



LEAVES, A Newsletter of the INTERNATIONAL ENVIRONMENT FORUM
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From the Editor, Request for information for upcoming newsletters

This newsletter is an opportunity for IEF members to share their experiences, activities, and initiatives that are taking place at the community level on environment, climate change, and sustainability. All members are welcome to contribute information about related activities, upcoming conferences, news from like-minded organizations, recommended websites, book reviews, etc. Please send information to newsletter@ief.org. Please share the Leaves newsletter and IEF membership information with family, friends, and associates and encourage interested persons to consider becoming a member of the IEF.

IEF Lecture Webinars

by IEF Member Khela Baskett, IEF webinar coordinator

7th IEF Lecture

Our IEF webinar this month is **“Start Living Now to Embrace the Next Economy” with John Krochmalny June 27th, 2021** 10am PDT, 1pm EDT, 5pm GMT, 7pm CEST Central Europe, 10:30pm IST India
 Register Here: <https://zoom.us/meeting/register/tJclduyrqD4vGtyaFjrg6Pblv9X9vuCX-ohh>

Description:

To live and thrive in the next economy, new individual and collective paradigms need to be established. New definitions of what constitutes wealth and prosperity must be understood and applied. Because modeling a behavior needs to be taught to those potential adoptees, training is a necessary component of this transition.

This presentation will focus on the need for change, what types of economic behaviors and training will be necessary for the future society, behaviors based upon spiritual values, and how this relates to the Baha'i Commonwealth.

Speaker Bio:

John Krochmalny is a retired instructor from Northwest State Community College, Archbold, Ohio, USA, and is still serving higher education in various capacities related to Workforce Development. His specialties include Industrial Electricity, Automation, Process Control, Energy Management, and Climate Control. Under his leadership, the MultiFaith Council of Northwest Ohio was able to compile and present data that led to the 2014 City of Toledo and Lucas County Ohio being declared a Community of Compassion as recognized by the International Charter of Compassion. Last year (2020), John developed and published curriculum for individual Values & Character Development for use by human resource departments in the workplace – available free of charge and covered under the Creative Commons Attribution 4.0 International License

(<https://www.skillscommons.org/>). John is serving on the Executive Boards of Science Alliance (SAVE) and the Lucas County Impact Coalition, as well as participating in several social-economic development projects in the area. John considers himself to be a practitioner rather than a theoretician and is an active member of the Sylvania Baha'i Community of Sylvania, Ohio, USA.

Recordings of Past Webinars:

April's presentation, "**Deforestation – Interconnected Causes and Solutions**" with **Dr. Michael Richards** is now posted on the IEF webinar playlist: <https://tinyurl.com/7p09o73q>

Members Corner

1. The IEF warmly welcomes the following new members and associates:

Members:

Amin Moghaddam, Germany
 Sherri Kelly, Canada
 Rodney Francett, Finland
 Tomy CT, India
 Ian A. Thompson, United Kingdom
 Rita J Erickson, USA
 Richard Thomas Jordan, USA

Associates:

Robin Castle, USA
 Lua Mbuji, Tanzania
 Dona Jean Evans, USA
 Mukesh Vyas, India
 Maarten Kleijne, Netherlands
 Savan Premjibhai Tank, India
 Amrutha B, India
 Vishwajeet Kumar Tiwari, India

2. The IEF welcomes Kiara Ehsani of Nairobi, Kenya, as an intern for this month of June and thanks her for her helpful contributions to this issue of LEAVES!

3. Invitation for Input into the IEF Strategic Planning

The IEF Board invites all members and associates to share their thoughts and ideas about the future direction IEF should take, and thanks Austin Bowden-Kerby for already sharing his good ideas. The Board's ongoing consultation about the strategic plan will continue at its next meeting in September, and there will also be time to discuss this during the IEF Annual General Assembly in the fall. After the release of the new Baha'i 9-year plan and any guidance from the Baha'i International Development Organisation, the Board will then consider all your views and create a plan in line with the overall direction of the Baha'i World.

Your bold visions are very much encouraged, but expectations will need to be realistic considering the limitation of IEF's human resources. Ideas that are shared with a willingness to help with their implementation will be particularly useful.

Below are some questions we have been asking in the framework of strengthening IEF's four capacities: 1) the global political space, 2) reconceptualizing concepts, 3) social action at the local level, and 4) scholarship, writing and communication.

What should be IEF's priorities? How can IEF encourage more local action through its members, for example by providing ideas, materials and case studies? How can IEF assist its members and associates in their efforts to work and educate on environmental sustainability? How can we support our members in their efforts to build resilience in their communities and to reduce vulnerabilities in our food and water systems, our energy supplies and communications, our local economies and institutions? How do we give young people hope in the future and the motivation to work for positive change despite the difficulties? How can we infuse conversations about environmental issues and local environmental action with spiritual principles? How can we engage more young people?

4. Call for Volunteers to Help Plan Events in Connection with COP26 and the IEF Annual Meeting

The IEF board decided to combine our virtual Annual Conference with COP26 the first week of November.

We are looking for volunteers who could help with the planning and execution of virtual events in advance and during COP26. Some contributions could be recorded on video in advance, perhaps as interviews rather than lectures, while other events or discussions could be in real-time. Some events, especially those in collaboration with outside partners, would be aimed specifically at COP26, while other parts of the conference would be directed more to the IEF membership and others attracted from outside. There could also be some events in advance, such as a discussion of what these diplomatic events are and are not, and how to use them to participate in public discourses on important topics to Baha'is. Would you like to be part of the international planning team? Please send a message to ief@iefworld.org.

The poison of materialism and the elixir of spirituality

Blog by Arthur Lyon Dahl

An interview by Rowan Hooper with forest ecologist Suzanne Simard in the New Scientist (1 May 2021) triggered a deep reflection on an underlying theme between all my current interests, while helping to explain the disintegration and integration so visible in the world today, and what we need to do to respond.

Simard discovered what is popularly known as the wood wide web, the fact that forest trees share and trade food via fungal networks that connect their roots. Her recent research shows that this network is like a brain and can communicate information throughout the entire forest. Modern forestry practices like clear-cutting destroy the forest, while with lighter logging, forests can heal themselves. Trees are connected by fungi in a physical network where they trade, collaborate and interact as a cohesive, holistic society. Western thinking has seen plants as solitary, competing for as many resources as possible to increase their fitness. Yet Darwin wrote about the importance for natural selection of collaboration in communities, with interactions and relationships between species and with the environment. Simard says that Western science separates humanity from nature, mind from body, spirit from intellect, where the world can be dissected and its parts understood in a deterministic way. Mainstream science initially rejected James Lovelock's Gaia hypothesis of the biosphere as a self-regulating system, and Lynn Margulis with her endosymbiotic theory that eucaryotic cells evolved by the engulfment and collaboration between procaryotic cells. Simard felt similar rejection initially.

Simard's research shows that conifers have kin recognition, where a mother plant transfers food to kin siblings but not to strangers, changing their chemistry, nutrition and response to disease. The largest "mother trees" in a forest are the hubs of

communication, protection and sentience, nurturing their own offspring and providing information to help generations of trees to survive. The forest is a connected, nurturing, healing place, and the more mother trees there are, the more diverse and abundant is natural regeneration. The fungal mycorrhizal networks are biological neural networks like the brain, designed for efficient transfer of information and resources for the health of the full community, even using chemicals like glutamate which is one of the dominant neurotransmitters in brains. The networks have the hallmarks of intelligence with a shape and biological chemistry that suggests they were wired and designed for wisdom. Plants are responsive to disturbance or injury, and might be said to be aware of humans as the dominant disturbing agent in forests. She also contrasts the Western view of separation from nature with that of indigenous communities with a world view that sees everything as connected and nurturing each other, world views which we have ignored, ridiculed and destroyed because they are mystical and spiritual. She has used science to demonstrate that these holistic connections exist. We are unfortunately still destroying old forests, pushing the system to collapse, with the resulting impacts on climate change and loss of biodiversity. She calls for a charter for trees comparable to animal rights or human rights.

This immediately resonated with my own work on cooperation and reciprocity in coral reef ecosystems, also now threatened by collapse. It touched on my work with indigenous world views and value systems of wholeness with nature in the Pacific. My recent work on sustainability has shown how an economy focused on individual enrichment or corporate profit rather than human wellbeing is leading to catastrophe. In developing proposals for global governance, we show the limitations of national sovereignty and the need for a cooperative

multilateral approach to build a single world system.

What is common to all of this is a systems view of the importance of values as the rules by which we relate to each other, and our real purpose as human beings. We are all born with an animal reality, our physical body, as well as a rational or intellectual reality that we create with our wonderful minds. But we also have, at least in potential, a spiritual reality that we associate with the higher human qualities we can acquire throughout life, and that are the foundation for our capacity for cooperation and reciprocity upon which human societies are built. A healthy path of human development goes from the self-centred baby through social education for cooperation in childhood to an increasingly other-centred adulthood, raising a family and increasingly sharing and detaching as we decline in old age. This can be seen as the universal human spectrum from negative to positive, material to spiritual, egoist to altruist, self to other, competition to cooperation. The discovery that a healthy forest shows cooperation and other-centred characteristics shows how universal this perspective is of systems evolving to higher levels of integration and perfection.

Our problems today can be traced almost entirely to our failure individually and collectively to advance along this trajectory. Even in science, the materialistic reductionist perspective has led to the rejection or slow adoption by many of the science of complex systems and the importance of cooperation and reciprocity. We are stuck with greedy, power-hungry leaders, the increasing concentration of wealth by a few, corporations and investors driven by maximizing short-term returns with the end justifying any means, and a massive spread of crime and corruption. The values of competition and the survival of the fittest, with the invisible hand of self-interest, are rooted in our neocapitalist economic system and incorporated in our institutions, but this is a distortion of nineteenth century science, not the view of complex systems we have today. Darwin and Adam Smith would be

shocked. What it demonstrates is how we select the ideology that resonates with and confirms our inner values, often called confirmation bias. If we are stuck at the stage of being the bully in the schoolyard, we confirm this by giving priority to the struggle to the top of the pile, to materialistic values, to greed, and even to violence and war, with whatever ideological label seems to fit. This could be called the poison of materialism, from which our society is sick today.

What, then, is it that pushes us up the trajectory towards higher values and reinforces cooperation and reciprocity? What can tame the animal side of our nature and help us to blossom as a spiritual being? It is religion, a word unpopular in many intellectual circles because it is associated with ancient traditions that have too often been corrupted by those at the animal end of the human spectrum. The true essence of religion is to give us the tools to struggle with the self within us, to learn to turn outward towards others, to love something greater than ourselves that is unknown and unknowable but represents the perfection towards which it is our purpose to evolve. This gives us the capacity to explore and develop our own unknown capacities, to appreciate the unknown we find in others, to explore the unknown in the universe through science. This is, at the human level, how the qualities that lead to cooperation and reciprocity are built. As a Baha'i, which I see as the highest and purest form of religion today, we understand that it is the loss of belief in God and in a higher divine purpose in life that has dragged so much of society to this low level. The more we can rebuild communities founded on unity in diversity, working on their transformation from a materialist to a spiritual civilization, the more we can emerge from the present forces of disintegration, and begin to rebuild a human system more like that primeval forest or coral reef. We need the elixir of spirituality to save us from self-destruction.

Reference: Hooper, Rowan. 2021. The wisdom of the woods. *New Scientist* 250(3332):39-43. 1 May 2021.

Some Highlights of Recent Environmental News

Prepared by Kiara Ehsani

Extreme Heat Risks May Be Widely Underestimated and Sometimes Left Out of Major Climate Reports

As global warming continues to ravage the globe, the severity, length, and frequency of heat waves are

increasing in many parts of the world - especially the tropics. Along with other consequences, the rise in heat deaths due to these increasingly unlivable conditions is projected to increase with the current rate of climate change. However, especially for more vulnerable areas and populations, there is a concerning lack of monitoring, studying and reporting of the threats posed by extreme heat.

Source: <https://insideclimatenews.org/news/16052021/extreme-heat-risks-climate-change/>

Nations Must Drop Fossil Fuels, Fast, World Energy Body Warns

The International Energy Agency says countries need to move faster and more aggressively to cut planet-warming pollution.

Though the International Energy Agency is not an environmental group but an organization that advises on energy policy, in its new report, the organization outlines in detail the steps needed for countries to cut down their carbon emissions to net zero by 2050. In doing so, the average global temperature rise would hopefully be kept to no higher than 1.5 degrees C - so as to avoid irreversible environmental damage. It advises, through a timeline, how nations must quickly make a dramatic transformation away from coal-fired power plants, oil/gas fields and gasoline-powered vehicles and instead start investing in renewable energy and carbon offsetting schemes.

The Agency also warns governments to be aware of the geopolitical issues that could arise from a switch to renewables (changing supply and demands, the creation and loss of work, etc.). Further, the report emphasizes how this size of a transformation will need unprecedented global cooperation and increased technological and financial support for poorer countries.

For more information and to read the whole report, go here: <https://www.iea.org/reports/net-zero-by-2050>

Ecosystem Restoration Playbook – a Practical Guide to Healing the Planet

The UN has declared this the Decade on Ecosystem Restoration (2021-2030), where individuals, groups, businesses, organizations and governments are all encouraged to join the #GenerationRestoration movement together to stop and reverse ecosystem degradation. Ecosystems play an integral part in the health and wellbeing of nature as well as humanity. Some of the ways we benefit from ecosystems include being supplied with crucial resources like water and clean air as well as all kinds of materials and foods, in addition to protection from diseases and disasters. Ecosystems are also home to whole webs and complex systems of wildlife, and help create a cleaner, more stable climate. Therefore protecting ecosystems isn't just about taking care of the Earth, but also taking care of future generations of humanity.

This playbook was developed for World Environment Day 2021 to kick off the United Nations Decade on Ecosystem Restoration. It helps individuals, groups, businesses, etc. to be part of ecosystem restoration, by clearly outlining three ways anyone can get involved and join the movement. It guides you through every step and tells you where to start and where to go. For example the guide explains how to identify a local ecosystem, the drivers of its degradation and the solution for its restoration. It covers the principles of restoration action as well as a comprehensive look into each ecosystem (forests/trees, rivers/lakes, towns/cities, oceans/coasts, farmlands/grasslands, mountains, peatlands) and its individual restoration process.

There are countless ways you, or anyone, can get involved. From the tiny decisions we make thousands of times a day to larger initiatives and choices, we have the power and the means to halt and reverse ecosystem degradation. The first step perhaps would be reading the playbook.

You can access the Playbook here: <https://unenvironment.widen.net/s/ffjvzcfldw/ecosystem-restoration-playbook>

Nature-Based Solutions and Ecosystems Restoration

The [Geneva Nature-Based Solutions Dialogues](#) are intended to take the discussion and engagement further among the stakeholders in International Geneva and beyond. The session on June 7th was about ecosystem restoration in light of the UN Decade on Restoration, as nature-based solutions are especially critical in halting

and reversing ecosystem degradation.

The whole one and a half hour program was recorded and [is available here](#).

UN Food System Summit 2021: Regenerating the Earth

On 20 May 2021, a panel of speakers from all over the world discussed the different perspectives in the nexus of how our global food production impacts the natural world - specifically ecosystem health and biodiversity. Methods and ideas of how nature-positive food production systems can be attained were shared to brainstorm how sustainable farming can be moved to the global scale. The discussion also included the theme of the role of faith in our approach towards humanity's relationship with the natural world.

The speakers included a scholar and artist from an Indigenous nation of North America, the Senior Principal Advisor at UNEP, a Lead Climate Change Specialist from the Democratic Republic of the Congo, the head of a public sector engagement at the Tropical Forest Alliance from Costa Rica, the Executive Coordinator of Health and Harmony in Brazil, and the founder of Green Africa Youth Organization in Ghana.

Link to the recording: https://www.youtube.com/watch?v=_QMIL8P8PeI

Learn more about the Food Systems Summit here: <https://www.unep.org/events/online-event/regenerating-earth>

Standing together: the Climate and Environment Charter for Humanitarian Organizations

It is becoming increasingly clear that humanitarian issues are deeply interwoven with issues of the climate and environment. In the wake of such a realization, [The Climate and Environment Charter for Humanitarian Organizations](#) has been created in the hopes of engendering humanitarian action that addresses environmental crises, ultimately to reduce humanitarian need.



Stockholm+50 Stockholm, Sweden, 2-3 June 2022

The UN General Assembly decided by consensus to convene an international event marking the 50th anniversary of the 1972 UN Conference on the Human Environment and the creation of the UN Environment Programme (UNEP). The meeting will take place in Stockholm, Sweden, from 2-3 June 2022.

The 1972 conference was the UN's first major conference on international environment issues, and took place in Stockholm, Sweden. The outcome resulted in the creation of UNEP, which is headquartered in Nairobi, Kenya.

The delegations of Kenya and Sweden to the UN tabled the draft resolution (document A/75/L.88) on convening the meeting, titled 'Stockholm+50: a healthy planet for the prosperity of all — our responsibility, our opportunity.' The aims of the meeting include to:

- Accelerate the implementation of the SDGs in the context of the Decade of Action;
- Promote sustainable recovery in the wake of the COVID-19 pandemic; and
- Help redefine humankind's relationship with nature and create conditions for prosperity within planetary boundaries.

The Government of Sweden will assume the costs of the meeting, with the support of Kenya.

During the UNGA meeting to adopt the resolution, the Group of 77 developing countries and China (G-77/China) noted its understanding that the Stockholm+50 meeting is "not expected to redefine, renegotiate or mandate new mechanisms or new commitments, nor go beyond the provisions of multilateral environmental agreements."

Negotiating a modalities resolution is the expected next step, to enable governments to determine the exact focus and structure of the meeting.

Source: <http://sdg.iisd.org/news/unga-agrees-to-hold-stockholm50-meeting-in-2022/> 1 June 2021



Our Planet, Our Future

**Nobel Laureates Urgent Call for Action
29 April 2021**

Inspired by the discussion at the 2021 Nobel Prize Summit, this statement reflects the sentiments of urgency shared by many experts and Nobel Prize Laureates regarding the need for systems of global sustainability and active planetary stewardship. The long-term potential and future of humanity depends on our present prioritization of biospheric and societal resilience and recognition of the interconnectedness of humanity's health and wellbeing with the health and wellbeing of the natural world around us. The statement explores the nexus and relevance of planetary health, the global commons, inequality, technology and more, along with seven proposals for actions that promote effective planetary stewardship.

Here is the whole statement:

Preamble

The Nobel Prizes were created to honor advances of “the greatest benefit to humankind.” They celebrate successes that have helped build a safe, prosperous, and peaceful world, the foundation of which is scientific reason.

“Science is at the base of all the progress that lightens the burden of life and lessens its suffering.” Marie Curie (Nobel Laureate 1903 and 1911)

Science is a global common good on a quest for truth, knowledge, and innovation toward a better life. Now, humankind faces new challenges at unprecedented scale. The first Nobel Prize Summit comes amid a global pandemic, amid a crisis of inequality, amid an ecological crisis, amid a climate crisis, and amid an information crisis. These supranational crises are interlinked and threaten the enormous gains we have made in human progress. It is particularly concerning that the parts of the world projected to experience many of the compounding negative effects from global changes are also home to many of the world’s poorest communities, and to indigenous peoples. The summit also comes amid unprecedented urbanization rates and on the cusp of technological disruption from digitalization, artificial intelligence, ubiquitous sensing and biotechnology and nanotechnology that may transform all aspects of our lives in coming decades.

“We have never had to deal with problems of the scale facing today’s globally interconnected society. No one knows for sure what will work, so it is important to build a system that can evolve and adapt rapidly.” Elinor Ostrom (Nobel Laureate 2009)

The summit has been convened to promote a transformation to global sustainability for human prosperity and equity. Time is the natural resource in shortest supply. The next decade is crucial: Global greenhouse gas emissions need to be cut by half and destruction of nature halted and reversed. An essential foundation for this transformation is to address destabilizing inequalities in the world. Without transformational action this decade, humanity is taking colossal risks

with our common future. Societies risk large-scale, irreversible changes to Earth’s biosphere and our lives as part of it.

“A new type of thinking is essential if mankind is to survive and move toward higher levels.” Albert Einstein (Nobel Laureate 1921)

We need to reinvent our relationship with planet Earth. The future of all life on this planet, humans and our societies included, requires us to become effective stewards of the global commons — the climate, ice, land, ocean, freshwater, forests, soils, and rich diversity of life that regulate the state of the planet, and combine to create a unique and harmonious life-support system. There is now an existential need to build economies and societies that support Earth system harmony rather than disrupt it.

Our Planet

“It seems appropriate to assign the term ‘Anthropocene’ to the present.” Paul Crutzen (Nobel Laureate 1995)

Geologists call the last 12,000 years the Holocene epoch. A remarkable feature of this period has been relative Earth-system stability. But the stability of the Holocene is behind us now. Human societies are now the prime driver of change in Earth’s living sphere — the biosphere. The fate of the biosphere and human societies embedded within it is now deeply intertwined and evolving together. Earth has entered a new geological epoch, the Anthropocene. Evidence points to the 1950s as the onset of the Anthropocene — a single human lifetime ago. The Anthropocene epoch is more likely to be characterized by speed, scale, and shock at global levels.

Planetary health

The health of nature, our planet, and people is tightly connected. Pandemic risk is one of many global health risks in the Anthropocene. The risks of pandemics are now greater due to destruction of natural habitats, highly networked societies, and misinformation.

The COVID-19 pandemic is the greatest global shock since the Second World War. It has caused immense suffering and hardship. The scientific

response in the face of catastrophe, from detection to vaccine development, has been robust and effective. There is much to applaud. However, there have been clear failings. The poorest and most marginalized in societies remain the most vulnerable. The scale of this catastrophe could have been greatly reduced through preventive measures, greater openness, early detection systems, and faster emergency responses.

Reducing risk of zoonotic disease like COVID-19 requires a multi-pronged approach recognizing “one health” — the intimate connections between human health and the health of other animals and the environment. Rapid urbanization, agricultural intensification, overexploitation, and habitat loss of large wildlife all promote the abundance of small mammals, such as rodents. Additionally, these land-use changes lead animals to shift their activities from natural ecosystems to farmlands, urban parks, and other human-dominated areas, greatly increasing contact with people and the risk of disease transmission.

The global commons

Global heating and habitat loss amount to nothing less than a vast and uncontrolled experiment on Earth’s life-support system. Multiple lines of evidence now show that, for the first time in our existence, our actions are destabilizing critical parts of the Earth system that determine the state of the planet.

For 3 million years, global mean temperature increases have not exceeded 2°C of global warming, yet that is what is in prospect within this century. We are on a path that has taken us to 1.2°C warming so far — the warmest temperature on Earth since we left the last ice age some 20,000 years ago, and which will take us to >3°C warming in 80 years.

At the same time, we are losing Earth resilience, having transformed half of Earth’s land outside of the ice sheets, largely through farming expansion. Of an estimated 8 million species on Earth, about 1 million are under threat. Since the 1970s, there has been an estimated 68% decline in the populations of vertebrate species.

Inequality

“The only sustainable prosperity is shared

prosperity.” Joseph Stiglitz (Nobel Laureate 2001)

While all in societies contribute to economic growth, the wealthy in most societies disproportionately take the largest share of this growing wealth. This trend has become more pronounced in recent decades. In highly unequal societies, with wide disparities in areas such as health care and education, the poorest are more likely to remain trapped in poverty across several generations.

More equal societies tend to score highly on metrics of well-being and happiness. Reducing inequality raises social capital. There is a greater sense of community and more trust in government. These factors make it easier to make collective, long-term decisions. Humanity’s future depends on the ability to make long-term, collective decisions to navigate the Anthropocene.

The COVID-19 pandemic, the largest economic calamity since the Great Depression, is expected to worsen inequality at a moment when inequality is having a clear destabilizing political impact in many countries. Climate change is expected to further exacerbate inequality. Already, the poorest, often living in vulnerable communities, are hit hardest by the impacts of climate, and live with the damaging health impacts of energy systems, for example air pollution. Furthermore, although urbanization has brought many societal benefits, it is also exacerbating existing, and creating new, inequities.

It is an inescapable conclusion that inequality and global sustainability challenges are deeply linked. Reducing inequality will positively impact collective decision-making.

Technology

The accelerating technological revolution — including information technology, artificial intelligence, and synthetic biology — will impact inequality, jobs, and entire economies, with disruptive consequences. On aggregate, technological advancements so far have accelerated us down the path toward destabilizing the planet. Without guidance, technological evolution is unlikely to lead to transformations toward sustainability. It will be critical to guide the technological revolution deliberately and strategically in the coming decades to support societal goals.

Acknowledging urgency and embracing complexity

The future habitability of Earth for human societies depends on the collective actions humanity takes now. There is rising evidence that this is a decisive decade (2020-2030). Loss of nature must be stopped and deep inequality counteracted. Global emissions of greenhouse gases need to be cut by half in the decade of 2021-2030. This alone requires collective governance of the global commons — all the living and non-living systems on Earth that societies use but that also regulate the state of the planet — for the sake of all people in the future.

On top of the urgency, we must embrace complexity. Humanity faces rising network risks and cascading risks as human and technological networks grow. The 2020/2021 pandemic was a health shock that quickly cascaded into economic shocks. We must recognize that surprise is the new normal and manage for complexity and emergent behavior.

Our Future

A decade of action

Time is running out to prevent irreversible changes. Ice sheets are approaching tipping points — parts of the Antarctic ice sheet may have already crossed irreversible tipping points. The circulation of heat in the North Atlantic is unequivocally slowing down due to accelerated ice melt. This may further affect monsoons and the stability of major parts of Antarctica. Rainforests, permafrost, and coral reefs are also approaching tipping points. The remaining carbon budget for a 67% probability of not exceeding 1.5°C global warming will be exhausted before 2030. At the same time, every week until 2050, the urban population will increase by about 1.3 million, requiring new buildings and roads, water and sanitation facilities, and energy and transport systems. The construction and operation of these infrastructure projects will be energy and emissions intensive unless major changes are made in how they are designed and implemented.

In 2021, major summits will generate political and societal momentum for action on climate, biodiversity, food systems, desertification, and the ocean. In 2022, the Stockholm+50 event marks the 50th anniversary of the first Earth Summit. This is

an important opportunity to reflect on progress to meet the United Nations Sustainable Development Goals (SDGs), due to be completed by 2030. Yet a disconnect exists between the urgency indicated by the empirical evidence and the response from electoral politics: The world is turning too slowly.

Planetary stewardship

“We must break down the walls that have previously kept science and the public apart and that have encouraged distrust and ignorance to spread unchecked. If anything prevents human beings from rising to the current challenge, it will be these barriers.” Jennifer Doudna (Nobel Laureate 2020)

Effective planetary stewardship requires updating our Holocene mindset. We must act on the urgency, the scale, and the interconnectivity between us and our home, planet Earth. More than anything, planetary stewardship will be facilitated by enhancing social capital — building trust within societies and between societies.

Is a new worldview possible? 193 nations have adopted the SDGs. The global pandemic has contributed to a broader recognition of global interconnectivity, fragility, and risk. Where they possess the economic power to do so, more people are increasingly making more sustainable choices regarding transportation, consumption, and energy. They are often ahead of their governments. And increasingly, the sustainable options, for example solar and wind power, are similar in price to fossil fuel alternatives or cheaper — and getting cheaper.

The question at a global systems level today is not whether humanity will transition away from fossil fuels. The question is: Will we do it fast enough? Solutions, from electric mobility to zero-carbon energy carriers and sustainable food systems, are today often following exponential curves of advancement and adoption. How do we lock this in? The following seven proposals provide a foundation for effective planetary stewardship.

- **POLICY:** Complement GDP as a metric of economic success with measures of true well-being of people and nature. Recognize that increasing disparities between rich and poor feed resentment and distrust, undermining the social contract necessary for difficult, long-term collective decision-making. Recognize that the deteriorating resilience

of ecosystems undermines the future of humanity on Earth.

- **MISSION-DRIVEN INNOVATION:** Economic dynamism is needed for rapid transformation. Governments have been at the forefront of funding transformational innovation in the last 100 years. The scale of today's challenges will require large-scale collaboration between researchers, government, and business — with a focus on global sustainability.

- **EDUCATION:** Education at all ages should include a strong emphasis on the nature of evidence, the scientific method, and scientific consensus to ensure future populations have the grounding necessary to drive political and economic change. Universities should embed concepts of planetary stewardship in all curricula as a matter of urgency. In a transformative, turbulent century, we should invest in life-long learning, and fact-based worldviews.

- **INFORMATION TECHNOLOGY:** Special interest groups and highly partisan media can amplify misinformation and accelerate its spread through social media and other digital means of communication. In this way, these technologies can be deployed to frustrate a common purpose and erode public trust. Societies must urgently act to counter the industrialization of misinformation and find ways to enhance global communication systems in the service of sustainable futures.

- **FINANCE AND BUSINESS:** Investors and companies must adopt principles of recirculation and regeneration of materials and apply science-based targets for all global commons and essential

ecosystem services. Economic, environmental, and social externalities should be fairly priced.

- **SCIENTIFIC COLLABORATION:** Greater investment is needed in international networks of scientific institutions to allow sustained collaboration on interdisciplinary science for global sustainability as well as transdisciplinary science that integrates diverse knowledge systems, including local, indigenous, and traditional knowledge.

- **KNOWLEDGE:** The pandemic has demonstrated the value of basic research to policymakers and the public. Commitment to sustained investment in basic research is essential. In addition, we must develop new business models for the free sharing of all scientific knowledge.

Conclusion

Global sustainability offers the only viable path to human safety, equity, health, and progress. Humanity is waking up late to the challenges and opportunities of active planetary stewardship. But we are waking up. Long-term, scientifically based decision-making is always at a disadvantage in the contest with the needs of the present. Politicians and scientists must work together to bridge the divide between expert evidence, short-term politics, and the survival of all life on this planet in the Anthropocene epoch. The long-term potential of humanity depends upon our ability today to value our common future. Ultimately, this means valuing the resilience of societies and the resilience of Earth's biosphere.

Source: <https://www.nationalacademies.org/news/2021/04/nobel-prize-laureates-and-other-experts-issue-urgent-call-for-action-after-our-planet-our-future-summit>