A FAIR SHARES PHASE OUT

A CIVIL SOCIETY EQUITY REVIEW ON AN EQUITABLE GLOBAL PHASE OUT OF FOSSIL FUELS

NOVEMBER 2021

A woman empties a plastic bowl filled with tapioca, which is derived from cassava paste, on sewn sacks laid on the ground close to a gas flaring furnace in Ughelli, Delta State, Nigeria. September 17, 2020. © REUTERS / Afolabi Sotunde

SIGNATORIES

The following groups, organisations and movements support the analyses, findings and recommendations of this Civil Society Equity Review:

INTERNATIONAL

- 350.org
- ActionAid International
- Center for International Environmental Law (CIEL)
- CIDSE
- Climate Action Network
- Corporate Accountability
- Earth Island Institute
- Environmental Justice Foundation
- Fast for the Climate
- Friends of the Earth International
- Global Anti-Aerotropolis Movement (GAAM)
- Global Policy Forum
- GreenFaith
- International Marine Mammal Project of Earth Island Institute
- International Trade Union Confederation (ITUC)
- LDC Watch
- Oil Change International
- Practical Action
- Stand.earth
- The Last Plastic Straw
- War on Want
- WWF International
- WhatNext?

REGIONAL

- Asian Peoples Movement on Debt and Development
- CAN Latin America
- Catholic Youth Network for Environmental Sustainability in Africa (CYNESA)
- Climate Action Network South Asia
- Jeunes Volontaires pour l'Environnement
- Pacific Islands Climate Action Network PICAN
- Power Shift Africa
- South Asia Alliance for Poverty Eradication (SAAPE)

AFRICA

- Abibinsroma Foundation, Ghana
- APEDDUB Association, Tunisia
- Association of Climate Action Network (CAN-EA), Uganda
- Ecological Christian Organisation (ECO), Uganda
- ÉnergieRich, Burkina Faso
- Institute for Economic Research on Innovation, International
- Justiça Ambiental, Mozambique
- Uganda Coalition for Sustainable Development
- Worldview -The Gambia

ASIA

- ActionAid Bangladesh
- Aksi! for gender, social and ecological justice, Indonesia
- All India Women Hakwers Federation
- Alyansa Tigil Mina, Philippines
- Ameen Foundation, Pakistan
- Anjuman Muzareen Punjab, Pakistan
- AOSED, Bangladesh
- Archdiocese of Manila Ministry on Ecology, Philippines
- Arjon Foundation, Bangladesh
- Bangladesh Krishok Federation
- Bhatta Mazdoor Union, Pakistan
- Center for Participatory Research and Development – CPRD, Bangladesh
- Centre for Environmental Justice, Sri Lanka
- Cholistan Development Council, Pakistan
- CLEAN (Coastal Livelihood and Environmental Action Network), Bangladesh
- Climate Watch Thailand (CWT)
- Coal Free Bataan Movement (CFBM) – Philippines
- Coastal Association for Social Transformation Trust [COAST Trust], Bangladesh
- Coastal Development Partnership, Bangladesh
- Community Action for Healing Poverty Organization
- Community Initiatives for Development in Pakistan-CIDP
- Dibeen For Environmental Development, Jordan
- Digo Bikas Institute, Nepal
- Eco-Conservation Initiatives (ECI), Pakistan
- EcoHimal Nepal
- Energy & Climate Policy Institute for Just Transition, South Korea
- Environics Trust, India
- Environmental Protection Society Malaysia
- Equity and Justice Working Group Bangladesh [EquityBD]
- Farmers' Voice (Krisoker Sor), Bangladesh
- Feminist Collective, Pakistan
- Forests and Farmers Foundation (FFF), Thailand
- Gilgit-Baltistan Social Welfare organization, Pakistan
- Gitib, Inc., Philippines
- Green Movement of Sri Lanka Inc.
- Greenovation Hub, China
- Growthwatch, India
- Haqooq e Khalq Movement (HKM), Pakistan
- Himalaya Niti Abhiyan, India
- Indian Social Action Forum (INSAF)
- Integrated Regional Support Program, Pakistan
- Karavali Karnataka Janabhivriddhi Vedike, India
- KIRDARC, Nepal
- Koalisi Rakyat untuk Hak atas Air (KRuHA), Indonesia
- Labour Education Foundation, Pakistan
- MACDI, Việt Nam
- MAKABAYAN – Pilipinas
- Mom Loves Taiwan Association
- Movement for Advancing Understanding on Sustainability And Mutuality (MAUSAM)
- Nadi Ghati Morcha – India
- National Hawker Federation India, India
- New Zealand Climate Action Network
- Nuclear Free Bataan Movement (NFBM) – Philippines
- Pakistan Fisher Folk Forum
- Pakistan Kissan Rabita Committee (PKRC), Pakistan
- Pambansang Koalisyon ng Kababaihan sa Kanayunan/National Rural Women Coalition, Philippines
- Philippine Advocates for the Care of Our Planet, Inc
- Philippine Movement for Climate Justice (PMCJ)
- Progressive Academic Collective, Pakistan
- Progressive Students Collective, Pakistan
- Rural Reconstruction Nepal
- Sahabat Alam Malaysia
- Sawera Foundation, Pakistan
- SDS (Shariatpur Development Society), Bangladesh
- SETU, Bangladesh
- Solidaritas Perempuan
- South Asia Partnership, Pakistan
- South Asian Forum for Environment, India
- SUPRO (Campaign for Good Governance), Bangladesh
- Tadbeer Research & Consulting, Afghanistan
- Talash Foundation, Pakistan
- TFINS, INDIA
- UDYAMA, India
- VOICE, Bangladesh
- Wahana Lingkungan Hidup Indonesia (WALHI)
- Women's Alliance for Climate Justice, Thailand
- YouthNet for Climate Justice, Bangladesh
- Zambales Lingap Kalikasan, Philippines
- Zo Indigenous Forum, India

EUROPE

- Amigos de la Tierra (FoE Spain)
- An Taisce – The National Trust for Ireland
- Attac France
- BUNDjugend (Young Friends of the Earth Germany)
- Climate Alliance Switzerland
- Co-ordination Office of the Austrian Bishops' Conference for International Development and Mission (KOO)
- Community Work Ireland
- Ecologistas en Acción, Spain
- Faith for the Climate, United Kingdom
- Fossil Free Sweden
- Foundation for GAIA (GAIA), United Kingdom
- Fresh Eyes, United Kingdom
- GLOBAL 2000, Austria
- Helvetas Swiss Intercooperation
- International-Lawyers.Org
- Jordens Vänner – Friends of the Earth Sweden
- Leave it in the Ground Initiative (LINGO), Germany
- NOAH Friends of the Earth Denmark
- Maan ystävät ry - Friends of the Earth Finland
- Share The World's Resources, United Kingdom
- The Greens Movement of Georgia
- United Kingdom Without Incineration Network (UKWIN)
- Uplift, United Kingdom
- Zero Waste Alliance Ireland

LATIN AMERICA

- Centro de Estudios y apoyo Al desarrollo Local, Bolivia
- CESTA Friends of the Earth El Salvador, El Salvador
- Defensores do planeta
- Instituto del Tercer Mundo, Uruguay
- Movimiento Ciudadano frente al Cambio Climatico, Peru
- Por la Tierra AC, México

NORTH AMERICA

- Alaska Clean Water Advocacy, United States
- Anthropocene Alliance, United States
- Association for the Tree of Life, United States
- Association québécoise de lutte contre la pollution atmosphérique AQLPA, Canada
- Canadian Engaged Buddhism Association
- Canadian Interfaith Fast for the Climate
- Canadian Unitarians for Social Justice
- Canadian Voice of Women for Peace
- Center for Biological Diversity, United States
- Citizens Climate Lobby Canada
- Climate Action Network Canada
- Climate Action Now, Canada
- Climate and Development Lab, Brown University, United States
- Climate Crisis Policy, United States
- Climate Reality Project Canada
- ClimateFast, Canada
- David Suzuki Foundation, Canada
- Earth Action, Inc., United States
- EcoEquity, United States
- Environmental and Climate Justice Hub, University of California, United States
- Environmental Defence Canada
- ENvironnement JEUnesse (ENJEU), Canada
- Franciscan Action Network, United States
- Friends of the Earth Canada
- Friends of the Earth U.S.
- Grand(m)others Act to Save the Planet GASP, Canada
- Green 13, Canada
- Green Neighbours 21, Canada
- Hawai'i Institute for Human Rights, United States
- Indigenized Energy Initiative, United States
- Institute for Agriculture and Trade Policy, United States
- Institute for Policy Studies Climate Policy Program, United States
- Just Earth, Canada
- Physicians for Social Responsibility Pennsylvania, United States
- Serengeti Watch, United States
- Stop Line 9 Toronto, Canada
- Sustainability and Education Policy Network, Canada
- Toronto350, Canada
- Turtle Island Restoration Network, United States
- Vegans & Vegetarians of Alberta, Canada
- Windfall Ecology Centre, Canada

OCEANIA

- Aotearoa New Zealand Human Rights Foundation
- ARRCC (Australian Religious Response to Climate Change)
- Climate Change Balmain-Rozelle, Australia
- Climate Justice Programme, Australia
- College of Nurses, New Zealand
- New Zealand Climate Action Network

CONTENTS

Aerial view of devastated country with many coal mines in East Kalimantan, Borneo, Indonesia. © lukaszemanphoto / Shutterstock.com

EXECUTIVE SUMMARY

In the nearly three decades since the negotiations of the UNFCCC began, human society has failed to stop loading the atmosphere with our greenhouse gas pollution. The resultant climate crisis is hitting the most vulnerable people in less wealthy countries first and hardest. We now all face the reality of climate change - an existential threat on par with weapons of mass destruction and nuclear war. This report provides a sharp, much-needed focus on the main cause of our existential crisis - fossil fuel production. Rather than lofty emissions reduction targets decades in the future, this report focuses on the need to immediately stop the expansion of fossil fuel extraction and use, and on how a rapid phase out of existing production can be undertaken in an equitable manner. This report features thirteen country profiles to demonstrate the diversity of challenges and opportunities in addressing fossil fuel production at the national as well as international level, and highlights real world challenges and opportunities playing out in these countries. It presents an initial framework for addressing "supply-side equity" issues relating to the phaseout of fossil fuel extraction, as well as a number of possible solutions including both national and international interventions. Building on previous CSO Equity Review reports, it also includes an updated equity assessment of NDCs demonstrating how current pledges for climate action remain deeply inadequate and unjust.

THE CLIMATE EMERGENCY IS A SYSTEMIC CRISIS WITH FOSSIL FUELS AT ITS CORE

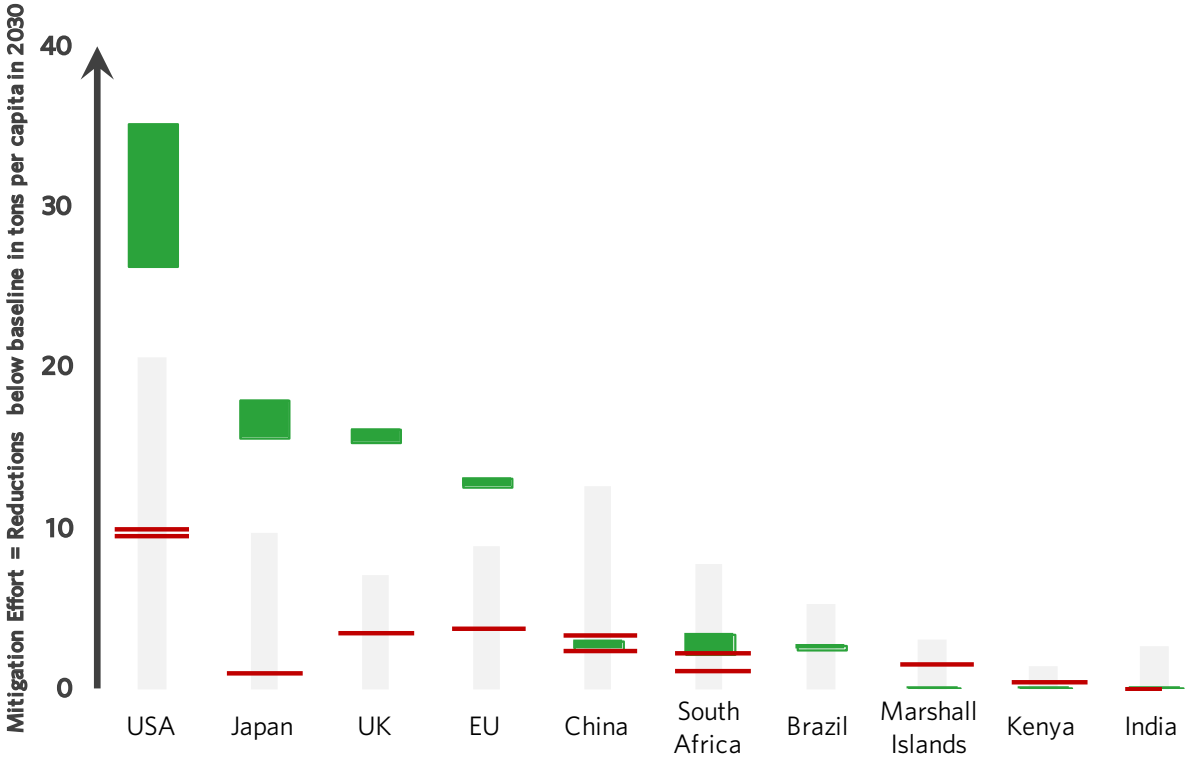
This report starts with recognition that the climate emergency must be understood as a crisis intertwined with myriad other crises. It is an expression of long-standing structural injustices, exacerbated on a daily basis by elites and a wealthy minority of the world's population, and is a direct result of historical pollution compounded by decades of deliberate delaying tactics by the fossil fuel industry. The crisis is here and now. Every fraction of a degree increases the risks of crossing irreversible tipping points that may unleash cascading impacts. Greenhouse gas emissions, and hence, their primary source - fossil fuel production - must be phased out as rapidly as humanly possible if we are to avoid catastrophic damage to the climate system, nature and society.

ADDRESSING THIS SYSTEMIC CRISIS REQUIRES SYSTEMIC CHANGE AT NATIONAL AND GLOBAL LEVELS

Measures to address today's crisis must be far-reaching and drive systemic changes in the way our societies and economies function. The climate crisis can only be successfully tackled by ensuring and enabling a globally just transition. We must also address underlying structural inequities relating to trade, international debt, and the perverse fact that overall financial flows in the order of USD 2 trillion per year pass from the Global South to the Global North. Decent work, quality jobs, well-being, sufficiency and equity must guide the transition to a fossil fuel-free future.

YET CURRENT NDCS ARE INADEQUATE AND INEQUITABLE - WEALTHY COUNTRIES ESPECIALLY MUST DO MORE

We have assessed countries' NDCs against their 'fair share' of the global mitigation effort needed to transition to an emissions pathway that preserves a chance of limiting warming to 1.5°C. In general, countries' mitigation pledges are inadequate. We need more than three times as much mitigation as currently planned to get us onto a 1.5°C pathway by 2030. **While the very wealthiest countries (US, UK, EU, Japan) remain consistently far-below contributing their fair shares of the global effort, in fact, some less wealthy countries (China, India, South Africa, Kenya) have mitigation pledges reaching about — or above — their full fair shares, although others fall short.** Unless all countries markedly increase their domestic emissions reductions a future within 1.5°C will remain out of reach. For wealthier countries this also means dramatically increasing flows of international financial and technological resources to less wealthy countries. And for less wealthy countries this means emissions reductions in excess of their own fair share that are internationally supported and financed by wealthy countries.



Per Capita Fair Shares and Pledges in 2030 (tonnes of CO_2eq per capita below baseline)										
Fair Share Range	35.2 26.3	18.0 15.7	16.1 15.4	12.7 13.1	2.4 3.1	2.2 3.4	2.4 2.8	0.03 0.13	0.05 0.16	0.02 0.18
NDC (range, if applicable)	9.5 10.0	1.1	3.5	3.8	2.4 3.4	1.2 2.2	0.0	1.6	0.5	0.0
Full Decarbonization (for Reference)	20.7	9.7	7.2	8.9	12.8	7.8	5.4	3.1	1.5	2.8

Figure ES-1. Comparison of mitigation fair shares (green band) and NDC pledges (red lines). For reference, 2030 projected emissions levels are also shown (grey bar) as indicative illustration of the level of effort required for full decarbonization (all figures in tonnes of CO_2eq per capita of mitigation below baseline in 2030)

FOSSIL FUELS ARE THE OVERWHELMING CAUSE OF CLIMATE CHANGE

While the "emissions gap" is large, the gap becomes even larger when considering the "production gap" caused by fossil fuel extraction plans. Fossil fuels amount to 86% of annual carbon dioxide emissions, as well as a significant portion of methane, nitrous oxide, and black carbon emissions. Yet, fossil fuel supply side measures have been a blind spot in global climate policy, with production continuing to grow. By 2030, if it has its way, the fossil fuel industry will be extracting twice as much fossil fuel as would be consistent with 1.5°C, presenting a clear and present danger.

WE NEED A RAPID AND JUST PHASE OUT OF FOSSIL FUELS TO LIMIT WARMING BELOW 1.5°C

The necessary path is clear. To limit warming below 1.5°C we need to immediately halt new fossil fuel exploration, investment, and extraction. We must also rapidly begin phasing out already existing fossil fuel production and replace it with clean, distributed and sustainably generated renewable energy. This presents humanity with the dual challenges of how to phase down production fast enough, and how to do so in a way that is fair enough given countries differing responsibilities, dependencies and their capacities to transition. The best chance of keeping 1.5°C alive is a phaseout that is fair and widely agreed.

Science tells us that our measures must be bold; justice calls for measures that are fair. We need to chart new development pathways that are both people-oriented and planet-centered. Because different countries are more or less dependent on fossil fuels, and more or less equipped to transition, fossil fuel phase out is inextricably a challenge of distribution and equity. Given the international nature of these equity implications, true

justice and equity requires consideration of obligations within and across borders – a globally just fossil fuel phase out. This means that phase out should be pursued first and fastest at sites where current extraction and production brings the most harm to local communities and workers, and where phase out has the least social costs. Countries with high dependency and limited capacity to transition must be supported financially by those who are wealthier and less dependent.

COUNTRIES PROFILED IN THIS REPORT HIGHLIGHT THE DIVERSE CHALLENGES OF TRANSITIONING FROM FOSSIL FUELS

We ground our findings in thirteen profiles of fossil fuel producing countries with different local realities and challenges in relation to fossil fuels phase out: China, Colombia, Ecuador, India, Indonesia, Mozambique, Nigeria, Russia, Saudi Arabia, South Africa, Trinidad and Tobago, United Kingdom and United States. These country profiles address countries in a diversity of situations: large and small, rich and poor, dependent and diversified, expanding and declining producers. For each country, they examine four key issues: a) state of the fossil fuel industry; b) just transition and phase out debate; c) challenges and opportunities; and d) international action and cooperation.

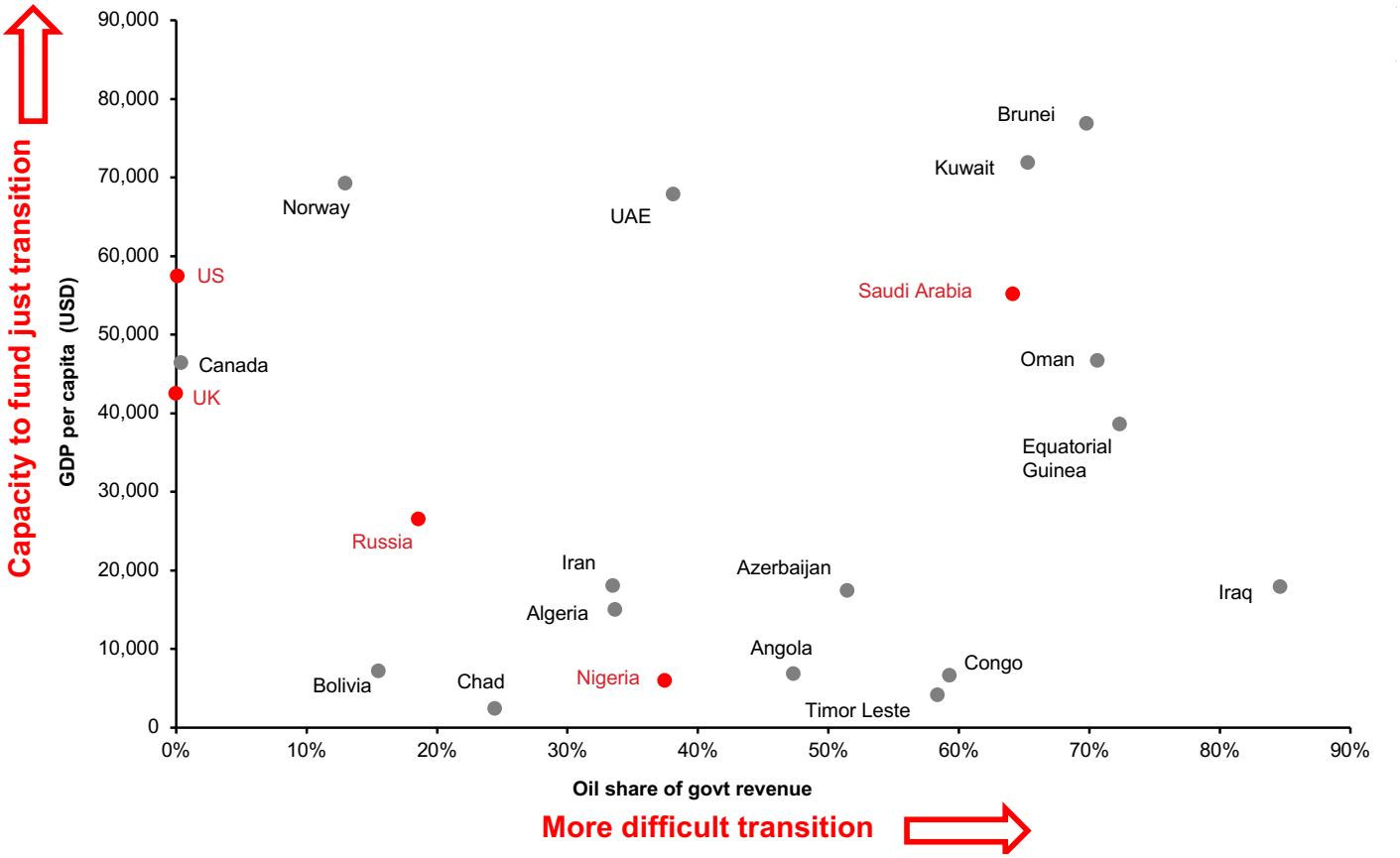


Figure ES-2. Oil's share of central government revenue vs per capita GDP (PPP) 2016 (or nearest year for which data available) for selected countries (country profiles in this report in red). (For sources see main text)

A PHASE-OUT THAT IS FAIR AND WIDELY AGREED MUST BE BASED ON THE FOLLOWING IMPERATIVES

Building on these country profiles, as well as insights from frontline struggles, climate science and principles of equity, we call for a "fair shares phase out" — to eventually eliminate fossil fuels from the global economy in time to limit warming below 1.5°C and enable a just transition for all – guided by the following imperatives:

1. GOVERNMENTS AND COMPANIES MUST END DEVELOPMENT OF ALL NEW FOSSIL FUEL PROJECTS WORLDWIDE.

To date only a few governments have committed to phasing out fossil fuel production. Most producers – including all thirteen of our profiled countries – plan to keep investing in additional fossil fuel production. The US, despite being one of the wealthiest countries with

the lowest levels of dependency, is projected to expand oil and gas production more than the next four countries combined (see Figure ES-3).

2. COUNTRIES MUST END FOSSIL FUEL EXTRACTION AND PHASE OUT EXISTING FOSSIL FUEL FACILITIES AT A PACE CONSISTENT WITH LIMITING WARMING TO 1.5°C AND IN A FAIR AND EQUITABLE MANNER.

   Limiting warming to 1.5°C requires not only that no new fossil fuel projects be developed worldwide, but that many existing fields and mines are closed before the end of their economic life. Northern countries, such as Australia, Canada, Norway, the UK and the US, should take the lead in phasing out fossil fuel production, given their greater resources to invest in just transition and their lower levels of economic dependence on fossil fuels. The UK, with less than 0.1% of public revenue from oil extraction, continues to maximise extraction, while claiming climate leadership.

3. GOVERNMENTS MUST ENABLE A JUST TRANSITION DESIGNED THROUGH SOCIAL DIALOGUE WITH WORKERS, THEIR UNIONS AND COMMUNITIES, PARTICULARLY THOSE AT THE FRONTLINES OF EXTRACTION AND RENEWABLE ENERGY EXPANSION.

   International labour movements and civil society have led calls for a just transition that protects workers, their families and communities. In South Africa just transition has long been on the political agenda. In other countries, such as Mozambique, the process is at an earlier stage. Across the board, governments can and must do more to foster inclusive and just transitions.

4. COUNTRIES MUST UNDERTAKE A RAPID TRANSITION FROM FOSSIL FUELS TO 100% RENEWABLE ENERGY, DIVERSIFY THEIR ECONOMIES AND ADOPT ALTERNATIVE DEVELOPMENT MODELS AWAY FROM DEPENDENCE ON FOSSIL FUELS.

   All countries, whether fossil fuel producers or consumers, will need to transition to 100% renewable energy. Countries dependent on fossil fuel production must also diversify their economies, yet in most of the country profiles, efforts to diversify are limited. For less wealthy countries, diversification will require international finance. None of the countries profiled are looking towards a full transition to renewables, or an economy beyond fossil fuels.

5. WEALTHY COUNTRIES MUST MASSIVELY SCALE UP CLIMATE FINANCE AS PART OF THEIR FAIR SHARE OF GLOBAL CLIMATE ACTION AND COOPERATE INTERNATIONALLY TO ENABLE SOUTHERN COUNTRIES IN THE TRANSITION.

   Wealthy countries must immediately end all financing for all fossil fuels. At the same time, they must scale up finance for phaseout efforts by less wealthy and more dependent countries. A vastly greater scale of finance is required than reflected in the unfulfilled climate financing targets under the UNFCCC for emissions reductions, adaptation and loss and damage by wealthy countries.

6. GOVERNMENTS, COMPANIES AND INVESTORS MUST PROVIDE REPARATIONS WHERE EXTRACTION AND FOSSIL FUEL PROJECTS VIOLATE HUMAN RIGHTS AND CAUSE IRREPARABLE DAMAGE.

   Civil society in several of the countries profiled are demanding reparations by governments, companies and investors to clean up and remediate large scale harm caused by the extraction and production of fossil fuels. Their calls for reparation of social and ecological damage, based on the polluter-pays principle and repayment of ecological and climate debt, must be heard.

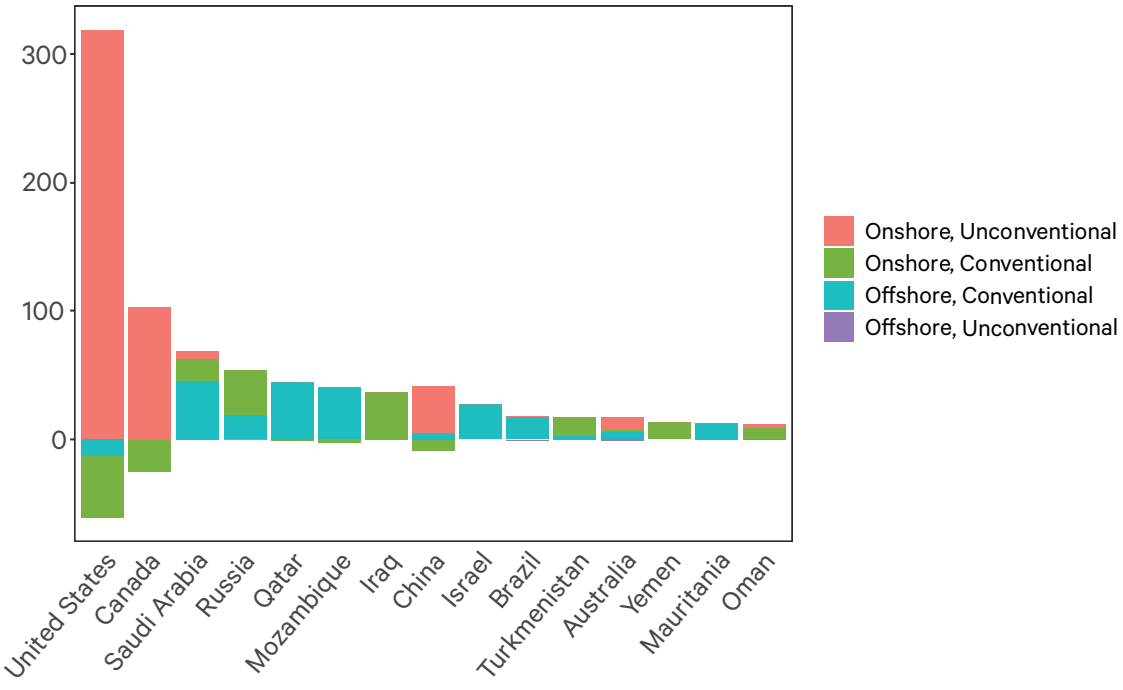


Figure ES-3: Industry projections of increase in annual gas production 2030 compared to 2019. [Source: SEI, Trends in Fossil Fuel Extraction (2021)]

COUNTRIES MUST SCALE UP DOMESTIC MEASURES TO EFFECTIVELY TACKLE FOSSIL FUEL PRODUCTION

Producing countries can reduce fossil fuel supply by placing restrictions, bans or moratoria on drilling permits, extraction, production or exports. They should also rapidly reduce and ultimately remove state producer subsidies and funding for fossil fuels, such as tax breaks for drilling costs, below-market rates for land leases, and financing of overseas fossil fuels operations, as well as divesting state-controlled investment funds from companies involved in fossil fuel production. There must be an immediate end to public financing of all fossil fuels at home and abroad.

AT THE INTERNATIONAL LEVEL, COUNTRIES MUST RAMP UP AMBITION AT THE UNFCCC ON FOSSIL FUEL PRODUCTION

To realize the temperature goal of the Paris Agreement, Parties to the UNFCCC should work to ensure the following critical outcomes within the climate negotiations:

- Significantly strengthen NDCs to align with the scale, pace and fair sharing required to keep temperature rise below 1.5°C;
- Explicitly include fossil fuel supply side measures in NDC roadmaps;
- Ensure wealthy countries deliver adequate finance and technology via key UNFCCC bodies with timelines and targets;
- Engage in negotiations and deliver outcomes relating to economic diversification;
- Report on just transition and fossil fuel exit under the transparency framework;
- Address the need for an equitable transition in the Global Stocktake.

THERE ARE ALSO A RANGE OF EMERGING BUILDING BLOCKS OUTSIDE THE UNFCCC

While the UNFCCC remains a key multilateral forum, complementary efforts are evolving as building blocks for a strengthened regime toward an equitable fossil fuel phase out:

- International cooperation often starts with a small set of concerned countries coming together to discuss their issues and to figure out what they can do collectively. First movers clubs such as the new Beyond Oil and Gas Alliance (BOGA) are a promising development.
- The Production Gap Report, as well as lessons learned from tackling other global threats, such as nuclear weapons and ozone depletion, demonstrate the importance of enhanced government transparency and accountability, through measures such as a Global Fossil Fuel Registry.
- An international treaty on fossil fuel production. Momentum is building for a formal process to deliver a negotiated legal instrument on the managed transition from fossil fuels, such as that articulated by the Fossil Fuel Non-Proliferation Treaty Initiative.[1]

THE TRANSITION WILL REQUIRE NEW EFFORTS TO MANAGE INTERNATIONAL ENERGY, CAPITAL MARKETS, AND RULES GOVERNING THE GLOBAL ECONOMY

Support for national measures will need to be complemented by measures to manage the international economic dimensions of the transition. Governments and public financial institutions must take immediate steps to end all types of support for the fossil fuel industry. Financial regulators can deploy enhanced regulation and risk disclosure to align finance with an equitable transition. An orderly phase out will also require a range of measures on both the demand and supply side of energy markets to ensure price stability for producers and consumers. An enhanced dialogue on diversification is also needed to identify mechanisms to ensure that transitions are fast and fair. Fossil fuel expansion in many Southern countries is being driven by debt dependency. To support a globally just transition, debt cancellation is required through a global, transparent and democratic mechanism to address unsustainable and illegitimate debts.

A GLOBALLY JUST TRANSITION REQUIRES REAL SOLUTIONS AND NOT DANGEROUS DISTRACTIONS

Finally, a key finding of the report is that we need action to phase out fossil fuels now. Distant and hollow net-zero targets based on carbon offsets, unproven and risky carbon capture and storage technologies, claims that fossil gas is a "transition fuel," geo-engineering and a host of other false and dangerous distractions must be avoided.

FIVE RECOMMENDATIONS TO EQUITABLY ALIGN FOSSIL FUEL PRODUCTION WITH 1.5°C

1. Delivering on long overdue commitments from the Paris Agreement (and previously), particularly the wealthiest polluters must contribute their "fair share" to solving the crisis by cutting emissions deeper and faster while cooperating with less wealthy nations by providing climate finance for technology, adaptation, as well as loss and damage.

2. Recognizing fossil fuels as the key contributor to the climate crisis and creating new pathways and international platforms to urgently end expansion, phase down production, and fast-track just transitions for all countries and communities;

3. Prioritizing international cooperation with fossil fuel dependent countries that are least able to adjust by providing resources for renewable energy systems, workers' and communities' just transitions, as well as broader economic diversification and transformation;

4. Strengthening the building blocks of a fair shares phase out, which could include a First Movers Club of countries committed to ending the financing and extraction of fossil fuels, a Registry of global fossil fuels reserves to increase transparency and accountability, a Commission dedicated to carrying forward diplomatic discussions towards a phase out, and enhanced international legal instruments such as a fossil fuel non-proliferation treaty to equitably align production within 1.5°C;

5. Changing rules of global trade, investment, finance and technology to increase "policy space" for governments expediting emergency policies and exploring new programs to encourage commerce that respects the rights of people and the planet over profit.

We need leaders, many of them still too bound by fossil fuel interests, to break away and stand on the right side of history, and do what is expected from leaders - to heed the sirens of climate science and provide leadership in phasing out fossil fuels, in order to avert the worst and most catastrophic climate change. To safeguard a future that leaves no worker, community or country behind, we need new models of development and profound systems change -- we need a globally just transition from fossil fuels.

Flaring of associated gas at an oil well. © Leonid Ikan / Shutterstock.com

CHAPTER 1
INTRODUCTION

In the nearly three decades since the negotiation of the UNFCCC, industrial society has failed to stop loading the atmosphere with our GHG pollution. Now, in line with decades of predictions, the climate has grown increasingly unstable, and is wreaking havoc around the world with devastating wildfires, heat waves, hurricanes, and floods now too frequent to track.

Warming has reached more than 1.1°C above pre-industrial levels, and the action needed to keep warming well below 1.5°C is unprecedented in scale. We face the need for almost unimaginable transformation, yet we have no choice but to try. The longer we continue to extract oil, gas, and coal from the ground and spew carbon dioxide into the atmosphere, the closer we stumble to a climatic destabilisation that will devastate vulnerable communities everywhere, with those in less wealthy countries being hit first and hardest.

The social movements, environmental and development NGOs, trade unions, faith and other civil society groups that have come together to present this report represent a wide spectrum of organisations, but share two firm convictions. The first is that climate change is a true crisis that demands an emergency response. The second is that *equity matters.* Not only because it is a good in itself, but equity also matters because it is the key to cooperation – and cooperation is indispensable in addressing the climate crisis. Climate change is the most profound "commons problem" humanity has ever faced, and it can only be managed with durable and robust cooperation.

Extreme inequality, both within and between countries, cannot be treated as an unrelated matter. If the challenge of climate stabilisation – driving global carbon dioxide emissions toward zero by 2050 – is to be achieved, the effort must proceed by creating just, inclusive and very low carbon development pathways. While all countries and people should be expected to contribute earnestly to this global effort, those contributions must be fairly distributed. They certainly cannot demand climate actions that are too large to be met without undue cost and hardship by poorer countries and people contending with other immediately pressing developmental objectives.

An equitable path forward is critically necessary, one in which all countries do their fair share to quickly bring global GHG emissions to zero. In this report, we provide a summary assessment of countries' pledged mitigation efforts in comparison to their fair shares of this effort. The inadequacy of current approaches focusing wholly on reducing emissions is absolutely evident. The NDCs -- even accounting for recent resubmissions -- are patently inadequate. There are still very powerful political and economic lobbies pushing for fossil energy investment, and massive political-economic pressure to support them. There are also countries, many of them developing countries, that have deeply entrenched economic dependence on fossil fuel extraction, with complex and disparate impacts. Even while extraction zones suffer environmental degradation and their local populations face oppression, other people rely on the fossil industry for jobs and the public sector draws revenue that is invested -- at least partially -- in public goods.

The prospects for adopting and effectively implementing strong emissions policies is diminished and undermined in a variety of ways in the absence of addressing production. Economically, policies that reduce demand suppress prices of fossil fuel supply, which weakens efforts to reduce emissions by decreasing demand. Politically, demand side policies are routinely undermined by the obstructionist tactics of fossil fuel interests, which still remain economically powerful and politically influential. Socio-culturally, without explicit and visible supply-side efforts, the continued production of fossil fuels is normalized, which undermines the public understanding of the importance and urgency of climate action. Not least, societies ignore whole portfolios of policies that could help to rapidly reduce emissions. Supply-side approaches must be added to the policy tool chest.

The CSO Equity Review coalition came together in 2015 at COP 21, a key political moment, to make a strong collective statement about the imperative for countries to do their fair share to reduce global emissions. Now, at COP 26, we have arrived at another key political moment, and the coalition is coming together to call for countries to do their fair share to phase out fossil fuel extraction. These are two sides of the equity-based strategy for stabilizing the climate and preserving a world in which human civilisation can thrive.

Over the pages that follow, we address the following issues:

Chapter 1: "Introduction" to *CSO ER 2021* sets the table for readers with a synopsis of the latest climate science, international climate negotiations and why equity issues are so important for getting meaningful global climate cooperation.

Chapter 2: "The Climate Emergency-Here and Now" explains the perilous state we are in, and the full scale catastrophe we face if fossil fuel production and use is not phased out. Our focus on phasing out fossil fuel production is motivated by the fact that governments are not committing to cut enough carbon while still on course to *increase* production of fossil fuels by 2% yearly over the coming decade despite stark warnings from scientists that the world must *reduce* production by at least 6% yearly. Every moment matters in the exit from fossil fuels as every extra molecule of CO_2 in our atmosphere worsens the problem.

Chapter 3: "Fossil Fuels and Climate Change" underscores why we need to push hard for policies on the supply side. Emissions reduction policies alone have been simply unable to get us far enough in the current political economic climate. Fossil fuel interests still wield tremendous financial and political power, and they unrelentingly wield that power to preserve

the fossil fuel-dependent status quo. By ignoring this reality, and overlooking the range of supply-side policy options, we are neglecting precisely those tools best suited to break the stranglehold of fossil fuel corporations.

Chapter 4: "A Globally Just Fossil Fuel Phase out" matters because an equitable decline is the only way to create the cooperation needed to pull off a peaceful but rapid reversal of output. Otherwise, we will continue falling further behind, with prospects for preserving even a tolerably stable climate falling out of reach. Given the depth of inequalities between and within countries, any major transition has the potential to cause disruption and perpetuate existing inequities and create new ones.

Chapter 5: "Country Profiles" examines thirteen fossil fuel producing countries, chosen for their diversity of situations: large and small, rich and poor, dependent and diversified, expanding and declining producers. The profiles focus on four key issues in each country: 1) State of the fossil fuel industry; Just transition and phase out debate; Challenges and opportunities; and International action and cooperation. Our aim is that, through these profiles, citizens of other countries will have access to a range of examples highlighting aspects that may apply to them.

Chapter 6: "Solutions for phasing down fossil fuels rapidly and fairly" outlines what governments must do to keep 1.5°C alive by phasing out fossil fuels equitably, listing actions that can be taken at both the national and international levels, both inside and outside the UNFCCC, including their involvement in new initiatives focusing on a fair shares phase out, as well as transforming global economic institutions of trade, investment, finance and technology.

Laborers work in a railway coal yard on the outskirts of the city of Ahmedabad, India, June 15, 2010. © REUTERS / Amit Dave

CHAPTER 2
THE CLIMATE EMERGENCY – HERE AND NOW

We're now face to face with the reality of climate change - a true emergency of gravest magnitude, an existential threat on par with weapons of mass destruction and nuclear war. No longer a distant threat – climate change is already happening here and now, across all continents; it threatens all human societies at their core. The central message from the *Sixth Assessment Report* of the Intergovernmental Panel on Climate Change (IPCC) is crystal clear: human influence on climate is unequivocal, unprecedented, and irreversible. Climate change is not only playing out before our eyes, it is much more severe than was commonly anticipated. The attribution studies assessed by the IPCC establish that observed changes in extremes, such as heat waves, ravaging fires, devastating floods and raging storms can unequivocally be attributed to human influence on greenhouse gas (GHG) emissions.

Ecosystems are being ripped apart and species going extinct at accelerated speed. Livelihoods for millions of people are under threat or being lost – most severely and acutely for those who have contributed the least to the problem, but ultimately threatening everyone, everywhere. More than a billion children are already at 'extremely high risk' from the impact of climate change,[2] and the direct health impacts from production and burning of fossil fuels are already responsible for more than one fifth of all human deaths. The fossil fuel economy is killing many more people yearly than in war.[3]

The climate emergency must be understood as one crisis intertwined with myriad others. It is an expression of long-standing structural injustices, many of them rooted in colonial, racial and ecological exploitation. These crises are exacerbated on a daily basis by a wealthy minority of the world's population. Current levels of warming are a direct result of historical pollution compounded by decades of deliberate disinformation, lobbying and delay by the fossil fuel industry.

EVERY FRACTION OF DEGREE MATTERS

Even the goal of keeping global warming below 1.5°C – which may still be achievable if we immediately take all possible action – will mean massive additional damage, on top of the already incurred and ongoing devastating impacts of today's 1.1°C. As the IPCC's latest assessment report emphasizes – the impacts of this disruption are not felt evenly around the world; communities and ecosystems in the Global South are disproportionately affected. Though as recent wildfires and heat domes in Australia, North America and Europe attest, even the wealthy countries are ill-equipped to face even the preliminary impacts of today's already manifest warming. The scientists only corroborate what we now witness daily.

Every additional molecule of CO_2 adds to the problem, since their effects are cumulative. Every fraction of a degree increases the risks of crossing irreversible tipping points, and catastrophic cascades of disruption. All of human society, countless ecosystems, whole biomes and all that we care about is existentially threatened.

After decades[4] of delay and inaction, "dangerous anthropogenic interference with the climate system" is already occurring, and its consequences are everywhere. Clearly, there is *no atmospheric space left* for any "*safe*" resolution of the climate crisis. The safe landing zone is behind us. Now, GHG emissions, and hence fossil fuel production, must be phased out as rapidly as humanly possible if we are to avoid *catastrophic* damage to the climate system.

NO MORE DELAY – CHALLENGES OF THE "NET-ZERO BY 2050" FRAMING

We are now at a crucial moment. Our societies must pivot to real, immediate and transformative action, if we are to have any chance of avoiding full-blown catastrophe. However, instead, many actors--both countries and corporations--are declaring hollow climate targets, and announcing commitments that may appear ambitious, but are in practice dangerous distractions, and new diversions and delays.

This is particularly the case for the "net-zero by 2050" targets that have been embraced since Paris 2015 by both countries and companies. There are now more than 100 countries and more than 1,500 corporations with such distant targets, which are generally backed by little to no commitment to equity or justice, or even meaningful short term action.[5]

While it is notable that many entities are feeling the pressure to declare specific, date-limited climate commitments, it is important to scrutinise and understand their actual meanings and implications. Whether well-intended or purposefully misleading, distant net-zero targets, in the absence of the

credible near-term action that could make them real, endanger the immediate, transformative, and systemic changes that are needed.

2050 targets, in particular, delay the need to face the continuing accumulation of CO_2 in the atmosphere. Every day, week and month with continued high rates of fossil fuel production and corresponding emissions adds CO_2 to an already saturated atmospheric space. How much is produced and emitted during the next few years and this decade will determine whether we have a chance to keep heating below 1.5°C, or even well below 2°C.

And then there is the problem of "net" emissions, which provides enormous loopholes for wealthy and high emitting countries, elites and corporations to continue their fossil fuel powered and unsustainable practices and lifestyles. Rather than focusing on "real zero," emissions reductions as close to zero as possible, the "net" allows for optimistic dreams in which a continued stream of fossil carbon is safely stored in the ground, or compensated (offset) by temporary absorption in often monoculture plantations, or captured by futuristic, carbon dioxide removal technologies that have not been tested at scale nor shown to be socially and environmentally acceptable. Offsets and negative emissions technologies are likely to fuel land grabbing and human rights abuses, especially in the Global South.

Net-zero 2050 has become a convenient "get out of jail free" card for the fossil fuel producers. As an example, Royal Dutch Shell's net-zero goal assumes tree plantations three times the sizes of Netherlands[6] by 2030, which it would use to "net out" the emissions caused by its continued fossil fuel production. The problem here is enormous..

The bubble of net-zero illusions based on offsets and unproven technologies may soon burst. Over the last year there has been a flood of critique and exposure of the problems with many long-term net-zero targets . Various civil society constellations have issued reports such as "Not zero – How net zero targets disguise climate inaction,"[7] "Chasing carbon Unicorns: The deception of carbon markets and 'net zero,'"[8] and "The Big Con: How Big Polluters are advancing a 'net zero' climate agenda to delay, deceive, and deny"[9] that spotlight these problems.

Furthermore, prominent scientists are increasingly sounding the alarm. The article "10 myths about net zero targets and carbon offsetting, busted"[10] by 43 scientists from 11 countries raised considerable attention as did the exposé "The Concept of Net Zero is a Dangerous Trap"[11] by a former IPCC chair and two other scientists, which asserts that: "We have arrived at the painful realisation that the idea of net zero has licensed a recklessly cavalier "burn now, pay later" approach which has seen carbon emissions continue to soar." They and others also warn that net-zero approaches can hasten the destruction of the natural world by increasing deforestation[12] today, and greatly increase the risk of further devastation in the future.

What really matters is the imperative of immediately stopping the production and consumption of fossil fuels while simultaneously shifting to real, equitable, and sustainable solutions. This will not happen if the international politics of climate mitigation is dominated by a "net-zero" drive in which each country is on its own. True mobilisation requires the provision of significant financial and technological resources from the Global North to the Global South, resources that would support the very rapid and challenging transformation that will otherwise not occur.

Our future emissions are dependent on decisions and interventions made today. Immediate, ambitious action is what counts. In all regards, the 2050 date threatens to become a critical distraction. *Here and now* is what matters.

THE FRAMING WE NEED

This report provides a sharp, much-needed focus on fossil fuel production, one that concentrates on the *immediate* actions that are now absolutely necessary. Rather than lofty emissions reduction targets decades in the future, it focuses on the need to rapidly stop the expansion of fossil fuels, and on how their rapid phase out can be undertaken in an equitable manner. These are the actions that are needed, along with concrete measures for enabling a just transition to renewable energy and economic diversification away from fossil fuel dependencies.

The imperative of stopping fossil fuel production must be pursued by way of bold measures that chart people- and planet-centered fossil-free development paths. This must be undertaken in a spirit of international cooperation grounded in principles of equity, wherein the Global South is supported by the rich and the historically large per-capita emitters, as it seeks to build institutional capacity, acquire and develop appropriate technologies, and transition to the post fossil fuel world on their own terms.

These measures must drive deep, systemic changes in the way our societies and economies function. The climate emergency can only be successfully tackled by way of a globally just transition that questions and reassesses deep-seated, mainstream notions of progress, development, growth, markets, privatisation and the power of corporations. Of particular and immediate concern are structural inequities relating to international trade, international debt and the perverse, overall financial flows of trillions of dollars every year going the wrong way – from the Global South to the Global North. Decent work, quality jobs, well-being, sufficiency and equity must guide the transition to a fossil fuel-free future.

THE INADEQUACY AND INEQUITY OF THE NDCS

The most flagrant display of humanity's climate negligence is the current state of the national mitigation pledges. As the IPCC's *Special Report on Global Warming of 1.5°C* made clear, global emissions must fall by 45% below the 2010 levels by 2030 if we are to shift onto a pathway that provides even a modest chance of keeping warming below 1.5°C. Yet, global emissions have *risen* since 2010, and as the UNFCCC Secretariat reported in its *Synthesis Report* on the NDCs[13] (2021/10/25), today's NDCs imply a continued emissions rise to 2030, ending up *15.5% above 2010 levels*. By 2030, 90% of the budget available for a 1.5°C pathway would have been depleted. We're headed in the wrong direction and we're heading there fast.

At this point, given the past three decades of delay and obstruction, it is going to be very difficult to turn things around. It can be done – the revolution in solar and wind energy, for example, gives us hope on this front – but only if all countries, at a minimum, accept immediate responsibility for their fair share of the global effort, rather than pretending that promises to drive their domestic emissions to "net zero" in the distant future will suffice.

According to the 2021 UNEP *Emissions Gap Report*, countries' mitigation pledges for 2030 compared to their pre-Paris paths amount to only 12 $GtCO_2$ of emission reductions, whereas an earnest effort to transition to a 1.5°C pathway would require reductions of about 40 $GtCO_2$. In other words, countries in aggregate need to ramp up total global 2030 efforts by more than a factor of *three*.

Responsibility for this negligence does not lie with countries "in aggregate." Some countries, and some people, are fantastically rich, while others are not, and some have emitted huge amounts of greenhouse gases, while others still cannot meet their basic energy needs. In this context of vast disparities, it would make no sense to claim that all countries, whether they be rich and poor, can do their fair share by merely pursuing converging paths towards zero. The baseline truth here is that some countries have much greater responsibility for the emissions causing the climate crisis than others, and much higher capacity to act, owing to their higher income and wealth, level of development and access to technologies.

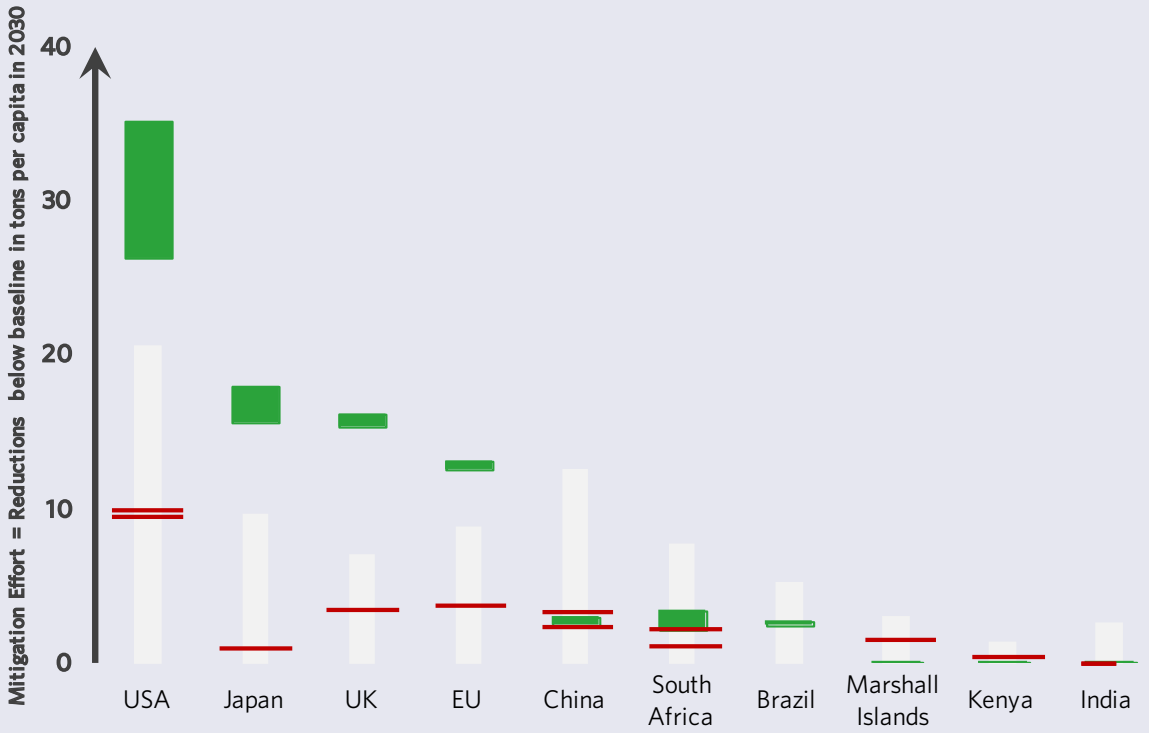
All countries and people can be expected to make real and substantive contributions to the global effort, but they cannot be expected to do so if the weight of those contributions falls on less wealthy countries and people who were already radically disadvantaged before the climate crisis arrived, and now must strive to develop even as climate impacts and disasters increase. It will be simply impossible to stabilize the planetary climate system – that is, to ramp up global efforts more than three-fold – unless the efforts demanded of countries and groups within them are very widely seen as fair. That is, countries must be seen to be contributing their *fair share* of the global effort.

Thus, like each of the five *Civil Society Equity Review* reports[14] released since the 2015 Paris COP21, this report provides an updated equity assessment of the mitigation pledges in current national NDCs. We have assessed countries' NDCs against their 'fair share' of the global mitigation effort needed to transition to an emissions pathway that preserves a chance of limiting warming to 1.5°C. Directly reflecting the core principles in the UNFCCC of 'common but differentiated responsibility and respective capabilities' and the 'right to sustainable development', this fair shares assessment accounts for both historical responsibility and capacity:

1. *Historical responsibility*: contribution to climate change in terms of cumulative emissions since a specified date; and

2. *Capacity* to take climate action: using national income over what is needed to provide basic living standards as the principal indicator.

Since historic responsibility and capacity can be quantified in different ways, the CSO Equity Review assessments consider an *equity range* defined by two distinct definitions of equity, two benchmarks that span a broad spectrum of possible interpretations of historic responsibility and capacity. One benchmark reckons historical responsibility for GHG emissions from 1850 – a date reflecting the beginning of industrialisation and growth in carbon dioxide emissions – and the other from 1950 – reflecting the post-WWII boom in fossil fuel-intensive infrastructure in many countries, whose subsequent economic growth and current prosperity owes much to those investments. The first benchmark also defines capacity in a manner that is distinctly progressive – in the sense that it counts a dollar earned by a rich person more strongly toward a country's capacity than a dollar earned by a poor person, whereas the second benchmark is more modestly progressive[15].



Per Capita Fair Shares and Pledges in 2030 (tonnes of CO_2eq per capita below baseline)										
Fair Share Range	35.2 26.3	18.0 15.7	16.1 15.4	12.7 13.1	2.4 3.1	2.2 3.4	2.4 2.8	0.03 0.13	0.05 0.16	0.02 0.18
NDC (range, if applicable)	9.5 10.0	1.1	3.5	3.8	2.4 3.4	1.2 2.2	0.0	1.6	0.5	0.0
Full Decarbonization (for Reference)	20.7	9.7	7.2	8.9	12.8	7.8	5.4	3.1	1.5	2.8

Figure 1. Comparison of mitigation fair shares (green band) and NDC pledges (red lines). For reference, 2030 projected emissions levels are also shown (grey bar) as indicative illustration of the level of effort required for full decarbonization (all figures in tonnes of CO2eq per capita of mitigation below baseline in 2030)

Figure 1 above shows[16] fair shares of nine countries plus the European Union, as compared to the mitigation pledges in their NDCs. For each country, the green band gives its fair share range, as defined by the two equity benchmarks noted above. In fair-shares terms, countries at approximately the same level of economic development would need to make similar efforts. Not surprisingly, the fair shares of countries at very low levels of economic development, such as Kenya and India, are quite a bit smaller than those at much higher levels of economic development, such as the US and the EU.

The results shown in Figure 1 and the table clearly show that the wealthiest among the countries shown have dismal NDC pledges (red lines), falling far short of their fair share of global emissions (green area). The EU, UK and USA have pledged roughly between 1/5th and 1/3rd of their fair share, while Japan has pledged at the very most 1/15th of its fair share.

For less wealthy countries, the picture is varied. The fair share range for China essentially falls between the more ambitious and less ambitious ends of its NDC target.[17] The upper end of South Africa's new NDC range essentially matches its fair share range, while Marshall Islands' and Kenya's NDCs exceed their respective fair shares. Brazil's NDC would allow energy and industry emissions to be *higher than they would be with no NDC at all*; thus, this assessment considers Brazil to have in essence made no pledge at all in these sectors. India's NDC (yet to be updated) also implies no further mitigation, and so it is shown here as zero, although it has already implemented policies that would reduce its emissions even beyond it's fair share.

For reference, the figure also shows (shaded bar) the projected 2030 baseline emissions level of each country, to roughly indicate the scale of the domestic emissions reductions that would be needed to eventually reach zero emissions. The key point here is that the wealthier and historically higher-emitting countries' have fair shares that exceed their domestic emissions. For example, the US fair share corresponds to an absolute minimum of 140% reduction below today's levels in 2030. This, clearly, is a target that cannot be achieved by domestic action alone, yet it is a natural consequence of defining a country's fair share of the global effort in proportion to its share of global capacity and responsibility. The converse is also the case. Poorer and historically lower-emitting countries typically have fair shares (of the global mitigation gap) that are smaller than their projected domestic emissions, and often much smaller. They too must achieve zero emissions – and therefore make mitigation pledges in their NDCs that exceed their fair shares – if we are to stabilize the global climate system, but we must not pretend that this is going to happen unless they are supported in the effort needed to close the gap.

We can still stabilize the climate system, but not without international cooperation and support! Wealthy nations such as the US *can* fully deliver their fair share of the global effort *as long as they provide support for substantial additional climate action in other countries*. This is a key feature of our approach to climate equity, and one of the reasons it is widely considered to accurately capture the ethical core of the climate challenge.

Note the clear implication – pledges of very substantial international finance and cooperation must be articulated alongside wealthier countries' domestic emissions reductions pledges. However, since no countries have expressed finance pledges for 2030, they cannot be assessed here. There are some woefully insufficient finance pledges on the table, but as one of our earlier analyses demonstrated,[18] they do not substantially alter this assessment.

Smokestacks and cooling towers of coal fired power plants. © I. Noyan Yilmaz / Shutterstock.com

CHAPTER 3
FOSSIL FUELS AND CLIMATE CHANGE

Fossil fuels are overwhelmingly the main driver of climate change, amounting to 86% of annual carbon dioxide emissions over the last 10 years,[19] as well as a significant portion of methane, nitrous oxide, and black carbon emissions. Yet, for the nearly three decades since a global climate treaty was agreed, fossil fuel supply side measures have been a blind spot in climate policy. Unsurprisingly, fossil fuel production has steadily grown, and governments and corporations seem intent on continuing this growth, even though it is clear to all that fossil fuel use needs to be phased out.

This lesson has been illustrated most graphically (see Figure 2 below) in the 2021 *Production Gap Report*,[20] which assessed national fossil fuel production plans and projections (red line), and compared them to 2°C and 1.5°C pathways (green and blue bands, respectively) as reported in the IPCC *Special Report on Global Warming of 1.5°C*.[21] The result is that the fossil fuel sector's current course is vastly at odds with our shared global climate protection objectives.

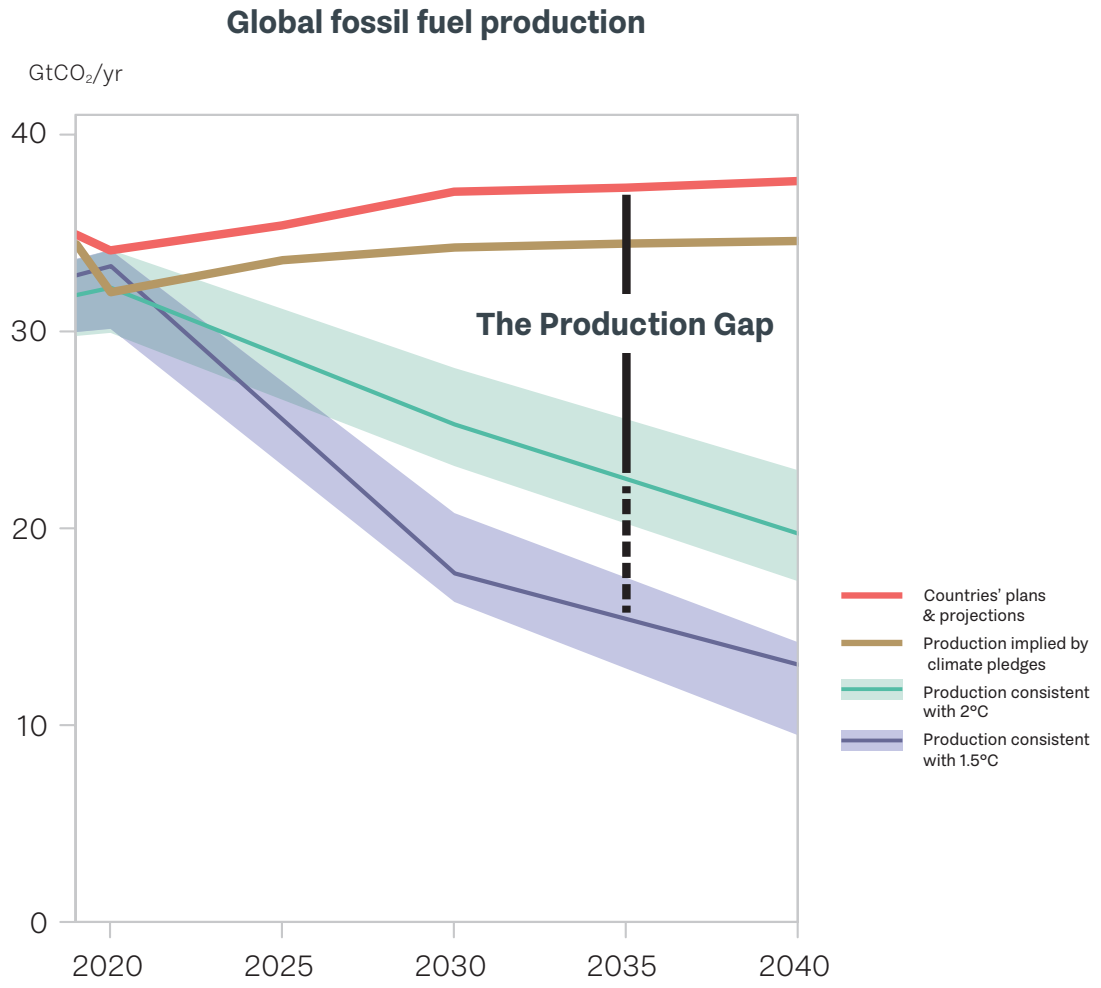


Figure 2: The fossil fuel production gap — the difference between national production plans and low-carbon (1.5°C and 2°C) pathways (Source: SEI, IISD, ODI, E3G, and UNEP. (2021). *The Production Gap Report: 2021*)

The current fossil fuel production trajectory (red line) clearly shows the fossil fuel industry is entirely neglecting the international consensus that climate change must be reined in. The fossil fuel industry is in the process of creating "facts on the ground," as its plans, projections, exploration, investments, and construction projects continue to amass momentum in the opposite direction of a fossil fuel phase out. The *Production Gap Report* concluded that the fossil fuel industry is set to expand fossil fuel production at 2% per year, while it should be phasing out extraction at 6% per year, if it were taking seriously the global commitment to limit warming to 1.5°C. Instead, by 2030, if it has its way, the industry will be extracting ***twice*** as much fossil fuel as would be consistent with 1.5°C. Importantly, and this is a point that deserves much more attention than it has received, the planned fossil fuel production pathway is ***even farther off track*** than the NDCs (brown line).

THE POLITICAL ECONOMICS OF CLIMATE CHANGE

"Climate action failure" was ranked as the greatest global risk by top CEOs at the World Economic Forum in 2020, yet the world they master is failing to act on climate, in large part due to opposition by the fossil fuels industry. The political economic forces keeping us on the path of planetary suicide includes producers, investors and a political elite suported by a fossil fuel lobby. This is of course a central problem of the climate transition, which can only happen fast enough if powerful factions of the business class support it, even though it will inevitably involve transformational political and social changes.

It's not enough to reduce emissions and expand renewables without addressing fossil fuel production and the political corruption that enables it. Truly doing something about fossil fuels and climate change on the time-scale needed requires more than tweaking consumer behaviour but instead outing the political economic dynamics polluting the planet beyond repair. We must rein in the fossil fuel industry, investors and their policies by putting people and the planet first.

Fossil fuels persist as the energy mainstay of the global economy because fossil fuel interests wield tremendous financial and political power, and because they wield this power to protect their short-term, sectoral interests. This must change.

Fossil fuel interests have made massive and highly strategic investments in undermining the public discussion of climate change, and have promulgated the myth that climate science is poorly understood and hotly debated among scientists, to the point that many people believe climate change is a "hoax."[22] Fossil fuel interests now wield tremendous political influence,[23] capturing the most powerful political actors in the most polluting countries.

Supercharging the last century of military, industrial, financial and political power, fossil fuels' financial and ideological leadership has brought humanity to the brink and it continues today to undermine climate action to maintain its status quo. By political interference, obfuscating climate discourse, harassment of scientists, the capitals of top producers, consumers and financiers of fossil fuels are historically and currently controlled by fossil fuel interests.

The US — now the world's largest producer of both oil and gas — is an excellent example. Its political have long been driven by the political economic dynamics of Big Oil and Dark Money, resulting in, for example, the 2010 Supreme Court's *Citizens' United* decision, which allowed the unlimited, undisclosed spending by the billionaire Koch brothers' influence network of campaign contributors, academic agents, think tanks and media manipulators undermining democratic governance. This same political dynamic is reproduced -- to greater or lesser degrees -- across the world, with the continued expansion of extraction frontiers (Sub-saharan Africa, Western Amazon) threatening to reproduce these same pathological patterns elsewhere.

The power and inertia of these political economic forces, and the fight-to-the-death nature of their effort to maintain their power, is an overwhelming reason why it is necessary to take action on the supply side. We need to deliberately exert pressure to phase out fossil fuels because simply waiting for supply to respond to a demand that declines "naturally" as mitigation policies become "more ambitious" reflects a naïve understanding of how markets actually work and little understanding of how political economics works.

Civil society and social movements are in response emphasizing that phasing out fossil fuels is not a new idea and groups have been working hard on this, with lots of lives at stake. We need to build on our momentum to focus on this fight, even though traditional climate policy generally ignores the issue. Guiding many groups' efforts is the Lofoten Declaration drafted by frontline community leaders and climate campaigners from around the world calling for an equitable phase out of fossil fuels.

As discussed above, the necessary path is clear. We need to begin phasing out fossil fuels immediately, as an absolute necessity, and fossil fuel exploration, investment, and extraction must also be halted immediately. In the utterly unambiguous words of the recent report of the International Energy Agency's 2021 *Net Zero Roadmap:*[24]

> ***"There is no need for investment in new fossil fuel supply in our net zero pathway. Beyond projects already committed as of 2021, there are no new oil and gas fields approved for development in our pathway, and no new coal mines or mine extensions are required. The unwavering policy focus on climate change in the net zero pathway results in a sharp decline in fossil fuel demand, meaning that the focus for oil and gas producers switches entirely to output – and emissions reductions – from the operation of existing assets."***

While existing fossil fuels are phased out, they must be replaced with clean and sustainably generated renewables, distributed so as to provide energy services that truly support equitable and inclusive development.

The challenge that this presents humanity is to phase down in line with the now extremely daunting science, but also in a way that is widely seen as fair enough to earn a broad consensus.

LIFTING UP FRONTLINE FOSSIL FUEL STRUGGLES

Around the world, impacted communities are taking action to defend and protect their lives and livelihoods in the face of fossil fuel extraction and climate change. The country profiles included in this report provide examples of the fossil fuel industry's adverse impacts on people, communities, health, biodiversity, fresh-water, and the struggles to address them.

- The case study on Nigeria speaks of gross environmental damage in the Niger Delta, including contamination of soils and water bodies, and persistent environmental pollution, leading to health crises including cancers, birth defects, breathing difficulties and others. Fossil fuels have contributed to the brevity of life in the oil field communities which stands at an abysmal 40 years. Gas flaring has been going on for decades, despite repeated promises to end the practice. The Niger Delta has remained militarized since the early 1990s. There have been rampant human and environmental rights abuses with whole communities sacked or criminalized. The famous environmental and minority rights campaigner Ken Saro-Wiwa and eight other Ogoni leaders were executed in 1995 on trumped up charges. There is an uptick of violence by way of sea piracy, kidnappings, and murders.

- In Mozambique, the fossil fuel story is a classic example of a "resource-curse." The LNG projects have contributed to a violent insurgency, displacement of people, violation of press freedom and further corruption. The growing government debt is unsustainable. Without a change of direction Mozambique is in danger of contributing to GHG emissions globally; the same emissions that threaten its own people who face dangerous climate change

- The experience of Colombia demonstrates the claim that "mining brings welfare" is not true. Fossil fuel extracting departments, like La Guajira, are the poorest, with water conflicts, internal migration, corruption and low economic diversification. A just transition must begin with protecting all social, and environmental defenders and union activists, because currently, Colombia is highly dangerous for them.

- In Ecuador, Indigenous Peoples have successfully prevented the advance of oil extraction through peaceful resistance, mainly led by women. The Ecuadorian Constitution recognizes the rights of peoples and nature. Economic, social and environmental policies must start from these rights, which must take precedence over the rights of investors.

In these countries, and around the world, the fossil fuel industry continues to have major adverse impacts on people, nature and the climate. As part of a fair shares phase out, we call on governments, companies and investors to provide reparations where extraction and fossil fuel projects violate human rights, and on governments to enable a just transition designed through social dialogue with workers, their unions and communities, particularly those at the frontlines of extraction and sites of renewable energy expansion. We stand in solidarity with, and offer our full support for, frontline communities as the leaders we must look to as we work together for a safer future.

Coal Ore on a conveyor belt for processing in Witbank, South Africa. July 25, 2011. © Sunshine Seeds / Alamy Stock Photo

CHAPTER 4
A GLOBALLY JUST FOSSIL FUEL PHASEOUT

Fossil fuels must be rapidly phased out to combat the existential threat of climate change. Doing so is crucial to preserving a positive future for the world. Nevertheless, the distribution of gains from a phase out isn't uniformly positive. Fossil fuel extraction causes many harms (to pollution-affected frontline communities, marginalized and impoverished members of corrupt petrostates, all those threatened by climate harms), but it also generates benefits (jobs for extraction workers, public services funded by oil revenues). Because a fossil fuel phase out will disrupt the present system, creating losers as well as net winners. Just as the extraction and exploitation of fossil fuels has historically created inequities, a rapid phase out of fossil fuels (if done without care) has the potential to cause significant disruption. Given the extreme political instability that characterizes today's world system, the dangers here would not be underestimated.

Given the urgency of the climate crisis and the depth of fossil fuel entrenchment in our lives and economies, the scale and speed of the necessary phase out is unprecedented, giving less margin for sunset clauses and gradual shifts. This raises the equity stakes. With different countries being more or less dependent on fossil fuel extraction and more or less equipped for transition, the fossil fuel phase out is inextricably a challenge of distribution and equity. Given the international nature of these equity implications, a tolerably fair phaseout will require cooperation and effort sharing both within and across borders – a *globally just fossil fuel phase out*.

WHAT COULD AN EQUITABLE PHASE OUT LOOK LIKE?

A 2020 paper[25] explored the question of how to fairly phase out fossil fuels. Drawing on the existing literature and an analysis of three representative approaches to allocation (economic efficiency, development needs, and fair shares of transition efforts), they proposed five principles for an equitable phase out, as outlined here:

1. PHASE DOWN GLOBAL EXTRACTION AT A PACE CONSISTENT WITH LIMITING WARMING TO 1.5°C

Climate impacts disproportionately harm the poorest people and the poorest countries. To phase out fossil fuels at a pace slower than that consistent with a 1.5°C pathway would be to prioritise those affected by transition (e.g. fossil fuel companies and workers) over those who are most exposed to a changing climate (e.g., climate vulnerable communities and poorer countries). Yet this is a trade off we cannot make. With each passing season, climatic disruption records are shattered at a quickening pace, and evidence mounts that a destabilized climate is indeed an existential threat. It is clear now that tipping points and irreversible damages could bring us to the brink even more quickly than is commonly feared. Even 1.5°C is not "safe."

2. ENABLE A JUST TRANSITION FOR WORKERS AND COMMUNITIES

A fossil fuel phaseout must provide a just transition. This entails: creating decent new jobs by investing in alternative sectors; retraining transition-affected workers; protecting the rights and income of workers and communities during transition; and democratically engaging those stakeholders throughout. A just transition sees workers and their unions, together with other stakeholders, as key actors. A substantive transition must take social dialogue and inclusive decision making seriously. This implies much more than merely 'protecting' workers with minimal subsistence benefits while 'retraining' them for the next dangerous and exploitative job.

3. CURB EXTRACTION CONSISTENT WITH ENVIRONMENTAL JUSTICE

Any real fossil phase out must rapidly curb extraction, and any *just* fossil phase out should do so first in regions and communities that disproportionately experience the harms of extraction and not the benefits. By this we mean places where pollution despoils the environment, harms communities, and undermines livelihoods. In egregious cases where extraction takes particularly brutal forms that violate basic human rights – and there are many such cases – it should be reformed or stopped immediately. The rights of frontline communities must take precedence.

4. REDUCE EXTRACTION FASTEST WHERE DOING SO WILL HAVE THE LEAST SOCIAL COSTS

Countries have dramatically different levels of dependence on resource extraction, and widely varying capacities to diversify and avoid catastrophic economic disruption. Poorer and more fossil fuel dependent countries are at risk of greater social and economic disruption from an abrupt transition, and should be allowed a longer period to phase out, if more time would indeed be helpful. The situation is challenging given the pressing constraints of a very minimal global carbon budget. Wealthier countries are in general less vulnerable to disruption and have the economic wherewithal to invest in economic alternatives

and social protections; they should phase out most rapidly.

5. SHARE TRANSITION COSTS FAIRLY, ACCORDING TO ABILITY TO BEAR THOSE COSTS

The world has delayed climate action so long, and the remaining carbon budgets are so small, that even if extraction-dependent less wealthy countries are allowed more time, they will still need to undergo extremely rapid transitions, generally spanning less than two or three decades. These are challenging transitions that they cannot reasonably be expected to manage without support. The UNFCCC makes explicit provision for wealthier countries to provide support to less wealthy countries to enable their climate mitigation and adaptation efforts; the same should apply to enabling poorer countries to rapidly phase down fossil fuel extraction.

HOW DO COUNTRIES DIFFER IN RELATION TO PHASE OUT AND EQUITY?

Dependence and vulnerability to transitional disruption: Even if a low-carbon economy might ultimately generate many benefits (such as net job increases, cleaner air, and more diverse economies), the transitional challenges facing fossil fuel producing countries can still be enormous. Producing countries vary considerably in the extent of their dependence on fossil fuel production and the severity of the disruption that could result from a very rapid fossil phase out.

Different countries depend on fossil fuel extraction in different ways:

- **Energy supplies** - some countries depend on locally extracted fossil fuels for electricity generation, petroleum supply, etc. Example from country profile: South Africa generates almost 86% of its electricity from its locally mined coal.
- **Export revenue** - some countries depend on fossil fuel sales for foreign currency and the government revenues that enable public services, fund public sector jobs, and underpin public investment Example from country profile: Saudi Arabia's fossil fuel sales in 2016 accounted for 60% of the national budget, 75% of export revenues, and 40% of GDP.
- **Employment** - some countries have a large share of their workforce employed in fossil fuel extraction or in related upstream and downstream sectors such as engineering or petrochemicals (and poorer countries tend to have more people dependent on each salary, compounding the dependence further). Example from country profile: fossil fuels and adjacent industry account for 21 million jobs in India.

Capacity to deal with the challenges and support smooth transitions: Countries also vary considerably in the extent to which they can bear the challenges of a transition, absorbing its impacts and supporting adjustment, diversification, retraining, reinvestment, and so on. Invariably, the most critical determinant will be their available financial resources, which is highly correlated with many of the other relevant factors . A holistic account of capacity may account for factors such as:

- **Financial resources** - how much money is available to fund a just transition and invest in alternative sectors? (This can be proxied by something as simple as per-capita GNI, though metrics that also account for inequality can be more revealing).
- **Strength of non-fossil fuel economy** - how large is the non-fossil fuel economy and how able is it to grow and to absorb transitioning workers?
- **Educational and technological resources** - how equipped is the country to retrain workers at scale and speed? How much access to or ownership of clean technology alternatives does the country have?
- **Mobility and concentration** - how capital/labour intensive is the fossil fuel industry and how flexible is it to shift? How concentrated are fossil fuel extraction communities and industries to specific towns / regions?

Given these various dimensions of dependence, different indicators could reflect the extent of a country's dependence. A few are shown in the graphics below from Muttitt and Kartha.[26] Note that there is generally a strong relationship between different types of dependence.

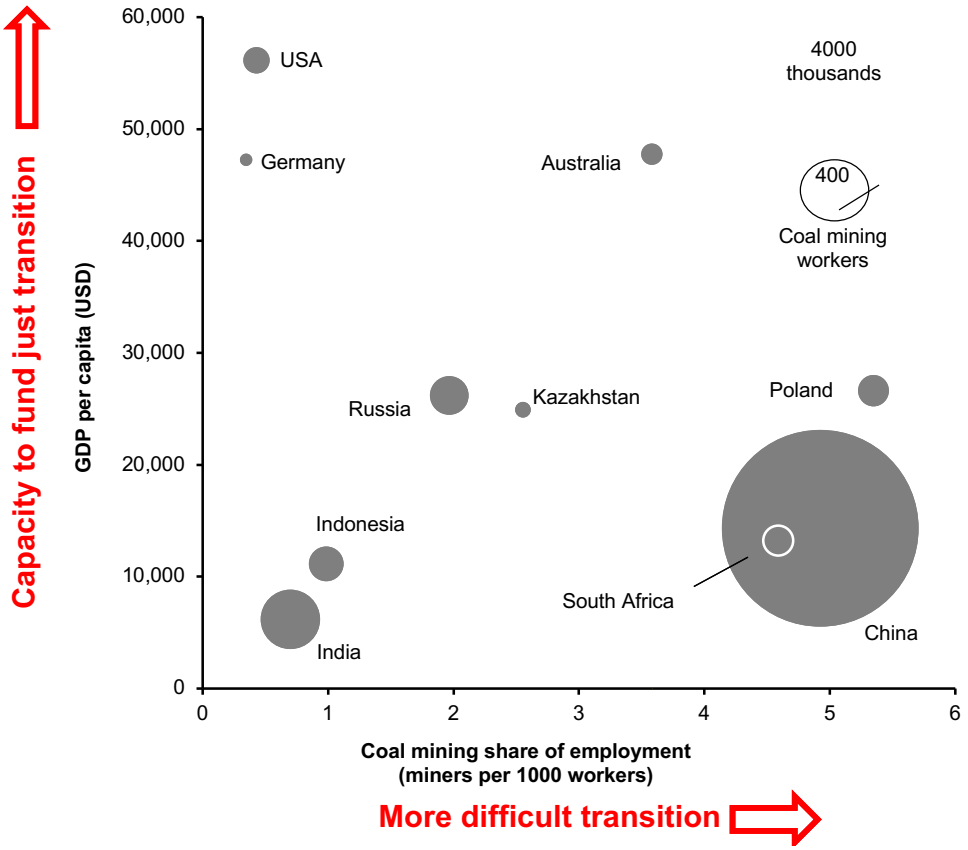


Figure 3. Coal mining share of employment versus per-capita GDP (PPP), 2015 (or nearest year with data). Size of bubbles reflects the absolute number of coal mining workers. (Source: Muttit and Kartha)

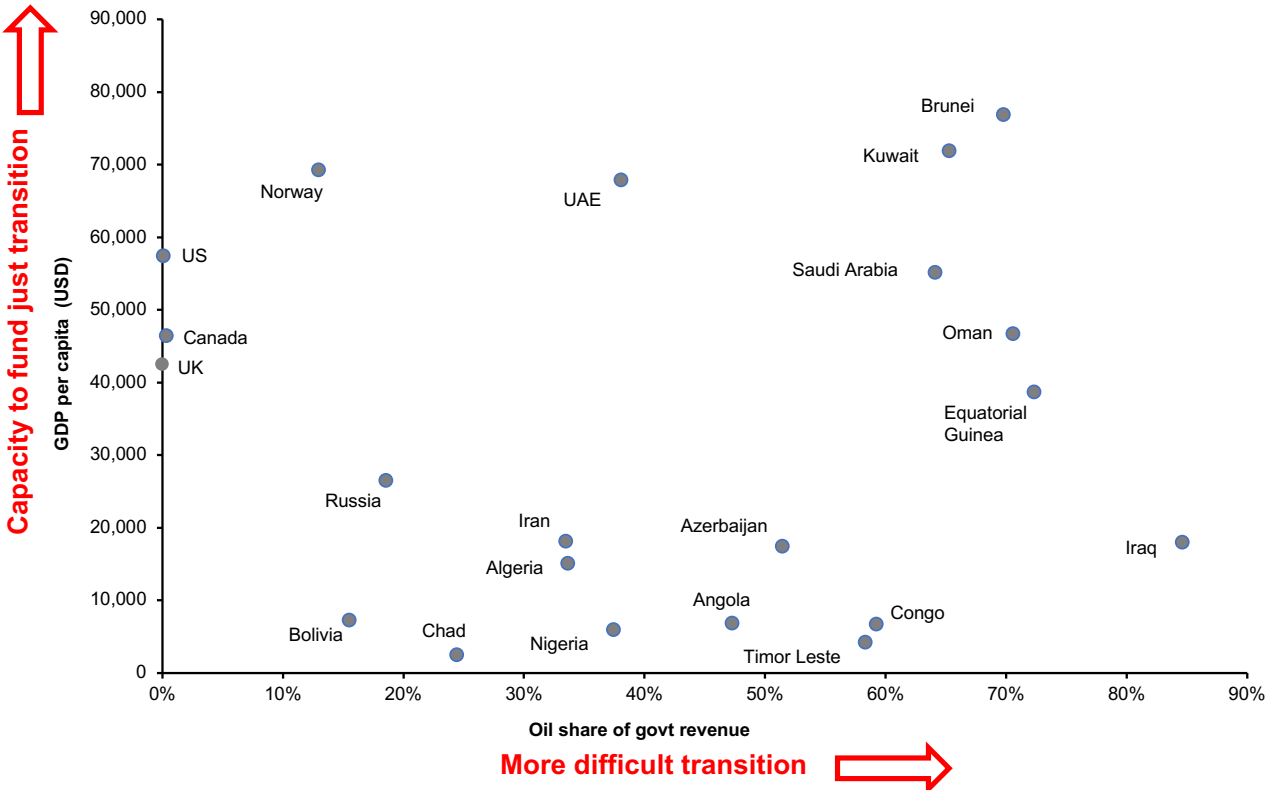


Figure 4: Oil's share of central government revenue versus per-capita GDP (PPP), 2016 (or nearest year with data) (Source: Muttit and Kartha)

WHAT DO EQUITY DIFFERENCES MEAN FOR THE WAY FORWARD?

All countries will need to contribute toward a global fossil fuel phase out. But in light of the radical difference among countries in terms of their socio-economic dependence on extraction, and vast disparities in their overall level of transitional capacity, an equitable phase out will not have all countries doing exactly the same things at the same pace.

The principles above provide general guidance, and the fourth and fifth principles in particular provide a framework for considering (i) the relative speed of different countries' fossil fuel phase out, and (ii) the relative fair shares of different countries, when it comes to providing financial support for a global phase out. The key point is that, while all countries must act to phase out their own fossil fuel production, some countries must also provide additional resources to others, who cannot otherwise be expected to decarbonize in time. Which countries will require such support? A general framework for approaching this question is illustrated in the figure below.

How capacity and dependence can influence the pace of winding down fossil fuel production and need for international support. Adapted from Muttitt and Kartha (2020).

Figure 5. Here differences in the level of dependence on fossil fuel extraction is related to the required speed of the transition, and differences in capacity is related to the obligation to provide or receive financial resources to aid in a phase out. (Taken from the *Production Gap Report, 2020,*[27] and adapted from Muttitt and Kartha)

Taking a 1.5°C limit seriously implies immediate ceasing expansion of new fossil fuel extraction, and essentially fully phasing out existing fossil fuel mines and fields by 2050, if not earlier. The challenges here are immense, and dramatically greater for lower-income, highly dependent countries. For example, in the charts above plotting indicators of dependence (x-axis) and capacity (y-axis), consider the relative situation of the United States versus South Africa in the first panel of major coal producing countries, or versus Iraq in the second panel of major oil producers.

Given these disparities, fairness is not the only issue. Realism, too, requires us to expect the wealthier, more diversified economies to phase out fossil fuel production considerably faster,. though less wealthy and more fossil dependent countries will also have to move fast if even the Paris Agreement's backstop temperature goal of "well below 2°C" is to be achievable. Bear in mind here that a more precise timing of an equitable phase out target dates, on a country-by-country basis, would require much more assessment and analysis, to more fully understand the potential scale and types of disruption, how transitional support can help, and which forms of support are most effective, and how all this can best be balanced against the overarching imperative of protecting the vulnerable – and ultimately all of us – from catastrophe.

The following section includes a set of country profiles. Each gives a brief overview of the country as a fossil fuel producer, and includes targeted discussions of how the various equity dimensions of a fossil fuel phase out unfold in that national context.

Volunteers clean the ocean coast from oil after a tanker wreck. Mauritius. © ohrim / Shutterstock.com

CHAPTER 5
COUNTRY PROFILES

Our goal in this chapter is to inform discussion, by presenting profiles of national experiences and frontline fights against fossil fuels – and for just transitions – in thirteen fossil fuel producing countries. While most climate equity discussions to date have focused on fairly sharing mitigation efforts in relation to territorial emissions, equity issues also arise for the associated phaseout of fossil fuel extraction, which will affect countries and people in different ways: workers, frontline communities, public budgets etc. Here, we examine these issues across a set of fossil fuel producing countries, chosen for their diversity of situations: large and small, rich and poor, dependent and diversified, expanding and declining producers. The profiles examine four key issues for each country: State of the fossil fuel industry; Just transition and phase out debate; Challenges and opportunities; and International action and cooperation. Our aim is that, through these concrete examples, citizens of other countries will have access to a range of examples highlighting aspects that may apply to them.

THEMES AND IMPERATIVES FOR A FAIR SHARE FOSSIL PHASEOUT

Grounded in the profiles below, as well as our analysis of a globally just phaseout in Chapter 4, arise a number of important imperatives for a fair share fossil phaseout, summarised here:

1. GOVERNMENTS AND COMPANIES MUST END DEVELOPMENT OF ALL NEW FOSSIL FUEL PROJECTS WORLDWIDE.

No longer a distant threat, climate change is already happening now, proving more severe than anticipated and threatening all human societies at their core. In this profound threat, all efforts must be made to limit warming to 1.5°C. A recent report by the International Energy Agency finds that achieving this goal leaves no room for additional oil or gas fields or coal mines, beyond those already in operation or under construction. To date only a few governments have committed to phasing out fossil fuel production; whereas many producers – including all thirteen of our profiled countries – plan to keep investing in additional fossil fuel production. The United States, for example, is among the wealthiest countries with the greatest responsibility for causing climate change, the greatest capacity to transition away from fossil fuels, and the lowest levels of dependency. As such, it should be among the first to end production. Yet industry projections show it will expand oil and gas production more than the next 4 countries combined (see graphics), threatening pathways consistent with a 1.5°C limit. Russia, too, focuses its strategic interests around fossil fuel exports, and gives little political space to climate concerns, at least until it sees demand reductions in its export markets. Indonesia's energy policy has been strongly captured by coal interests, which is even resulting in a decrease in renewable energy investment. Trinidad and Tobago exemplifies the conflict for a climate-vulnerable country: its national strategies simultaneously call for "maximisation of wealth creation" through expanded oil and gas production, and to "accelerate the transition from a fossil fuel-based economy to one ... with a low carbon footprint." The different situations of each of these countries provides important context for a fair-share phase-out.

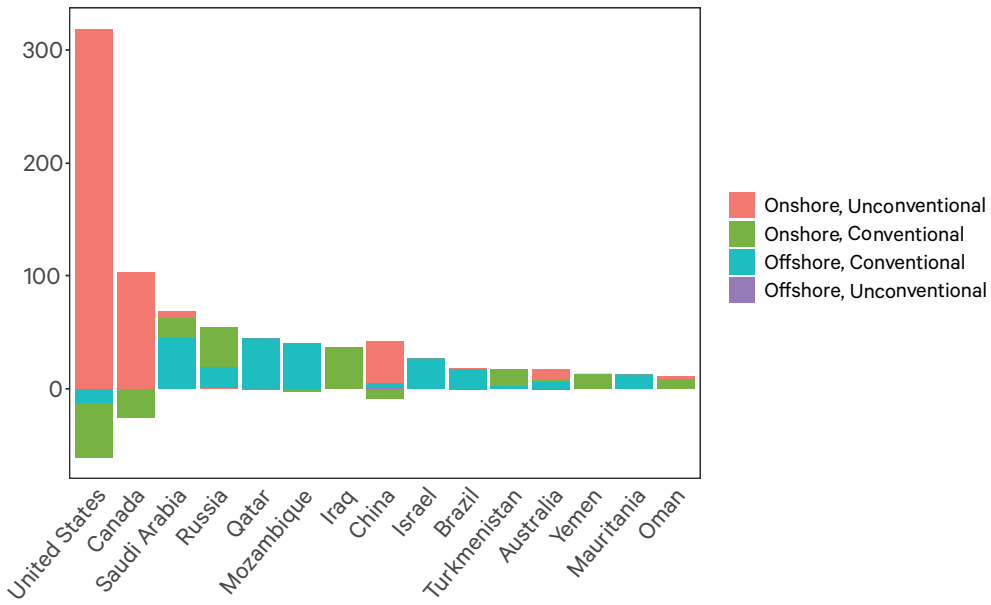


Figure 6. Change in annual gas production (bcm), 2030 vs. 2019 (Source: SEI, Trends in Fossil Fuel Extraction 2021[28])

2. COUNTRIES MUST END FOSSIL FUEL EXTRACTION AND PHASE OUT EXISTING FOSSIL FUEL FACILITIES AT A PACE CONSISTENT WITH LIMITING WARMING TO 1.5°C AND IN A FAIR AND EQUITABLE MANNER.

Limiting warming to 1.5°C requires not only that no new fossil fuel projects be developed worldwide, but that many existing fields and mines be closed before the end of their economic life. Northern countries should take the lead, given their greater resources to invest in just transition and to manage stranded assets and their lower levels of economic dependence on fossil fuels. For example, the United Kingdom receives less than 0.1% of public revenue from oil extraction, and so can rapidly end oil extraction without major social cost. As a very wealthy country, the UK as a whole should support oil-dependent regions such as northeast Scotland through the economic impacts of the transition, and provide for a just transition for workers nationwide. If it continues to maximise extraction of oil and gas, the UK will fail to show climate leadership that should be expected from a COP host. In contrast, China faces considerable challenges in weaning its energy system and industry off very high levels of coal dependence. While China – like all countries – must increase its ambition in the transition, it will likely take longer to decarbonise than more developed economies whose energy systems are more diversified.

3. GOVERNMENTS MUST ENABLE A JUST TRANSITION, DESIGNED THROUGH SOCIAL DIALOGUE WITH WORKERS, THEIR UNIONS AND COMMUNITIES, PARTICULARLY THOSE AT THE FRONTLINES OF EXTRACTION AND SITES OF RENEWABLE ENERGY EXPANSION.

International labour movements and civil society have led calls for a just transition that protects workers, their families and communities. Just transitions are required in developed and developing countries alike, recognising that different countries will have different levels of dependency on fossil fuels, and capabilities to transition. In South Africa, just transition has long been high on political agendas. The largest labour federation, COSATU, has released a framework, and numerous civil society initiatives and engagements have demonstrated broad Just Transition support. South Africa's long-standing focus on a Just Transition is understandable, with many decades of coal mining and use causing significant environmental damage, compromising alternative land uses, livelihoods, and quality of life – impacts that are well-documented and costly. Similarly, in Nigeria the apex labour union has a climate change policy, and recognizes the need for the transition that protects workers and communities, a position vigorously supported by environmental justice organisations in the country. Mozambique, by contrast, does not yet have a critical mass of workers with extraction jobs, which should enable an easier just transition, and avoid the challenges faced by countries with more developed fossil fuel economies. However, Mozambique risks getting locked-in to a fossil fuel energy pathway, foregoing a leapfrog to decentralised renewable energy resources that would meet domestic requirements and chart a different pathway. In all cases, governments must enable a just transition designed in social dialogue with workers, unions and communities, and ensure that the transition costs are shared fairly, both within and between countries.

4. COUNTRIES MUST UNDERTAKE A RAPID TRANSITION FROM FOSSIL FUELS TO 100% RENEWABLE ENERGY WHILE DIVERSIFYING THEIR ECONOMIES AND ADOPTING ALTERNATIVE DEVELOPMENT MODELS AWAY FROM DEPENDENCY ON FOSSIL FUELS.

Support for affected workers and communities must be complemented with strategies to rapidly transition energy systems to 100% renewable energy, build more diverse and resilient economies, and adopt alternative people-centred models of development. In China, energy transition and carbon neutrality are subjects of great debate. Measures include accelerating renewable energy development, pathway planning, policy guidance, industrial layout, technology development, capital investment, and more. The goal to achieve carbon neutralization by 2060 is seen in China as ambitious. Nigeria is at a crossroads regarding energy transition. Yet with an economy largely dependent on income from the fossil fuels sector, and the country's high reliance on fossil fuels for energy, plans for an urgent transition to renewable energy have been tentative, even as public debate increases. The country profile on Ecuador recognises that transition is about more than energy sources, and must start from the needs defined by the peoples, within the framework of plurinationality recognized in the Ecuadorian Constitution. This includes redefining what energy is, for what and for whom, a transition with whom, to where and for what. For many countries, transitioning the energy system must be part of a larger effort to reduce dependence on fossil fuel production and diversify into other sectors and activities. The South African profile identifies the primary just transition challenge as economic and employment dependence on coal, and associations between the coal mining sector and political elites. To phase out coal dependence would require substantial investment. But even more socially and politically complex are the social costs associated with a just transition – and the more rapid the necessary transition the higher the costs. The experience of small island states, such as Trinidad and Tobago and others demonstrate the need for a transition that includes comprehensive strategies to promote renewable energy solutions, while also diversifying the economy and addressing vulnerabilities to changes in international energy markets on which they are dependent.

5. WEALTHY COUNTRIES MUST MASSIVELY SCALE UP CLIMATE FINANCE AS PART OF THEIR FAIR SHARES OF GLOBAL CLIMATE ACTION, AND COOPERATE INTERNATIONALLY TO SUPPORT SOUTHERN COUNTRIES IN THIS TRANSITION.

If we sequence which countries should lead the phase out fossil fuel production based on their dependence on fossil fuels for (energy, employment and government revenue), as well as their abilities to adapt (available alternatives or access to finance and technology), then the United States would by far be the first and fastest to phase out. The

United States is the world's largest producer of oil and gas and third largest producer of coal and yet, has the biggest gap in terms of its pledges and what it needs to do to meet its fair share. Only in the past decade or so has the US become a top producer and even exporter of oil and gas, but it was preceded by over a century of consuming more fossil fuels than any other nation, making the US the single latest historial emitter of greenhouse gases. Developing countries such as Saudi Arabia are also wealthy, and have capacity to finance their own transitions and support transitions in less wealthy countries on a voluntary basis.

6. GOVERNMENTS, COMPANIES AND INVESTORS MUST PROVIDE REPARATIONS WHERE EXTRACTION AND FOSSIL FUEL PROJECTS VIOLATE HUMAN RIGHTS.

Social movements and NGOs have long campaigned against fossil fuel extraction projects that violate local people's rights and destroy biodiversity. In Nigeria, life expectancy in the Niger Delta oil-producing region is as low as 40 years, as a result of persistent environmental pollution. Following widespread local protests, the area has remained militarized since the early 1990s. The infamous high point of repression in the region was the execution, on trumped up charges, of the famous environmental and minority rights campaigner, Ken Saro-Wiwa and eight other Ogoni leaders on 10 November 1995. While an end to oil production will lift this blight on Delta communities, the process of transition raises profound challenges for the country's economy. Cleaning up and remediating large scale harm to the Niger Delta requires oil companies to foot the bill in accordance with the polluter pays principle, and additional funds from payment of ecological and climate debt by countries most responsible for climate change. Civil society in Ecuador has argued that incursions into previously unexploited frontiers reflect both the immediate social and ecological damage of extraction, and also the frontline in expanding the carbon economy beyond climate limits. In all these cases, reparations for environmental damage will be a vital part of the transition beyond fossil fuels. Mozambique is the only one of our profiled countries that is not currently a major fossil fuel producer but developments are underway that are set to make the country a large gas exporter. Even before the gas flows, the country is suffering the resource curse, with the gas projects exacerbating a violent insurgency, displacement of people, corruption and a growing, unsustainable government debt. As such, moving to an alternative development pathway will require climate finance and repayment of the climate debt from Global North, which has not been forthcoming. Instead, funds have poured into the gas projects, the largest recipient of international public finance in the last three years.

Coal being broken manually with an iron hammer for collection.
© Pritam Mitra Photography / Shutterstock.com

COUNTRY PROFILE

CHINA

Coal workers in the village of Fengjie in the three gorges valley above the three gorges dam. Hubei, China. April, 2000.
© amnat30 / Shutterstock.com

STATE OF THE FOSSIL FUEL SECTOR

Coal is the biggest power source in China, accounting for 37% of its energy-related emission in 2018.[29,30,31,32,33] China's total installed coal capacity, estimated at 1050 GW in 2020, is larger than that of all other countries combined.[34,35]

China's coal production ranks first in the world. Production capacity is concentrated in the western region, which accounted for 80% of the national output. It is also the biggest coal importer. In recent years, China transformed rapidly from a major coal exporter to a major coal importer. If China phases out coal production in the future, the impact on the supply side of global coal trade will not be significant.

Through continuous optimisation of China's coal industry structure, the number of coal mines nationwide fell to less than 4,700 by the end of 2020, with the proportion of large state-owned coal mines rising sharply. However, Chinese coal production continued to increase, with the increase of mechanisation of large mining coal enterprises.

In 2017, China surpassed the United States to become the world's largest crude oil importer for the first time. In 2017, China's crude oil imports reached 8.43 million barrels per day, an increase of 10% over the previous year, leading global oil trade to accelerate eastward.[36]

During the year 2016~2020, a total of 46,000 kilometers of long-distance natural gas pipelines have been built, and the total mileage of natural gas pipelines nationwide has reached approximately 110,000 kilometers in China. In 2020, the national natural gas output was 192.5 billion cubic meters, a year-on-year increase of 9.8%, and the output growth exceeded 10 billion cubic meters for four consecutive years.[37]

JUST TRANSITION AND PHASE OUT DEBATE

China has stated the intention to enhance ambition or action, and will scale up its Nationally Determined Contributions by adopting more vigorous policies and measures. China recently announced its goals to have CO_2 emissions peak before 2030 and achieve carbon neutrality before 2060.[38] These targets are aimed at contributing to the Paris Agreement goal to limit global warming to below 1.5°C.

China aims to boost its installed wind and solar power capacity to more than 1,200 gigawatts (GW) by 2030 and seek to purchase 40% of its power from green energy sources.[39] This measure comes alongside other goals such as reducing carbon intensity by 65% by 2030 and banning the sale of gas-powered vehicles by 2035.

The energy transition and the realisation of carbon neutrality are subjects of great debate in China. The debates center on a key issue: meeting China's constantly growing demand for energy and electricity as part of its pursuit of rapid economic development. Discussion of key areas such as phasing out fossil fuels and overall energy transition are considered with increasing scrutiny.[40,41,42]

China possesses the world's largest (and still growing) coal power infrastructure, and thus accomplishing rapid coal phaseout to reach net-zero emissions within the next few decades is a great challenge.[43] Targets to phase out current coal dependency may lead to energy production targets that are insufficient to meet future demand. While this may add pressure to continue expansion of nonrenewable energy, it can also be argued that this adds to the reasons and pressure to accelerate renewable energy development.

CHALLENGES AND OPPORTUNITIES

The goal to achieve carbon neutralisation by 2060 is seen in China as very ambitious as it faces huge challenges in the energy transition.[44]

As China pursues rapid economic development, it will be encountering tremendous obstacles to peak emissions for roughly another decade as it is very difficult to control emissions while maintaining growth. Developed countries on the other hand already achieved high levels of economic growth and thus can decarbonize with relatively far less economic consequences.[45]

An immense challenge is adjusting its energy structure and heavy industrial structure.[46,47,48,49] Secondary industry is the main source of resource consumption and pollution emission, especially steel, building materials, chemicals, and non-ferrous metals. Given the economic importance of energy producers and high energy consumption industries, the central government and state governments are hesitant to take actions that might threaten these industries. Moreover, any movement towards sustainable energy requires massive financing and reallocation of labor.

Domestic coal power withdrawal lacks unified thinking and policy support. Unlike for the steel and coal mining industries, the government does not have special subsidies for reduction of capacity for coal power companies. The costs of shutdown often need to be borne by the companies.

China's overseas coal power investment has been declining. In 2017, China's participation in coal-fired power projects in the planning and licensing stage totaled 138 GW, and nearly half of these installed capacities (73 GW) have since been suspended or cancelled. The total installed capacity of overseas coal-fired power units under construction with China's participation also dropped from 38 GW in 2017 to 27 GW in early 2021.[50]

At the UN General Assembly last September 2021, President Xi Jinping announced that China will stop building coal-fired power plants overseas, and will step up support for other developing countries in developing green and low-carbon energy.

There are clear opportunities for promoting green transformation and high-quality economic development through the transition pathway based on a win-win global climate governance system. The ambitious target of carbon neutralisation will give rise to economic development for related industries.

INTERNATIONAL ACTION AND COOPERATION

Global cooperation is key to Chinese sustainability both domestically and abroad. Whether sharing green technology or pursuing cooperative finance, the financial and organisational burden to comprehensively restructure unsustainable global practices is too great to fall on any individual domestic body. However, the growing international consensus on climate change present in documents such as the Paris Agreement presents an optimistic future. Green development is a global priority; nearly all governments have indicated their willingness to cooperate with global partners to address climate issues.

To achieve decarbonisation, China needs–and is eagerly seeking–international cooperation in both finance and technology[51] to promote and establish the financial mechanisms of international conventions while enriching and complementing the existing climate change financial mechanisms. This process seeks to ensure the implementation of low-carbon technologies and projects; moreover, it's necessary to enhance the alignment of investment and financing policies among countries and improve the business, legal, regulatory, and tax environments for domestic and transnational investment.[52,53,54]

China has huge potential to lead in accelerating the transition to renewable energy worldwide, given its proven capacity for producing cost efficient renewable energy technology, and related financial capacity.

COUNTRY PROFILE

COLOMBIA

More than 1200 indigenous people had to flee their land because of mining and guerrilla warfare and now camp in Bogota National Park, Colombia, October 26, 2021. © MatthieuCattin / Shutterstock.com

STATE OF THE FOSSIL FUEL SECTOR

Colombia's budget has had a high dependency on fossil fuels with almost 12%[55] of total government revenue coming from the sector. Colombia is the 8th largest coal producer in the world and 1st in the region.[56] This has not translated into improvements in the economic and social development of its population. 88% of coal is from only two departments (Cesar and La Guajira). In the national economy, the oil sector represents 40% of all exports, and comes from only two departments (Meta and Casanare).[57] 60% of total oil production is produced by the state-majority-owned Ecopetrol.[58]

Throughout 2021, Colombians protested against the economic situation aggravated by the pandemic and the regressive economic measures proposed by the current government. Despite these social demands, the government is betting on recovering the economy through the income generated in the mining and fossil fuel sector,[59] contrary to social needs and the stated international goals of decarbonizing economies. Colombia has focused on advancing its domestic energy transition,[60] but does not have a phase out plan of fossil fuel production. In its NDC update there are actions to reduce emissions that result directly from fossil fuel production[61] but no discussion of limiting production.

JUST TRANSITION AND PHASE OUT DEBATE

There is national debate on the important issues on the phase out of fossil fuel production.[62] One of the focal points is the value of biodiversity and the negative impact of large-scale mining.[63] Colombia is the second most biodiverse country in the world. Additionally, it has more than 120 Indigneous and ethnic communities, most of them playing an important role in conserving ecosystems. The extractive economic model has affected their livelihoods in many ways, despite the Constitutional guarantees of their rights. Negative experiences in departments like La Guajira, evidence that the assumption of "mining brings welfare" is not true. By contrast, it is the poorest[64] department, with water conflicts, internal migration,

corruption and low economic diversification. This demonstrates that coal royalties, contrary to the claims of corporations, are not a significant contributor to ending poverty or promoting social and economic development. Other connected issues that local CSOs and movements demand are: a large-scale-mining moratorium, rejecting thermoelectric plants, respect the rights of Indigenous Peoples, and to protect rivers and the hydrosystem holistically,[65] but mainly, prohibition of fracking. Even the largest oil workers union joined the anti-fracking Colombia's movement, opposing exploration in non-conventional deposits and demanding a just energy transition to renewables.[66]

CHALLENGES AND OPPORTUNITIES

The government insists on fossil fuel extraction as a strategy to recover the economy from the pandemic. It is currently granting licences for oil exploitation in new territories. Due to the low reserves of the country, it is promoting a pilot to test fracking in new areas regardless of the ecosystem's vulnerability.[67] This context demonstrates the country's dependency on oil production as a source of government revenue. Fossil fuels royalties which have risen to 5 billion USD, seem to be essential for the state's social investments.

In addition, gas has been designated the main fuel for the 'transition,'[68] but the country has a small number of reserves onshore. The government is promoting offshore projects to deliver this strategy,[69] considering that 30% of all gas reserves are in these areas. The reality for coal is different, the current Minister of Mining and Energy has recognized that the international value and consumption of coal is declining faster than projected.[70] As a result, the third largest coal producing company in the country announced its closure, claiming that its operations are no longer financially viable. Nonetheless, economic incentives for the coal industry persist given the national tax system, contributing to the continuation of large-scale mining operations.[71]

Fossil fuel exploitation generates rapid incomes for the state and private actors, but lessons learnt from 2020 confirm the urgency to diversify the economy to avoid commodity price shocks. The nation needs to create more jobs, accelerate social investment (especially for young people), and increase gender equality in labor share. But where will the economic resources to finance these policies come from? Government agency Procolombia finds that since 2016 foreign investments have created 79.000 jobs in four sub-sectors outside the fossil fuel industry,[72] more than double the jobs in coal mining employment.

Colombia also has a powerful advantage and opportunity regarding its biological and cultural diversity. This could be leveraged as a competitive area to develop bioeconomy, tourism, preservation of ecosystems, renewable energies, agroindustry processes and the manufacturing associated.

INTERNATIONAL ACTION AND COOPERATION

It is a priority to diversify the state's income given that Colombia's biggest corporation is Ecopetrol. Coal mining replacement is also critical.[73] There has to be an accelerated economic diversification in the territories that have fossil fuel producers. New industries need to be able to: provide high quality jobs and salaries to the previous fossil fuel workers; produce goods with added value; and generate a significant income for the local governments. In order to have a just transition, the world's largest economies must lead the way economically and institutionally. Otherwise, Colombia will not have any incentives to follow. Therefore, international finance is going to be essential for sectors prioritised for economic diversification - through cooperation, institutional strengthening, capacity-building, special treatments, discounted credit, technology transfer and foreign investment in these new businesses and developments.

As a global policy, consumption of fossil fuels has to decline. Large economies have to lead the way in their own countries and support the global south in the transition. Less global fossil fuel demand means less global production. Additionally, considering the world's biodiversity loss, Colombia has an important role to play in the next decade. There is an opportunity to be supported by nations who have the largest responsibility for the climate and environmental crisis. Finally, a just transition must begin with protecting all social, and environmental defenders and union activists, because currently, Colombia is the most dangerous place for them.[74] In this matter, international cooperation could play an important role in pressuring Colombia to ratify the Escazú Agreement recognizing the rights of access to information about the environment, public participation in environmental decision-making, and environmental justice.

Even the largest oil workers union joined the anti-fracking Colombia's movement, asking for non exploration in non-conventional deposits and demanding a just energy transition to renewables.

COUNTRY PROFILE

ECUADOR

Amazonian Shuar women protest against mining and oil concessions outside the Conaie headquarters in Quito, Ecuador. January 6, 2015. © Diego Sugoniaev / Shutterstock.com

STATE OF THE FOSSIL FUEL SECTOR

In 2020, oil represented 9% of Ecuador's GDP, with oil extraction averaging almost 480,000 barrels per day. Of this, 80% belongs to the state company Petroecuador and 20% to 13 private companies. Between May and June 2021, the average rate of extraction was 496,000 barrels per day. Between 2015 and 2020, on average, oil represented 32% of total exported goods. As well as exporting, Ecuador imports fossil fuel derivatives such as naphtha, diesel and LPG (liquefied petroleum gas).[75]

The main objective of the current government is to double oil production and reach 1,000,000 barrels per day in 4 years. Similarly, it has announced the privatisation of several energy sectors, including the oil sector.

JUST TRANSITION AND PHASE OUT DEBATE

At this time in Ecuador there is an incipient debate on the energy transition. According to Petroecuador, total oil reserves are 1.9 billion barrels. Although the state is granting new exploration permits which may result in this figure increasing, if the current average extraction rate of 500,000 barrels per day continues, the reserves would be extinguished in 10 years.

The trade union organisations do not have an articulated just transition proposal, nor do the workers linked to the oil industry. The proposal from environmentalists is that a just transition should begin by not expanding the oil frontier to places where the industry has not entered. The actors that must participate in the transition process are the state for the financial issue, the oil workers and the affected communities in the territories, the peasants, the transport sector and others. In addition, a just transition from and for the peoples and nature must include a comprehensive repair plan for the affected areas. In areas that are highly affected, where there is total dependence on the industry, alternatives must be generated.

CHALLENGES AND OPPORTUNITIES

The main challenge to a just transition in Ecuador is the continued expansion of the oil sector. One lost opportunity was the Yasuni-ITT initiative, which sought to take the first steps towards a post-oil Ecuador by leaving 800 million barrels of oil underground within an area of the Yasuni National Park known as Ishpingo-Tambococha-Tiputini (ITT) in exchange for $3.6 billion from the international community which it was imagined would fund social development and a just transition. The initiative was abandoned in 2013 with only $336 million pledged and a mere $13.3 delivered. Under the Correa government, exploitation of the reserves began in the Tiputini field in 2016. In December 2017, the construction of platforms in the Tambococha field began and, since then the new government has announced the drilling of wells in the Ishpingo field, despite this being prohibited because it buffers "the Intangible Zone" – a 3000 square mile area within the Yasuni Biosphere reserve, home to several Huaorani communities, including one living in isolation.

However, opportunities still exist. A tax (the Daly-Correa Tax) has been proposed to apply to oil exports for the period 2020-2030 in order to create a fund to combat climate change, though the details have not been specified.

Legal strategies against the fossil fuel sector are increasingly being adopted, with a lawsuit against Texaco, which was won by the plaintiffs in 2011, and was ratified in 2012, 2013 and 2018, by the constitutional court of Ecuador, where the whole case was won marking a milestone in ecological justice related to oil activities. This ruling was in favour of 9 young girls who prosecuted the State for the 447 "flares of death" that are located in the Amazon. Other lawsuits have also been filed, for example a case has been brought against Petroecuador for the contamination of the water in the Libertador oil field.

In the southeastern zone of the Ecuadorian Amazon, Indigenous Peoples have successfully prevented the advance of oil extraction through peaceful resistance, mainly led by women. The Ecuadorian Constitution recognizes the rights of peoples and nature. Economic, social and environmental policies must start from these rights, which must take precedence over the rights of investors.

Also on this constitutional basis, it should be the path towards the achievement of another paradigm of cosmic coexistence or "sumak kawsay," where solidarity, complementarity, and reciprocity are the values of life in community.

INTERNATIONAL ACTION AND COOPERATION

If the Yasuni proposal is reactivated, it would be an opportunity for the international community to recognize the ecological, historical and social debt owed by the Global North to the Global South, and to create conditions to initiate a step towards energy and food sovereignty, and economic emancipation from petroleum.

However, the support of the international community must be framed in the recognition of the existence of the historical, social and ecological debt owed to all countries of the South, irrespective of their fossil fuel reserves or production. The industrialized countries of the North must further assume the responsibility of supporting Ecuador on a path to a post-oil future, as well as the processes of comprehensive reparation of the rights of peoples and nature.

International cooperation should not be tied to conditions, nor, in the case of environmental issues such as climate change, to market mechanisms and carbon, water or biodiversity compensation, and should not result in the financialisation of nature. Nor should it be based on proposals such as debt swaps, low-carbon economies, or carbon neutral or zero carbon, since they are neoliberal mechanisms associated with false proposals to face climate change.

A transition, which is about more than energy sources, must start from the needs defined by the peoples, within the framework of plurinationality recognized in the Ecuadorian Constitution. This includes redefining what energy is, for what and for whom, a transition with whom, to where and for what. This can also be done with unconditional financial support from the international community.

COUNTRY PROFILE

INDIA

A group of Laborers carrying the coals in a basket on top by their heads. February 24, 2021. © Social Media Hub / Shutterstock.com

STATE OF THE FOSSIL FUEL SECTOR

India is the third-largest economy in the world, with a fossil fuel-intensive energy mix, and an electric sector that relies on coal for more than 70% of generation. While India is a relatively modest producer of oil and gas, it is a major producer of coal, with the state-run Coal India Limited supplying 80 per cent of the domestic demand. Most of the coal reserves are found in the states of Jharkhand, Odisha and Chhattisgarh.

JUST TRANSITION AND PHASE OUT DEBATE

The Nationally Determined Contribution (NDC)[76] of India targets to reduce the carbon emission intensity per unit of GDP by 33-35% below 2005 levels by 2030, and achieve 40% of installed power capacity from non-fossil fuel by 2030. India's renewable energy capacity has grown rapidly to 100GW in 2021, with a target of reaching 175GW[77] by 2022 and 450 GW by 2030. There are discussions and debates among government officials and advisors over the deadline for net-zero carbon emissions, however, there is no official statement as yet.[78,79]

The discussion on retirement of old and polluting thermal plants has met with some resistance, including from those labour unions associated with fossil fuels and allied sectors, whose members are concerned with their employment given the widespread poverty and unemployment/underemployment in India.[80] At the same time, the most vociferous supporters of transition are the communities in the coal mining areas, people living in cities and civil society groups associated with these movements. This is due to the impact of air pollution from thermal power plants and increased urbanisation that has led to Indian cities being most polluted across the world. Certain labor groups, such as the National Hawker Federation with a membership of over 2 million consistently highlight the

need for the just transition away from coal and fossil fuels, into renewable energy.[81]

Civil society groups have also questioned the expansion of high licensed capacity for mining and power generation which are operating on poor efficiencies or load factors. One of the strong impetus for transition is the low cost of renewables.[82]

CHALLENGES AND OPPORTUNITIES

The contribution of revenues from coal, natural gas and oil to the Indian GDP in 2019 was at 0.81%, 0.03% and 0.36% respectively. Around 80% of India's coal production is carried out by Coal India Limited. Being state-owned, this creates an opportunity and a need for policy decisions to enable just transition and shift investment capital from coal to clean energy. A major challenge for the energy transition is finding alternative jobs and livelihoods for the at least 21 million people[83] currently employed – formally and otherwise – in fossil fuel and allied sectors. Given this situation, India would require significant economic diversification and industry restructuring to create alternative jobs and livelihoods that are inclusive and sustainable.[84]

India's power system is plagued with timely grid availability, uncertainty over Power Purchase Agreements (PPAs), and poor credit rating of its state-owned distribution company.[85] This would require national and regional governments along with banks and power companies to address policy and legacy issues. The transition to renewable energy (RE) would reduce India's dependence on fossil fuel imports, but at the same time may require the import of new energy technologies. To overcome this, India needs to step up their production-linked incentives (PLI) scheme, incentivise battery manufacturing and boost electric vehicle (EV) adoption.[86,87]

A recent study has found phasing out of fossil fuels would lead to an addition of 0.54mn jobs by 2050, owing to the expansion of RE capacity, which is relatively job intensive.[88] However, there is a need to strengthen support for decentralised energy projects such as solar rooftops that have potential of high job creation. The government needs to expand programs and market investment to ensure steady RE growth to support the clean energy job creation. The investments would need to be routed towards the creation of local training centres especially in the rural areas in order to scale the specialised workforce and green entrepreneurs.[89]

The Indian Railways,[90] one of the country's largest employers, derives 40 percent of its freight revenue from coal. This is used to subsidise passenger fares, especially among the poorer sections of the society. Given the importance of rail transport in the economy, rail subsidies and employment are politically and socially sensitive.

While the inequities in energy consumption within India are large, its per capita energy use is quite low; roughly one-third or the global average, and one tenth of the United States average. While India strongly argues for its "right to develop" in the context of UNFCCC's principle of Common but Differentiated Responsibilities internationally, it is used to legitimise continuation of coal's dominance in the energy economy.

The price control and job opportunities in the coal sector has led to a network for vested interests that include national and local politicians, contractors, and others who influence the supply chain, who strongly resist any change to the status quo, such as a transition to renewables. India needs to find alternatives and restructure its rail business and pricing.

The government continues to support coal mining through concessional rates of General Sales Tax, charged at 5% on coal compared to 18% for other minerals, and other supportive policies relating to conservation, mine safety and exploration in difficult areas. Total support to the sector is estimated at INR 15,000 crore (over USD 2 billion) in FY 2020; this public support should be redirected to help accelerate clean energy investment and finance a just transition.[91]

INTERNATIONAL ACTION AND COOPERATION

Currently, a large part of the climate action is financed through government budgetary sources.[92] A recent study finds that climate finance flows were only US$ 17 bn in 2017 and US$ 21bn in 2018 indicating the yearly shortfall.[93] The Clean Technology Fund provided USD 775 mn for the period of 2010-2018.[94] The Green Climate Fund (GCF) provided US$ 314.8mn.[95]

India still has a wide deficit that requires international financial support to meet its evolving challenges. It expects the developed countries to fulfil their financial commitments. It expects the developed countries to transfer technologies and meet their determined contribution. India has also sought international help in areas of finance of renewable energy solutions; community reskilling; exchange of advanced technical knowledge on clean energy; promotion of energy trade and investment; modernising power systems; promote multilateral agreements to mobilize low-cost finance and collaborate in newer areas of climate change.[96] This would enable the country to cope with its growing challenges.

COUNTRY PROFILE

INDONESIA

Coal mining activities seen from above. South Borneo, Indonesia. November 23, 2020. © Masmikha / Shutterstock.com

STATE OF THE FOSSIL FUEL SECTOR

Indonesia is Southeast Asia's largest economy and country in terms of land area and population, is a fossil fuel powerhouse. It is a significant producer and exporter of coal, natural gas, and crude oil. The country's primary energy production consists mainly of fossil fuels. Coal is the largest contributor followed by gas and oil. In 2018, Indonesia exported USD 68.3 billion worth of fossil fuel with coal taking the top spot contributing about 56.7% of total followed by natural and crude oil. Its biggest trading partners are all based in the region. The country exported the most coal to India, natural gas to Singapore, and crude oil to Thailand. Overall, Japan was Indonesia's largest market for its fossil fuels.

As of 2020, the largest oil producers are ExxonMobil Cepu (East Java) and Chevron Pacific Indonesia (Riau), both owned by foreign companies based in the US. In August 2021, control over Rokan Blok transferred from Chevron Pacific to Pertamina.[97] This made Pertamina, a state-owned corporation, dominate oil production. In the gas sector, the largest producers are BP Berau (Tangguh Field, West Papua), ConocoPhillips Grissik (South Sumatra) and a state-owned Pertamina subsidiary (PT. Pertamina EP and Pertamina Hulu Mahakam).[98] In the coal sector, local coal mining companies dominate production with PT Kaltim Prima Coal, PT Adaro Indonesia, and PT Kideco Jaya Agung as the three largest coal mining companies.[99]

The government will push production of the maturing oil wells by using Enhanced Oil Recovery (EOR) and by increasing exploration activities across the archipelago. The government is also making policy adjustments to attract investment, like the amendment of the Minerba Law UU No 3/2020 and the Job Creation Law UU No 11/2020 ratified recently. The government is also ramping up coal production to meet export demand and to supply local power plants. The Ministry of Energy and Mineral Resources also plans to diversify from coal application to liquified and gasified coal to supplement the demand for oil.[100]

JUST TRANSITION AND PHASE OUT DEBATE

Indonesia set its national energy policy (KEN) that points out the transition to "new and renewable energy"[101] in 2004. it should be noted that the "new"energy it referred to also includes nuclear, and "renewable" includes coal-bed methane. The latest iteration of this National Energy Policy, released in 2014 sets the target to increase the proportion of new and renewable energy[102] in total national energy production to 23% by 2025 and 31% by 2050. These targets are in line with Indonesia's NDC. In its second and latest NDC submitted in July 2021, Indonesia plans to reduce emissions by 29% by 2030 on its own efforts, and another 41% with provision of international finance, technology and capacity.

While the Indonesian government considers this target as fair and ambitious, there are several problems such as 1) failure to be fully transparent and elaborate on necessary information 2) lack of clarity on what activities are included to establish the baseline, 3)the projections are still not ambitious enough to achieve the objective of the Paris Agreement. In the energy sector, for example, according to the NDC, by 2050 fossil fuel energy will still take the major proportion of the energy mix, with new and renewable energy only taking 23% by 2025 and 31% by 2050. Also, using the fair shares framework and climate justice approach advocated by WALHI (Wahana Lingkungan Hidup Indonesia) and other climate justice group, Indonesia can spend by the end of this century 14.8 $GtCO_2$ to help give the world a 66% chance to limit warming to within dangerous levels, or 20.5 $GtCO_2$ to help the world have a 50% chance. Looking at the emissions trajectory scenario reflected in Indonesia's low carbon development plan, Indonesia will spend the remainder of its carbon budget by 2027.[103]

The actual implementation of the energy transition toward new and renewable energy is worse. In 2020, the portion of "new and renewable" energy only reached 9.15% of the total national energy production.[104] The year-on-year capacity addition of renewables in Indonesia has been declining since 2013. In 2017, Indonesia only added 242 MW of renewables (including off-grid bioenergy), hitting its lowest since 2011. Indonesia's growth of renewables in the past decade has been modest compared to the gigantic growth of thermal power in Indonesia.[105]

CHALLENGES AND OPPORTUNITIES

The challenges to achieving this target are the lack of investment in new and renewable energy developments due to the complex and overlapping policies and regulations[106] as well as the difficulties to phasing out fossil fuel energy due to heavy reliance on coal both economically and as electric power plants fuel.[107]

Indonesia is one of the largest coal exporters in the world. Powerful coal interests are represented in key positions in both the power sector and government, conditions that are prone to corruption and undermine effective energy planning and energy transition[108]. For example, JATAM has released an analysis of the Job Creation Law that pointed out how the regulation will benefit the fossil fuel corporations.[109]

Other than the fossil energy industry, there's also a growing resistance by social movements, especially toward geothermal and mega-hydro dams. There has been insufficient consideration of the development impact toward the livelihood of the people and toward the environment around the power plant sites. There are growing calls to exclude geothermal and mega-hydro dams from "new and renewable" energy.

Indonesia's biggest challenge to phase out fossil energy is the current national political climate. As briefly mentioned earlier, fossil fuel industries have significant influence over the current national policy and decision-making apparatus. Needless to say, their major objectives are not only incompatible with the need to phase out the fossil energy industry, but will also not be supportive of the whole implementation of "new and renewable" energy.

INTERNATIONAL ACTION AND COOPERATION

According to the Indonesian government, in order to achieve its NDC, Indonesia needs international cooperation in the form of technology development and transfer, capacity building, payment for performance mechanisms, technical cooperation, and access to financial resources.

In Indonesia's current context, international solidarity and support is needed to stop the weakening of democracy and to strengthen peoples' movements and civil society in Indonesia. These are crucial to stop the funding and building of new dirty energy projects, stop false climate solutions, ensure a rapid phase out of existing coal, gas, oil and harmful energy projects, and hasten the transition towards renewable energy systems.

COUNTRY PROFILE

MOZAMBIQUE

Oil platform off the coast of Mozambique. © Lukasz Z / Shutterstock.com

STATE OF THE FOSSIL FUEL SECTOR

In the early 2000s, 25 billion tonnes of coal were discovered in Tete province and in 2009, 20 billion cubic tonnes of gas were discovered off the coast of Cabo Delgado province. These discoveries were seen by the government as sources of future revenue, estimated at $100 billion over 25 years. This figure is considered an over-estimate by a number of economists.[110] However, the scale of these resources is enormous, especially for an impoverished, debt-stressed country whose GDP per capita is the fourth lowest in Africa ($520).

Coal attracted large transnational companies into Mozambique, including Vale,[111] Rio Tinto, Jindal, Mitsui. Brazil, China, India and Germany are importers of coal from Mozambique.

The gas rush brought Total Energies SE, BP, Exxon Mobil, ENI, Chinese National Petroleum Corporation (CNPC), Galp, Kogas and others. The World Bank, International Monetary Fund (IMF), African Development Bank and many developed countries' financial agencies provide technical and financial assistance for the exploration and extraction, including the US, Japan, Italy, the Netherlands, South Africa, China, South Korea and the United Kingdom.[112]

Extractive industries in Mozambique continue to grow despite the increasing impacts and risks of the climate crisis. Mozambique signed the Paris Climate Agreement, yet its climate change strategy is incompatible with its economic strategy, which is based on energy-related "export-oriented, capital-intensive 'mega-projects.'"

JUST TRANSITION AND PHASE OUT DEBATE

Government oppression of civil society, affected peoples and journalists that question abuses around extractive projects is intensifying. Debates on topics such as economic development, corruption, policy reforms on extractives, national debt burden and social services are mere tokenism carried out with selected pro-government groups to checkbox guidelines, standards or donor imposed conditions. True engagement is non-existent: the government promotes false narratives to get consent for projects, such as inflating the job opportunities for Mozambicans, which would add labour dependencies to the emerging fossil fuel sectors. At present there is no critical mass of workers with extraction jobs, which should give Mozambique

an opportunity for an easier just transition, avoiding the challenges faced by countries with more developed fossil fuel economies. However, Mozambique risks getting locked-in to a fossil fuel energy pathway, foregoing a leapfrog to decentralised renewable energy resources that would meet domestic requirements and chart a different pathway.

CHALLENGES AND OPPORTUNITIES

Mozambique faces economic and social challenges of high unemployment, poor infrastructure, high national debt and inadequate critical social services like healthcare and education. Amid these challenges, coal revenues have not met expectations. The slowdown in coal extraction operations, especially at Jindal and Minas do Moatize have meant the laying off of hundreds of workers. 2021 reports indicate Vale is planning to exit its Tete operations with mining suspended since June 2020.[113] The Jobs Diagnostic Report[114] shows that overall, energy-related mega-projects in Mozambique have generated fewer direct and indirect jobs than originally promised.

Under 20% of Mozambicans are formally employed, mainly in the four sectors of finance and banking, tourism, manufacturing and extractive industries. About 80% of the population survive on subsistence agriculture, fishing and informal cottage industry.[115] Mozambicans face low wages and poor working conditions. The LNG and coal industries have huge contracts with international employment companies for skilled workers, technical staff and professionals from abroad. Promises of jobs for locals remain unfulfilled. Tourism was a big part of this coastal nation's livelihood, but fossil fuel extraction on the coastline and the resulting conflict has affected this. Investment in people is needed to improve levels of education, skills, nutrition, healthcare and access to information. This investment in human capital will build a better tomorrow for the people of Mozambique.

The fossil fuel story of Mozambique is a classic example of a "resource-curse." The LNG projects have contributed to a violent insurgency, displacement of people, violation of press freedom and further corruption. The growing government debt is unsustainable. Without a change of direction, Mozambique is in danger of contributing to GHG emissions globally, the same emissions that threaten its own people who face dangerous climate change.

The Cabo Delgado offshore LNG project is expected to start delivering in 2024. However, since the gas rush, starting in 2017, the province has been devastated by security challenges, insurgency and militarisation. Insurgents have damaged infrastructure, killed 2,868[116] people as of 6 June 2021 and displaced some 700,000 local residents. Total even entered into an agreement with Mozambique's government to deploy additional troops to protect their operations. However, the conflict has worsened, and on 26 April 2021, Total claimed 'force majeure,' suspending its $20 billion LNG project indefinitely.[117] Mozambican CSOs demand that Total and other TNCs cease all gas project activities and provide fair and just reparations to those affected.[118]

Most of Mozambique's civil society is not challenging fossil fuel extraction. They are focused on making extraction sustainable and distributing fossil fuel benefits. They have focused on issues of corruption and transparency but are not questioning the viability of this industry. One reason for this is that their analysis on fossil fuel extraction purposely does not interconnect with analysis on climate change and the environment. Climate is being dealt with from an adaptation and disaster management perspective on one hand, and from a monetizing carbon and supporting offsetting perspective on the other. The groups taking on extractives and challenging power relations are called anti-development and sidelined but they keep fighting and speaking truth to power.

INTERNATIONAL ACTION AND COOPERATION

Mozambique must stop plans for harmful fossil fuel extraction, and instead consider community-based, decentralised renewable energy options for the millions of Mozambicans without energy. For this, it must demand climate finance and repayment of the climate debt from Global North to Global South which has not been forthcoming. There should be a focus on human development which must be resourced. Technological help must come without intellectual property restrictions, a challenge given rich countries have been unwilling to support intellectual property waivers even for life-saving COVID vaccines.

Global financial institutions and Mozambique's government leaders who engaged in the illegal loan scandal, using the future earnings of the gas as collateral, must be held accountable. International solidarity is also crucial, to take the voices of Mozambicans to global decision-makers, legislators and international bodies. Regional solidarity is critical. To move Mozambique from its reliance on fossil fuels, pressure must be applied at a regional level, especially by South Africa, the most powerful player in SADC; in turn South Africa needs the will to encourage this move to renewables, which is unlikely because of Sasol's reliance on cheap gas from Mozambique.

COUNTRY PROFILE

NIGERIA

Children collect water on at Bonny Island, Nigeria. Situated in the Niger Delta various major oil companies operate on the island. April 15, 2006.
© Erica Lorimer Images / Shutterstock.com

STATE OF THE FOSSIL FUEL SECTOR

Nigeria has an estimated recoverable reserve of 36,890 million barrels of crude oil[119] from over 500 fields in the Niger Delta. Of these fields, more than 55% are onshore while the rest are in shallow waters offshore.[120] Nigeria is the largest producer and exporter of crude oil in Africa. The nation depends on imported refined petroleum products as the refineries have been shut down since 2020 and repairs are only just commencing at the time of this report.[121]

Oil companies operating in Nigeria do so in joint partnerships with the state owned Nigerian National Oil Corporation (NNPC). The major oil companies operating in Nigeria are Shell, Chevron, ExxonMobil, Agip, Elf and China National Offshore Oil Corp. The country is seeking to open up ultradeep offshore fields as the oil majors indicate interest to divest from onshore fields and move into deep waters[122] to avoid responsibility connected to high levels of pollution from oil spills and gas flares.[123]

JUST TRANSITION AND PHASE OUT

Nigeria is at a crossroads regarding energy transition. With an economy largely dependent on income from the fossil fuels sector, and the country's high reliance on fossil fuels for energy, plans for an urgent transition to renewable energy have been tentative, even as public debate increases. Civil society groups warn that fossil fuel investments may soon become stranded and demand a quick transition as well as a recovery of the environment damaged by fossil fuel extraction.[124] The apex labour union in the country, the Nigerian Labour Congress (NLC) has a climate change policy, recognizes the need for

the transition and demands that it must be just and should not place workers in a lurch, a position vigorously supported by environmental justice organisations in the country.

Renewable energy's share of the energy mix remains quite small – with hydropower accounting for 0.4% while wind and solar utilisation are rather insignificant.[125] Although the national budget does not make specific provision for investment in energy transition, the government plans to add 5 million solar connections through mini grids and solar home systems by 2023 according to its 2020 Economic Sustainability Plan.[126]

There is an urgent need to rethink energy supply to a large population of which less than 60% have access to electricity.

While struggling to emerge from economic depression, the government has focussed efforts on investment in agriculture and infrastructure as key means of rebuilding the economy. The oil sector shrank by 2.21% in the measure of real GDP in the first quarter of 2021 while the non-oil sector grew by 0.79%. Areas in which diversification efforts are seeing most promise include telecommunications; agriculture, real estate and human health services.[127]

CHALLENGES AND OPPORTUNITIES

The environmental damage of the Niger Delta has been validated by the report of an assessment of the Ogoni environment conducted by the United Nations Environment Programme. Key findings of that report include gross contamination of soils and water bodies. Persistent environmental pollution has led to health crises in the region including a rise in cancers, birth defects, breathing difficulties and others. It has also contributed to the brevity of life in the oil field communities which stands at an abysmal 40 years.[128] Meanwhile, gas flaring has been going on for decades, despite repeated promises to end the practice.

A Petroleum Industry Bill[129] allowing 3% of oil company costs to go to communities has just been passed by the parliament and signed into law by the president after foot dragging that lasted over a decade. Yet it allows for undue oil industry influence as regards which community gets to receive the funds and who sits on the distributing board.[130]

The Niger Delta has remained militarized since the early 1990s when a joint military task force (JTF) was set up in the region. There has been rampant human and environmental rights abuses with whole communities sacked or criminalized. The infamous high point of repression in the region was the execution, on trumped up charges, of the famous environmental and minority rights campaigner, Ken Saro-Wiwa and eight other Ogoni leaders on 10 November 1995.[131] There is an uptick of violence[132] by way of sea piracy, kidnappings, and murders.

Yet while an end to oil production will lift this blight on Delta communities, the process of transition raises profound challenges for the country's economy. Petroleum currently accounts for 86% of Nigeria's total export revenue.[133] Oil and gas exports collectively provide around 70% of the government's revenue.[134] This high level of dependence presents a challenge for Nigeria, as the country will need to significantly change the structure of its economy and find alternative means to fund public services and pay the salaries of public sector workers. Such transition is especially difficult, given that oil dependence has affected investments in other sectors, distorted the distribution of economic benefits and increased inequalities. In contrast to the high dependence on the sector for revenue, the oil and gas sector employed 0.01% of the Nigerian workforce in 2014.[135] This parlous state can be attributed to the high level of casualisation of labour[136] by which most workers are on continuous short term contracts in the oil and gas sector.

INTERNATIONAL ACTION AND COOPERATION

Provision of technology for renewable energy for electricity and transport is one key area for cooperation with the country. The international community can participate in this transition through financial and technological cooperation. A key area for cooperation would be to for example, replacing back-up electricity generators with solar powered options faces an estimated funding gap of $1.5bn over the next five years.[137]

Due to the large-scale harm to the Niger Delta environment, there is need for international cooperation and finance for the auditing of the entire environment and an adequate clean up and restoration of the region. The necessary finance can be raised through the polluter-pays-principle as is the case with the clean-up effort of Ogoniland.[138] This would require that oil companies foot the bill for the exercise. The estimate for the first 5 years of the clean up of Ogoni is $1billion and it has been estimated that $100 billion may be needed to extend the clean up to the entire region.[139]

Additional funds for rectification of loss and damage from fossil fuel exploitation can come through the payment of ecological or climate debt by nations most responsible for climate change.

COUNTRY PROFILE

RUSSIA

City ringway and air pollution from heat electric generator plant. Saint-Petersburg, Russia. December 23, 2012.
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STATE OF THE FOSSIL FUEL SECTOR

Russia is one of the top producers and consumers of fossil fuels. Of global reserves, the country and its super-rich oligarchs own about 6.2% of oil, 20% gas and 15.1% of coal, and are deeply embedded in the production and export of these resources. Russia produces 13% of oil, 17% of fossil gas, and 5.5% of coal worldwide. Taking all fossil fuels together, the country is very likely the global number one in fossil fuel exports with its share of oil (13%), coal (17%) and fossil gas (26%) worldwide in 2019.[140,141]

The recent Gazprom deal with Germany (Nord Stream 2) will provide fossil gas quantities which, if extracted—likely with high methane leakage—and burned, will emit the equivalent of about 5% of all 2019 EU CO2 emissions. The share of coal is slowly decreasing and being replaced by gas. While installed capacity of solar and wind energy is growing by about 50% per year, in 2020 renewable resources made up a small total of electricity generation.[142]

Government support for Renewable Energy Supplies (RES) is aimed at modern RES technologies. However, the main efforts are focused on the modernisation of outdated power plants, mainly gas but also some coal. The volume of support for RES is very small in comparison with Russian energy as a whole, and is even decreasing now.[143]

Exports are a very important factor for climate policy because they are mainly determined by external economic signals relevant to the carbon footprint of products, about two thirds of which are fuel and energy products. The EU is a consumer of about 45% of all exports, while the carbon intensity of exports is very high,[144] explaining why the main focus in Russia is now on the EU carbon border adjustment mechanism (CBAM).

JUST TRANSITION AND PHASE OUT

There are several key elements of the debates on phase out/transition in Russia, which are very specific to the country. Firstly, climate is understood in official strategies of economic development only as an external economic signal with two components: decreasing global demand in fossil fuels, and payments for the carbon footprint of Russian products exported.[145,146] The need for emissions reductions to minimize damage in Russian territory is not understood at all. Secondly, the external economic signals mentioned above are expected only for 2030-2040s, and therefore it is not seen as a short-term problem for the 2020s, so there are not any debates about phasing out or transition before 2030. In July 2021 after publication of the EU "Fit for 55" plan this 'sense of delay' became even worse when Russian businesses spoke of 'relaxing' after the very limited, weak and time-extended CBAM.[147]

Thirdly, civil society movements as well as labour organizations are focusing on other problems and pay minimal attention to climate. Only a few organizations have a climate voice and try to raise awareness and address the wrong perceptions of the climate problem while working in a very restricted political environment and facing repressions. Fourth, many government officials, business and even some ecologists and civil society activists are climate sceptics, so there's a limited scope for promotion of science-based views of climate. The Russian public does not have any basis of knowledge to accept a phase out or even transition in the short term as society still relies on natural gas and views this as the best option for Russia, even though there is an understanding that coal and air pollution is bad for human health.

CHALLENGES AND OPPORTUNITIES

In 2020-2021, Russia developed a law on GHGs, which was adopted by Parliament and finally signed by the President on 02 July.[148] The law, for the first time: 1) introduces GHG legal terminology; 2) mandatory GHG reporting of enterprises; and 3) establishes a domestic system of GHG reduction projects. It was stated that the system should be compatible with international experience, transparent and reliable, using high-prestige auditors for verification of emission reductions. Historical experience shows that many things in Russia may be only on paper. With this legislation approved, the President issued instructions to the Prime Minister to launch the system by July 2022.[149] Thus, the first task for Russia is to operationalize the law and roll-out the system with hundreds of projects reducing the carbon footprint of Russian products, including potentially impacted by CBAM. The second task is to make the Russian NDC more ambitious. The current NDC-2030 adopted in 2020 is dramatically weak, expecting growth in GHG net-emissions (economy wide emissions minus absorption by managed forests) by 40% in the next 10 years.

After very negative international and domestic responses, the President rearranged the GHG task as," Russian cumulative emissions in 2021-2050 should be less than the EU's" and to develop a corresponding plan (road map) by October 2021.[150] Approximate estimates based on EU plans and current emissions indicate that Russia does not plan growth of net-emissions, but expects a stable level by 2030 with a decrease of about 20% by 2050. It is of course very weak, but is a step forward from the dramatically weak NDC to be a bit more ambitious. The third task is to support initiatives of Russian regions toward carbon-neutrality by carbon regulation. The champion is Sakhalin Oblast, Russian Far East, with specific conditions for emissions with large forest absorption, willingness to phase out coal and replace it by gas, RES and hydrogen with a promise to get carbon-neutrality by 2025.[151] In July 2021, the Ministry of Economic Development developed a draft law "On experimental special GHG regulation in selected regions of the Russian Federation" with a full set of options, including quotas, emissions trading and penalties.[152] It is expected that 3-4 other regions will also participate in the initiative.

INTERNATIONAL ACTION AND COOPERATION

Russia needs a clearer and stronger signal from large emitting countries that they will certainly go to zero emissions without any compromises, and they will require the same from other developed countries, including Russia.[153] This signal should confirm that climate is its' primary goal (limitation of global warming itself), where economic mechanisms are only tools; that there will be political sanctions after all. Having such a signal will create the space for Russian progressive business, pioneering regions and its' supporters to be able to overcome opponents from high-carbon business, avoid loopholes of greenwashing, organize effective GHG emission reduction, ambitious NDC, etc., including growing climate financial support for developing countries (currently Russia is a so-called voluntary donor, which is non-Annex II, but Annex I Party the UNFCCC, only a few countries have the same status).

COUNTRY PROFILE

SAUDI ARABIA

Oil dump evaporation lake, Riyadh, Saudi Arabia. March 2018. © Leo Morgan / Shutterstock.com

STATE OF THE FOSSIL FUEL SECTOR

De facto leader of OPEC, Saudi Arabia is the world's second largest oil producer, with 12.5% of global production. It produces 2.9% of the world's gas.[154] The state owned oil company Saudi Aramco is the main producer of oil and gas, mainly from the major fields in the eastern province (capital Damman). Saudi Arabia is currently increasing its oil production capacity from 12 to 13 mbd by 2024, and aiming to double its gas production by 2030.

JUST TRANSITION AND PHASE OUT DEBATE

Saudi Arabia's economy has been very exposed to low oil prices since 2014 as a result of its reliance on oil; oil exports comprise more than 60% of KSA's national budget, 75% of export revenues and 40% of its 2016 Gross Domestic Product (GDP).[155] Economic diversification – motivated by concerns around the macroeconomic dangers of commodity dependence – has been a policy priority since the 1970s, but progress has been very limited. There may be an increase in policy seriousness

for diversification in the country's Vision 2030, which aims to increase the share of non-oil exports in non-oil GDP from 16% to 50%. However, Vision 2030 falls well short of the pace of change that would be consistent with the Paris goals, and there is no evidence of serious consideration of reducing oil and gas production in the foreseeable future.

Mitigation discussions remain focused on use of Carbon Capture Utilisation and Storage, primarily in enhanced oil recovery, framed as part of the Circular Carbon Economy. In 2021, Saudi Arabia also announced[156] a major upgrade of its 2030 renewable energy target (from 33% to 50%), which will require a substantial scaling up of implementation; though a major motivation for increasing renewable energy is to free up more oil for export instead of domestic power generation. Flagship projects of NEOM, Amaala and the Red Sea Development Company, are also being positioned with ambitious goals for carbon neutrality and using 100% renewable energy. These projects will be important testing grounds to demonstrate the potential for a post-oil economy.

CHALLENGES AND OPPORTUNITIES

Being an absolute monarchy, Saudi Arabia is a very top-down society, and has no civil society movement of the type seen in more western and democratic countries. This presents major challenges for mobilising domestic pressure on climate change and protecting people's rights in a just transition. The government remains outright opposed to international mitigation that would reduce demand for oil and gas. Prince Abdulaziz bin Salman Al Saud, the Minister of Energy, recently called the IEA's *Net Zero Roadmap* report, "a sequel of the La La Land movie."[157]

The economic changes of a global net zero future implies a shift in the country's economic, political and cultural norms, given how fundamentally oil revenues underpin both government spending and wider economic activity. While the benefits of oil are far from fairly shared, reducing and ultimately removing those revenues too quickly will create difficulty for all in the country. Any rapid changes could result in greater social unrest and heavy crackdowns from security forces.

If implemented successfully, the three giga projects of NEOM, Amaala and the Red Sea Development Company could accelerate changes in the country. NEOM for example, is planning to build the world's largest green hydrogen plant, which could be groundbreaking in terms of innovation, CO_2 emissions reduction and the energy transition.[158] However, NEOM is forcibly relocating many tribal members and has faced challenges on social acceptance among the Al Huwaitat tribe located on its border with Jordan. One resistant tribal member was reportedly murdered by Saudi security forces.[159] If these issues of sustainability are not holistically addressed, then Saudi Arabia will struggle to attract foreign investment, which it relies on for the economic success of these projects.

Saudi Arabia has also been issuing major contracts for utility scale solar PV projects, which have attracted world record low bids from contractors.[160] It is also encouraging the development of an ESCO market for energy efficiency retrofits in buildings,[161] which presents important opportunities to create new jobs and businesses. However, in terms of labour, Saudi Arabia is a deeply unequal society, with vast differences in labour rights between (Arab) Saudi citizens and migrant labour from South and Southeast Asia. There are no independent trade unions to drive a just transition, but Saudi citizens generally receive job security and high pay as part of the Kingdom's political settlement. Migrant labour is still regulated by the much criticised kafala system,[162] where domestic workers and farmers are not allowed to leave the country without permission from their employers.

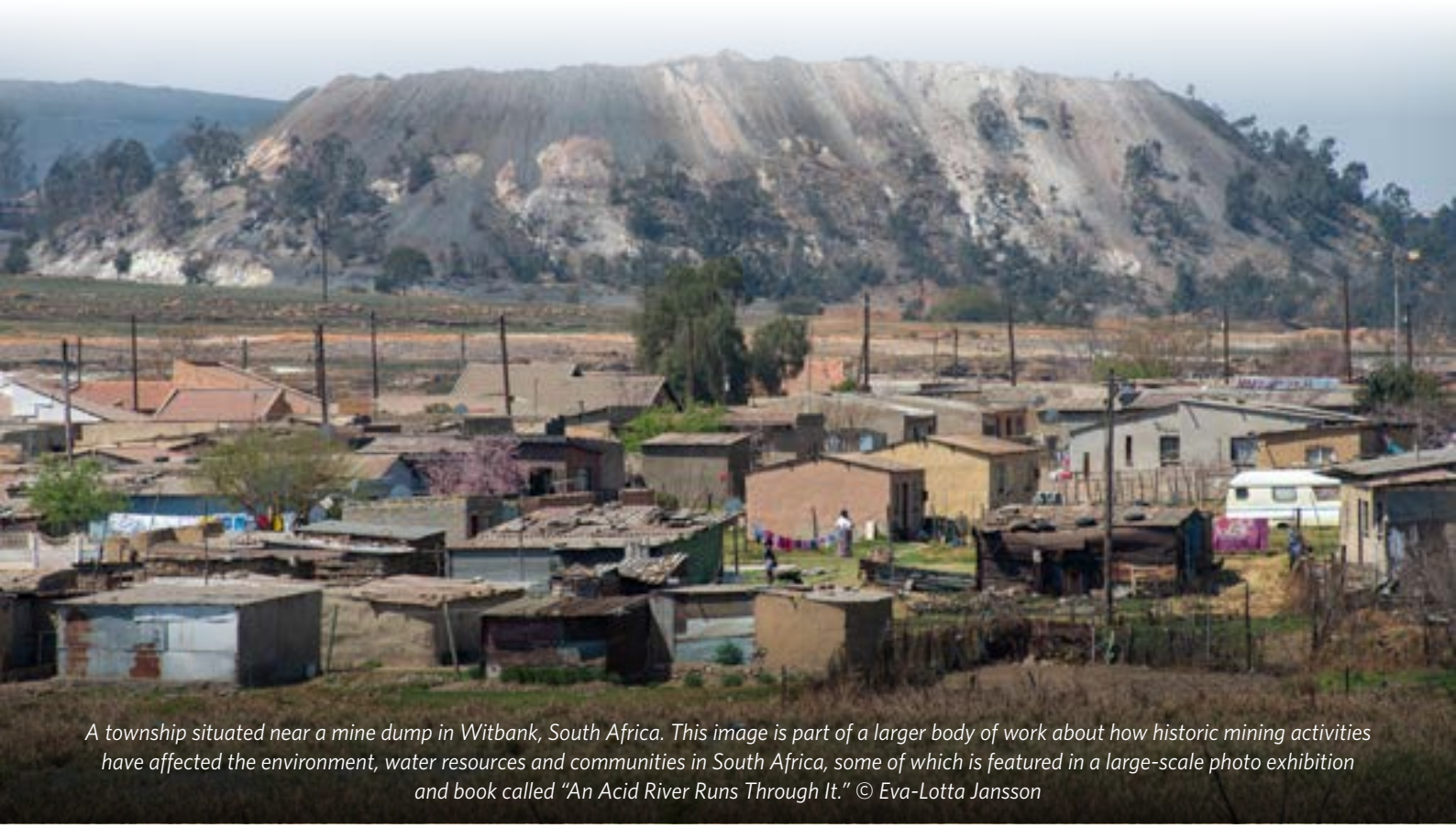
INTERNATIONAL ACTION AND COOPERATION

The USA may be lenient with Saudi Arabia on climate change commitments, especially if it comes at the cost of the Iran nuclear deal and wider peace in the middle-east region. Thus there will be a need for other countries, such as France, UK, European Union and China to encourage Saudi Arabia on energy transition and climate change. Saudi Arabia is also increasingly in competition with the UAE on economic diversification and climate change among other areas, with the UAE having recently upgraded its NDC to include an economy-wide carbon reduction target; this presents opportunities for the USA and other major players to place pressure on Saudi Arabia.

Despite the challenges in overcoming its economic dependence on oil exports, as a high income country, Saudi Arabia does have significant financial resources. It has the capacity to invest both in its own transition and to finance transitions in poorer countries. The Kingdom sees itself as a leader of the Global South, and through offering solidarity and finance aims to strengthen its diplomatic position. Saudi Arabia is increasingly developing its work on international cooperation with other countries, such as its Middle-East Green Initiative, which aims to plant 40 billion trees in the wider region. However, these efforts are still well short of what will be needed to enable a wholesale energy transition in line with the Paris goals.

COUNTRY PROFILE

SOUTH AFRICA



A township situated near a mine dump in Witbank, South Africa. This image is part of a larger body of work about how historic mining activities have affected the environment, water resources and communities in South Africa, some of which is featured in a large-scale photo exhibition and book called "An Acid River Runs Through It." © Eva-Lotta Jansson

STATE OF THE FOSSIL FUEL SECTOR

South Africa is the most coal dependent country in the G20, using coal not only for generating electricity but also to produce liquid fuels. The largest coal users - state-owned power utility Eskom and coal-to-liquids corporation Sasol - account for more than half of South Africa's emissions.

Current electricity policy[163] calls for an unnecessary 1.5 GW of new coal power in the 2020s, in addition to 4.8 GW under construction, which will increase costs, greenhouse gases, and air pollution;[164] followed by the slow decline of coal that contradicts Eskom's own stated aim to achieve net zero emissions by 2050,[165] to say nothing of independent analysis that demonstrates that coal power phase out around 2040 is needed for a Paris-aligned energy pathway.[166]

JUST TRANSITION AND PHASE OUT DEBATE

Just Transition has long been high on political agendas. The largest labour federation, COSATU, has released a Just Transition framework,[167] and numerous civil society initiatives and engagements have demonstrated broad Just Transition support. The Just Transition component of the National Planning Commission's development plan and the ensuing social partner dialogue produced a Draft Vision and Pathways for a Just Transition to 2050 (2019).[168] While identifying some areas for further negotiation, one clear outcome was a consensus on a Just Transition coal phase out by 2050. Currently, the Presidential Commission on Climate Change (PCC) is tasked with building on this work to develop a national Just Transition Framework[169] based explicitly on socially inclusive pathways to net zero, considering coal, employment and livelihoods, water, and governance, amongst others. While the focus has overwhelmingly been on phasing out coal, the salience of the need for a just transition in the oil refinery sector is now rising on the agenda with the shutting of refineries in Durban and possibly Cape Town, and with the future of the remaining refineries in doubt.

Despite the strong representation of labour and civil society on the PCC, the presence of Eskom, Sasol and other business representatives present the risk that the discourse will be heavily focused on Eskom and corporate transition, while the interests of workers and communities are sidelined.

South Africa's long-standing focus on a Just Transition is understandable. Many decades of coal mining and use has caused significant environmental damage in Mpumalanga Province, compromising alternative land uses, livelihoods, and quality of life – impacts that are well-documented and costly.

At the same time, mining and power generation are major engines of the economy, especially of Mpumalanga Province, which produces 80% of South Africa's coal and could thus face heavy socio-economic impacts from a coal phase out. As large miners have exited the industry, they have off-loaded assets to smaller firms that face a shrinking market and reduced access to capital; foreshadowing the large social and environmental challenges to achieving responsible closure processes. Impacted communities in Mpumalanga are already mobilized and addressing the local impacts of coal mining and coal-fired power, such as air and water pollution, land degradation, health risks, and others. Not surprisingly, the Mpumalanga Provincial Government is developing Just Transition strategies and plans for economic diversification.[170]

CHALLENGES AND OPPORTUNITIES

Nonetheless, strong support for coal persists in some key circles. The Minister of Mineral Resources and Energy, for instance, contradicts his own statements on a Just Transition,[171] and large corporate emitters have opposed ambitious climate policy action for many years.[172]

Much of the policy discussions on coal phase out are driven by immediate economic concerns, although trade unions and civil society are elevating issues of climate, and environmental and socio-economic injustice for local communities and workers. Although Sasol and Eskom are repositioning themselves as part of Just Transition, they continue to exceed air pollution limits and pursue fossil gas, while neglecting the concerns of impacted communities, and persisting in their fossil-based business model.

On balance, however, perceptions about the long-term viability of coal mining are shifting, major actors are divesting, and investment in production is declining. Eskom has stated they will not build further coal plants, and are pursuing a Just Energy Transition strategy that includes repowering plants with renewables (and possibly gas), while various proposals have been floated for a financing facility to support coal closures/ retirements. Whether the pace will be consistent with Paris, or protect mine workers and communities, is unclear. Furthermore, current policy still fails to include a sufficiently rapid coal phase out.

South Africa's primary Just Transition challenge is economic and employment dependence on coal, and the association of political elites with the coal mining sector.[173] Nationally, coal is a relatively small part of GDP and total employment, but in Mpumalanga towns coal often exceeds 30% of economic activity. In the city of Emalahleni, coal activity accounts for 44% of GDP and 25% of jobs. With an estimated 200,000 people employed along the coal value chain and >90 000 in mining,[174] and unemployment at 46.7% (and even higher amongst the youth, especially women), all jobs are important. Furthermore, coal related jobs are viewed as quality jobs, with higher than median wages, pensions and medical aid, and important to the strength of private sector unions.[175]

Meanwhile, the government and business is making a strong push for gas as a "transition fuel,"[176] pursuing gas deals with Mozambique and floating marine LNG power plants with 20 year power purchase agreements, as well as offshore exploration. Despite its support in some political circles, the push for offshore exploration has been met with civil society opposition, as well as regulatory and legal challenges on social and environmental grounds.

INTERNATIONAL ACTION AND COOPERATION

To phase out coal dependence would require investment of $56-61 billion[177] in the power sector this decade to shift to renewables and grid expansion, and yet more for repowering of older plants and addressing abandoned mines. But even more socially and politically complex are the social costs associated with a just transition - and the more rapid the necessary transition the higher the costs. The pace of phase out determines the total number of forced job losses for workers and how many workers will reach retirement, need early retirement support, retraining or reskilling, as well as the number of new entrants who can no longer enter the declining mining workforce for whom alternative employment creation is key. One analysis estimates ~25,000 forced job losses in a 2040 coal power phase out,[178] and costs are estimated to be higher in faster decline scenarios.[179] Overall, neither is the scale of international flows to support climate action sufficient, nor is there the requisite level of concessionality (through grants and highly concessional finance).

COUNTRY PROFILE

TRINIDAD AND TOBAGO

Asphalt mining factory and trains of red minecarts at Pitch Lake, the largest bitumen deposit in the world. La Brea, Trinidad and Tobago.
© maloff / Shutterstock.com

STATE OF THE FOSSIL FUEL SECTOR

Trinidad and Tobago's economy has over the past century been propelled by a mix of hydrocarbon resources which includes crude oil, natural gas, asphalt, and the manufacture of petro-chemicals such as urea, ammonia, and methanol.[180]

Crude oil accounts for over 36 percent of the country's GDP and over 40 percent of exports.[181] The country is also one of the world's largest exporters of LNG and methanol.[182] The latest Crude Oil Audit, prepared by Netherland, Sewell and Associates Inc. in 2018 puts the country's oil reserves at 220.1 million barrels, representing a 10.3 percent increase from the previous estimate in 2012, while another audit by Ryder Scott puts proven gas reserves at 10.53 tcf, a marginal increase from 10.52 tcf in the previous year.[183]

Dependency on volatile commodity markets has exposed Trinidad and Tobago to shocks that stem from 'boom-and-bust' cycles and other generic 'resource curse' effects.

Historically, boom-era investments in the oil industry and social subsidies led to a decline in agriculture, which was dominated by sugar and other tropical crops like cocoa and sugar. Despite

serving as the main economic mainstay of Trinidad and Tobago prior to independence in 1962, available estimates in 2019 put the contribution of domestic agriculture to GDP at 1.0 percent.[184]

While investments in social protection have been high, estimates from the Survey of Living Conditions in 2005 point to a marginal decrease in poverty and inequality from 1992. [185] Also, concerns have been raised about the low-level workforce in the energy sector, estimated at 3.5 percent of the total workforce and the relatively low presence of local players in the energy and energy-related sub-sectors.[186] Other observers have underscored the absence of a comprehensive strategy to promote renewable energy solutions to offset some of the environmental costs of the country's oil-dependent growth in terms of greenhouse gas emissions, land degradation, and biodiversity loss.[187]

JUST TRANSITION AND PHASE OUT DEBATE

The growing awareness of the environmental risks associated with Trinidad and Tobago's carbon-intensive economy and the vulnerabilities of being a small island state have cast a new spotlight on how the country can meet the call to restrict fossil fuel extraction.

Trinidad and Tobago's contribution to absolute greenhouse gas (GHG) emissions annually is less than 0.1 percent of the global total.[188] However, given its small population, the country ranks high in terms of CO_2 emissions per capita, with the latest annual emissions estimated at 12.8 metric tons.[189] The energy sector is estimated to account for 90 percent of these emissions.[190]

Since the enactment of the Environmental Management Act in 1995, the country has taken some modest steps to integrate energy and environmental policy. Notably, the Energy Ministry laid out a draft Energy Policy in 2008 that outlined different strategies for carbon reduction and incentives for renewable energy. A year later, a Renewable Energy Committee was inaugurated to identify opportunities for developing linkages between energy-based industrial plants and the production of renewable energy components.[191]

Despite these policy moves, environmental concerns always appeared peripheral in the overall national development strategy. Most significantly, the Energy Sector Vision, which was incorporated into the National Vision 2020 plan called for the "expansion" of oil and gas production, and the 'maximisation of wealth creation" while enhancement of the natural environment was left deliberately thin.[192] Indeed, several projects in this vision, including the construction of an industrial estate and a port at La Brea, opened new avenues of contention as some community groups rejected them for the government's failure to articulate a clear plan to address their environmental costs.

On the other hand, the new Vision 2030 National Development Strategy (2016-2030) places the goal of reducing carbon footprint at the centrepiece of the country's development. Among others, the plan aims to 'accelerate the transition from a fossil-fuel based economy to one that is of high value with a low carbon footprint.'[193] While these new pathways to a low-carbon growth have been lauded, there are concerns that this will come at the expense of economic development and inclusive growth.[194]

INTERNATIONAL ACTION AND COOPERATION

The international community should seize the opportunity from this newfound enthusiasm for reform aimed at accelerating the attainment of zero-carbon development in Trinidad and Tobago. This must start with an urgent call for the government to revise tariffs that disincentivise investment in clean energy sources. This will also require an improved regulatory environment to remove financial barriers to clean energy, including access to concessional loans and financing for energy efficient investment and the development of standards and codes that guarantee the use of environmentally sustainable technologies by public and private sector operators.[195]

A more collaborative approach is needed to better align policy reforms with the interests of stakeholders associated with the de-carbonisation agenda. Most significantly, regional partners within the CARICOM and other international agencies must work with the government to deepen social engagement with unionised labour to address concerns about job losses and disruptions to livelihoods. Ongoing discussions around a just transition, as pushed by the ILO and other international labour union federations are promising. However, its application to the peculiar circumstances of Trinidad and Tobago, especially given the country's history of oil, has not been fully developed. As demonstrated by the move by the Oilfields Workers Trade Union to acquire the state-owned Pointe-a-Pierre refinery after its closure in 2019, protection of jobs appears to be the main priority of organised labour. Continuous social dialogue with unions and groups representing marginalised communities will lead to a more tailored approach that integrates zero-carbon transition with overall development planning through targeted training to aid skills transfer in more sustainable energy alternatives and compensation for associated job losses and vulnerabilities.

COUNTRY PROFILE

UNITED KINGDOM

Grangemouth Oil Refinery at night. Grangemouth, Scotland. © Scotland by Camera / Shutterstock.com

STATE OF THE FOSSIL FUEL SECTOR

The UK is a substantial consumer and producer of oil and gas. With domestic assets gradually privatised since the 1980s, the UK government continues to support fossil fuel extraction. In 2015, this was enshrined in legislation through a commitment to 'Maximising the Economic Recovery' (MER) of oil and gas reserves. The policy can be seen in action through the tax regime, with the UK being one of the most profitable countries in the world for oil and gas producers,[196] and through government-backed industry plans to extract the estimated 20 billion barrels remaining in the UK's Continental Shelf. Oil and gas production, having been in fairly steady decline from the turn of the century, are now on an upward trajectory since 2014.[197]

However, the UK and devolved Scottish governments' simultaneous desire to be seen as leading efforts to tackle climate change means their support for the fossil fuel industry is coming under increasing scrutiny, intensified by the hosting of the UN climate summit, COP26 in Glasgow. There is growing pressure from the climate movement for a phase-out of production in line with 1.5°C. The policy of MER in particular is identified as incompatible with meeting the goals of the Paris

Agreement, and the recent decision of the UK government to continue new rounds of offshore licensing for oil exploration was met with widespread criticism at home and abroad.[198] [199] Government and industry insist they are committed to an energy transition, however their vision is predicated on large-scale highly speculative and expensive negative emissions technologies (NETs) used to justify slower transition than would be needed on more precautionary assumptions. They also argue that creating 'cleaner' fossil fuels domestically is a better solution to the climate crisis than imports.

JUST TRANSITION AND PHASE OUT DEBATE

Beyond offshore production, plans for onshore gas fracking have faced powerful resistance from the grassroots and certain NGOs over the last decade, with a series of local and regional victories, including moratoriums in each of the four nations of the UK, though a redefinition of fracking has seen onshore drilling begin in areas of England.[200] There is also a long history of protest and direct action targeted at coal mines, transport and power plants across the UK, with intense pressure on the UK government to intervene if a proposed new coal mine in Cumbria is given the go-ahead by local decision makers.[201]

With an estimated 26,900 people working offshore in 2021, and a further 91,000[202] involved in the supply chain, the impact on directly employed jobs and indirect employment are key challenges to be managed in transitioning away from oil and gas. The wider economic contribution in tax receipts is often cited as a barrier to winding down of fossil fuel production, however at only 0.1% of total government revenues today this is negligible.

The coal mining industry was abruptly closed following the Miners' Strike in the 1980s, to serve the then government's desire to deindustrialise the economy and weaken trade unions. Former mining communities still suffer the legacy of that closure of the coal industry, in unemployment, economic decline and poverty. Avoiding repetition of that experience increasingly informs the articulation of demands for a managed and just transition that protects the livelihoods of workers and communities currently dependent on the fossil fuel industry. Some in the environment movement are working closely with trade unions in this area of common cause, with the Just Transition Partnership in Scotland, established in 2016 by the Scottish Trade Union Congress and Friends of the Earth Scotland, an important example of this kind of collaboration that has resulted in significant wins at the devolved level.

CHALLENGES AND OPPORTUNITIES

The UK is well placed to move beyond fossil fuels: Scotland alone has 25% of Europe's potential offshore wind and tidal capacity,[203] while research shows that more than three jobs could be created for every job at risk from a Paris-aligned phase out of offshore production, and the scale of fossil fuel subsidies that could be re-directed towards enabling a just transition of the energy sector.[204] The Just Transition movement argues that this will only happen with the right policies in place to support job creation: despite the strong growth in renewable energy production in the UK over the past decade, manufacturing jobs have largely gone overseas.[205] Many renewables companies have also opposed unionisation of workers within the UK, and repeated scandals have emerged of offshore wind workers being paid below the minimum wage.[206] Just transition demands are particularly important for regions such as Aberdeen and north east Scotland, where the industry is concentrated. While a transition from offshore production is of comparatively minor consequence to the nationwide economy, the areas with greatest density of oil and gas workers will require significantly more targeted support for the transition from the Scottish and UK governments.

INTERNATIONAL ACTION AND COOPERATION

As the sixth largest historical emitter[207] and a country grown rich on the back of colonialism, slavery and the industrial revolution, the UK has a responsibility both to urgently decarbonise its economy faster than other nations, and to provide finance to help enable poorer countries to decarbonise. The UK's fair share of financial support for the Global South has been estimated at £1trillion, based on meeting zero emissions by 2030.[208] While the UK directs a commendably high proportion of its climate finance to adaptation, a recent review has shown the UK annual average bilateral public climate finance in 2017-2018 to be £1.1bn,[209] while the present government pledged a mere £11.6bn in climate finance over five years to 2025 at its Climate Ambition summit last year,[210] with recent cuts to overseas development aid further compounding this lack of commitment to climate finance.[211] Even set against the inadequate 2020 goal of £100bn a year in climate finance by 2020, the UK's contribution to climate finance is clearly falling far short.

COUNTRY PROFILE

UNITED STATES

View over oil field with derricks pumps. Bakersfiled, California, USA. © Alizada Studios / Shutterstock.com

STATE OF THE FOSSIL FUEL SECTOR

The United States has emerged over the past decade as the dominant force in the continuing expansion of the global fossil fuel economy. Over that period, a modest decline in coal production has been compensated *more than four-fold* by skyrocketing oil and gas production, making the US the world's largest producer and consumer of oil and of gas, while ranking third in both extraction and consumption of coal. The surge in oil and gas production has been enabled by hydraulic fracturing, the development of areas such as the Permian Basin, the lifting of a ban on crude oil exports in 2015, and driven almost entirely by the private sector supported by billions in government subsidies. Absent a radical shift in policy and economic incentives, the United States appears committed to continuing largely in the same direction, with extraction of oil and gas projected to grow by nearly twice as much as any other country by 2030 (Analysis by Oil Change International using data from Rystad Energy AS), vastly exceeding pathways consistent with a 1.5ºC climate limit.[212]

However, U.S. federal and state climate policy toward supply side measures might be seeing a major shift. Under the increasing political power of the climate justice movement's demands for fossil fuel phase-out, environmental justice, and just transition, in January 2021, the incoming President Biden immediately paused oil and gas leasing on federal lands and launched a review of the entire fossil fuel leasing and permitting program. Shortly after, California's Governor Newsom moved to end fracking in the state by 2024 and phase out oil production by 2045. These policy steps alone are not enough of an effort by the world's richest country, but fossil fuel companies might nonetheless be seeing the writing on the wall. Fossil fuel infrastructure projects are consistently confronted by significant opposition, especially locally and in most cases also nationally — almost no major projects are unopposed by civil society organisations and social movements. In June 2021, the Keystone XL pipeline was finally cancelled after ten years of civil society protests. Despite these gains, the Biden

administration is stalling out on its climate agenda,supporting the Line 3 and Dakota Access pipelines, opting not to defend its pause on public lands leasing in the face of a court injunction, approving new drilling permits at a faster rate than the Trump Administration over the previous two years (over 2,800 over the first eight months in office[213]), maintaining strong support for CCS, and proposing weak tailpipe emissions standards.

JUST TRANSITION AND PHASE OUT DEBATE

Meanwhile, the fossil fuel industry has for decades been investing heavily in a disinformation campaign to undermine both climate science and climate policy, fueling an atmosphere of unwarranted skepticism and political antagonism. There has been an increasingly polarised political debate about the phase out and transition of fossil fuels. Key opposition to a phaseout comes from the political right, where the fossil fuel industry has deployed decisive financial and ideological influence over politicians, even though the left has shifted toward a fossil fuel phaseout.

The country has substantial financial, technical, and organisational capacity to fund and execute a phaseout, provided there were political and institutional alignment. The diverse economy has low overall dependence on the fossil fuel sector for employment and economic growth, notwithstanding the significant regional dependencies on fossil fuel-related income and industry, as in Appalachia, Alaska, the Gulf Coast, and the Southwest. Local budgets in these areas can depend heavily on extraction fees and taxes. This regional dependency means that providing national support in these areas for a just transition for fossil fuel workers and local revenue (e.g., for school budgets, etc.) will be especially important. The dual federalist system of government has also allowed for more progress, experimentation and pilot efforts in some states and localities, though not necessarily in the most dependent areas, yet these can in principle spread and serve as models for the rest of the country.

The fossil fuel industry disproportionately harms communities of colour and low-wealth communities. A phaseout of fossil fuel extraction would bring significant benefits to communities of colour, who are also often low-income communities, to the extent that the transition explicitly deals with the legacy of historic environmental racism[214] in the siting of fossil fuel infrastructure and its concomitant health and economic harms.

CHALLENGES AND OPPORTUNITIES

The complex relationship between labour and the climate movement creates challenges for bridging the gap between labour rights and environmental justice in the short-term. However, these dynamics are shifting with the recent focus and elevation in national policy discussions on a just and equitable transition for fossil fuel workers and extraction-dependent communities to green jobs, though implementation continues to lag.

While domestic equity has risen in prominence on the agenda, the mindset of American Exceptionalism means international equity has remained largely ignored. Perceived and real threats and competition from countries, such as China and Russia, as well as disproportionate fossil fuel industry influence, make some decision-makers unwilling to make the US a first mover in phase out — and even more unwilling to extend international finance, technology transfer or capacity building to enable a just transition.

To the contrary, historically high levels of public financing of overseas fossil fuel projects, supported by an extremely fossil-friendly international U.S. foreign policy, has been coupled with generally low levels of public international climate finance. The current administration shows some evidence of change - though still at insufficient levels - on both fronts, though this is highly constrained by the more difficult path for international cooperation that will require the approval of a hostile U.S. Republican Party, as well as some “moderate” Democrats.

INTERNATIONAL ACTION AND COOPERATION

Despite its enormous capacity to provide international cooperation and resources for a phase out, the US is unlikely to come remotely close to contributing its fair share, even though public backing is likely to trend upward for the coming years. Meanwhile, in the absence of a radical shift in domestic investments and incentives, continued exports of fossil fuels and overseas fossil fuel investments will outweigh any U.S. overseas support. Though the current administration and the legislative left aspire to show leadership in international cooperation, and have taken steps to spur international coordination in certain multilateral fora, the US is unlikely to shift dramatically. Still, if it avoids actively blocking progress, it would be a welcome, if insufficient, shift.

Kids siting in a row at a charcoal facility. Labourers have to bring their children to the workplace. Ranong, Thailand. August 6, 2016.
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CHAPTER 6
SOLUTIONS FOR PHASING DOWN FOSSIL FUELS RAPIDLY AND FAIRLY

THE URGENT NEED FOR INTERNATIONAL COOPERATION

Limiting warming to below 1.5°C demands a coordinated, multilateral effort within and beyond the UNFCCC, rooted in cooperative approaches to rapidly phasing out fossil fuel production in a fair and equitable manner for all countries. Civil society groups around the world have embraced the call to phase out fossil fuels and accompanying calls for multilateral cooperation and sufficient international resources to enable rapid and just transitions in less wealthy fossil fuel producing countries. The public financing resources required to achieve these goals, when properly defined to include just and inclusive transition and adaptation programs, amount to trillions of dollars. Nevertheless, this call for **rapid and fair phase out of fossil fuel production** is increasingly supported by academics, faith-leaders, parliamentarians, Nobel Laureates, and senior officials and leaders of all kinds around the world, most all of whom now recognize the need for a comprehensive, international cooperative approach that coherently addresses the supply side challenges highlighted in this report.[215]

- **End new exploration and production:** A global moratorium on the exploration and development of new oil, gas, and coal reserves is needed to prevent the expansion of already unburnable fossil fuel inventories, to protect rights of workers, communities, and investments from becoming stranded, and to avoid locking the world into catastrophic and irreversible climate disruption.

- **Phase out the production of fossil fuels in an equitable and just manner, and as swiftly as possible:** Phasing out fossil fuel production in line with the 1.5°C climate goal and the equity principles outlined in this report will require regulation of the fossil fuel supply, including placing limits on extraction, removing subsidies for production, dismantling infrastructure, and shifting support to safer and more sustainable alternatives, while ensuring the provision of the international resources that less wealthy countries need in order to do their part in this phaseout.

- **Accelerate the implementation of real solutions and ensure a globally just transition** for every worker, community, and country: The scale of the challenge demands urgent collective action. A peaceful and just transition calls for a clear path and a proactive plan to enable economic diversification and deployment of renewable energy and safe and equitable solutions. It also necessitates stringent measures to ensure that the renewable energy revolution itself unfolds in a just manner.

NATIONAL MEASURES TO TRANSITION FROM FOSSIL FUELS

The ideas presented below address a range of issues facing nations involved with fossil fuel production. Some countries have taken some steps, but few are ready to undertake an earnest transition, at the necessary speed and scale. For many countries, such a transition is not available without robust international cooperation, including substantive support for less wealthy countries and real clarity on immediate common challenges. Fossil fuel phase out necessitates a breadth of solutions, many of which are illustrated in the country profiles above. Areas of interventions for solutions include:

DIRECT MEASURES TO CURB FOSSIL FUEL PRODUCTION

A number of direct measures to curb fossil fuel production can and must be undertaken by fossil fuel producing countries. These include reducing fossil fuels supplies by restrictions on drilling permits and extraction, production or exports as well as legal bans and moratoria. Prohibitions should also be put in place that prohibit or limit permits for oil pipelines, terminals, coal ports and similar infrastructure. Fossil fuel producing countries should also rapidly reduce and ultimately remove all state producer subsidies and funding for fossil fuels, such as tax breaks for drilling costs, below-market rates for land leases, and financing of overseas fossil fuels operations, as well as divesting state-controlled investment funds from companies involved in fossil fuel production. Ultimately, fossil fuel producing countries will need to set binding stop dates for fossil fuel extraction, as part of a global transition away from fossil fuels. The sequencing of such interventions needs to be undertaken within an equitable global production phaseout framework as elaborated in chapter 4, wherein wealthy countries move first, while allowing countries with limited capacity and high dependence on fossil fuels for employment and revenues to take a longer time. For these countries, transition support will be necessary if there is to be any real chance of success.

TRANSITION TO NEW MODELS OF RENEWABLE ENERGY SYSTEMS

As the supplies of fossil fuels are rapidly reduced, global energy needs must be met by people-centred renewable energy systems. This implies ambitious and rapid expansion that can meet total demand without harming or displacing communities, including providing energy for billions of people who lack adequate access today. Care should be taken not to replicate failings in current energy provision, and close attention must be paid to supply chain challenges and their social impacts. Nor can this transition be allowed to become a pretext for further privatization--our new energy systems should be increasingly socially-owned and community-based, and their development should be guided by principles such as energy sufficiency, energy sovereignty, and energy as a common good. They should protect biodiversity, strengthen land rights of communities, and promote gender justice; they should not lead to increased extractivism.

The emission reduction efforts in countries' NDCs should reflect this energy transformation away from fossil fuels and toward renewables, and should be consistent with their fair shares, including international cooperation as well as domestic action. It is in the interest of both fossil fuel exporters and importers to quickly move to renewable energy systems and avoid further fossil lock-in, with stranded fossil fuel assets and vulnerability to volatile oil and fossil fuel prices. Renewable energy is already often more affordable than fossil fuels, but requires strong and clear government policies, incentives and guarantees to enable unprecedented numbers of developers – including households, farmers, cooperatives, communities, small and medium sized enterprises and public institutions – to participate in a true bottom-up renewable energy revolution by the millions that also caters to local development needs and democratisation of the energy systems. Developing countries have tremendous opportunities to leapfrog from heavy reliance on e.g. coal as the profiles of India and South Africa show, to the new, people-centered and increasingly distributed 100% renewable energy systems of the future – provided there is adequate financial, technological and capacity building support from wealthy countries in accordance with fair shares. Countries need to recognise how maximizing efforts and investments in renewable energy and real solutions now is not only required from a climate view but also most beneficial from economic, health and social justice perspectives.

MEASURES TO ENSURE A JUST TRANSITION FOR WORKERS AND COMMUNITIES:

As emphasized throughout this report, a just transition for the fossil fuel sector workforce, including the creation of decent work and quality jobs in accordance with nationally defined development priorities is of imperative importance. As part of just transition, it is also important to address the crisis of care, and reorganize care and work. As the International Labor Organisation (ILO) guidelines emphasise, the just transition, "needs to be well managed and contribute to the goals of decent work for all, social inclusion and the eradication of poverty" and must ensure social dialogue where engagement with workers and their unions is crucial.

Such a transition requires planning. In many countries of both the Global South and Global North, the just transition challenge is increasingly recognized as a priority. Yet countries vary significantly in terms of the scale of the transition needed, the institutional, financial and human capabilities available to undertake the transition, and the level of engagements among key stakeholders. International cooperation should facilitate a globally just transition, meeting transitional needs everywhere, particularly in developing countries, and giving special emphasis to the workers, communities and countries facing the greatest challenge but lacking the resources required to respond to them.

At the same time, it is important to recognise that just transition and social protection schemes are relevant not only for those who are already part of the fossil fuel industry workforce but also for unemployed, youth and women and workers beyond the fossil fuel sector. The transition away from fossil fuel societies requires profound and rapid transformation also of (for example) industrial agriculture to peasant agroecology and with corresponding needs for just transition measures particular to this sector. It is likewise important that the transition from fossil fuels to renewable energy does not unjustly harm communities through land grabs for renewable energy plants or abuses at sites of mining for metals and minerals – only then can we truly claim to be leaving no one behind.

ECONOMIC DIVERSIFICATION MEASURES TO BREAK FOSSIL FUEL DEPENDENCIES

For countries that are dependent on fossil fuel production, an equitable transition from fossil fuels will require an even deeper restructuring of the economy. In Nigeria, for example, where petroleum accounts for around 86% of export revenue and 45% of government revenue, substantial support will be required, in line with the equity principles outlined in this report, to shift focus to other sectors and industries, while improving social inclusion and reducing inequality. In Least Developed Countries it can be beneficial to promote alternative development trajectories that enhance self-reliance through increasingly domestically manufactured and controlled renewable energy, low-input regenerative farming, new forms of high-value added industrialisation and South-South cooperation as a way of reducing further indebtedness and dependency on single-export earnings. Economic diversification can cater to social and economic reforms that are desirable in their own right, as countries undertake plans for a "real zero" transformation throughout their economies. While particular approaches must necessarily differ and be attuned to local conditions, there are sometimes similar needs across both the Global North and Global South for rapid transitions to peasant agroecology, enhanced public transport systems, energy efficient and healthy housing, protection of forests and new forms of well-being economics – and plans for 100% renewable energy provision.

MANAGING INTERNATIONAL ENERGY AND CAPITAL MARKETS

Support for transitions at the national level will need to be complemented by efforts to address a range of interdependencies between nations arising from the interconnected nature of our economies, energy and capital markets. Historically, swings in energy markets have affected energy-producing and energy consuming countries alike. A fossil fuel phase out fast enough to be consistent with a 1.5°C future would undoubtedly lead to unsettling economic instability across the world; indeed such instability is already evident, for example in the supply / demand mismatches of late 2021, which *The Economist* called "the first big energy shock of the green era."[216] A globally equitable fossil phase out will require the energy market transition to be well managed, which will in turn require managing a host of issues linking production, consumption patterns, and international finance. A selection of issues requiring consideration is included here:

Risk disclosure: Financial market authorities should require full "risk disclosures" from fossil exposed businesses -- to better inform investment decisions while also prudently regulating financial flows to equitably transition the energy sector. They will also need to prepare to manage the potentially seismic implications of stranded assets. International cooperation will be needed to ensure systemic stability as increased risk disclosure better informs markets, to avoid a "disorderly market adjustment," with associated risks to dependent countries and communities.

Price stability: Cooperation among countries can help avoid disruption from chaotic price volatility, such as seen during the pandemic (delaying if not derailing many producing countries' emergent transition plans and projects) and throughout the history of global energy markets. In the context of a rapid and orderly phase out, the challenges of price volatility will increase, and will need to be moderated as part of an orderly transition consistent with larger sustainable development objectives.

Demand descent: Calibrating the decline in the supply of and demand for fossil fuels will also be important as countries **accelerate renewable energy and energy-efficiency programs to reduce and replace demand for fossil fuels, accompanied by planned rapid phase out of existing fossil fuel systems (which include production and supply infrastructures)**. Reducing demand and supply together can avoid price spikes and associated volatility that too often harms the poor while profiting speculators, and can help producer and consumer countries alike to reduce their mutual dependence on fossil fuels.

Dialogue on diversification: A number of producing-countries are urgently trying to reduce their reliance on fossil fuels, and are actively exploring alternative economic activities. A more structured discussion is needed to truly understand their varying needs and to identify mechanisms that can ensure fast and fair transitions. Enhanced dialogue, **designed to lead to more international cooperation on diversification,** could help to define terms by which countries can cooperate to facilitate a truly global just transition, and thus to better manage the transitions in fossil fuel, energy and capital markets.

ADDRESSING INTERNATIONAL STRUCTURAL CHALLENGES – WHERE WEALTHY COUNTRIES MUST FACE RESPONSIBILITY

To enable all countries to undertake the above interventions at the domestic and international level, there is a need for international collaborative efforts – where wealthy countries recognise their particular responsibility. Conducive conditions for domestic action must be ensured and provided at the international level in relation to:

ENDING SUPPORT FOR FOSSIL FUELS

There must be an immediate end to all public financing of all fossil fuels. Governments and public financial institutions must take bold steps to halt support for the fossil fuel industry given the narrow window of time left to prevent climate catastrophe. Despite this imperative, many countries, particularly the wealthiest countries, are doing the opposite. While claiming they have limited resources, members of the G7 invested a combined total of $200.4 billion in fossil fuels from January 2020 to March 2021 alone.[217] This is almost 850% of the climate finance the G7 has delivered under the UNFCCC. There must be an immediate end to public financing of all fossil fuels at home and abroad, and a concrete course of action for a swift and just transition to end fossil fuel energy. This will help put an end to coal, gas and oil projects that have decimated rainforests, destroyed biodiversity, displaced people, locked many countries in the South into dependency on the fossil fuel industry, and contributed heavily to the escalation of the climate crisis. Policy loopholes that let slip fossil fuel financing and subsidies must be closed. Climate action plans must aim to urgently end all types of fossil fuel financing and support a rapid, just transition to 100% renewable, clean and democratic energy systems.

FINANCE AND TECHNOLOGY

Massively enhanced public international finance and access to appropriate technologies are required to enable developing countries to diversify economically while investing in new renewable energy systems and creating just transition measures and social protections – in addition to addressing the rapidly growing finance needs for adaptation and loss and damage. The previous section's profiles on for example Nigeria, Indonesia, Ecuador, South Africa, and others all point to the persistent need for international **cooperation from wealthier** countries

in the form of finance and technology, and illustrate how even the woefully inadequate commitments from wealthy countries remain unfulfilled. While much attention has been given to the inadequate USD 100 billion/year by 2020 unmet promise of a decade ago, this would barely be a small "down payment" on the real needs, fair share requirements and obligations under the UNFCCC, which are in the range of *trillions* of dollars.[218] UN finance and technology mechanisms and negotiations, not only within the UNFCCC but also beyond, need fundamental resets to genuinely meet the needs of nations in transition from fossil fuels.

CAPACITY-MOBILISATION AND -BUILDING

Persistently neglected, capacity-building and capacity-mobilization are decisive factors that also require early, front-loaded interventions -- this given the inherent time lags involved in training generations of experts, managers, and operators necessary for the many different kinds of interventions that are needed. Most countries have a wealth of existing capacity -- within their own countries and among citizens working in other countries that can be tapped and mobilized -- yet, given the scale of the challenges before us, there must also be a game-changing increase in cooperative measures to stop brain-drain and enhance capacity everywhere. Countries need to learn from each others' successes and mistakes, and resources and lessons learned must be made available and jointly formulated to enable training and capacity building programmes on an unprecedented scale. In this vein, India, Mozambique, Trinidad and Tobago and other country profiles also noted the need for more exchange of advanced community reskilling, technical knowledge and training for clean energy to modernise power systems, develop standards and codes to guarantee the use of environmentally sustainable technologies, and promote multilateral agreements to mobilize low-cost finance.

TRANSFORMATION OF BROADER ECONOMIC, FINANCE, DEBT AND TRADE CONDITIONS

The current net financial outflow from the Global South to the Global North may amount to a staggering USD 2 trillion per year, dwarfing the flows of international aid and climate finance and illustrates the dire need for deep, systemic reshaping of the global economy and its powerful institutions[219]. The present situation continually perpetuates global inequalities and worsens debt burdens of the Global South, limiting scope for bold, forward-looking action. The country profiles from Colombia, China and other countries above call on fossil fuel consuming-countries to address debt problems but also point to the need for more comprehensive approaches to bring about systemic change. This report recognises that ultimately all countries need to undertake deep transformations and find new ways to bring well-being to their peoples – both in the Global North and Global South. This calls for honest questioning of economic dogma, narrow economic growth models, the power of transnational corporations and the very idea of "development."

ACTION THROUGH INTERNATIONAL INSTITUTIONS

Concrete actions for solutions can be undertaken within both established international institutions such as the UNFCCC and through new platforms and spaces. A global movement is gathering pace for a fossil fuel phase out that is fast and fair via an expanding network of frontline communities and a deepening dialogue within the international policy community.

ACTIONS WITHIN THE UNFCCC

A number of measures to accelerate an equitable transition from fossil fuels can be advanced within the UNFCCC and its Paris Agreement. These include:

- Expanding the negotiating agenda to explicitly include a global fossil phase out.
- Encouraging specific country commitments to a fossil fuel phaseout through Nationally Determined Contributions in line with fair shares and the requirements of keeping temperature rise to below 1.5°C;
- Developed countries' provision of adequate climate finance and appropriate technology for developing countries, for example via the UNFCCC's Green Climate Fund or Technology Mechanism, in accordance with the equity provisions already enshrined in the climate convention and the Paris Agreement. The current "commitment" for $100 billion remains woefully short of meeting obligations and fair shares ;
- Elevating the Katowice Committee on Implementation's engagement on economic diversification and just transition to better support fossil fuel producing countries' needs for transitioning and developing alternative activities;
- Reporting on just transition and exiting fossil fuels under the Enhanced Transparency Framework;
- Introducing into the Global Stocktake (GST) the need for planning and action that identifies specific emission sources and sectors needing to equitably align with 1.5°C;

As the September 2021 Full Synthesis Report of NDCs by UNFCCC noted, "A sizable number of NDCs from developing countries contain conditional commitments to reduce emissions, which can only be implemented with access to enhanced financial resources and other support." Wealthy countries must contribute more directly to these efforts as well as increasing their own domestic measures.

EMERGING BUILDING BLOCKS FOR FOSSIL FUEL PHASE-OUT BEYOND UNFCCC

While the UNFCCC remains a key multilateral mechanism for international cooperation on climate, new efforts are afoot to complement its efforts by addressing fossil fuels directly through other existing fora, or by creating new spaces designed to manage the considerable challenges of an equitable phase down of fossil fuel production.

Building blocks are already emerging and could mature or evolve into a much strengthened regime for international cooperation toward an equitable fossil phase out. These include:

First Movers' Clubs: International cooperation often starts by a small set of concerned countries coming together to discuss their issues and to figure out what they can do collectively. It is common practice within the UN for a "club of countries" or "group of friends" to socialise new concepts and norms – in this case the need to equitably manage a fossil fuel phase out and globally just transition within the United Nations and in other multilateral fora. The new Beyond Oil and Gas Alliance (BOGA) is designed to unify a group of first mover countries in a new international climate leadership initiative to address the need for a managed decline of oil and gas, in the context of the various pathways and policies required to reach the objectives of the Paris Agreement. Announced in September 2020 by Denmark and Costa Rica, it will be launched at COP 26, with other countries and jurisdictions who share their intention of ending the production of fossil fuels in line with the Paris Agreement. Denmark pledged in December 2020 – at the time the largest oil producer in the EU – to end new licensing rounds on exploration and to end all production by 2050 (welcomed as an important step by some while also generating criticism for its very late end date). Costa Rica has never extracted oil and is currently considering legislation to permanently ban any future production.

Global Commission on Fossil Fuels: Building on efforts to create an initial club of countries and enhance transparency, a global commission is being recognized as a logical next step, to build momentum and support for the phase out approach. This could draw on precedents like the World Commission on Dams and other similar bodies. The Commission would be established with the support of a group of leading organisations and academic institutions with relevant expertise, under the patronage of an international institution or sitting Head of State (e.g. from a Small Island Developing State). The purpose of the Commission would be to build support for a comprehensive multilateral fossil phase out regime, such as through a new treaty. Through consultations it would collect evidence, establish a knowledge base, build and broaden consensus, and serve as a focal point around which a much wider community of experts and engaged citizens and organisations can coalesce, to support the development and ultimate adoption by states of a new treaty. A Commission would be a logical multi-stakeholder complement to the club of first mover countries. Its successful establishment would depend on the support of a critical mass of countries that likely extended significantly beyond the club's membership.

Enhanced arrangements for transparency and accountability: Lessons learned from efforts to tackle global threats, such as the proliferation of nuclear weapons and depletion of the ozone layer, demonstrate the importance of government transparency to effectively plan for a transition. To enhance transparency and accountability of the fossil fuel industry, a Global Registry of Fossil Fuels is under development that would offer standardised, comprehensive, government-vetted, publicly available data on fossil fuels reserves and production. This will include reporting on: 1) commercially viable fossil fuel deposits currently in production or planned for future production; 2) Licensed resources: fossil fuel deposits for which licenses have been granted and may be developed in the future; and 3) historical and projected future production: the combination of what countries have and plan to produce and how this aligns with the Paris Agreement temperature goals. Country parties could commit to reporting their data through a mechanism such as a declaration. Countries would be supported by a Secretariat, technical team or collaborating centre, and hosted within one or more UN organisations.

International treaty on fossil fuel production: Momentum is building for a formal process to deliver a negotiated legal instrument on the managed transition from fossil fuels. As articulated by the Fossil Fuel Non-Proliferation Treaty Initiative[220] such a treaty could simultaneously tackle stopping expansion of fossil fuel production, equitable phaseout and economic diversification, and just transition to 100% renewable energy. To make all this possible, it will be necessary to build political momentum both within and outside the United Nations. First-mover countries will be critical players, but the success of their diplomatic outreach will depend on international and regional coordination with civil society groups, research organisations, industry groups, public institutions, and subnational governments, even in the face of resistance from some of the most powerful countries. A concerted push for a new treaty can also serve a number of purposes in itself: a) reinforce the narrative that fossil fuel industry and infrastructure is a major global risk; b) clarify the need for large-scale, global collective action to tackle the fossil fuel industry; c) realise new opportunities to engage with states about their responsibility to implement supply-side measures; d) embed the need for equity in the discussion, particularly for producing countries; e) explore ways to meet the needs of fossil fuel dependent countries; f) link multiple local campaigns with an overarching global demand; and g) connect opportunities at the sub-national level, national level (new supply-side restrictions) and global level (club, registry and treaty) into a more unified global regime.

CHANGE RULES GOVERNING GLOBAL TRADE, INVESTMENT, FINANCE AND TECHNOLOGY

While the UNFCCC and Paris Agreement requires all countries to take steps to reduce their domestic emissions, they do not directly constrain the market forces and short-term financial incentives that continue to drive expansion of the world's fossil fuel infrastructure towards climate disaster. This in turn calls for far-reaching systems change of the international conditions that underpin and constrain what countries can undertake, including trade, investment and foreign debt conditions. Actions within the UNFCCC space must be supplemented by actions outside, including substantial changes to today's institutions governing global trade, investment, technology and finance. Most importantly, there is a need to elevate and find platforms where sincere, thorough and far-reaching conversations and re-assessments of the very fundamentals of the current economic system and development can take place – with full participation of stakeholders beyond governments.

A partial list of institutions where rules and practices must change are highlighted below.

World Trade Organisation: Change existing world trade rules that exacerbate environmental and equity crises to instead preference trade policies that encourage sustainable practices and social justice. Such reforms must support fairer trade, and transform the current rules, which have benefited wealthier countries and transnational corporations, while transcending the environment vs development binary that has come to justify the trampling of environment and human rights to meet "development" needs.

Investment Agreements: Investor-State Dispute Mechanisms (ISDS) allow private corporations to sue governments for cash compensation if measures reduce the planned profits, as seen in the case by German coal companies producing power who filed compensation claims against the Netherlands. Global South countries also face claims, consequently freezing stronger regulation of fossil fuels in many nations. Without dismantling ISDS it is difficult to see how governments can freely take the policy decisions required on equitable fossil fuel phaseout.

Trade-Related Intellectual Property Rights (TRIPs): The COVID crisis has revealed the risks of concentrating corporate control over vaccine solutions to today's pandemic, and the world runs perhaps further risks by restricting access to needed renewable energy technologies for developing countries through the WTO's existing Agreement on Trade-Related Intellectual Property Rights (TRIPs). Private ownership should not impede access to important technologies in global crises, and doing so undermines arguments that we already face an emergency.

Debt cancellation and a global, transparent and democratic mechanism to address unsustainable and illegitimate debts: Many fossil fuel producing countries in the South are deeply in debt, which in many cases is driving continuing production of fossil fuels. Policies and mechanisms for reducing debts and dependency could facilitate a timely production phase out. A global, democratic and transparent mechanism focused on unsustainable and illegitimate debt, which has long been advocated by governments and civil society, could be a key component of a global fossil fuel phase out, reducing the risk of worsening the debt crisis, freeing up funds to support economic diversification, and enabling a just transition.

Loading coal in plant. © worradirek / Shutterstock.com

The fossil fuel industry is planning, by 2030, to produce 120% more fossil fuels than can be maximally compatible with a 1.5°C trajectory. To allow this to happen means throwing the world into a climate catastrophe that will disrupt all ecosystems profoundly and pose an existential threat to all societies. Solutions exist but must be applied with the strongest force immediately. As this report shows, there is no way to succeed unless fossil fuel production is tackled at the core, and across the various areas for solutions as outlined here – including a long overdue mobilisation to transform the current, narrowly growth-oriented, hyper-capitalist development model to one that prioritizes people, planet, well-being, sufficiency and equity.

ADVANCE REAL SOLUTIONS – NOT DANGEROUS DISTRACTIONS

The rapid and equitable phase out of fossil fuel production means advancement of real solutions. As importantly, it requires the rejection of dangerous initiatives that either seek to excuse the fossil fuel industry's lethal practices or risk creating new social, environmental and equity disasters.

Dangerous distractions include:

Distant and hollow net-zero targets: Allow for countries and corporations to pretend climate responsibility by focusing on targets that are decades in the future, and by promoting the idea that offsets and new technologies will compensate for continued emissions – rather than focusing on firm commitments to cut emissions and phase out polluting industries here and now.

Carbon capture and storage (CCS): Gives fossil fuel industry excuses to continue production under the false pretense that CO_2 will be captured at scale in the future. The truth is that CCS is expensive, unproven, and risky, and that its principle use is to justify misleading notions such as "clean coal" and "circular carbon economy."

Fossil gas (commonly misnomered "natural" gas) as "transition fuel": The continued use of gas entrenches the fossil fuel industry, delays the prioritization of renewable energy, and creates obstacles to deep decarbonization. None of this can be justified by claims that gas is relatively cleaner vis-à-vis coal.

"Climate-smart agriculture" sounds like a good idea. In reality, this is an Industry rebranding of high-input and fossil fuel based industrial agriculture that threatens and displaces real alternatives such as agroecology.

Bioenergy and biofuels: Crop-based biofuels and use of forest biomass can drive monocultures, clear-cuttings and large emissions from burned CO_2, often justified on false grounds that they are carbon neutral. Replacement trees take too long to reabsorb CO_2 and may burn or never be planted. Often devastating for biodiversity, food security and local communities and land and indigenous people's rights

Offsets and carbon trading which deflect focus from stringent government actions and give polluters a way to avoid taking real action. Support for actions that reduce emissions should be done as climate investments and by way of the fulfilment of fair shares, rather than allowing the big polluters that urgently need to change to continue emitting yet claiming reductions or even "climate neutrality."

"Nature-based solutions" based on monoculture plantations or offsets with claims of carbon neutrality: Threatens nature and biodiversity, based on the false premise that continued release of safely stored fossil carbon into the atmosphere can be "offset" by temporary uptake in vegetation.

Carbon dioxide removal (CDR) geoengineering: Many mega-scale geo-engineering technologies to remove carbon dioxide from the atmosphere –increasingly promoted by the fossil fuel industry – pose extreme risks to biodiversity and local and indigenous peoples lands and livelihoods, and may justify continued fossil fuel production and expansion of offsetting. CDR proposals such as **Bio-energy carbon capture and storage (BECCS), Ocean fertilization, Direct Air Capture (DAC) and large-scale biochar** may never work at scale, each carry fundamental social and environmental problems, and should not be assumed to work in climate scenario modelling. Without such assumptions climate modelling shows how fossil fuels must be phased out much faster.

Solar radiation modification (SRM) geoengineering: Failure to rapidly address fossil fuel phaseout threatens rise of calls for inherently dangerous solar geoengineering technologies to block incoming sunlight as some sort of perceived panic intervention – which introduces new grave, existential threats. Fossil fuel interests are falsely portraying SRM as a plan B, as an attempt to lessen pressure to close down fossil fuel production.

Coal barges floating over Mahakam River. Samarinda, East Kalimantan, Indonesia. December 26, 2019. © vidiawan / Shutterstock.com

CONCLUSION

EMERGENCY EXIT EQUITY

Humanity's current awareness of today's rapidly warming world is somewhat like smelling smoke in a dark theatre. As audience members murmur about emergency exits and more folks get frightened, finally ... an alarm rings, and all are aware!

Warnings now abound about the climate crisis. As with the theatre, a disorderly exit can lead to panic, pain and death. Yet this can be prevented if a critical mass of people and governments comes to soon see that the easiest path to collective safety is a cooperative and fair exit. Coordination based on equity is essential as a prerequisite for safely exiting crowded theaters, as well as for solving our climate crisis.

Without real equity, countries will not cooperate.

FOSSIL FUELS FOCUS

Our focus on an equitable end to fossil fuel production and supply is essential to complement efforts that focus on demand-side emissions reductions. **Climate policy's emphasis has until recently been almost wholly given to the emissions side, while supply-side measures and any focus on fossil fuel production has been neglected. This cannot continue. If we are to turn things around, we will need a concerted policy effort to shift the politically and financially powerful forces that have worked so far to maintain the status quo and keep the global economy dependent on fossil fuels.**

Civil society organizations and social movements have increasingly hammered away on the need for a just transition from fossil fuel production. We hope this report helps strengthen these efforts, by drawing attention to the need for an equitable approach to the phase out of fossil fuels.

Such an approach is essential, for six years after the Paris Agreement and almost thirty years since creating the UNFCCC, national pledges of voluntary efforts remain grossly inadequate, both in terms of emissions cuts and the provision of public climate finance. Given that climate impacts are now unavoidable, funding for both adaptation and "loss and damage" are as important as funding for just transition and even mitigation itself.

LESSONS LEARNED FROM THE REPORT INCLUDING FRONTLINE PROFILES OF JUST TRANSITIONS IN THIRTEEN COUNTRIES

Many countries today are attempting to transition away from fossil fuels. The diverse situations and different interests of each country make cooperation ever more challenging. Yet our collective security and survival now depend on our acting together, which can only happen in the context of a shared sense of justice. Further, we found from profiling thirteen diverse countries with a staggering range of needs, vulnerabilities, challenges and capacities that, such a sense is going to require addressing a number of imperatives:

1) *Governments and companies must end development of all new fossil fuel projects worldwide;*

2) *Countries must end fossil fuel extraction and phase out existing fossil fuel facilities at a pace consistent with limiting warming to 1.5°C and in a fair and equitable manner;*

3) *Governments must enable a just transition, designed through social dialogue with workers, their unions and communities, particularly those at the frontlines of extraction and sites of renewable energy expansion;*

4) *Countries must undertake a rapid transition from fossil fuels to 100% renewable energy while diversifying their economies and adopting alternative development models away from dependency on fossil fuels; for less wealthy countries, this will require delivery of climate finance;*

5) *Wealthy countries must massively scale up climate finance as part of their fair shares of global climate action, and cooperate internationally to support Southern countries in this transition;*

6) *Governments, companies and investors must provide reparations where extraction and fossil fuel projects violate human rights.*

In practice, a fair share phase out of fossil fuels applies equity principles to a strict scientific mandate, where the wealthiest and most adaptable countries cut production fastest and furthest, while nations that are more vulnerable and more dependent on fossil fuels have longer times to transition their economies while developing post-carbon economies that can support dignified and sustainable livelihoods for their people.

CIVIL SOCIETY EQUITY REVIEW 2021 RECOMMENDATIONS FOR A FAIR SHARE PHASE OUT

Global civil society organisations urge all governments to go beyond merely delivering on their current NDC, and to strengthen their climate strategies to include real efforts to expeditiously and equitably phase out fossil fuels and the industry producing by far the most emissions, and polluting our planet past the tipping point.

Success in saving our planet, at this late date, starts with:

- Delivering on long overdue commitments from the Paris Agreement (and previously). The wealthiest polluters, particularly, must contribute their "fair share" to solving the crisis by cutting emissions deeper and faster while cooperating with less wealthy nations to provide funding for climate finance, technology, adaptation, as well as loss and damage;

- Recognising fossil fuels as the key contributor to the climate crisis and creating new pathways and platforms to urgently end expansion, phase down production, and fast-track just transitions for all countries and communities;

- **Prioritizing international cooperation** by rich industrialised countries in both phasing out production first, and supporting transition in countries less able to transition **by providing resources for renewable energy systems, workers' and communities' just transitions, as well as broader economic diversification and transformation;**

- **Establishing the building blocks of a fair shares phase out, which could include a First Movers Club of countries committed to ending the financing and extraction of fossil fuels, a Registry of global fossil fuels reserves to increase transparency and accountability, a Commission dedicated to carrying forward diplomatic discussions towards a phase out, and enhanced international legal instruments to equitably align production within 1.5°C;**

- Changing rules of global trade, investment, finance and technology to increase "policy space" for governments expediting emergency policies, cancelling unsustainable and illegitimate debts, as well as exploring new programs to encourage commerce that respects the rights of people and the planet over profit.

Wealthy countries who still produce fossil fuels must be the first and the fastest to phase out their production, yet in most cases their actions continue to point in just the opposite direction. With scientists now telling us that the vast majority of fossil fuels must stay in the ground, many producer countries are eyeing the need to exit the fossil fuel business. Unfortunately, as matters stand, they risk debts or even defaults and economic and financial crises if they do so. Such crises can be avoided. It is essential to anticipate and manage the transition to avoid financial fall out, and prevent it from degenerating into chaotic collapse. To that end, and to ensure an equitable phase out, we need a cooperative, transparent and peaceful way to agree which countries should be allowed to predictably use remaining reserves in our shrinking atmospheric budget.

Finally, we need leaders, many of them still too bound by fossil fuel interests, to break away and stand on the right side of history, and do what is expected from leaders - to heed the sirens of climate science and provide leadership in phasing out fossil fuels, in order to avert the worst and most catastrophic climate change. To safeguard a future that leaves no worker, community or country behind, we need new models of development and profound systems change -- we need a globally just transition from fossil fuels.

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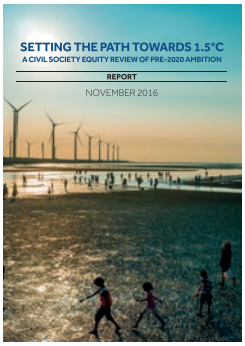
2015 REPORT **VIEW>**



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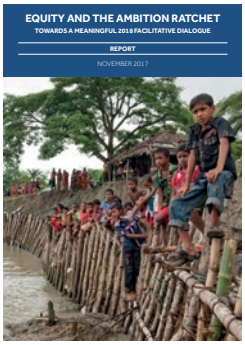

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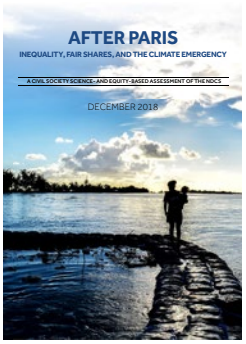

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