Planetary health and global resources, the cross-cutting challenge of all

The Resource-Planetary Health Toolbox (RPHT) for a convergent socio-ecological transition.

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Key Concepts

Planetary health is defined as health of human civilization and the state of the natural systems on which it depends (Whitmee et al, 2015; see also the Future Earth 2016 program on One Health and the ecosocial approach to health, Hancock et al, 2017).

Health of individuals: "Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity" (World Health Organization, 1946; see also UN Economic and Social Council (1994) ; Ottersen et al (2014).

Ecosystem health implies maintaining the system's organization, functions, and autonomy over time (Rapport et al, 1998). The integrity of Earth ecosystems is evaluated in terms of productivity, morphological and functional diversity, and resilience to stress.

Resources, as social constructions and conventions, have been defined in rather restrictive ways as lists of items (Fernandez et al, 2014) according to utilitarian (Convention of Biological Diversity, the EU) or commercial (WTO) considerations. For example, the 2005 Thematic strategy on the sustainable use of natural resources in the EU states that the natural resources on which economies depend include raw materials such as minerals ; biomass and biological resources ; environments such as air, water, and soils ; dynamic resources such as wind, geothermal, tide, and solar energy ; and space, the earth surface. In general, the definitions do not fulfill the requirement of preserving the life support systems and satisfying the fundamental, vital needs of populations or communities. Fernandez et al (2014) proposed a broad definition that is compatible with social and cultural constructions that are inclusive in social and ecological terms, namely natural resources are stocks and fluxes of materials and services that are essential to life in general, and to human life and knowledge in particular.

We posit that natural resources are the socioecosystemic signal of planetary health. In that perspective, the inclusive approach to physical, human, institutional, etc. resources becomes possible.

Natural capital. A range of definitions has been assembled by the UN Statistics Organization (2014) that state in essence: elements of nature or natural resources inputs considered as natural assets that provide the basis for all human economic production / activities and directly and indirectly produce socio-economic value or benefits to people.

Resources, health, SDGs and Planetary Boundaries. The explicit interconnectedness between resources and health issues deserves particular attention when designing and implementing the SDG agenda. We estimate that 13 of the 17 goals make resources the metrics, support, and vector of equitable and sustainable development in social, economic, political, cultural, and environmental terms (specifically 5 out of 6 well-being goals, 6 out of 7 enabling infra-structure goals, and 2 out of 3 natural environment goals). Similarly, health issues (Lim et al, 2016) have a comparable score (14/17). Furthermore, 5 of 7 quantified planetary boundaries (Steffen et al, 2015) are genuine resource systems (land, water, air, life, minerals) on which SDGs depend (Campbell et al, 2017; Arguello and Negrutiu, 2019).

Resource justice is defined as a pluralistic process about collective and individual relation-ships encompassing the distribution of rights and responsibilities on Common Pool Resources (distributive justice) and the role and ability of stakeholders to contribute to decision-making (procedural justice) (Wyborn et al, 2020).

Scientific Anticipatory Brief abstract

Nature's goods and services are the ultimate foundation of life and health. Humans are strongly health-minded, and are individually and collectively resource-driven, yet frame re-sources incorrectly because public and private resources are unsustainably managed. The short view has so far prevailed.

The main question is: How to allocate accessible resources in ways that reconcile the basic needs of populations with the maintenance of the life-support functions of ecosystems? This is the ultimate challenge our societies are facing, whether we want it or not: it challenges the social and ecological dumping that obliterates sustainability and justice today. This situation calls for a new social contract that has nature at its core and that makes of the re-appropriation of limits and the commons the antidote to the technologically-amplified pen-chant for immoderation (beyond measure).

On resources. Resources, including the human resource, are the matrix of economic and political power systems, of history's ups and downs, and they have great geopolitical sensitivity. They are the substance and driver of economic models and institutions (the nutrients of the social ecosystem). Resource overexploitation and strong economic stratification are structurally enshrined in social relations and mentalities. They can end up in societal collapse, as documented along history. Today, critical state shifts are expected around 2030. Resources are a problem and solution paradox/ dilemma (a pharmakon).

On health. The strength of the notion stems from the capacity to encompass the societal metaphoric meaning of health, the universal values that it harbors, and the actionable, factual, scientific evidence-based policy dimension of public health (individuals, societies), and the state of ecosystems. In other words, the inseparable health of nature-societies-people, known as the "planetary health".A socially just and environmentally responsible society ought to consider that Health is a precondition, outcome, and indicator of a sustainable society, and should be adopted as a universal value and shared social and political objective for all.

Grafting the health concept on global resources helps addressing the paradox because it marks the interconnectedness between social and ecological systems. Of note, they have not been the focus of grand agendas in the last decades: despite the large body of interest and work on the SDGs, the underlying overarching resource base is not clearly recognized. The explicit interconnectedness between resources and health deserves particular attention when designing and implementing the SDG agenda (the social contract) and the maintenance of life support functions of the biosphere (the overshoot process). We estimate that most of the 17 goals (75 p.c.) have resources and health at their core that inherently makes them vector of equitable and sustainable development in social, economic, political, cultural, and environmental terms. This is not surprising: individually and collectively, the 7,5 billion humans are concerned on a daily basis with accessing resources to sustain their health and be able to do so in the future. As WHO puts it since 1946: Health is a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity

Changing the understanding and representation of resources in socioecological terms is central to changing our relationship to nature because this challenges the conventional separation established by modernity between humanity and nature. Such a transformation implies profound changes in ways of thinking institutions, practices, science and technology, policies ans diplomacy, lifestyles and education. Questioning the technological progress(ion) means deploying technologies that help address the environmental limits (or planetary boundaries) and support social justice, and thus achieve no ecological and social dumping. This is why future undertakings in all areas of human life and activities should take a resource-health stress test. And technological determinism and solutionism are no exception.

To address these issues, we developed a Resource-Planetary Health Toolbox (RPHT), built on the alliance of natural sciences, legal and social studies, and data and complex system science. The approach is systemic and preventive and transgresses academic, cultural, and political boundaries. It has the ambition

to circumvent the above-mentioned barriers by articulating social, political, and ecological issues. We anticipate that RPHT is the most straightforward and non-prescriptive instrument to prompt the emergence of a virtuous dynamics of policy design for the public good to which resource sobriety and health are cultural driving factors. The objective is to articulate the nature-human relationship on universal and indivisible human rights and duties, to which health is the basis for a science-informed civilization contract based on technological and environmental sobriety and literacy (supported by the RPH charter).

With resources at its core, the toolbox addresses the essence of the socioecological system for both the short and the long term. Shifting away from the dominant culture that instrumentalizes nature through the health paradigm is a unique opportunity to introduce social and ecologic risks in long-view policy design. There is more with RPHT: the future looks different. The society has become part of nature and health and care are values that exclude social and ecological dumping. Waste turns into resource, the price of commodities reflects the true social and ecological costs. The mission of human societies is keeping the Earth system in balance through knowledge, practice, institutions, etc. To take that route, science-to-policy-to-diplomacy agendas work in intelligence and long-life education contributes to building consensus toward social justice and ecological responsibility. RPHT is not short of inventiveness: developing that instrument offers a systemic modulator of GDP.

A utopia? Possibly, but a deconstruction-reconstruction one with a narrative that gives meaning to our relationship to nature and technology by confronting the hegemonic market with the commons and social cohesion constraints. It does so because it articulates social, ecological, and political questions with the ambition to frame human agency with the temporality of natural cycles and functions, and services. The challenge ahead is building up a transition science and culture of the long term, slow systemic risks, and trade-offs on two strategic fronts: natural and data sciences for monitoring and reporting with institutionalized data systems, and legal studies for norms, standards, protocols, certification, and labels. That inclusive design articulates social justice and ecological responsibility by setting the balance between the management through numbers and the government through law.

Detailed table overview of trends at 5, 10 and 25 years

Additional reading- Planetary health and global resources

Example of breakthroughs

5 years

- Co-construction of the platform on resources and planetary health (PH)
- Dashboard of indicators to systematically monitor and evaluate PH degradation / improvement, locally and globally (with particular concerns on physico-chemical disruptions)
- Instruments for resource justice and ecosystem-to-biosphere stewardship (the commons)
- Stress tests on Resource-Planetary Health (RPH) friendly technologies .
- More generally, explore the “Limits to growth” predictive scenarios (Meadows et al, 2005) with RPH tools.
- Elaborate (continuous) education and training programs on PH in conjunction with trans-generational conversations.

10 years

- Enacting resource justice to balance basic needs / poverty, limiting resources, social cohesion, demography
- Modeling of RPH costs, benefits, and risks to design the contour of a cultural shift linking health and wealth
- Charter, protocols etc on resource geopolitics and the commons (land, water, biomass at first)
- Evaluate options and inform trade-offs for in context socioecological transitions
- Generalize (continuous) education and training on PH.

25 years

- Leave open the greatest number of political options with positive feedbacks on the commons and social justice by systematically promoting holistic science and education
- Based on the RPH approach, define strategies and anticipate resources and technology needs for the maintenance of and / or transformation in public services, institutions, and infrastructures
- Who owns Nature? Ethical, cultural, political, and economic issues in the light of the common purpose
- Work out the diplomacy of a manageable togetherness based on the diversity of cultures and narratives. Facilitated by the fact that all cultures share concerns about health and resources.