

rapid growth of financing needs also exacerbated debt burdens and risks across the globe, including in commodity-dependent countries.

Yet the crisis also resulted in a moment of reckoning, with many stakeholders calling for a more sustainable, resilient, and inclusive future. With fragilities in the global economy and across societies thrown into stark relief, crisis response and recovery efforts to address the impacts of the pandemic provide a window of opportunity to overcome the obstacles historically associated with the extractive sector. During the pandemic, for instance, there has been a political shift and an increase in commitments to net-zero carbon emissions by mid-century, including from several large emitting economies.⁶ Today, two thirds of global CO₂ emissions and 70 per cent of the global economy are covered by net-zero commitments. There is also an increased appetite for sustainable and environmental, social and corporate governance (ESG) investments. A net-zero emissions global economy presents vast commercial opportunities ahead. Those who capitalize on these trends the fastest, will benefit the most.

Some commodity-dependent developing countries, including low and middle-income countries have a 20-30 year window of opportunity to potentially benefit from the green transition, as many are rich in the commodities needed for the renewables revolution and clean technologies, including lithium, graphite, manganese, cobalt, and critical raw materials (CRMs). Conversely, many countries facing severe fiscal deficits due to COVID-19 have rolled back social and environmental safeguards to attract investments and boost their economies in the short-term.

The challenge now is to both ensure that **(i) those countries rich in the materials needed for the green transition can capitalize on these trends and achieve economic and social benefits,** in the same way that now-advanced economies benefitted from their resources during and after the Industrial Revolution, while keeping sustainability objectives, including the goals of the Paris Agreement, front and centre; and **(ii) that those countries and workers who are dependent on the fossil fuel industry, as well as vulnerable communities, including women, indigenous communities, and youth, have economic diversification plans and are adequately supported and reskilled where necessary during this transition. The transition to a net-zero economy must be a just transition for all countries, regardless of their sources of income, current energy mix or level of development.**

As our world moves toward an uneven and partial recovery, **failure to transition to more sustainable systems will generate stranded assets, perpetuate vulnerabilities, jeopardize the fight against climate change and threaten human well-being, ecosystems, and economies for decades, if not centuries, to come.**⁷

Transforming extractive industries⁸ must be part of the solution. This will require giving equal weight to the management of the impact of extractives on societies and the environment, as has been given to economic considerations in the past. A shift in mindset is also needed away from short-term economic considerations to long-term financial risks and broader-based benefits associated with the transition to net-zero economies, that include social, environmental and cultural externalities.

6 OECD (2020). Green Budgeting and Tax Policy Tools to Support a Green Recovery. Available at www.oecd.org/coronavirus/policy-responses/green-budgeting-and-tax-policy-tools-to-support-a-green-recovery-bd02ea23.

7 Regional Economic Commissions (2021). Extractive Industries: Transition to Sustainable Systems, Regional Policy Brief.

8 Extractive industries recover raw materials from the earth, process them, and turn them into products and services for use by consumers. These raw materials may be fossil fuels (notably coal, oil and gas), minerals (such as bauxite, phosphate, potash, copper, gold and diamonds, rare earth minerals) and aggregates (such as sand, gravel and clay). Sigam, C. and Garcia, L. (2012). Extractive Industries: Optimizing Value Retention in Host Countries, ECLAC. Available at https://unctad.org/system/files/official-document/suc2012d1_en.pdf.

II. Challenges in the extractive industries sector

The purpose of this policy brief is to capitalize on the opportunity provided by COVID-19 to build back better by identifying concrete recommendations for transforming the extractives sector into an engine for sustainable development, which can support a just transition to a net-zero, circular, and inclusive global economy. The recommendations identified in this policy brief build upon the outcomes of five Regional Roundtables on Extractive Industries hosted by the United Nations Regional Economic Commissions between October 2020 and March 2021, and which fall under the purview of the Financing for Development in the Era of COVID-19 and Beyond Initiative.⁹ Given the breadth of this topic, this policy brief focuses on extractive industries from the perspective of financing for development, and provides concrete recommendations to be implemented at the global, regional, and national levels.

FINANCING FOR DEVELOPMENT AND GOVERNANCE

Between 1998 and 2008, the value of global natural resource trade rose six-fold from \$600 billion to \$3.7 trillion. Yet governments have not always been able to collect appropriate levels of revenue

due to weak or regressive tax systems, a lack of long-term planning, unsustainable debt burdens and illicit financial flows, including corruption and tax evasion. In Africa, UNCTAD estimates that \$88.6 billion in illicit financial flows leaves the continent every year, more than the total amount of the annual \$48 billion received in official development assistance (ODA), and \$54 billion in foreign direct investment.¹⁰ Governance deficits, and weak environmental, social, legal and policy frameworks and coordination mechanisms between and within sectors and between national and local levels, are also a particular concern to export-dependent countries.

The sheer value of some extractive industries has often resulted in an overdependence on revenues from extractive industries and lacklustre efforts to pursue economic diversification, leaving economies vulnerable to economic shocks and price volatility. Investments and revenues in the sector have sometimes hindered diversification efforts.¹¹ In addition, activities are often driven by governments or large companies with the ability to access greater levels of finance due to their size and ratings, which excludes smaller private sector players and encourages enclave-style economies that fail to create links with host economies and communities.

⁹ United Nations (2021). Financing for Development in the Era of COVID-19 and Beyond Initiative. Available at www.un.org/en/coronavirus/financing-development.

¹⁰ UNCTAD (2020). Tackling illicit financial flows in Africa for sustainable development in Africa. Geneva: UNCTAD, 248 pp. Available at https://unctad.org/system/files/official-document/aldcafrica2020_en.pdf.

¹¹ Real exchange rate appreciation due to foreign currency inflows have negatively impacted the international competitiveness of other tradable goods.

SOCIAL EQUITY AND INCLUSION

While extractive industries generate jobs, they can have direct and indirect negative social impacts unless such effects are controlled for, and have sometimes contributed to the displacement of populations, economic, social and gender inequality, and even armed conflicts. Many jobs entail old infrastructure, limited implementation of safety regulations and insufficient personal protective equipment, which leave some who work in or are exposed to this sector at risk of illness, injury or death. Some extractive industries typically create a limited number of jobs for local communities, as they tend to be highly technology-intensive and generally dominated by foreign multinationals, while in other cases mine or production sites are the only source of jobs and income for entire towns of regions, making them completely dependent on their existence. Additionally, while the formal mining sector employs more than 3.7 million workers worldwide, up to 100 million people make a living from artisanal or small-scale mining.¹²

a. GENDER

In a highly masculinized industry – with some countries banning women from holding certain positions – women form a minority of the workforce, yet are more exposed to environmental and economic hazards. With fewer economic

opportunities at hand, women are also disproportionately affected by negative externalities including involuntary resettlement, loss of access to land and finance, natural resources and clean water, air and soil pollution, and mercury contamination. Many women suffer from increased gender-based violence, prostitution, and sexual slavery related with the industry, while an estimated 1 million children work in mining at the expense of attending school, particularly in the informal artisanal and small-scale mining sector in developing countries.¹³

b. INDIGENOUS PEOPLES' RIGHTS

Indigenous peoples are estimated to constitute one-third of the world's 900 million extremely poor rural people, the group that accounts for the bulk of those with no access to modern energy.¹⁴ According to the report of the Special Rapporteur on the Rights of Indigenous Peoples, extractive industries have long constituted "the most pervasive source of the challenges to the full exercise of indigenous peoples' rights."¹⁵ Land loss, the destruction of sites of cultural or spiritual significance, marginalization and systematic discrimination and the impacts from associated air, water, and social pollution have also exacerbated the loss of lives, health, livelihoods, identities and cultures, pushing many indigenous peoples into extreme poverty while prompting localized armed conflict.¹⁶ Human rights defenders, including land and environmental

12 UNEP, Why Does Extractives Matter? Available at www.unep.org/explore-topics/extractives/why-does-extractives-matter.

13 World Vision (2021). Five Things You Need to Know About Children and Mining. Available at www.worldvision.ca/about-us/media-centre/5-things-about-children-mining.

14 Indigenous Peoples Major Group for Sustainable Development (2018). Available at <https://indigenouspeoples-sdg.org/index.php/english>.

15 Anaya, J. (2011). Report of the Special Rapporteur on the Rights of Indigenous Peoples, A/HRC/18/35. Available at <https://documents-dds-ny.un.org/doc/UNDOC/GEN/G11/146/39/PDF/G1114639.pdf?OpenElement>.

16 Indigenous Peoples Major Group for Sustainable Development (2020); United Nations Department of Economic and Social Affairs, 2021; World Commission on Dams, 2000; pp. iv and 110–112; Marcus Colchester, "Dams, Indigenous Peoples and Ethnic Minorities", WCD Thematic Reviews, Social Issues I.2, prepared as a Commission input (Cape Town, World Commission on Dams, 2000); Baqué and Doyle (2017); Rights and Resources Initiative (2015).

defenders, in extractive sectors, which include a high percentage of indigenous people, are especially vulnerable to death and harassment.¹⁷

c. ENVIRONMENT

Extractive industries have a significant environmental impact at both the local and global level. Water, air and soil contamination from extraction, smelting and transportation processes, water use competition, and the destruction of habitat and protected areas are among the persistent environmental challenges facing the sector. Limited legislation and weak law enforcement lead to ecosystem degradation and a loss of biodiversity. Negative environmental impacts are also exacerbated by informal and illegal extractive industry operations, often driven by extreme poverty, which by definition are not subject to oversight and can cause irreparable damage.

On a global scale fossil fuels accounts for a staggering 73 per cent of the world's greenhouse gas emissions, placing the spotlight of climate mitigation efforts squarely on extractive industries.¹⁸ Eliminating fossil fuel subsidies and adopting efficient fossil fuel pricing in 2015 would have lowered global carbon emissions by 28 per cent, increased tax revenues by 3.8 per cent of global GDP, and contributed to net economic benefits amounting to 1.7 per cent of global GDP.¹⁹

To limit the global temperature increase to 1.5 degrees Celsius above pre-industrial levels in line with the science and the Paris Agreement, the world needs to decrease fossil fuel production, including coal, oil and gas, by roughly 6 per cent every year. A rapid phase out of coal, which has historically been a significant portion of the global energy fuel mix, is a main priority, with coal-fired electricity generation accounting for 30 per cent of global CO₂ emissions in 2018.²⁰ Global coal use must fall by 80 per cent below 2010 levels by 2030, while OECD nations should end coal use entirely before 2030. All coal-fired power stations must cease operating by 2040 at the latest. This is a hugely difficult challenge in some regions of the world given present energy strategies, which still favour the construction of large coal-fired plants. Oil and gas must quickly follow this trend as well, while gas should be phased out by 2050.

As the global population increases, the demand for minerals and metals is almost certain to rise. In 2017, extraction reached 92 billion tons compared with 27 billion in 1970. If current trends continue, the world will require 190 billion tons of material every year by 2060, including for green technologies needed for a transition to a sustainable future. These trends make the need for an inclusive and circular economy increasingly urgent.²¹

17 Global Witness (July 2020). Defending Tomorrow. Available at www.globalwitness.org/en/campaigns/environmental-activists/defending-tomorrow.

18 Climate Watch. Available at www.climatewatchdata.org/ghg-emissions?breakBy=sector&calculation=ABSOLUTE_VALUE&chartType=percentage&end_year=2018§ors=total-excluding-lucf&source=CAIT&start_year=1990.

19 IMF (2019). Global Fossil Fuel Subsidies Remain Large: An Update Based on Country-Level Estimates. Available at www.imf.org/en/Publications/WP/Issues/2019/05/02/Global-Fossil-Fuel-Subsidies-Remain-Large-An-Update-Based-on-Country-Level-Estimates-46509.

20 IEA (2019) Global Energy Status Report. Available at www.iea.org/reports/global-energy-co2-status-report-2019/emissions.

21 UNEP (2019). UN Calls for Urgent Rethink as Resource Use Skyrockets. Available at www.unep.org/news-and-stories/press-release/un-calls-urgent-rethink-resource-use-skyrockets.

III. Potential contributions to sustainable development

Over the past year, the COVID-19 pandemic has wreaked havoc on lives and economies worldwide, sending some commodity prices collapsing and others skyrocketing. At the same time, the imperative of accelerating efforts to address the climate crisis is placing an unprecedented level of pressure on the extractives sector. In this unique context, **action taken in the extractives sector today could determine the capacity of many countries to recover from the crisis in the short term, achieve the Sustainable Development Goals (SDGs) and the Paris Agreement in the medium term, and determine the ability of the entire world to secure a just transition to a net-zero future in the long term.**

FINANCING FOR DEVELOPMENT

At the outset of the pandemic, COVID-19 had a disproportionate impact on economies dependent on extractives, as the crisis led to a sharp initial fall in commodity prices, with oil prices showing an especially severe drop. This, combined with lower tax revenues and global trade, exacerbated already high debt burdens for many resource-dependent economies. For oil producers, including both low- and middle-income countries, debt ratios rose from

45.5 per cent in 2019, to 58.8 per cent in 2020.²²

The IMF estimates that the Gulf Cooperation Council (GCC) fiscal financing needs increased from 8.7 per cent of GDP in 2019 to 13.5 per cent in 2020, with debt issuance reaching \$59 billion in the first three quarters of 2020, \$15 billion more than total issuance for the whole of 2019.²³

In response, some countries earmarked funds in their stimulus packages to support the fossil fuel industry. According to the Energy Policy tracker, \$278 billion has been committed in countries' recovery stimulus packages in support of the fossil fuel sector and fossil fuel-dependent industries in the Group of 20 (G20) countries, mostly unconditionally. This continued financial support to the fossil fuel sector appears to be at odds with the political commitments to net-zero emissions by 2050 by most of the world's largest emitting economies. By contrast, clean energy commitments have risen to \$241 billion, but 79 per cent of that sum has been given as conditional support.²⁴

Expectations are high that the acceleration of the green transition will greatly raise demand for metals and other critical rare earths, creating opportunities for low and middle-income economies to build more diversified economies. Electric vehicle sales have increased by more than 30 per cent every year in the last decade

²² IMF Fiscal Monitor (April 2020). Available at www.imf.org/en/Publications/FM/Issues/2021/03/29/fiscal-monitor-april-2021.

²³ IMF (2020). Economic Prospects and Policy Challenges for the GCC Countries, Annual Meeting of Ministers of Finance and Central Bank Governors. Available at www.imf.org/-/media/Files/Publications/PP/2020/English/PPEA2020065.ashx.

²⁴ Energy Policy Tracker (14 April 2021). Available at www.energypolicytracker.org/region/g20.

except for 2019,²⁵ while the sharp and continued fall in renewable energy costs have made investing in clean energy sources particularly attractive.²⁶ Only in April 2021, Saudi Arabia's second PV tender, the 600 MW Al Shuaib project, drew another world record bid of \$0.0104/kWh, highlighting the maturity of the industry and growing developer experience. Large-scale energy storage also adds to metals demand, as does the continuing growth in demand for the infrastructure underpinning the global digital economy. However, seizing upon these opportunities will first require ensuring that countries **have the adequate fiscal space and resources to invest in a recovery and lay the groundwork for a resilient and sustainable future.**

To achieve this, international and regional financial institutions should scale up concessional finance to help build and implement economic diversification plans and diversify project development pipelines. This will involve expanding debt suspension initiatives, such as the Debt Service Suspension Initiative (DSSI), to include vulnerable middle-income countries, many of which are dependent on extractives, and operationalizing a long-term Debt Swap Mechanism (DSM) to facilitate debt-for-climate and nature swaps, and integrating state-contingent instruments, including income-linked bonds.

Multilateral development banks (MDBs) should significantly increase spending for projects aimed at a green and inclusive recovery. In light of a likely allocation of at least \$650 billion in Special Drawing Rights (SDRs), a proportion of unused SDRs could be granted by advanced economies to commodity-dependent countries affected by COVID-19. SDRs could also be channelled into investments to

support sustainable and green initiatives in lower-income economies, while fiscal recovery packages could provide targeted support aimed at transforming the sector, such as investing in renewables and sustainable and dual-purpose infrastructure that could benefit other sectors including agriculture and tourism.

There is also a need to make fiscal regimes more progressive and transparent, and avoid tax breaks on profits and incentives that cause a race to the bottom. Governments should build fiscal buffers to enhance resilience and restore fiscal sustainability, including by engaging in tax reform that seeks to bolster the direct taxation of income and property, establishing fiscal institutions, including Sovereign Wealth Funds, to provide stability to public accounts, and reviewing and updating fiscal frameworks associated with the sector to make them more progressive and just. The international community should also strengthen international action on Base Erosion and Profit Shifting (BEPS), as well as global corporate tax reform.

GOVERNANCE AND REVENUE MANAGEMENT

While these efforts are necessary, however, they continue to be obstructed by illicit financial flows, corruption, governance deficits, and revenue mismanagement. This requires creating clear policies and enhancing law enforcement, including by strengthening the judicial system and anti-corruption laws, bolstering coordination and cooperation by government oversight agencies, and increasing the capacities of agencies to address revenue mismanagement and combat

25 International Energy Agency (June 2020). Electric Car Sales This Year Resist COVID-19's Blow to Global Car Market. Available at www.iea.org/news/electric-car-sales-this-year-resist-covid-19-s-blow-to-global-car-market.

26 The International Renewable Energy Agency (June 2020). Renewables Increasingly Beat Even Cheapest Coal Competitors on Cost. Available at www.irena.org/newsroom/pressreleases/2020/Jun/Renewables-Increasingly-Beat-Even-Cheapest-Coal-Competitors-on-Cost.

illicit financial flows. Effective internal controls relevant to revenue collection, management and spending, and the improved promotion and full implementation of due diligence and proactive compliance by companies are needed. In addition, international coordination and cooperation are needed to address the role of tax havens as conduits for illicit flows in the sector.

Developed countries and international organizations, including the United Nations, should provide more technical and capacity-building support and incentives to support countries in their efforts to combat tax evasion and illicit financial flows. Efforts should also be made to enhance the coordination and cooperation and exchange of information, with the collaborative support and expertise of initiatives and institutions like the Extractive Industries Transparency Initiative (EITI), the International Council on Mining and Metals (ICMM), and the International Petroleum Industry Environmental Association (IPIECA).

Governments should design and implement integrated policies to manage natural resources through a multi-stakeholder and democratic governance approach that enhances and builds synergies among key sectors, while upscaling resource efficiency and sustainably managing scarce resources. It is crucial to incorporate civil society, and vulnerable communities, including local communities, women, and indigenous groups in policy design and monitoring and evaluation. National standards should be harmonized to regulate all companies that lack oversight, including both local and foreign companies, in the formal and informal sectors. Clear, country-specific regulatory frameworks should be created, while the governance of investment in public infrastructure should be strengthened through public-private cooperation and dialogue.

THE GREEN ECONOMY

Encouragingly, the number of countries committing to net-zero emissions target is increasing, giving momentum to the green transition. Countries that represent more than 65 per cent of global greenhouse gas emissions and more than 70 per cent of the world economy have made commitments to net-zero emissions by mid-century.²⁷ In addition, 700 cities and one-fifth of the largest public companies, as well as \$32 trillion (36 per cent of global total) in assets-under-management now have net zero commitments.

As demand for the metals needed for renewable energy grows, however, so too does the need to ensure that negative environmental and health impacts are avoided, while human rights and an equitable sharing of benefits are guaranteed.²⁸ Global capital markets which finance extractive investments, including in low and middle-income countries, are increasingly demanding adherence to high ESG standards. This has significant ramifications for the industry, as large private sector investments in the extractive industries are still needed and cannot come from governments alone. While State-owned enterprises are often large players in the oil and gas industry, investments in the mining industry are largely carried out by multinational private enterprises. Companies and countries that can best meet ESG and sustainable requirements and attract capital more easily will thus enjoy a significant competitive advantage in the future, while those that do not will be left even further behind.

27 United Nations News (December 2020). The Race to Zero Emissions, and Why the World Depends On It. Available at <https://news.un.org/en/story/2020/12/1078612>.

28 Institute for Sustainable Futures (2019). Responsible Minerals Sourcing for Renewable Energy. Available at www.earthworks.org/cms/assets/uploads/2019/04/MCEC_UTS_Report_lowres-1.pdf.

While the global transition provides enormous opportunities, it also poses significant risks. The renewed push towards achieving net-zero emissions and the rapid decline in the costs of wind and solar technologies will eventually cause many existing fossil fuels assets – estimated to have a value between \$900 billion²⁹ and \$1.8 trillion³⁰ – to become “stranded” as investments shift towards critical rare earths and minerals needed for the renewables sector. This has significant fiscal implications for countries dependent on such revenues, as well as for National Oil Companies, which are large revenue contributors.

Ensuring a successful and inclusive transition to a new energy economy will thus not only require securing the necessary funds, but also ensuring that funds and policies are aligned with long-term sustainable development objectives, including a circular and inclusive economy. This should involve requiring development banks and international financial institutions to channel an increasing percentage of loans to green investments and climate projects, and to align their portfolios, policies, and operations with the goals of the Paris Agreement by 2024 or sooner. MDBs should channel funds towards sub-regional and national development banks to help them to access low-cost funding, long-term capital and technical capacity and design projects. Climate risk disclosures should also be made mandatory in line with the recommendations of the Taskforce on Climate-Related Financial Disclosures (TCFD).

In addition, governments should address market distortion through reforms and rationalizing energy subsidies. This includes developing alternative mechanisms to provide poor households with affordable clean energy and support the initial connection to the power grid or, alternatively, access to off-grid renewable energy equipment. This should involve shifting fossil fuel subsidies to renewable energy and energy access, implementing carbon pricing, border adjustments, and taxation, and taxing resource use and waste, including products that do not include recycled content.

To attract investment, including private finance, into the sector, it is also critical to deploy ESG funding based on a common sustainable finance taxonomy and principles. ESG financing is increasing and is part of the solution to the challenge of transitioning to a low-carbon future. However, such initiatives run the risk of “green washing”, while the mining and metals sector overall continues to underperform against most key assessment indicators. There is thus a need to increase coordination between the private sector, MDBs and governments to strengthen ESG standards, de-risk investments, and continue or introduce reforms, including market incentives, to improve access to finance for projects in low and middle-income countries. Financial innovations are also needed to quickly, efficiently, and securely retire existing coal plants and other fossil-fuel based technologies and to encourage the deployment of new and emerging technologies such as carbon capture and storage (CCS), which will be vital for heavy emitting sectors such as steel, aluminium, and concrete industries to achieve net zero emission targets.

29 Livsey, A. (February 2020). Financial Times, Lex in Depth: The \$900bn Cost of ‘Stranded Energy Assets’. Available at www.ft.com/content/95efca74-4299-11ea-a43a-c4b328d9061c.

30 Carbon Tracker (2020). Fault Lines: How Diverging Oil and Gas Company Strategies Link to Stranded Asset Risk. Available at carbontracker.org/reports/fault-lines-stranded-asset.

A JUST TRANSITION TOWARDS SUSTAINABLE SYSTEMS

The green transition presents enormous opportunities for low and middle-income countries rich in the resources needed for the renewable revolution and the potential to create new jobs and redress issues around equity and social justice. Jobs in the renewables sector reached 11.5 million globally in 2019.³¹ The International Renewable Energy Agency (IRENA) also estimates that under certain conditions, jobs created by the renewable energy industry could reach 42 million worldwide by 2050 – more than enough to offset the jobs lost in the fossil fuel industries, with more people able to find employment in manufacturing, installing, operating and maintaining renewable energy systems.³² With women accounting for 32 per cent of the renewable energy workforce compared with 22 per cent for the overall energy sector, the transition could contribute significantly to closing the gender employment gap.³³

Yet despite these opportunities, the green transition will also involve a challenge for countries and regions that rely heavily on revenues and jobs generated by fossil fuel production, especially as the skills required for the energy transition do not necessarily match existing skills in the sector. Among the extractive industries, the coal industry is facing a steady decline as major economies reduce its share in the energy mix, leading to lower production and job losses in vulnerable communities heavily reliant on coal mining. The same will also happen in the near future with oil and gas.

To secure a just global energy transition, stakeholders not only need to ensure funds are targeted towards a sustainable and inclusive future, but also that funds and policies target the most vulnerable, including those displaced by the transition, women and indigenous peoples. This is especially important given that the displacement caused by a mismanaged global transition risks undermining poverty reduction efforts and increasing social unrest.

Enhanced programmes of economic diversification can play a crucial role in supporting these efforts, including by minimizing the risks associated with high economic concentration and volatility, stimulating new job opportunities, and ensuring funds are available to support economic restructuring in vulnerable communities. Many commodity-exporting and importing countries have taken serious steps to diversify their economies and reduce dependence on commodity trade to dampen impacts from price volatility, but serious challenges remain due to lock-in effects resulting from patterns of primary product specialization in many developing countries. The national energy mix will also increasingly influence the prospects of developing countries to expand their manufacturing exports in international trade, as large trading blocs are increasingly concerned about the emissions intensity of their imports, and may initiate carbon border taxes on imports which have been produced by high net emissions.

In anticipation of the green transition and its attendant impacts on the commodity-dependent countries, including as a result of carbon border taxes, governments should redistribute revenue from extractive industries to invest in

31 IRENA (2020). Renewable Energy and Jobs: Annual Review 2020. Available at www.irena.org/publications/2020.

32 IRENA (2020). Global Renewables Outlook: Energy Transformation 2050. Available at www.irena.org/publications/2020/Apr/Global-Renewables-Outlook-2020.

33 IRENA (2019). Renewable Energy: A Gender Perspective. Available at www.irena.org/publications/2019/Jan/Renewable-Energy-A-Gender-Perspective#:~:text=Renewable%20energy%20employs%20about%2032,in%20the%20energy%20sector%20overall.&text=IRENA%20estimates%20that%20the%20number,nearly%2029%20million%20in%202050.

green jobs, retraining and reskilling programs, social protection with a special focus on vulnerable groups, local content policies, and local value chains. Comprehensive industrial policies are needed for the development of new capacities and productive linkages, value addition, and scaling in global supply chains to promote progressive structural change in commodity-dependent developing countries. This should also include more investment, promotion, development, technical assistance, and comprehensive programs to support vulnerable groups and facilitate the formalization of artisanal and small-scale mining, which employs a large number of women and informal workers.

Governments should not only create credible long-term plans to secure a just transition in more diversified economies, but also design national financing strategies to accompany these programmes with targeted support to small and medium-sized enterprises, vulnerable communities, and gender- and community-specific programmes. Policies aimed at effecting a just transition should have central consideration in integrated national financing frameworks (INFFs). Countries should also consider establishing sovereign wealth funds with the volatile revenues obtained from the extractive sector in order to provide a more stable source of long-term finance. Nationally Determined Contributions (NDCs) should be integrated into this broader effort, while short and medium-term targets should be established to create a clear blueprint to achieve a net-zero future and circular economy. Given the increasing natural resources demand associated with the uptake of renewable energy solutions in the coming decades, circular economy principles should also be integrated to promote resource efficiency, circular design, integrated waste management, and other sustainable production and consumption measures.

Social inclusion and dialogue – especially with civil society, and vulnerable communities, including women, indigenous groups, youth, and those who will be displaced by the green transition – will be indispensable to secure a just transition. Local and especially vulnerable communities should be involved in the design of projects and programmes, as well as in monitoring and evaluating their results. As the green transition gains traction, governments and the private sector should make increasing use of valuable tools such as indigenous evaluations, which monitor the impact of extractive operations on the environment using methods influenced by indigenous ways of knowing, frameworks, and cultural paradigms.

TECHNOLOGY AND INNOVATION AND THE CIRCULAR ECONOMY

Technology and Innovation are an important driving force for enhancing sustainability and competitiveness in extractive industries, yet they require significant investments in research, close cross-sectoral cooperation, ensuring all countries benefit through open technology transfers, partnerships, reformed protectionist practices, and a strong commitment to sustainability, climate neutrality, protection of biodiversity, and resource efficiency.

Technology and digital solutions bring enormous benefits across the extractive value chain. As digital technologies become more available to the global population, there could be a massive increase in information and communications technologies (ICTs) and related infrastructure reliant on minerals and metals. The production of minerals such as cobalt, graphite and lithium could increase by nearly 500 per cent by 2050 in response

to growth for clean energy technologies, while the carbon footprint associated with their production will account for 6 per cent of emissions generated by fossil fuels.³⁴

Moreover, a transition to a more sustainable energy system driven by renewable energies will require changes in production, storage and consumption of energy. Resources are increasingly needed for batteries, in particular for electric vehicles. Photovoltaic (PV) panels can provide cleaner and lower cost energy than fossil fuels, but they also rely on materials that need to be mined, and are bound to start producing significant waste in the coming years – as are electric vehicles – as equipment requires replacement.³⁵ In addition, dams and modern offshore wind parks can supply more low-carbon energy, but can have significant negative implications on local communities and ecosystems.

As a result, policies will be needed that assess upstream and end-of-life impacts of clean energy technologies, promote the design of technologies for circularity and recyclability, and take into consideration the entire life cycle and associated costs, including recycling and avoiding the use of toxic material. The industry should also align sustainable resource management system with a shared principles-based, integrated, sustainable resource management framework, employing tools such as the existing United Nations Framework

Classification for Resources (UNFC) and the United Nations Resource Management System (UNRMS) under development.

While reducing future resource demand through circular economy strategies is desirable from an environmental standpoint, it is nonetheless important to consider the implications – in terms of lost export earnings – for low-income, resource-dependent countries. For these countries, governance strategies are needed to capture a greater share of value, break away from the enclave nature of the extractive sector, and diversify economies, including into emerging sectors such as recycling and renewables.³⁶

Effective regulations to control emissions from oil and gas also depend on the availability and accuracy of information. Satellite data, for instance, has become instrumental in measuring chemical emissions globally. In Nigeria, for instance, the government has used Satellite Data to monitor gas flaring and venting as a basis for taxing companies, which has yielded \$120 million in annual revenue. The Nigeria Gas Flare Tracker is an open source data base, which civil society can actively monitor.³⁷ Data collection technologies should be made more widely available, and not limited to private companies that restrict and sell access to data, while the data collected should be used to support the creation of new tax policies that incentivize companies to minimize carbon emissions.

34 The World Bank (May 2020). Mineral Production to Soar as Demand for Clean Energy Increases. Available at www.worldbank.org/en/news/press-release/2020/05/11/mineral-production-to-soar-as-demand-for-clean-energy-increases.

35 International Renewable Energy Agency (2019). Future of Solar Photovoltaic: Deployment, Investment, Technology, Grid Integration and Socio-Economic Aspects. Available at https://irena.org/-/media/Files/IRENA/Agency/Publication/2019/Nov/IRENA_Future_of_Solar_PV_2019.pdf.

36 UNEP (2020). Sustainable Trade in Resources: Global Material Flows, Circularity, and Trade. Available at <https://wedocs.unep.org/bitstream/handle/20.500.11822/34345/STRFS.pdf?sequence=1&isAllowed=y>.

37 Nigerian Gas Flare Tracker (2020). Available at <https://gasflaretracker.ng>.

REGIONAL AND GLOBAL COLLABORATION

The interdependence of extractive industries and the energy sector calls for greater regional and global coordination to manage shocks and smooth transition processes. The United Nations, through its Regional Economic Commissions (RECs), can provide a platform for dialogue among Member States, and serve as a source of knowledge generation and a common ground for gathering technical expertise.

To manage the global energy transition, regional frameworks should be further developed or established with the aim of aligning extractive industries with the SDGs, Paris Agreement, the Convention on Biological Diversity, the Minamata Convention and human rights principles. Efforts should also be made to adhere to and implement strong existing regional or global

frameworks, such as the African Mining Vision (AMV), the Escazú Agreement, and the Global Industry Standard on Tailings Management in Mining, and to create similar frameworks to encourage best practices and safeguard access to information and participatory decision-making in regions where they do not exist.

Additionally, while some countries and regions are adopting green energy and circular economy plans, they should ensure that they do not continue to invest in harmful practices abroad.

In this regard, developing a framework for the traceability and transparency of global value chains, and supporting mandatory certification programmes, such as the CERA Performance Standard, is needed. Finally, while carbon pricing, taxation, and border adjustments, are welcome steps, they must be implemented in such a way as to minimize the negative impact on vulnerable communities and developing economies, which depend on commodity exports.

IV. Calls for action

The recent crisis has accelerated the green transition and opened up new opportunities to reform the extractive industries to support a global economic recovery and enable a just transition to a sustainable, net-zero, and inclusive economy. A holistic approach should be fostered that considers the distinct needs of resource-rich developing countries with those of developed countries. It also should provide for greater long term diversification, and targeted support to vulnerable groups, including women, indigenous communities, youth, and those who will be initially displaced by the transition. Enabling a just energy transition to a sustainable management of natural resources which supports people, prosperity, and planet requires strengthening sub-regional, regional and global collaboration.

The extractive sector has reached a critical juncture. Decisions and investments taken today will shape the world's ability to recover from the pandemic, achieve the 2030 Agenda for Sustainable Development and the Paris Agreement, and avert the impending climate disaster. COVID-19 presents a once-in-a-lifetime opportunity to build back better by reducing the systemic vulnerabilities in our global economy. This includes addressing the inequalities inherent to the extractives sector, which continues to prioritize profit for private interests over long-term sustainable and inclusive development.

Transforming the extractives sector into an engine for sustainable development that can support a just transition for all is an essential part of this challenge. It is up to us to meet it.

Recommendations to transform the extractives sector are divided into six areas, addressing (i) financing for development: debt, liquidity, taxation, and illicit financial flows; (ii) governance and revenue management; (iii) the green economy; (iv) a just transition to sustainable systems; (v) technology, innovation, and a circular economy; and (vi) regional and global collaboration.

FINANCING FOR DEVELOPMENT

1. **Provide debt relief for commodity-dependent countries through service suspensions, establish a long-term debt swap mechanism for debt-for-climate/nature swaps, and integrate state-contingent clauses in debt contracts and income-linked bonds.**
2. **Reallocate Special Drawing Rights (SDRs) to commodity-dependent countries to channel liquidity to transform extractive industries.** Use SDRs and fiscal recovery stimulus packages as an opportunity to invest in green projects, renewables, and sustainable and dual-purpose infrastructure.
3. **Bolster direct taxation of income and property to enhance fiscal resilience in the sector.**

GOVERNANCE AND REVENUE MANAGEMENT

4. **Harmonize national standards and further enforce clear regulatory frameworks** to ensure oversight of all companies as part of implementing the principles of environmental sustainability, transparency, accountability, access to information, and human rights, and independent monitoring.
5. **Strengthen anti-corruption laws and law enforcement**, enhance coordination and cooperation by government oversight agencies, and increase capacities of agencies to address revenue mismanagement, combat illicit financial flows, and effectively regulate the industry.
6. **End tax havens as conduits for illicit financial flows** in the extractives sector.

THE GREEN ECONOMY

7. **Create a common ESG taxonomy and principles to increase ESG financing**, update development bank portfolios and policies to align with the 2030 Agenda for Sustainable Development and the Paris Agreement, and ensure compulsory climate risk disclosures, consistent with the recommendations of the Taskforce on Climate-Related Financial Disclosures (TCFD).
8. **De-risk sustainable investments through enhanced coordination between the private sector, multilateral development banks and governments** and continue or introduce reforms to improve access to finance and create alternative mechanisms to provide affordable energy consumption and protect the poor.

9. **Create tax incentives to encourage sustainable practices in the extractives sector**, including by shifting fossil fuel subsidies to support increased renewable energy, energy efficiency, and energy access for all, providing tax breaks and funding for capacity-building enterprises and technology/research centres, and implementing carbon pricing, taxation, and border adjustments.

A JUST TRANSITION TO SUSTAINABLE SYSTEMS

10. **Invest rents from extractives in sustainable development of local populations**, including green jobs, retraining and reskilling programmes to seize the potential of new employment creation, social protection with a special focus on vulnerable groups, local content policies and local value chains.
11. **Establish clear national visions, strategies, and industrial policies to support a just energy transition and attain a circular economy**, and design national financing strategies, including through the use of integrated national financing frameworks (INFFs) and creation of Sovereign Wealth Funds, to ensure consistency and coherence and to fund these plans.
12. **Systematically include civil society and vulnerable groups, including women, indigenous and others local communities, and those affected by the green transition, in the design, implementation, and monitoring of all extractive operations**, including to hold stakeholders accountable and seek redress when needed.

TECHNOLOGY, INNOVATION, AND A CIRCULAR ECONOMY

13. **Lower barriers to trade and intellectual property, abolish protectionist policies, facilitate technology transfer and make available global data collection technologies,** including satellite imagery, to make sure all countries effectively combat climate change.
14. **Adopt policies that assess upstream and end-of-life impacts of clean technologies** to ensure that extractive industries adopt sustainable and responsible practices and circular business models to meet rising mineral demand.
15. **Implement a shared principles-based, integrated, sustainable resource management framework** using tools such as the existing United Nations Framework Classification for Resources (UNFC) and the United Nations Resource Management System (UNRMS) under development.

REGIONAL AND GLOBAL COLLABORATION

16. **Create or improve regional frameworks aligning extractive industries with the Sustainable Development Goals,** the Universal Declaration of Human Rights, the Convention on Biological Diversity, the Minamata Convention and the Paris Agreement. Adhere to and support the implementation of existing frameworks, such as the African Mining Vision (AMV) and the Escazú Agreement.
17. **Capitalize on United Nations Regional Economic Commissions to bolster regional coordination and policy dialogue** on extractive activities. Issues to be addressed include harmonizing the implementation of carbon pricing and border adjustments, developing a comprehensive framework for traceability and transparency in global value chains, illicit activities, cross-border conflicts and disputes, transparency on trade and financial flows, and strengthening extractive sector fiscal frameworks to encourage value addition and economic diversification.
18. **Invite Member States to establish a Working Group on Extractive Industries** to lead international efforts to transform extractive industries into an engine for sustainable development and consider implementation of the action measures above.

Lying at the heart of the energy transition, extractive industries play a central role in financing the development of many low and middle-income countries. A just transition will require profound reforms in the financial, governance, social and environmental dimensions of the extractives sector. If implemented correctly, however, extractive industries could hold the key for a sustainable future for all.