Environmental Governance

Amidst the Climate Crisis and Energy Transition in the 21st Century

The first quarter of the 21st century is a remarkable period of significant political change for the world. Firstly, our world experienced a unique pandemic brought forth by the novel COVID-19 virus, which yielded to a rethinking on health and well-being as a central responsibility of the national state. The pandemic likewise raised serious debates regarding the merits of unfettered economic globalisation, leaving questions about the sustainability of integrated supply chains. Since 2020 disruptions in global production networks have remained a formidable challenge for securing access to basic goods. This, in turn, reframed political debates, including the significance of resourcing manufacturing processes by way of establishing regional production networks to effectively respond to local demands for personal protective gear, food supplies, and COVID-19 vaccines.

Climate crisis as a critical juncture

The International Climate Change Conference in Glasgow, known as COP26, has set the pace and direction of the worldwide transition to clean energy. Climate commitments have entrenched a net-zero target of reducing carbon emissions, preventing the release of planet-warming gases, and capping temperature rise at 1.5°C. Yet, as a McKinsey Report notes, the current structures of finance, investments, and energy infrastructures are outdated, with supply chains incapable of meeting the rapidly growing demands for primary materials for clean technology. Thus, another reality becomes more apparent: As we build bigger wind turbines, offer solar panels in more households, and assemble new reality vehicle (NEV) cars across cities worldwide, our demand for critical minerals increases, inadvertently putting pressure on our environment.

The European Union (EU) and its New Green Deal is an important case to examine the transformation of the EU into a carbon-neutral economy – along with its accompanying industrial strategy supporting the expansion of clean energy technology – will require up to a ten-fold increase of raw materials consumption to meet the 2050 climate neutrality scenario. In addition to material intensity taking place in middle- and low-income countries likewise increases demand for material intensity and resource efficiency. With the global population projected to reach more than 10 billion by 2060, material resources are required to support the demographic change. The OECD Report outlines this very clearly: “Global primary materials use is projected to almost double from 8 billion tonnes (Gt) in 2017 to 167 Gt in 2060. Non-metallic minerals – such as sand, glass and rock – represent the largest share of total materials use, projected to grow from 48 Gt to 86 Gt between 2017 and 2060. While metal extraction and processing are smaller when measured in weight, its growth is projected to be more rapid, not to mention their association with large environmental impacts.”

We can also think about the pressures of energy transition in terms of the range of minerals required to secure the seismic shift towards renewables. In Figure 2, we compare both the amount and type of minerals for which demand is projected to grow in the coming decades – from the national all the way to the municipal levels – seek to achieve their net-zero targets. The rapid deployment of new energy technologies such as wind power and solar energy – two of the most favoured renewables – will require between 4000 and 16,000 kg/megawatts of a range of base metals and rare earth elements (REEs). Put crudely, we expect the intensive and extensive exploitation of natural resources to meet global demands.

Sacrifice zones and the quest for new models of resource governance

The global race for natural resources reinforces longstanding forms of social, political inequalities, top-down modes of governance, and ecological debt by the industrialized world towards the developing world. Traditionally, we think about “environmental governance” through the lens of problem-solving approaches, in which narratives coalesce around how to achieve resource efficiency and how to secure access to critical raw materials for the energy transition. Those in developing countries that bear enormous natural capital, especially communities living in close proximity to sites of extraction, are often considered...
new form in the 21st century.

As this Focus section demonstrates, the problem is further compounded. Ironically, although presented as a panacea to the contentious nature of the social contract between the Gulf rentier state and their citizens, the painful process of increasing strategic control over resources has not only failed to make the wealth from their endowments. And, as market transitions exacerbate income inequality, social and ecological costs are being transferred as distribution of socio-economic benefits and costs will remain a formidable challenge in the near future. In regions where energy and gas exploration and production occur, communities have seen their environments and landscapes changed or destroyed. Yet the climate change goals not only require Central Asian policymakers to address resource dependence, but also to navigate the socio-technical challenges that come together with resource dependency in the context of central Asia.

Continuing with the theme of natural resource dependencies, let us go to Southeast Asia, where natural resources, notably fisheries, are considered quintessential for livelihood strategies. But while high rent sectors like mining and hydrocarbons attract the national government towards resource extraction and centralization of state power to assert control over resources, Cambodia experienced an unusual pattern of political reform and reduction in power. On the one hand, delegation of powers to local communities has often been advised as a means of reducing corruption and leading to more sustainable and localized solutions for resource conservation. On the other hand, revenue implications and the need to tax the sustained health of a low-income country—do not always explain clean energy transitions.

To explain why states often adopt highly contradictory policies, Sato returns to politics specifically, different incentives as a result of political competition as the overarching motivation for the decision to control natural resources. Thus, the public must become part of a wider political discussion to avoid the general tendencies of decision-makers to gloss over the damages associated with natural resource extraction, both above and within societies, hierarchies in global production networks, and power differences among nations and regions. They are continuously shaping the future. To put it differently, political action is both defining and affecting the trajectory of energy transition, and they are instrumental in crafting the diverse outcomes of energy transitions in countries towards meeting our common vision of reducing carbon emissions. As we move forward, it is essential to remember that contemporary struggles for social justice and fair distribution of environmental costs and benefits can help us determine the overall success of human endeavours to solve the ecological crisis in the Anthropocene.

Notes
1. Chazan, Guy, “Germany approves €100 billion fund to modernise its armed forces”, Financial Times, Berlin, June 05, 2022, https://www.ft.com/content/0f299597-9f5f-4be5-a1f6-39b970f085d1; accessed on August 01, 2022.
3. Zhang, David, “Meeting our global climate targets, the world finds their pathway towards clean energy transition. As each country faces an unusual process of decentralization of state power to control natural resources and extraction”, Sato returns to politics as the overarching motivation for the decision to control natural resources. Thus, the public must become part of a wider political discussion to avoid the general tendencies of decision-makers to gloss over the damages associated with natural resource extraction, both above and within societies, hierarchies in global production networks, and power differences among nations and regions. They are continuously shaping the future. To put it differently, political action is both defining and affecting the trajectory of energy transition, and they are instrumental in crafting the diverse outcomes of energy transitions in countries towards meeting our common vision of reducing carbon emissions. As we move forward, it is essential to remember that contemporary struggles for social justice and fair distribution of environmental costs and benefits can help us determine the overall success of human endeavours to solve the ecological crisis in the Anthropocene.

Multiple pathways towards energy transition

In this edition of The Focus, our authors build on the logical idea of energy transition, although a collective experience shaping societies across the world — is being shaped by social and economic contexts in ways that produce multiple pathways of (re)constructing environmental governance across the geopolitical matrix of policies. The aim of each piece is to shed light on how the shared enterprise of keeping the global energy transition, Alkhatib concludes Interactions with diverse contexts and challenges on the ground. The collection contains five essays, each contributing to a new understanding of environmental governance in the context of our ecological crisis and uncertainty.

In the first two papers, Hao Zhang and Nurzaijzi Akselradi examine the challenges of climate change and extractive industries in China and Kazakhstan. China, like the United States, is responsible for intensive energy consumption that is already ascendant as the second most powerful economy in the world. Given its reliance on a coal-intensive growth trajectory, China’s energy matrix requires a coordinated energy reform program. Such a program must simultaneously (i) increase the market share of renewable energy in its complex development planning while also signaling strategic climate change cooperation with the rest of the world. However, Zhang emphasizes the difficult balancing act necessary to achieve domestic high growth targets and an efficient and sustainable national energy system.

In the second paper, Concepcion and Vincze show the importance of strategic choices of critical infrastructure and government-driven well-coordinated climate-energy industrial strategy. To further problematize the multiple pathways for energy transition, Akselradi shows the unique set of policy challenges faced by resource-rich countries in Central Asia, notably Kazakhstan, to meet ambitious climate targets. As an oil and raw material producer, the Kazakh state must deal with similar pressures facing other countries in Latin America, the Middle East, and South-Saharan Africa. With export earnings from oil, gas, and minerals driving these states’ economies, the process to catch-up in energy transition is monumental. Meeting the sustainable development goals will require new forms of social justice and ecological damage at the local sites of extraction. An immediate challenge is to make this trade-off put in starkly clear terms. While embracing renewable energy can support SDG 7 (affordable, reliable, sustainable, and modern energy — surging demands to produce clean energy), it also conflicts with the resource use, especially the increasingly scarce metals for wind and solar power. Although renewable energy extraction is opening new pathways for economic development in the developing world in terms of investment, infrastructure, and construction for inclusive industrialization and innovation related to SDG 9. Yet, as these governments are wrestling over how to strengthen their weak institutional capabilities and to design innovative policy instruments to developmental spillovers from the mining industry. Thus, mining producers face dilemmas on sustaining economic growth and limiting the environmental impacts caused not just by metal mining operations, but also by the asymmetric and unequal impacts of non-metallic minerals in construction.

The politics of sacrifice play out in a multi-layered way, connecting the collective choices of citizens and households living in the advanced industrialized world on one hand, whether we speak of their national champions, compared their living in the forefront of extractive projects or, ordinary citizens in resource-rich countries. Clean energy transition, although presented as a panacea to the climate crisis, has uneven effects that become entrenched with extractive cultures and structures of power imbalances between nations, classes, and social groups.

As the clean energy revolution accelerates the demand for cobalt in the Democratic Republic of Congo, the region also extends to Brazil, Chile, and nickel in the Philippines and Indonesia, multinational capital, European governments decide against new mining projects within their own borders, minerals extracted from overseas social localization and local extraction. However, for mining communities to successfully 5 European Commission, ‘Critical Minerals to Build First Plant’, https://ec.europa.eu/energy/energy-strategy-and-initiatives/energy-supplies/critical-minerals-to-build-first-plant.pdf, November 03, 2021, accessed on August 01, 2022.

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