Blog 3: The Planetary and the Commons

The conversations' topic is the overexploitation of the energy that nature provides. The propeller of this overexploitation is our understanding of the economy as driven by growth through value added in a transaction chain with our present monetary price system as the gauge. Quilligan argues for an alternative value system steered by nature's replenishment and resilience. The price does not have money but energy value in his order. The current price for a liter of petrol driving a combustible engine is valued in money as a currency with a shifting market value. It must have a value in joules of sunlight embodied within the fossil fuel, Quilligan argues. The price must be derived from biophysical calculation. Earth's carrying capacity is a key term in his reasoning.'

The point of departure of the conversations is the article by James Quilligan, **"Who Will Pay Back the Earth? Revaluing Net Energy through the Sustainable Yield of Regional Ecosystems"**.

James Quilligan collaborated closely with the Brandt Commission on the North-South proposals of the 1980s, particularly the issue of monetary policy. Since 2000, he has worked with the research team of Prince Hassan bin Talal, Prince of Jordan, who was known for his work in both non-violent multilateralism and the interface of ecology and economics in their ancient meaning of 'oikos' – household management with limited resources. From this research, Quilligan learned the strategy and mathematics of ecosystem sustainability and began measuring the carrying capacity of various bioregional environments, including the Jordan River Valley, the Rift Valley in Africa and the French Broad River Watershed in North Carolina. He is now affiliated with the Center for New Critical Politics and Governance at Aarhus University in Denmark.

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BS We have come to the third and final blog in our conversation about your article, **Who Will Pay Back the Earth?** The theme of these talks is *The Value of Energy*. We have discussed new ways of thinking about energy and the economy. The world needs new ideas that make us more sensitive about how we define prices and their accuracy. Are costs just a transactional relationship between buyers and sellers? Or does a cost have an absolute value? Is there a real value for products in distinction to their prices? We have examined concepts like an economic system that consumes no more than what is regenerated and connects market costs directly with energy-value. In this respect, prices are not an automatic outcome of supply-demand exchange in a marketplace but express the flow of energy from its source in nature to the needs of a population. We have, with your article in mind, spoken about a value nexus for planetary resources based in biophysics, community resilience and self-sufficiency, as opposed to the prevailing dollar order which promotes rather than prevents an overconsumption of Earth's resources.

In this blog, we will explore the institutional and normative embedding of this new economic thinking around two key concepts, the *planetary* and the *commons*. These concepts are loaded with meaning, contested meanings, history, and values, and they are far from being neutral and definable in an easy way. It is important to be aware of that because many of the growing references to them seem to assume that they are clear and indisputable.

JQ That is true. By the same token, we may just as well ask why legal claims to private property and rentier colonialism are not being challenged more critically? From an unbroken ontological perspective, the planet has always been a common, which humanity has transformed into sovereign market-states only recently in history. For that reason, I don't believe we should contest geopolitical power specifically in this discussion but envision how a planetary future might unfold based on Earth's present conditions. As noted in my article, sovereign nation-states may seem like durable institutions to us now but are actually in the process of fragmenting, more engrossed with managing their political than natural boundaries.

So let's focus on how biophysical economics might evolve an equitable monetary framework independent of the currency hegemony found in today's market-states. I think the public would like to know the economic benefits that could emerge from our planetary and bioregional commons, since that is where energy is actually being produced, distributed and consumed. Let's examine why bioregions — not national trade, finance or technology — are the planet's greatest source of value.

BS My original connection with the planetary came from reading Dipesh Chakrabarty, who referenced **Hannah Arendt's distress upon launching Sputnik in 1957**. Arendt compared this first satellite in space with technological developments that have been occurring since circumnavigators began mapping the world in the 16th century. This, she lamented, had now led to a Soviet spy satellite escaping Earth's atmosphere to surveil the planet. Like Nietzsche before her, Arendt was alarmed by the social alienation and loss of self that could follow in the wake of a reconnaissance technology used for national security. In Chakrabarty's view, she presented humankind with two alternatives. Either we ignore the existential warning and become estranged citizens of Earth, or we confront the techno-political disenfranchisement that Arendt lays bare and begin to work for peaceful cohabitation and trust across the planet.

JQ That's a chilling account. The decline of planetary commons is particularly relevant, except that humanity now has even less vocabulary to understand its normalization of the 12,000 remote sensing spacecraft — some useful, some hostile, some junk — that have accumulated around our planet.

BS I came to know you while working on my book about the **Brandt Commission**, which I connected with a planetary viewpoint or rather two emerging planetary perspectives in opposition to each other. The one was the status of multinationals in a global marketplace that was becoming unchained from sovereign borders and economic barriers through the free movement of people, money and commodities. This is when Arendt's profound warning came to mind as I saw how the movement for neo-liberalism in the 1970s-80s had promulgated waves of human disempowerment and a steady erosion of civic principles. On the other hand,

Chakrabarty's wide view of the planetary guided my analysis of Brandt's North-South commission, which expressed the vision of a more redistributive and sustainable world order.

In this context, you brought up the idea of the commons connected to concepts like planetary boundaries, carrying capacity, regional resilience, community self-reliance and economic democracy. I found that the commons fit well with my own post-global views. What I found so intriguing when you brought the commons into my planetary thinking was how interconnected the local, regional and international levels truly are. And I thought that, yes, peaceful cohabitation on the planet cannot be reduced to discussing only planetary conditions or a world singularly engaged in economic development through trade and finance; one must pay attention to life in its local and regional dimensions as well. Only then does the connection between the planet and its commons make sense. Like the planet, the commons already exist worldwide and locally.

JQ Your comment takes me back to 1974-1981, when the debate for a new international economic order was rapidly gaining momentum at global, national and popular levels. The leaders of the Third Word, as the Global South was called at the time, worked for a planet without a North-South divide in poverty and hunger and for greater governmental control of the multinationals' operations in the Third World.

BS Yes, it was this proposal, the NIEO, that the Brandt Commission connected with and developed, excluding the control of multinationals, which Brandt hardly mentioned. It was Brandt's proposal that the world leaders under Ronald Regan's smiling leadership suffocated at the world summit in **Cancún in 1981**.

JQ Yes, the Third World's and Brandt's proposal for *global negotiations* was fiercely outmaneuvered by political and corporate leaders and denied. Afterwards, as a researcher and spokesperson for the Brandt Commission, I conducted a 'postmortem' review of these events through extensive public and private archives and lengthy interviews with key players from each side. Why had the initiative failed? It was evident that the arguments for economic development that were made by the political and corporate managers of the North and political and rural workers from the South, all of whom prioritized economic development over environmental and energy values, bore little relation to how the planet actually works. With the official debut of neoliberal policies in the 80s, I recognized that the sovereign framework of the modern nation state, and its unquestioned insistence on economic growth, would ultimately collapse through over-centralization and total disregard for the biophysical commons. It was also apparent that the idea of the world as a single borderless market, superior to nation states and controlled by resource-hungry and profit-maximizing global corporations, would worsen the situation. They represented a new kind of concentrated control by global corporations that was more difficult to monitor and, therefore, more dangerous.

So, a good place to start our inquiry on the planetary and commons is to recognise why sovereign nation-states have become more ineffectual and shambolic during the 21st century and how borderless financial capital is trying to mimic or appropriate national sovereignty over the planet. Let's zoom out for a moment and recall that the term 'sovereign' derives from the history of divine monarchical authority in ancient Japan, Egypt, Rome and other civilisations; declares self-

appointed power and legitimacy; guarantees the regulation of resource and property ownership; and provides strict enforcement of rules through legally sanctioned violence. During the 18th to 21st centuries, this aggressive system of order developed into a tenuous balance of power: granting freedom to individual states within an overall union of equal sovereign powers while allowing these states to govern the people within their borders without interference from outside. Now, during the past forty years, global capital movements have been steadily eroding the sovereignty of nations, rivalling their power through trade, finance and technology.

Since the precept of sovereignty was designed solely to manage the political economy of nations, governments have become increasingly reliant on the market economy for their financial stability. This has led nations, banks and corporations to focus on the pseudo-science of 'balanced' political boundaries rather than the empirical science of asymmetrical ecological boundaries. By smoothing all market differences in their models to demonstrate a perfect equilibrium of exchange value, Western neoclassical economics and neoliberal globalisation have succeeded in conquering the world. Its practitioners exploit the interdependence of Earth's complex systems through the continuous production of surplus resources and private goods. In turn, this generates the consumptive ethic of exponential growth, ultimately diminishing the planet's resource base.

In an era of water scarcity, desertification, soil loss, declining agricultural yields, overgrazing, deterioration of rain forests and mass extinction of species, *global form* is not following *planetary function*. As the world order breaches its physical limits, citizen's basic rights to resource democracy are less and less acknowledged and guaranteed by sovereign governments, and autocrats speak openly of controlling Earth's resources. The loss of people's sovereignty for food, water and energy is the same marginalisation and apathy of the masses that Hannah Arendt foresaw. Human civilisation is losing its agency, its vision and its reason for being because the declining sovereign state and the increasingly powerful free market are not creating planetary cooperation in governance.

BS Let's consider the postwar period, when the international agenda was to generate economic development and fund public goods. With the World Bank, International Monetary Fund and GATT / World Trade Organization, major global benefits were promised to the people of developing nations but scarcely realized, since they relied on sovereign nations cooperating with other sovereign nations and their economic institutions and corporations. During this era of decolonization, the new national governments were politically free, but in reality, with foreign governments exploiting their leaders and foreign corporations exploiting their markets, they were anything but sovereign. Despite some genuine progress in agriculture, education, housing, employment and health care, particularly in China and India, most international governments have failed to raise significant funds for these common objectives. The failure to implement the 1980 Brandt Commission plan, the UN 2000 **Millennial Development Goals** and the 2020 UN **Sustainable Development Goals** for 2030 are examples of the incapacity of "sovereign" governments to allocate adequate resources for the public interest. All of this is disturbing enough. But, looking into the future, how would the governance of the planetary or bioregional commons be financed any differently?

JQ Quite differently, I think. Let's examine how planetary governance might be structured. There are three significant components here: the surrender of power by the nation-state upwards to the planetary; the downward empowerment of bioregional commons by national governments; and the new status of corporations in this configuration.

Planetary Commons

Nation-States & Corporations

Bioregional & Local Commons

First, let's acknowledge that the planetary commons, which underlie all of the energy we produce and consume, is our ultimate means of life support. So, we know that, sooner or later, governments will have to allow planetary institutions to solve the complex problems of the biosphere, which are well beyond the capacity of nations to address. These include:

- managing greenhouse gas emissions and climate change
- monitoring and optimizing planetary carrying capacity
- regulating and disposing the satellite debris left in space
- measuring fossil fuels and other forms of energy
- safeguarding groundwater resources and topsoil
- protecting oceans against acidification, pollution and overfishing
- collecting and repurposing plastics across the planet
- fighting pandemics and other world health problems

This would be the planetary agenda for the public good. The typical private agenda suggests that corporations will entertain planetary projects only when profits or subsidies are involved. Yet, many companies are recognising the new possibilities for monopoly that offer profit incentives by investing in planetary programs. There is fleeting public good in this development. Given the sluggish GDP of democratic-leaning nations since 2000 and the rise of autocratic governments across the world – in reaction to the growing impotence of democratic sovereignty – competition for resources has slowed wealth creation. Disorder and power struggles are leaving the world's remaining fortunes in the hands of oligopolists and robber barons. So it is unlikely that this wealth will be redistributed for public projects, let alone invested in ecological rejuvenation. If this trend gets the upper hand, there is little possibility of redistributing national economic growth or private wealth, let alone investing in ecological rejuvenation.

It remains to be seen if planetary institutions can avoid becoming an illiberal technocracy, particularly in the use of important tools like geographic information systems, remote sensing, teletechnology, machine learning and AI. This is a crucial issue now before all nation-states. Will the world permit authoritarian control of its planetary commons? Or will governments be free to transfer significant power *upward* to planetary institutions and *downward* to their own regions and communities, thereby creating a new type of economic system with entirely different incentives for corporations and planetary cooperation?

BS If planetary institutions and nation-states make the bulk of ecological and economic decisions, that will just maintain the longstanding societal divisions between economic governance and ecological/energy usage. Wouldn't it be more effective to develop a way of meeting people's *present* needs at local and regional levels *and* ensuring the availability of non-renewable resources for *future* generations?

JQ Yes. That is the second major move by sovereign nations in their divestment of governmental power. Besides the upward development of planetary institutions, this move is downward for the benefit of bioregional commons. There is an age-old, but seldom-applied principle called *subsidiarity*, which means that authority must be allocated to the smallest-scale institution capable of governing an important project. Essentially, subsidiarity means that to relinquish their sovereign heritage to the people, governments and their oligarchs must devolve authority to the regions that already have a vested interest in the management, distribution and sustainability of these resources. From the standpoint of the biophysical world, this indicates that the present management by governments and corporations is inefficient and counterproductive at the regional/local levels. By its indigenous definition, the 'sovereignty' of a commons refers to the legitimacy of people to participate in democratic decision-making where place-based knowledge from earlier times is embedded in their regional habitats, natural resources, cultures and traditions. Subsidiarity thus expresses citizens' rights to generate the resources necessary to live within their abilities in the local and regional communities they inhabit.

All economic decisions are ultimately ecological because they involve the energy arising from nature. So even dictatorial states, when they recognize that local and regional ecosystems are where energy extraction, production, consumption and conservation take place, will eventually have to give up their insistence on corporate oligarchs taking over the world's key industries and technologies. Because the economic data that planetary and national decision-makers use is already vested in these subsidiary ecological communities, sovereign states will be forced to become less expansionist and bestow greater power upon their citizens. This is what evolutionary science teaches — not survival of the fittest, but the regenerative power of people working together directly within their own environment.

BS You're also saying that the self-determination of citizens stemming from their local or regional ecosystems is not fully expressed today. Obvious examples of this economic vacuum are low wages, social inequality and ecological degradation. Why is there resistance against using subsidiarity to bring stability between resource availability, utilization and replenishment in local and regional areas?

JQ What you are referring to is resistance in defense of the doctrine of modern economics. During the peak era of national economic growth (1945-2000), economists believed they had mastered the measurement of resources. Case in point: most people in sovereign nations are taught that the economy is a self-organizing unity, which means that in measuring the marketplace of a specific area, inflation, unemployment and purchasing power are attributed to a theoretical balance between supply and demand. This arises from the conviction that the free market is a law of nature expressing some sort of equilibrium. But biophysical economics makes plain that the precepts of supply and demand do not comprise a natural equivalence and

misconstrue the asymmetrical quality of stocks and flows of energy that emanate through an ecosystem to satisfy the needs of its population.

It's easy to see how this happened. Nation-states were formed without regard for ecosystem boundaries except for coastlines, lakes and rivers. Even a bioregion may be divided geographically among many nation-states or exist as a portion of a single nation. Since nation-states are not naturally bound to districts with a relative ecological equilibrium, modern governments have crafted their own system of value equivalence. They use mass and length (i.e., the weight and size of products) to determine the price of commodities that can be added to or subtracted in a market exchange, as though this cost represents the direct flow of energy relative to the environmental supply of resources and the population's demand for them. Yet both misrepresent reality: supply ignores the ecological limits of planetary resources and demand ignores the actual needs of living organisms.

The ratio between ecology and its organisms can be calculated only where the areas of resources and population are identical. Thus, instead of using the arbitrary boundaries of nation-states, the logical units for organizing economic life are local, regional and planetary, where resource capacity is defined precisely by the geographical limits of ecological systems and the physiological needs of the communities within those areas. This is why many economists are now accounting for the value of food, wood, biomass, animal and human labor, minerals and fossil fuels as dynamic forms of energy, rather than by trade value in a national currency.

BS You are saying that through the pricing of natural resources, sovereign nations support the free market's exponential system for resource growth by using the presumption of a 'balance' between nature and society. But this diverges drastically from the environmental relationship between an ecosystem and its population, meaning that regional or local valuation can never be satisfactorily measured from the national level.

JQ Yes. And this realization will ultimately convince sovereign nations to divest their power to bioregional communities. This is at least my hope. Many of us may not be aware that ecosystems are effectively beyond the control of nations and corporations because of spurious indicators like GDP, which have nothing to do with the natural world. Unlike the free market, which is entangled in a subjective price system, the planetary and regional commons generate their own real-time ecological data, expressed as energy-value, for the purpose of measuring resource availability and population needs. This has major implications for wealth creation and energy distribution as a social safety net, opening up transformational possibilities for hands-on management of the planetary and bioregional commons by the present population. Yet the benefits extend much further. The planetary and bioregional commons will deliver on what sovereign nations and their allied corporations never could: a monetary system based on the sustainable value of energy that stabilizes the planetary and bioregional commons now and in the future.

As a fair and non-violent option in our fraught geopolitical world, national and planetary subsidiarity must be granted to people's bioregions through the organization of resource sovereignty. At the core of this new political economy is a historic agreement among all nations to live within the sustainable yield of renewable resources such as food, water and energy, and to

make a careful plan for the use of nonrenewable resources with the purpose of phasing them out before they are depleted. To achieve greater cooperation in governance and sustainability, sovereign nations will eventually have to agree to endow technological and political power to planetary institutions beyond their territories while devolving economic power to regional and local communities within their territories.

BS How is money represented in the new energy-based economy? How will value be determined?

JQ A transparent system of exchange that guarantees planetary and regional security has always been lacking in the system of sovereign money. Signifying a formal commitment to planetary sustainability, money will now express a dynamic relationship between resource availability, utilization and replenishment. The first step is to create a currency that is based on each region's carrying capacity — the ratio between the reserves of physical or energy resources in a habitat and the physiological needs of a species within that habitat. The unique attribute of carrying capacity data is that it can be collected on both the planetary scale and in regional or local districts because, unlike nations, these areas can be measured as ecological habitats. This is because the inputs and outputs of energy coefficients from the planetary biosphere, regional biomes and local ecosystem are far more precise indicators of resource value than the linear measures of mass or length (weight or size of products) within national economies, which require the long-distance importation of embodied sunlight as we discussed in **Blog 2.**

Linking monetary value to embodied sunlight thus requires a system of measurement and incentives based on the total stocks and flows of energy in our planetary, bioregional and local ecosystems. Unlike the indebted fossil fuel energy that is transferred between countries today, there will be little need to move embodied sunlight between bioregions through value-added trade. The self-sufficient use of energy within each bioregion will become the norm, although there will always be a need to cover energy shortfalls between different regions. That will be accounted for by the planetary monetary system, which calibrates the transnational trade data of product exchanges, compares it with the planet's embodied sunlight, the physical needs of the population and its purchasing capacity, and expresses this in real-time through the value of the planetary currency.

BS You've outlined a political process through which the delegation of power from sovereign nations to planetary and regional commons would lead to a new system of value. But there's a big difference between developing a political agreement and implementing a new economic system.

JQ True. Once the dialogue among sovereign states for a planetary currency has reached a formal agreement to proceed, it still must be implemented through an economic plan. As noted, the basic place to account for value is the bioregion, where the percentage of resources that the area can 'carry' or sustain to meet the present and future needs of its population can be easily measured. The process will enable communities, businesses, scientists and regional councils to develop unified sets of indicators and incentive**s** for making decisions on resource governance related to energy sustainability, conservation and utilization.

By separating the future reserves from the current appropriations of resources, a public council sets a cap for each energy source in its area (eg. food, wood, biomass, animal and human labor, minerals and fossil fuels). This preserves and guarantees a percentage of each source for the future. It also allows each bioregion to base its present currency on the stocks of energy resources that are preserved under the cap, which are designated as reserves. Currency value is thus calculated according to these long-term carrying capacity reserves in relation to the needs of the population and a purchasing capacity credit arising from each individual's replacement of energy through the bioregion's short-term flows of energy.

BS After the political dialogue and economic planning are over, what happens then? At what point would the monetary system actually change in form?

JQ Creating a planetary monetary system may be the most important diplomatic event in history. Whether or not a volatile monetary collapse accelerates the agreement, nearly everyone in the world will be watching what's on the bargaining table and the stakes involved. The grand economic agreement to vest national sovereignty and planetary subsidiarity in regional communities will involve *repaying the value of energy that is being extracted from the planet, while guaranteeing all citizens the freedom, opportunity and collaboration to access their own bioregional resources.* Hence, the decisive moment at the monetary conference will come down to two major adjustments in the distribution of resources, when the conference must vote whether or not to:

1. Stop charging taxes on what people earn through their productive work and enterprise, which includes value-added increases on resource extraction, supply chains, transport, retail, employment, banking, wages, financial income, rent, profit and interest.
2. Start measuring the individual needs for food, water, and energy as the basis for value-renewed conservation and replenishment fees for land, water and energy use.

In some ways, this is all anti-climactic. The fact is that little happens at the formal monetary conference because the political dialogue and the economic plan will have already prepared the main details. This vote will simply approve them or not.

BS That will still be a test of courage. It would be a historic leap of faith, reversing centuries of debt-based economic policy and neglect of resource distribution. What could go wrong?

JQ Plenty. Many things could suddenly curtail the good faith of the negotiators, mainly driven by ideology, power and influence. Some fascist scenarios for resource control and rationing could plunge the planet into a feudal age of social inequality and environmental destruction that could last for decades, maybe centuries. The only thing that will cut through utter chaos is the public knowledge that resource overshoot and reactionary dictatorship will make human civilization intractably worse off, whatever may be promised.

BS There are strong echoes of Hannah Arendt in your assessment. I thought that the planetary and the commons offered hope because local autonomy, self-determination and collaboration for resource development, engaged by citizens in bioregional and local communities, would be integrated with the planet's biosphere.

JQ There is certainly hope as well as risk. To their credit, sovereign governments are now reckoning with their political, technological and biospheric limitations. This pragmatism is encouraging. Yet sovereign nations are doggedly refusing to admit that there are limits to economic growth and its ecological impact, which is already violating several planetary boundaries and causing social distress as **Stockholm Resilience Center** has demonstrated. That is why, in the face of our acute planetary crisis, we must demonstrate why societies need a way of measuring the economy of energy resources other than asset accumulation, commodity prices and interest rates on the open market. All we can do is show how sustainable value will lead societies to express the true costs of energy, material, extraction and utilization; incentivize responsible consumption of resources; and promote new policies and practices to lessen the consequences of resource and environmental limits.This is why I have presented an overview of how a biophysical monetary system could work:

- bioregional currencies are issued within bioregions and also used in national and transnational trade for the transfer of goods and services
- the nation-state adopts a bioregional currency, while its own political or transnational borders are readjusted to natural borders (to the extent possible)
- a planetary currency, based on an average of all bioregional currencies, is used for the governance of the biosphere (including the atmosphere, outer space, oceans, pandemics and other facets of the planetary commons) and for shortfalls in transnational trade between bioregions

The political odds may be against a new ecological order, but the planet's throughput of energy value is real and measurable. This data is always ready on the table for discussion and cannot be ignored for long. The planetary and the commons are evolutionary phenomena just waiting to emerge. Meanwhile, there is strength and grace in people taking action by organizing economic democracy and sustainability.

BS The vision of a common planet and a planet of commons as an expression of collective well-being is worth considering. Thank you very much for this series of conversations.

JQ It's been a pleasure. Thank you.

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