractive companies to the national climate policy.

Brief efficiency analysis of Group III recommendations:

Recommendation	Linked to extractives	Consistent with the EITI principles	Relevant
1. Ensure the disclosure of environmental taxes or levies on emissions or extraction, including bunker fuels and repayment of climate finance received.	+/-	+	-

+ Yes;

- No;

+/- Difficult to identify;

n/a - Already in the Standard.

RESEARCH

