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Preparatory process

**Session: Protecting the planet and building resilience**

*Pursuing policies, investments and innovation to address disaster risk reduction and protect the planet from degradation*

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**1. Systems transformation**

*What are the fundamental systems transformations needed to halt nature degradation, reverse loss and manage risk, while eradicating poverty, ensuring food security for a growing population, securing livelihoods and promoting resilience?*

**Radically transform production ecosystems so that the demands for biomass are met in a fair and just way, without undermining the functioning of the biosphere.** Humans have transformed much of the planet into simplified production ecosystems like croplands, forest plantations and fish farms<sup>1</sup>. This has been carried out with a focus on efficiency and the massive use of inputs such as fossil fuels, water, fertilizers, pesticides, antibiotics and technology – and this is causing huge impacts on the biosphere. Globally, production ecosystems account for nearly a quarter of all anthropogenic greenhouse gas emissions over the past decade and over three quarters of global freshwater use. In parallel, these production ecosystems are now globally interconnected through international trade and the global market. Shocks that were previously occurring locally within one type of production ecosystem, or sector, are becoming “globally contagious” and more prevalent as sectors are intensified and more intertwined. For example, droughts or crop pest outbreaks can spill over to seafood production, since fish farms increasingly depend on agricultural crops to produce their feeds. The consequences of these emergent risks can be devastating. We need to substantially and deliberately transform global production ecosystems towards a sustainable trajectory, on which the demands for biomass are met in a fair and just way, without undermining the functioning of the biosphere, and where biological and social diversity is enhanced to ensure building blocks for adaptability and transformation in the face of change.

**Leverage the power of cities for change in ways that can support resilience while also improving equity, human well-being and nature’s benefits.** As motors of the global economy and home to much of the world’s population - almost 70% of the world’s population projected to live in urban areas by 2050 - cities play a vital role in securing a resilient future<sup>2</sup>. Critical infrastructure, including transportation, communication and energy systems, link cities to each other and to the global supply-chains that enable global trade in goods and services. This infrastructure provides the physical network on which we depend for the movement of people, freight and information. However, cities and infrastructure systems are also vulnerable to the effects of climate change – both from acute disasters and long-term changes. Cities, policymakers and industry have begun to respond to these changes and prepare for future effects. The power of cities must be leveraged for transformative change to support resilience while also transforming them for liveability, equity, and human well-being. Quite simply, cities

are where the majority of both people and infrastructure are at risk, and one of the greatest opportunities for transformative change.

**Focus on deeper and more powerful, but less obvious, areas of intervention in order to trigger transformations.** Many sustainability interventions applied to date have been easy to make, but with limited potential for transformational change<sup>3</sup>. For example, most high profile work on food security has focused on issues of food production, efficiency gains and technological interventions. These are important, but they do not get at the deeper issues such as the rules, structures, values and goals that shape food systems. To exemplify – shallow and easy interventions answer questions such as "how much more food can we produce". Deeper interventions require asking questions such as "is the global food system oriented to provide food security for all?" and "if not, how can its intent be changed?". So, in order to contribute to the call for deep sustainability transformations we need to recalibrate goals from dealing with shallow problems and quick fixes, towards more explicitly targeting our deeply held values, world views, educational systems, and social behaviour that underpin current economic paradigms, consumption patterns and power relationships.

**One such "deeper" leverage points for transformational change is reconnecting people to nature - or the biosphere.** It is somewhat surprising that the ontologies of many approaches concerned with fundamental issues of human well-being and sustainability still seem to be rather blind to the significance of development in tune with the biosphere. Societal development and human well-being fundamentally rest on the capacity of the biosphere to sustain us, irrespective of whether or not people recognize this dependence<sup>4</sup>.

## **2. Specific actions to drive transformation**

*Please describe 2-3 specific, promising actions at different levels that can drive these systems transformations. These actions could relate for instance to scaling up the use of nature-based solutions, sustainable consumption and production, or other approaches. How have these actions helped (or how could they help) break down siloes, support the systemic management of risk, and trigger positive changes in society? How can co-benefits between actions be maximized and the risk in trade-offs stemming from these actions (i.e. negative impacts on other aspects of the 2030 Agenda) managed?*

**Transforming how we produce biomass (i.e. food, fuel and fibre) will require a combination of strategies and solutions.**

- It will involve systemic forms of sustainable intensification at large scales and across a wide range of production ecosystems, that harness a broad range of ecological processes (such as predation, parasitism, herbivory, nitrogen fixation and pollination) rather than the massive use of inputs such as fossil fuels, water, fertilizers, pesticides, antibiotics and technology<sup>5</sup>.
- Other efforts include approaches to ensure more stable food supplies by increasing national crop diversity, broad-scale shifts in diets, consumption patterns and strategies to reduce loss and waste of biomass (such as food waste)<sup>6</sup>.
- We also need to create the conditions that foster innovation, incentivize transformation and encourage new partnerships across different sectors and actor groups. For example, we need to redirect finance so that it is aligned to sustainability, exemplified by actions like divestment from unsustainable palm oil production, the insurance sector refusing to insure fishing vessels involved in illegal fishing, and banks denying loans to clients that do not comply with sustainability standards. We need radical transparency and traceability, governmental policies that ensure that social and environmental criteria are met along whole supply chains. It also

requires education and information to consumers in the form of certification, labelling and public campaigns<sup>1</sup>.

**3. *Means of implementation and the global partnership for development (SDG 17):***

*Achieving the 2030 Agenda relies on a combination of means of implementation to catalyse action and engagement, harness synergies and reduce tradeoffs. Please discuss the means of implementation, including finance, partnerships, and capacity building, needed to make the necessary transformations. How can science, technology and innovation (STI), including social innovation and local and indigenous knowledge, be mobilized to advance these transformations?*

**Get money to where, and when, it matters to support the actions of local governments, communities, entrepreneurs and grassroots groups in building a sustainable and resilient future.** Our emerging understanding of how transformative change occurs (i.e. sociotechnical transitions framework, social-ecological transformations frameworks) suggest that large (macro-scale) changes emerge from substantial periods of experimentation at the micro-level that lead to the formation of new initiatives, experiments and innovations. In practical terms this means that local communities become agents of change when they have control over funding, and when they lead interventions within said communities.

**Transformations will require pluralistic (diverse) coalitions at multiple scales.** This entails bringing together academics (from different disciplines) and people from other sectors (from for example, government, business, civil society, local and indigenous communities) to generate knowledge and catalyse change<sup>7</sup>. It is important to ensure that those involved represent a range of skills and types of knowledge and expertise (for example, experiential, local, traditional, academic and official). This diversity generates an enriched understanding of the ecological, political and technical aspects of a sustainability challenge. To date, most such coalitions have occurred at the local to regional level between academics and actors from other sectors, such as local or national government representatives, business representatives, local and regional NGOs, and natural resource managers. However, local and regional scale coalitions may not be enough. Today we live in the Anthropocene, and local and place-contexts are influenced by multiple drivers at larger scales, and have complex connections to other places. State power and supranational co-operations coexist alongside powerful multinational corporations. At the same time, research institutions and NGOs increasingly operate at a global scale. In this context it is obvious that sustainability transformations will require new alliances. For example, this could mean more direct engagement with keystone actors - the handful of large transnational corporations that currently dominate agriculture, forestry and fisheries - and treat them as agents of change, so as to leverage their unique ability to influence change. For example, Österblom et al.<sup>8</sup> described an ongoing co-production process where researchers are actively engaging with keystone actors that shape marine ecosystems, to collaboratively develop solutions to ocean sustainability challenges. This process has led to the establishment of a unique global ocean initiative, where science and business collaborate toward the United Nations Sustainable Development Goals ([www.keystonedialogues.earth](http://www.keystonedialogues.earth)).

**4. *Covid-19 crisis***

What does the Covid-19 crisis reveal about the human-nature relationship and systemic risk creation? How can nature-based solutions contribute to a post-COVID-19 economic and social recovery that is more sustainable, equitable and resilient? What immediate and medium-term

steps are needed to ensure that the post-COVID-19 economic and social recovery is sustainable, equitable and resilient. How can we redirect financial flows and direct recovery efforts to create better outcomes for people, prosperity and planet?

**The Covid-19 pandemic has rapidly developed into one of the largest global disruptions of modern times. It provides a stark example of a systemic risk;** a situation in which a crisis or shock in one place (such as an emerging disease outbreak in Wuhan) ripples quickly through regions and across a number of interdependent domains, with massive impacts on global health, political systems, businesses and economies worldwide. Systemic risks are an inherent consequence of the hyper-connected nature of the world we live in - where international trade, transnational land acquisitions, spread of invasive species, and technology diffusion occur at unprecedented scales, underpinned by a global infrastructure that facilitates movement of people, goods, services, diseases, and information. Even though these risks are inherent, it does not mean that we should revert to nationalistic strategies. Building up our borders and walls is not a resilience strategy, but working together across boundaries is, and what we should work towards at this time.

**We know what causes emerging infectious disease in humans, and we can address those causes.** The risk of emerging infectious diseases, and especially those originating from animals, has been well known for some time. The emergence of these zoonotic (of animal origins) emerging infectious diseases is very often associated to human activities such as deforestation, expansion of agricultural land, increased hunting and trading of wildlife and the close contact between humans and wild and domestic animals. In fact, modern agriculture seems to be a very important cause<sup>9</sup>. Targeting these known drivers of emerging zoonotic diseases is a crucial medium to long-term step in order to ensure that the post-COVID-19 economic and social recovery is sustainable, equitable and resilient. Some of the steps outlined in the “**Transforming how we produce biomass**” section above highlights some more specific details on some of these steps.

**Avoid one-size fits all solutions or panaceas.** In 2007, the late Elinor Ostrom and colleagues argued for caution against the tendency, when confronted with pervasive uncertainty, to deploy blueprint solutions independent of contexts<sup>10</sup>. Responding to Covid-19 is no exception. Countries – and even regions within them – vary enormously in terms of age profiles, health systems, living conditions, economic resilience, and much more. In some places, including in Africa, lockdowns may be the best policy on balance. In other areas, including even in the likes of Europe and America, there may be more appropriate alternatives to lockdown. It is unlikely, however, that a one-size-fits-all approach serves everyone’s interests equally.

**Nurture and build adaptive, transformative and resilient capacity in local communities.** A rich and growing literature is focusing on the longer-term responses of communities in the global south to shocks linked to systemic risks such as the Covid-19 pandemic. Many researchers stress that sudden and large-scale shocks will deepen the destitution of the poorest by maintaining preexisting political and economic structures and reasserting socioeconomic inequalities within communities. Other researchers - particularly those working within social-ecological resilience frameworks - have placed attention to ways in which abrupt shocks may catalyze local communities’ latent adaptive capacities and stimulate systemic transformations and positive future pathways. This same body of research has identified generic policy-relevant principles for enhancing the resilience in the face of disturbance and ongoing change<sup>11</sup> (e.g. maintain diversity and redundancy, manage slow variables and feedbacks, encourage learning and experimentation, broaden participation) and the key domains of adaptive capacity<sup>12</sup> (e.g. assets that people can draw upon in times of need, the flexibility to change strategies, the ability to

organize and act collectively, the agency to determine whether to change or not). This strand of research suggests that systemic transformations in social-ecological systems can emerge from local-scale responses to a shock. A window of opportunity or the opening up of an opportunity context (such as a crisis, or anticipated crisis) can allow these small-scale responses (e.g. new initiatives, practices or innovations) to become institutionalized and ultimately sculpt and define larger-scale dynamics of the system. However, we critically need approaches that help us identify the transformative potential of these responses. Better understanding the obstacles such responses may face, and how they may be better supported to effect transformative change that helps achieve better futures is a critical area of research and policy<sup>13,14</sup>.

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