

RE-IMAGINING SIMPLE LIVING AND UNCERTAINTY: TRANSITION TO CARBON-NEUTRAL ECONOMY IN DEVELOPING COUNTRIES

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ABSTRACT

In the beginning of the Covid-19 outbreak, the lockdown and work from home have reduced the greenhouse gas emissions significantly, and that raised a glimmer of hope that things will turn out for the best in the end. What happened in the long run is the deepest economic recession since the Second World War. The low oil prices due to the collapse of demand would weaken the case for low-carbon investment, and in the final analysis, there is a risk that the Covid-19 crisis might actually make things worse from the climate mitigation point of view. With Indonesia as a case in point, this article lays stress on the challenges to promote a Carbon-neutral economy in developing countries while the government programs continue to display commitment to 'development' and 'progress'. Instead of pursuing a green recovery from the Coronavirus pandemic-caused economic downturn, the government pledged to remove the burden from, and make conditions more favorable for, foreign investment. The commitment was demonstrated by the enactment of the so-called 'omnibus' law in October 2020 – arguably, being part of the government's plan for a stronger China-Indonesia relationship. When economic growth remains strongly held as the presiding paradigm, denial about climate change, natural resource depletion, and the latest ecological conditions of the earth are expectable. In addition, without apparent reason, optimism over the economic impact of Industry 4.0 bolstered the confidence as though nothing should be worried about. This fact appears to suggest that developing countries with natural resource potentials pose the most formidable challenges to the carbon-neutral economy agenda. It calls attention to the need to explore and discover helpful re-imagination of the uncertain and precarious conditions of life and to present them as positive. In Indonesia's context, the work should focus on the importance of religion, pop-culture and social media in normalizing and glamorizing precarity and simple living.

Keywords: Precarity, simple living, decarbonizing the world economy, climate change, post-development

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HIGHLIGHTS

- Every non-renewable natural resource has a beginning, middle, and end of production.
- We are already, or near, the peak of fossil fuel production after which the supply is declining irreversibly. We cannot depend too much on oil any longer.
- With the limited stocks of fossil energy and limited quota of CO₂ emission, a global transition to a low-Carbon economy is a necessity, not an option.
- Without an intervention, the rising global demand for fossil energy is not likely to be abated anytime soon. Developing countries need viable alternatives towards transitioning.
- Resilience skills to face a heap of uncertainty about the future is of paramount importance. Thus, a need for paradigm shift, to change the way people view their lives.
- With emerging evidence of a link between human exploitation of nature and pandemics, we must, therefore, be better prepared for outbreaks of new diseases in the future. This, and the challenges of dwindling resources, have brought about a need for resilience skills to face a heap of uncertainty about the future.

I. BACKPEDALING DEVELOPMENT

Green and Greed can hardly coexist. It is impossible to run an expanding 'Growth economy' while keeping its impact within safe ecological boundaries. The greed-driven economic system is a suicide machine that is doomed to destroy itself in the end. With Indonesia as a case in point, this article brings to the fore the question of economic retaliation that developing countries have been pursuing against the wealthy nations in the context of 'twin ecological' challenges to energy, against the backdrop of the Covid-19-caused economic recession. By "twin ecological challenge" I mean the conundrum caused by the growing worldwide demand for energy on the one hand, and on the other hand, the limited stock of fossil fuels left and the limited quota of CO₂ emissions from the combustion of fossil fuels to curb the warming of the Earth to well below 2 degrees C. Drawing on my observation of denial and indifference among Indonesian engineering societies, in response to the idea of Decarbonizing the world economy and the Transition Engineering online course held by the University of Canterbury, New Zealand, a number of human-ecological issues appeared as the key themes appropriate for a post-development debate.

Human-ecology is an interdisciplinary and transdisciplinary study of the relationship between humans and their natural, social, and built environments. The discipline includes ecology, geography, sociology, psychology, anthropology, zoology, epidemiology, public health, and home economics. I myself came from a multidisciplinary background. I earned my bachelor's degree in Chemical Engineering, had about 10 years working experience in petroleum-related industry, and afterward, founded a small organization for environmental initiatives on sustainable food movement and eco-literacy community education in Indonesia. I had multiple postgraduate studies: Philosophy, Social Sciences in Environmental Studies and received my PhD in Sociology. As life in the late modern world under a global economic system getting more complex, the non-interdisciplinary approach to environmental problems that does not seek to unveil the deeper societal-environmental interactions, often fails to identify the mainspring of the challenges, let alone to offer any solutions. Both ecological crisis and Covid-19 pandemic are cases in which our technology was used without considering its impact. Both are caused by our civilizational pursuit of economic development without factoring in the impact of our behaviors on the environment. Increased specialization of expertise has become the root cause of the communications disconnect between decision makers and scientists. Politicians, lawyers, and economists running the government and the economy are largely scientific illiterates. On the other hand, the scientists who understand ecology and Covid pandemic have little understanding of politics, public policy, economic systems and organizational management (Cohen 2021). What is more, in developing countries, the current situation of science denial and ignorance are aggravated by the 'colonial mentality'. My observation of Indonesian engineering societies' response to the Energy Transition ideas lends support to the claim of the Post-development thinkers.

Post-development thought arose in the 1990s. It questions the idea of national economic development that flies in the face of widening poverty and inequality in developing countries and the worsening of its environmental conditions. Prominent post-development thinker, Arturo Escobar, an anthropologist of development and political ecology (Escobar 2011) propounds the characteristics and interrelations of the "three axes that define development" in the Third World or developing countries. They are:

1. **The forms of knowledge that refer to it and through which it comes into being and is elaborated into objects, concepts, theories, and the like;**
2. **The system of power that regulates its practice; and**

3. The forms of *subjectivity* fostered by this discourse, those through which people come to recognize themselves as developed or underdeveloped.

The dominant paradigm of 'Development' that arose soon after World War II articulates the 'Enlightenment' discourse and capitalist notions of economic growth, and this Eurocentric model brought together modernization and industrialization (Preston 1996). It assumes that progress equals economic growth, which necessarily involves technological sophistication, urbanization and high levels of consumption. Furthermore, as knowledge is socially constructed and thus inextricably linked to power (Foucault 1972, 1980; Hindess 1996), the assumptions of 'Development' may continue to marginalize indigenous peoples and their knowledge.

Despite being nonsensical, the idea that economic growth can continue forever on a finite planet is essentially the unifying faith of industrial civilization. The fallacy of the idea is elaborated numerically in the famous 'Limits to Growth' (Meadows et.al, 1972). Meadows and his team's examination classified the limits into two categories, namely: Sources and Sinks. Sources are those things we need from nature for industrial civilization to survive: minerals, metals, fossil fuels, fresh water, arable soil. Sinks refer to the capacity of the planet to absorb pollution of its soil, air, water, and not less importantly, the capacity of its atmosphere to absorb carbon. If humans propagate, spread, build, consume and pollute beyond the limits of our planet and her capacity to regenerate, we will have problems. In the opposite way, the opponents of 'Limits to Growth', the cornucopian, believe that growth is the panacea of all ills because it will allow us to enter into the state of grace known as affluence. The latter permits us to consume more, providing more jobs for more people, producing more goods and services so that the all-mighty economy can continue to grow.

Furthermore, in developing countries the notion of Growth has gained a moral imperative: 'only the uneducated sets against the growth paradigm'. Economic growth is strongly held as freeing the global poor from deprivation and disease. It will enrich and educate the women, reduce birth rates, and will provide us the means to pay for environmental remediation in the end—to clean up what the economic progress has despoiled. It will lift all boats, making us all rich, healthy, and happy - East and West, Asia and Europe, communist and capitalist, big business and big labor, Nazi and neoliberal, the governments of just about every modern nation on Earth: "All have espoused the mad *growthist* creed". (Ketcham 2018, para 2). For that reason, the greatest challenge of sustainability, in developing countries more particularly, is to

'overturn the historically deeply-embedded assumption that progress or development by way of unlimited natural resources exploitation, is both inevitable and desirable' as Oosthoek and Gills (2005) also asserts.

At this point in history, the contrast of mental states between developed and developing countries could not be more striking than the fervor about economic development. In 1974, the economist William Nordhaus (1974) described the transition from a "cowboy economy" to a "spaceship economy." In the "cowboy economy" we could afford to use our resources profligately, and the environment could be used as a sink without becoming fouled. But, in the "spaceship economy" "things which have traditionally been treated as free goods—air, water, quiet, natural beauty—must now be treated with the same care as other scarce goods." (p.22). It is only at this stage of economic development that great attention must be paid to the sources of life and to the dumps where we pile our wastes. Nordhaus' narrative depicts correctly the history of developed countries. They have gone through a full circle - they started the environmental crisis through industrialization, and now in this post-industrial society, they have come to the realization of the existence of environmental crisis, thus, have the means to rectify. A developing country like Indonesia, on the other hand, has not completed its "cowboy economy" while poverty (Akhlas 2020) and entrenched corruption (Gumelar 2020) continue to bedevil the population since its inception as a country down to this day. With the advent call to action on the 'twin' energy challenges of climate change and peak oil¹, it is realistic to say that the last bell is rung and the Earth does not seem to allow them to complete their full circle and arrive at the "Spaceship Economy". Unless there are viable alternatives towards transitioning, the developing countries leaders might bitterly resent to get the short end of the stick under the pretext of ecological reasons, and therefore, might take a '*let's go to hell together*' position against the issue, as I contend in my PhD (Alkatiri 2015, 2016). With this in mind, there are compelling reasons on the need to explore and discover positive re-imagination of the uncertain and precarious conditions of life. It calls upon the need of research projects to examine how precarious ways of working and simple living in a Post-Carbon world can be branded positively and at the same time, morally righteous. In Indonesia's context, the project should examine the importance of religion, pop-culture, and social media in normalizing and glamorizing precarity.

It is important to make it clear that this article rests on the assumption that natural resources are finite. The non-renewable resources are formed over long geological periods.

¹ The idea that global oil production will soon peak and then decline.

Their rate of formation is extremely slow, so they cannot be replenished once they get depleted. Another key thing to remember, renewable resources are seldom perfectly renewable - if their levels are heavily decreased, they may not be able to completely replenish themselves. Oil (petroleum), natural gas, coal, oil shale, tar sand, coal bed methane (CBM) are all fossil fuels. It takes from 3 to 6 millions of years to naturally form fossil fuel from the decomposition of dead organisms. That is why they are generally considered non-renewable. With our modern-industrial-affluent-consumption lifestyle, we consume fossil fuel in a way that is depleting the available resources much faster than the new ones being made. Global oil production is now approaching or has already passed an all-time peak and can potentially end our industrial civilization. In a way comparable to fossil fuel, other non-renewable sources too, have their limits. Everything will have a beginning, middle, and an end of production, and at some point, it will reach a level of maximum output like a bell-shaped curve graph. Obviously, this fact constrains Development, that not everything is possible and there cannot be an 'endless Development'.

It is worth mentioning that my belief in peak oil theory is not without a basis. My chemical-engineering education background provides a full understanding of the relations between petroleum and everything characterized as modern life. Oil has been used not only as the main source of energy linked to modern day amenities, but is also the raw material of almost every item we use on a daily basis. Agricultural food production too depends on oil² (see Pfeiffer 2006). The marvels of 20th century science and technology were only possible with access to abundant supplies of cheap fossil fuel. In addition, I encountered peak oil reality first hand when I worked in a petrochemical project in Arun, Aceh from 1994-1998. The project was to build a natural-gas condensate fractionation unit in Phase-1, followed by Phase-2 to construct production facilities for a wide range of *aromatic*³ petrochemical derivatives from *Naphtha* produced in the Phase-1 unit. The project was designed by ignoring the signs of a depleting Arun condensate reserve by the so-called 'cornucopian' confidence that oil or natural gas exists in endless abundance in the earth's deep interior. As a result, the Phase-1 fractionation unit was finally built and operated for a short while but then had to be shut down completely as feedstock was unavailable, and Phase-2 never started due to a lack of feedstock of the right specification being secured from around the world.

With the aforementioned underlying assumption, I take the view that switching to

renewable sources of energy needs to be done sooner rather than later. Despite that, I am against the general assumption that renewable energy can replace oil to sustain consumer societies, nor that the advancement of Green technology can sustain Growth paradigm. Taking that onboard, this article contends with the problems of energy, climate change and resource scarcity in the context of the rapidly growing economy of the Asia Pacific. I am in a position to argue that a global transition to a low-carbon economy is an urgent necessity, not an option. In light of this, no matter how unthinkable, a global reimagination of simple living and precarious conditions of life, and branded them positively, is urgently needed.

II. COVID-19, 'TWIN CHALLENGES' TO ENERGY, AND ECONOMIC RETALIATION

It has become a current scientific consensus that the Earth climate has warmed significantly. The fact that climate change threatens the life-supporting system of the planet, and that fossil fuel is now approaching or has already passed an all-time peak, are together posing the twin constraints of energy. On the upstream side, the constraint is in our stock of energy, and on the downstream side, the result of the combustion process to release that energy has become the root cause of climate change. In spite of this fact, fossil fuel continues to be the world's primary energy sources up to this time, and CO₂ from the combustion of fossil fuel accounts for the greatest majority of our greenhouse gas emissions. In 2019, around 84% of global primary energy came fossil fuels (Ritchie 2017), and fossil CO₂ emissions are the largest source of global greenhouse gases emissions with a share of about 72%, followed by CH₄ (19%), N₂O (6%) and F-gases (3%) (Olivier and Peters, 2020).

Apparently, the process of ecological devastation is closely related to economic systems that irrationally use the earth's resources, and the explosive growth of the world population that leads to sharp increase in the burden on the environment due to an increase in people's needs for food, energy, housing, industrial goods, etc. Ecological economics, by contrast, is economics that correctly situates human society within the context of Earth's limited natural energy flows and resource stocks. From the first decade of the 21st century, the balance of economic power was shifting from the developed economies of North America and Western Europe, to the emerging economies of Asia, Latin America and Africa (McKinsey 2012). By the late 1960s, Asia was the poorest continent in the world, marginal in its income levels except

² For agrichemicals (fertilizers, pesticides).

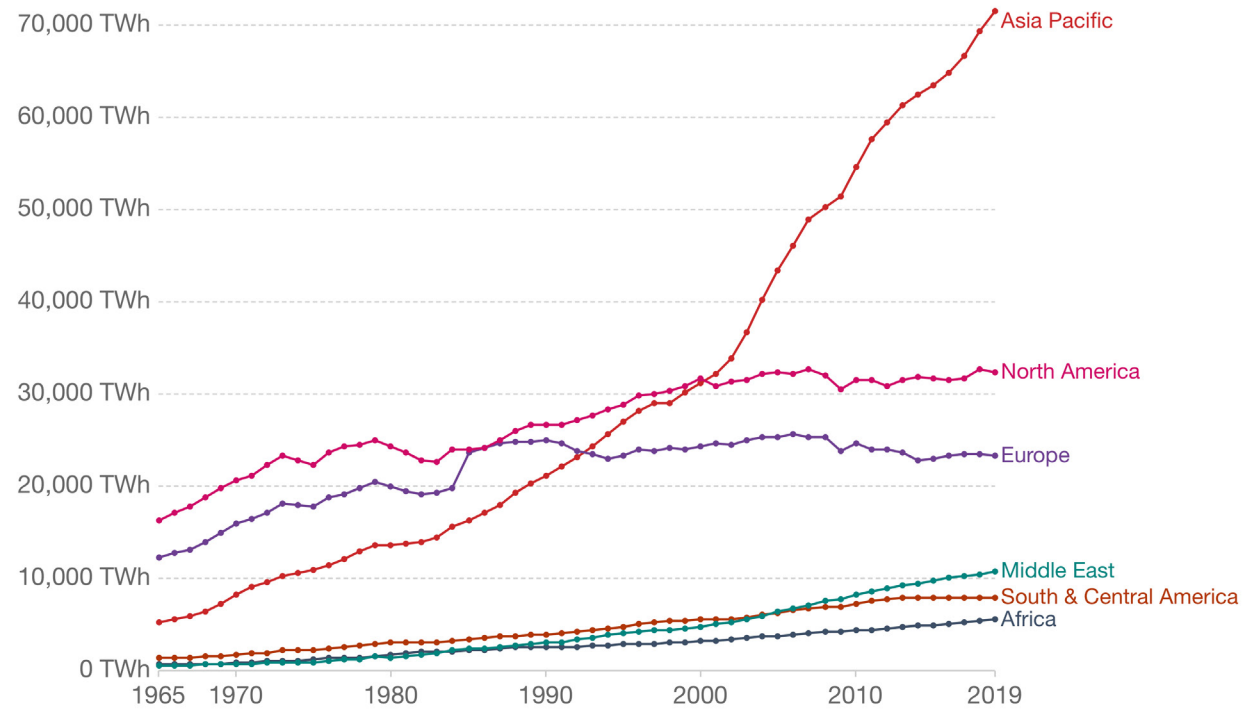
³ Benzene, Toluene, Xylene.

for its large population, - but starting from the year 2000, energy consumption of Asia Pacific skyrocketed with China far in the lead (Ritchie 2014).

Chart-1

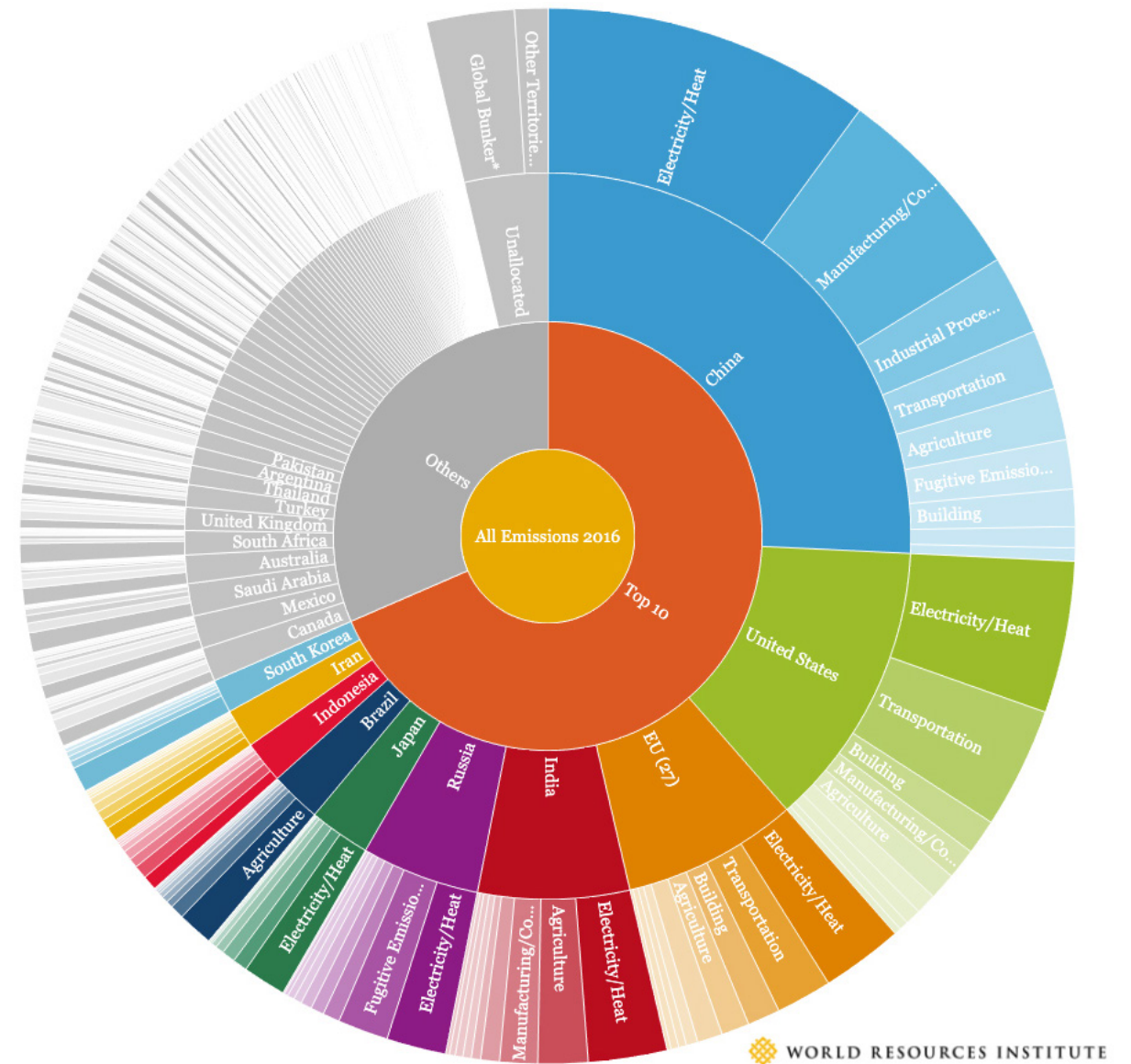
Primary energy consumption by world region

Primary energy consumption is measured in terawatt-hours (TWh). Note that this data includes only commercially-traded fuels (coal, oil, gas), nuclear and modern renewables used in electricity production. As such, it does not include traditional biomass sources.



In 2009 China overtook the US as the world’s biggest energy consumer (EIA 2019). Along this line, the Asia Pacific region is now by far the largest emitter of carbon dioxide (Union of Concerned Scientists 2020), twenty eight percent of the global total carbon dioxide produced in China - that is about as much as that produced by the United States, European Union, and India combined. For all Greenhouse gases in aggregate, China was the first of the top 10 emitters in 2020, followed by the United States, Europe Union, India, Russia, Japan, Brazil and Indonesia (Ge and Friedrich 2020).

Chart 2. The Top 10 GHG Emitters Contribute Over Two-Thirds of Global Emissions



From this perspective, it is fair to say that at this point in our history, the future of the planet Earth rests on the hand of China in its counterparts in Asia Pacific.

Year 2020 was clouded by the Covid-19 pandemic. It produced a global shock like no other. As the virus eventually wreaked havoc on economies around the globe, the pandemic will plausibly derail the global efforts to tackle climate change and other ecological issues. In the beginning of the outbreak, the lockdown, social distancing, travel restrictions, and work from home have successfully reduced the greenhouse gas emissions along with harmful

air pollutants from transportation and industrial activities (IEA 2021). China industrial shutdowns have caused 25% drop in CO2 emissions in Feb, 2020 (compared to Feb, 2019), and the global CO2 emissions declined by 8% along the year of 2020. That caused a glimmer of hope that things will turn out for the best in the end. Sadly, what happened in the long run is a deep economic crisis. The Covid-19 crisis has been considered as the worst since the Great Depression in 1929-1933. In October 2020, Indonesia's pandemic response was to vitalize economic development by the enactment of the so-called OMNIBUS law to create millions of jobs (e.g., see Jennings 2020). By doing so, the government aims to bolster foreign investment by streamlining business regulation and cutting red tape. It is largely considered as part of the ambitious Masterplan for Acceleration and Expansion of Economic Development which had been around since the previous administrations, through which the country aimed at becoming one of the world's developed countries by 2025, with expected per capita income of USD \$15,500. In 2045, the per capita income of Indonesia was expected to rise to USD 47,000. For no apparent reason⁴, the positiveness was encouraged by the uplifting optimism induced by Industrial Revolution 4.0 (Eloksari 2019, The Jakarta Post 2021).

Many observers ventured an opinion that the Indonesia's OMNIBUS Law was enacted to facilitate the government's plan to make a stronger China-Indonesia relationship (e.g., see Mulyanto 2020) and so it perhaps is also part of the One Belt One Road Chinese's ambitious plan. This fact appears to suggest that developing countries with natural resource potentials pose the most formidable challenges to a carbon-neutral economy agenda. By the same token, this ground can be advanced to contend that China needs to begin to address sustainability problems in its geopolitical search for scarce and dwindling natural resources in developing countries, as Economy (2015) alerts. In the same spirit, China needs to acknowledge the inevitable need of global transition to a low Carbon economy in developing countries too. For that reason, it is certainly the case that social reforms for a transition to a low-Carbon emitting society in developing countries with natural resource potentials, and the adoption of sustainability thinking into the engineering design, innovation and adaptation by the so-called Transition Engineering - cannot be expected to rise as bottom-up initiatives. They must, instead, be pursued through a top-down approach by the State, guided by global environmental governance.

In spite of that, we must simultaneously find a way to increase the scientific content of public religious activities. Certainly, Covid-19, limits of the earth's resources, climate change,

peak oil and environmental pollutions are scientific facts, not religious or political perspectives to believe in and support or oppose. However, religion as a belief system and practices has the most potentials to resist unchecked materialism which has become the root cause of environmental degradation as it was superimposed over the spiritual and ethical values of society. We need religious leaders who are not necessarily medical or environmental scientists, but understand enough biology, ecology, medical science, physics and climate science to serve as *translators* between scientists and religious people.

Lastly, with emerging evidence of a link between human exploitation of nature and pandemics, we must, therefore, be better prepared for outbreaks of new diseases in the future. This, and the challenges of dwindling resources, have brought about a need for resilience skills to face a heap of uncertainty about the future. Hence, a need for paradigm shift to change the way people view their lives is of paramount importance, and here is the place where religion can play a substantial role.

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⁴ In view of the fact that Indonesia is not a technologically-advance country and many of Indonesia's regions remain underdeveloped, with poor infrastructure and no access to the internet.

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