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.

Welcome to the February IEF Newsletter!

We are excited to share with you the new statement by the Baha'i International Community on **Reflections of Our Values: Digital Technologies and a Just Transition.** It illumines how ethics and religion are important for the responsible use of technologies – a topic at is at the heart of the IEF. You will find this statement on Page 7 below.

Another article that is likely of much interest to our readers is **10 Key insights in Climate Science 2020.** Due to its length, this article is posted last, starting on **Page 10**. The extremely well-researched and written new paper **Underestimating the Challenges of Avoiding a Ghastly Future** deserves special attention**.** You will find excerpts and a link to the full paper on **Page 6**.

IEF Lectures

Upcoming Webinars

Building Capacity in Undergraduate Engineering Students to Deal with Climate Change

Professor Rafael Amaral Shayani

February 20th 2021, 10am PST, 13:00 EST, 18:00 GMT, 19:00 CET, 23:30 IST

Register here: https://zoom.us/meeting/register/tJIrdumsqjgtE9yKpii8a3NpgjzRI7vyz1vm

Description: The fact that the energy system has been practically the same since its inception is partly related to the traditional training that engineering students receive at universities. In order for the energy sector to be able to align itself with the global effort to reduce greenhouse gas emissions, students graduating from universities need to have studied these issues - but in most cases they have not. Even though engineering is a traditional and important profession for ensuring the growth of infrastructure within a country, there is a need

to modernize university programs so as to train professionals with new capabilities required by current demands. Students often choose engineering programs because they want to help society progress. By understanding environmental and social issues that predominate in our world, students will be properly prepared to address the challenges most important today.

Dr. Shayani's wrote an article on this topic for IEF, it can be found here.

Speaker Bio:
Rafael Amaral Shayani, IEF member, has an electrical engineering degree with a focus on power and energy. He obtained his MS and PhD on photovoltaic solar energy. He is professor of electrical engineering at University of Brasilia, Brazil.

Discourse: A Baha'i Perspective

Dr. Stephen Friberg

March 27th 2021, 19:00 CET, 13:00 EST

For the full Description & for Registration, go here.

Webinar Archives:

Last month's lecture on **Economic Systems & Sustainability with Joachim Monkelbaan** is now posted on the IEF webinar playlist: https://tinyurl.com/7p09o73q

News from the International Tree Foundation (ITF)

by IEF member Dr. Stephen Vickers (Chair of ITF)

Watu wa Miti, the People of the Trees, was founded by Kikuyu Chief Njonjo and UK colonial civil servant, Richard St Barbe Baker, in 1922. Richard St Barbe Baker became a Baha'i in 1924. He described the day in 1929 that he met the Beloved Guardian of the Baha'i Faith, Shoghi Effendi, as the most significant day of his life. Shoghi Effendi then became the organisation's first Life Member and sent messages to many of its Annual General Meetings. It is difficult to overestimate the contribution Baker made toward strengthening the global environmental movement; it is estimated that organizations he founded have planted 26 billion trees, and that most significant tree charities descend wholly or in part from his work.

Presently, the parent charity is called the International Tree Foundation. It is still a British-Kenyan organisation, which currently has 39 active programmes spread across 30 countries with hundreds of completed projects. The foundation's focus is raising rural incomes and safeguarding soils through community-based forestry. Also, in collaboration with the good offices of the seed banks maintained by the Royal Botanic Gardens, Kew and its partners around the world, some rarer indigenous species have been promoted.

The year 2022 is the celebration of the Centenary of Richard St Barbe Baker's initiative. To this extent there are some areas in which IEF members might be willing and able to assist:

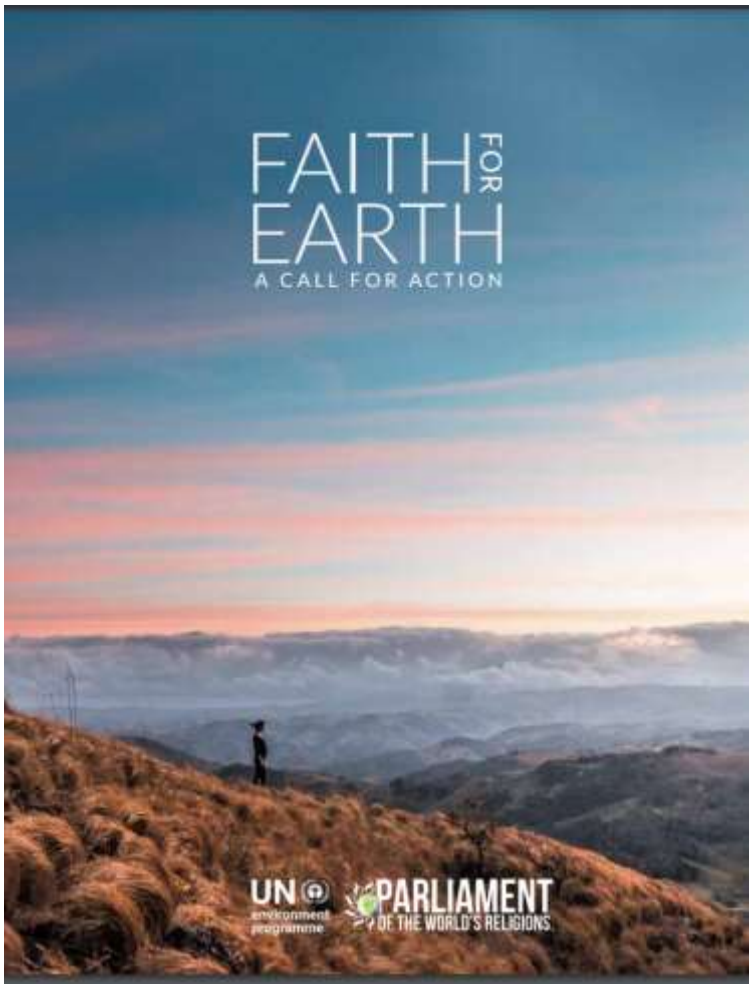
1. Through the good offices of Hugh Locke, Richard St Barbe Baker's Literary Executor, the ITF will, without diverting funds from its tree programmes, assist Hugh and the University of Saskatchewan's Baker Archive to create a digital catalogue making the archive accessible to academics and environmentalists around the world. Forestry or agricultural schools in continuing and higher education, particularly those in Africa and Latin America, could be informed of this development.
2. A range of short audio-visuals will be created, each with a fairly well-known person talking approvingly of the ITF's work, leading into one of the ITF programmes. The aim is that each audio-visual clip will

be shared online, thereby increasing interest in ITF work and helping expand ITF activities during the Centenary Year. We will identify nineteen well-known people each to speak on a different clip for perhaps two minutes with, of course, the “celebrity” approving its release. Again, help here would be appreciated. Also a successful tree programme of an outside organization could be included in the series if it contributes to Richard St Barbe Baker’s vision. If any IEF member nominates someone well-known in their particular region, the ITF series editor will send the intended speaker the specifications for a contributing video.

3. Another element of the Centenary will be the planting of a single tree in each of one hundred countries on the same day. Given the vagaries of the climate of a planet tilted on its axis, this day would best be close to an equinox, provided that such a chosen date is not detrimental to successful tree planting. Preference would be for either a tree planted providing an edible crop or one suitable for non-lethal coppicing. We would be grateful if each planting were videotaped.
4. We would also be grateful if members can arrange for an inter-Faith service to be conducted in a prominent venue within their locality,
5. School activities, plantings, art or poetry competitions, etc. would be wonderful.
6. Proposals for new programmes of Community-based Forestry with which ITF can help are also welcome.

If you can offer any assistance on the items listed above, please email stephen@vickers.education

If you are interested in receiving an e-copy of the latest Trees Journal, please email jenny@internationaltreefoundation.org



Faith for Earth – A Call for Action

United Nations Environment Programme

Faith for Earth, A Call for Action is a comprehensive documentation of the contribution of the world's religions to a spiritual and ethical view of nature. It “describes the essential, unshakeable reverence that all religions have for creation and nature, and provides an introduction to the world’s major life support systems.” This is a new, revised edition of Earth and Faith, which was published twenty years ago.

IEF warmly recommends this valuable resource to our readers. Here we are sharing just three quotations taken from the 57 pages to whet your appetite:

At the culmination of Creation, the Holy One led the human creature through the Garden of Eden and said, “Enjoy the beauty and glory of the universe. Take heed not to corrupt or destroy My world. For if you corrupt it, there is no one to make it rights after you.” Ecclesiastes Rabba 7.13

“By nature is meant those inherent properties and necessary relations derived from the realities of things. And these realities of things, though in the utmost diversity, are yet intimately connected one with the other.” — Bahá’í World Faith, p. 340

Kinship Describing the essential kinship of all being with Heaven and Earth and suggesting that compassion is

the highest expression of that kinship, this inscription on the western wall of Chang Tsai's study was enormously influential in Neo-Confucian thought. *Heaven is my father and Earth my mother and even such a small creature as I finds an intimate place in their midst. Therefore, that which extends throughout the universe I regard as my body and that which directs the universe I regard as my nature. All people are my brothers and sisters, and all things are my companions.* —Western Inscription, Chang Tsai (1020-1077) Wm. Theodore de Bary, et al., Sources of Chinese Tradition.

You can access the beautifully illustrated *Faith for Earth – a Call for Action* here: https://wedocs.unep.org/bitstream/handle/20.500.11822/33991/FECA.pdf?sequence=1&isAllowed=y

Reweaving the Ecological Mat

Report of a webinar on 4 February 2021
by Arthur Dahl

How might a whole region resist the imposition of a materialistic consumer society, assess the full costs of development beyond what is measured by GDP, and rethink what is really important to its peoples? The Pacific Islands are attempting to do just this, with the churches combining theology with indigenous values to confront the present dominant economic paradigm. Vanuatu has already experimented with alternative indicators of well-being in 2012. The following report is an attempt to capture the highlights of this important creative process rooted in values and spirituality.

Under the leadership of the Pacific Conference of Churches, in collaboration with the World Council of Churches, the project Reweaving the Ecological Mat: Toward an Ecological Framework for Development has taken form, and was presented at a webinar on 4 February 2021. Mats, of course, are a fundamental furnishing of any Pacific Islander household, so reweaving a mat means starting over at the most basic level. The Reweaving the Ecological Mat initiative concerns itself with the oikonomical aspects of development – economical, ecological and ecumenical – as integral and interconnected aspects of the Households of Pacific Peoples. Four perspectives were provided in the webinar: theological, cultural spiritual, ecological accounting, and youth, followed by brief commentaries from the Caribbean, Africa and South-East Asia.

The first speaker was Rev. Cliff Bird from the Solomon Islands giving a theological framework with four pillars, since faith is integral to living. The first pillar is that all life is interconnected. Whether in the biblical Eden or in traditional cultures, life is seen as a web. The second pillar is the importance of home, known as vanua, fanua in island languages, oikos in Greek, giving rise to ecology, economy, and ecumenical in human relations. The Earth is home to God, humanity and all creatures. The third pillar is the Reign of God or Kingdom of God on Earth, described in many biblical parables. If we shift this narrative to the present, we should pray for it every day. The fourth pillar is the Fullness of Life, going beyond the spiritual to the material aspects of life. This is grounded in peoples' daily life, including food, water, shelter, meaningful work, health, safety, and protection. It connects with the environment, where we live, and is symbolic of the grace of God.

Elise Huffer, formerly the Pacific Community officer for cultural policy and heritage, at the University of the South Pacific, and on the IUCN Commission on Environment and Social Policy, summarized the cultural/spiritual framework, asking what is important to Pacific peoples? What sort of development do they want? GDP is supposed to measure growth, associated with well-being, but this leads to rising inequality, less care for the environment, materialistic economic models, and other issues. Pastors have seen development accompanying a growing disconnection within communities, with rising violence. This past year, with cyclones and COVID-19, people have been sustained by relying on the land. Peoples' relationships to each other and the environment have been brought back together. Healthy lives and environment are what is really important to Pacific communities.

Arnie Saiki presented the economic framework, describing his work on ecological accounting, or what he calls intemerate accounts (after the virgin birth as something that cannot be quantified). Existence is not a commodity. The neoliberal economic system was already in turmoil from 2008, with a debt-driven recovery now burdened by the pandemic and the climate crisis. The solution is to fix the interaction between the economy and

ecology. They cannot be divorced as they have mutual interactions. But the ecological processes and laws of nature should predominate over economic models. Climate change requires a longer term perspective. While we cannot determine absolute values for the environment, we can establish ecological baselines including regional assets and ecological assets, and measure the offsets and how to restore them. The transformation should focus on systems well-being, and ecological and biological diversity while retaining human contacts and benefits. He referred to the recent Dasgupta Review on the Economics of Biodiversity. Indigenous values see the whole integrated system, so the idea of privatizing something like water is contradictory. We need good global governance and strong regulation to fight against neoliberal privatization. Local communities can be united in a global programme. The system should do something that is just for people and the planet.

Daphney Kiki, a youth from the University of the South Pacific, noted that youth in the Pacific are not immune to globalization. They can be highly politicized and speak up for the environment, climate change and democracy. They are in search of an identity and positive resilience, and need principles and values, drawing on their cultures and traditions, both indigenous and religious, local and introduced over time. This means reframing, with a societal dimension drawing on cultures and traditions, a spiritual dimension, both indigenous and religious, and an economic development dimension that is sustainable and works well for the Pacific. A change in mindsets is needed, reweaving, rethinking, revisioning how Pacific people want to see their development.

How to give this to the world? We need measures of well-being and research methodologies, talking, evaluating and constructing. Who are we as a region? We are large ocean states. The region is presenting itself in a new way, rethinking how we want development. Our cultural and theological values and concord have been pushed aside by individualism and economic models. We need to come back together in social cohesion, more resilient, with the least global influence. We can do it, and show it to other regions, offering the gift of rethinking development and what it should look like.

Representatives from other regions then commented on the implications of this work from their regional perspectives. For the Caribbean, the region had suffered a history of exploitation, with monocultures replacing the native flora and fauna, worked by imported slaves in a racial hierarchy and economics of exploitation. The countries have tried to qualify as nation states with a focus on GDP, while emphasizing their small size and dependence. This project inspires an ambition to achieve a just economy that values the people and their environment and overcomes the history of exploitation.

A representative from the All-African Council of Churches in Zimbabwe described a similar situation where the neoliberal economy exploited the land and people with extractive uses of the natural resources and minerals, not being replenished and not benefiting the people, only large corporations. Neoliberal policies ensure that the poor remain poor and benefits go to the rich. Who owns the land? From colonial times, minority groups have taken control. African society is disconnected from the environment because bread-and-butter issues come first. There is a need for a radical replacement, changing mindsets, with the people taking charge and replenishing the environment, recognizing that everything is interconnected and turning away from consumerism. There is presently disunity among African states about the environment and its exploitation. What are we to say?

The third regional comment came from a representative of the Protestant Church in Mollucas, Indonesia. The views of Western culture have been imposed over the ecological perspective of indigenous peoples, who feel helpless. The pandemic has hit the indigenous peoples in the jungle very hard, with a stigma so that modern people look down on them. How is it possible to create a framework a hundred percent from the indigenous people, with their cosmology that sees the world as a whole, with people not different from nature? The ocean connects us, the wind connects us.

The discussion explored how to push the new narrative, with indigenous peoples developing their own methodologies. How should they see themselves in their own system, while also placing themselves in the global economy? How can this important discussion reach beyond the churches to a wider audience? There is a strong architecture of regional organizations, and the Pacific Islands Forum Secretariat has made a presentation on this to the Forum. The youth are engaging with the universities. There is a need to link to other efforts such as the nature conservation movement.

The recording of the webinar is available at: https://youtu.be/c35VtMpqQSI

Other resources

Reweaving the Ecological Mat Framework TOWARD AN ECOLOGICAL FRAMEWORK FOR DEVELOPMENT
https://drive.google.com/file/d/1f1kamvePGZjv_gtl1l6lsFlhOncyAEdv/view

Ecological-Economic Accounts: TOWARDS INTEMERATE VALUES
https://www.intemerate.earth/
https://issuu.com/wordsbydesign/docs/ecological-economic_accounts_final_version
or https://drive.google.com/file/d/1OcaA8w_1NtE_g3w4iuEzvmLV53iRNV_E/view

Alternative Indicators of Well-being for Melanesia – Vanuatu Pilot Study Report 2012
https://vnso.gov.vu/index.php/en/special-reports/well-being-survey

Dasgupta Review - Economics of Biodiversity
https://www.gov.uk/government/publications/final-report-the-economics-of-biodiversity-the-dasgupta-review

Underestimating the Challenges of Avoiding a Ghastly Future

Corey J. A. Bradshaw et al., Frontiers Conservation Science 13 January 2021
https://doi.org/10.3389/fcosc.2020.615419

In the journal *Frontiers in Conservation Science,* a group of 17 ecologists published a sober assessment about the severity of the environmental crisis:

“We report three major and confronting environmental issues that have received little attention and require urgent action. First, we review the evidence that future environmental conditions will be far more dangerous than currently believed. The scale of the threats to the biosphere and all its lifeforms—including humanity—is in fact so great that it is difficult to grasp for even well-informed experts. Second, we ask what political or economic system, or leadership, is prepared to handle the predicted disasters, or even capable of such action. Third, this dire situation places an extraordinary responsibility on scientists to speak out candidly and accurately when engaging with government, business, and the public. We especially draw attention to the lack of appreciation of the enormous challenges to creating a sustainable future. The added stresses to human health, wealth, and well-being will perversely diminish our political capacity to mitigate the erosion of ecosystem services on which society depends. The science underlying these issues is strong, but awareness is weak. Without fully appreciating and broadcasting the scale of the problems and the enormity of the solutions required, society will fail to achieve even modest sustainability goals.

“Humanity is causing a rapid loss of biodiversity and, with it, Earth's ability to support complex life. But the mainstream is having difficulty grasping the magnitude of this loss, despite the steady erosion of the fabric of human civilization. While suggested solutions abound, the current scale of their implementation does not match the relentless progression of biodiversity loss and other existential threats tied to the continuous expansion of the human enterprise. Time delays between ecological deterioration and socio-economic penalties, as with climate disruption for example, impede recognition of the magnitude of the challenge and timely counteraction needed. In addition, disciplinary specialization and insularity encourage unfamiliarity with the complex adaptive systems in which problems and their potential solutions are embedded. Widespread ignorance of human behavior and the incremental nature of socio-political processes that plan and implement solutions further delay effective action.

“We summarize the state of the natural world in stark form here to help clarify the gravity of the human predicament. We also outline likely future trends in biodiversity decline, climate disruption, and human consumption and population growth to demonstrate the near certainty that these problems will worsen over the coming decades, with negative impacts for centuries to come. Finally, we discuss the ineffectiveness of current and planned actions that are attempting to address the ominous erosion of Earth's life-support system. Ours is not a call to surrender—we aim to provide leaders with a realistic 'cold shower' of the state of the planet that is essential for planning to avoid a ghastly future.”

Toward the end of the article, the authors spell out the fundamental social changes needed to avert a “ghastly future”:

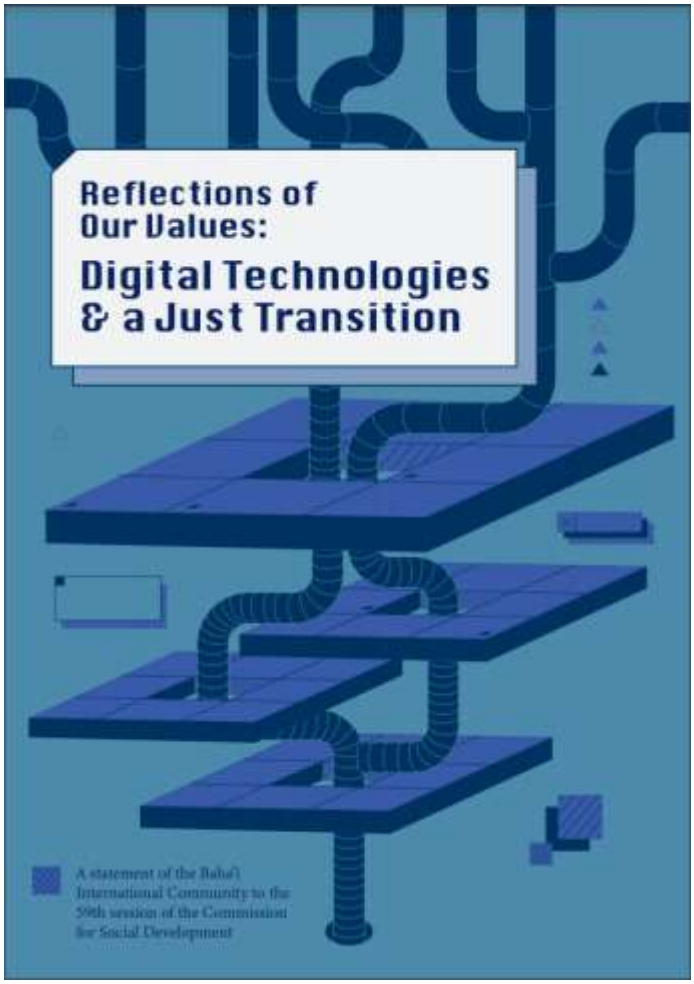
“The gravity of the situation requires fundamental changes to global capitalism, education, and equality, which include *inter alia* the abolition of perpetual economic growth, properly pricing externalities, a rapid exit from fossil-fuel use, strict regulation of markets and property acquisition, reigning in corporate lobbying, and the empowerment of women. These choices will necessarily entail difficult conversations about population growth and the necessity of dwindling but more equitable standards of living.”

It is very much worth reading the whole paper (6 pages):
https://www.frontiersin.org/articles/10.3389/fcosc.2020.615419/full

Reflections of Our Values: Digital Technologies and a Just Transition

A statement of the Baha’i International Community
to the 59th session of the Commission for Social Development

New York — 8 February 2021



Humanity is in a period of unprecedented transition—having passed through evolutionary stages analogous to infancy and childhood, it is now in a state of turbulent adolescence approaching maturity. Possibilities are opening for marked social change to redefine collective values and underlying assumptions. This is especially evident in the realm of digital technologies. For some, a world-engulfing pandemic has precipitated greater reliance on such technologies to carry out basic tasks and remain connected. For others, lack of access has resulted in further isolation. Questions, then, abound in relation to digital technologies and their role in a just transition to a world reflective of humanity’s highest ambitions. We commend this Commission for selecting so pertinent a theme for consideration at this inflection point in human affairs.

Technological Innovation

Undoubtedly, technological innovation has been a source of many advancements, serving to amplify human intent and capabilities. Yet, like any tool, it can be deployed productively or destructively, depending on the ethical considerations underlying its design and use. To take but one example, when shaped by a concern for human well-being, agricultural innovation, through the creation of sustainable technologies and environmentally friendly methods, has increased food security for many worldwide. When driven by strict profit motives, however, it can result in exploitation of both workers and natural resources, and potentially further deepen inequalities. If technology is to be a means to enhance flourishing, it must extend capabilities in a manner reflecting essential human ideals and aspirations.

Notwithstanding achievements of new technologies, various forms of social bias and inequity are often embedded in their design or application, which are unintentionally adopted by users. Decisions related to use and distribution are often left to a privileged few who may not foresee such consequences. In the case of digital technologies, this challenge is exacerbated as specific values and assumptions are engineered into products and adopted at a pace exceeding the capacity of even the most qualified legislatures to properly assess. In an increasingly interconnected

and interdependent world, where more digital technologies are adopted out of perceived or actual necessity, unforeseen consequences arise, no matter how well-intended a technological system or solution.

Recognizing the power of technologies to open new opportunities and shape reality, an honest examination of the presumptions and norms underlying their creation and use is therefore critical.

As has become increasingly clear in recent years, digital technologies are not implicitly neutral. Technological innovation, much like the prevalent development paradigm, is deeply influenced by materialistic underpinnings. Basic notions about progress are largely founded on a belief that the acquisition of goods will conduce to greater levels of wellbeing. Solutions are devised based on these assumptions and widely transplanted without considering social, ethical, and spiritual implications. Even when resulting technologies benefit society in one way, they can have the effect of perpetuating existing disparities or undermine other social goals. Divorced from an understanding of the needs of the users themselves, the unconscious adoption of technological tools and services could inadvertently result in communities losing touch with important elements of their cultural heritage.

As digital tools are increasingly applied to all areas of individual and collective endeavor, the question then shifts from whether such technologies should be used, to how they can be appropriately and consciously conceived and applied. This moment of transition presents the opportunity to interrogate the values and intentions informing future technological innovation. Such a process would largely be informed by the experience of local communities rather than external market or ideological forces, diversity rather than uniformity, and a multiplicity of approaches rather than the imposition of dominant but extrinsic worldviews. It also offers a moment to collectively develop the necessary legal standards and regulations that reflect these values and counteract the pernicious side of digital technologies.

Consultation on technological adoption

Developing the capacity for making suitable technological choices in light of essential social needs and mores is vital in order to foster the responsible design, use, and distribution of digital technologies. Guided by moderation, justice, and cultural diversity, this comes with a vigorous evaluation and objective inquiry by individuals, communities, and social institutions into the purpose of their adoption. The current forces driving technological expansion could be moderated by asking questions about underlying assumptions as well as how technologies can support and enhance, rather than subsume and replace, local values. What types of digital technologies reflect a community's vibrancy? Is this technology being adopted in a way that is suited to our community's needs? What forces drive our communities to utilize these technologies? Absent a more coherent analysis, adopting technology risks becoming an end in itself and could serve to obscure the fundamentally noble nature of the human condition, breeding mistrust, and engendering passivity.

A civilization befitting a humanity coming of age will not emerge through efforts exerted by any one particular group. Every member of the global community should benefit from the fruits of the human mind, be it equitable access to technological innovation or the knowledge generated through its creation. Every individual and community should be given the opportunity to contribute toward its construction. Access to platforms where decisions about humanity's well-being are made must ensure the full range of diverse viewpoints, an essential element of our oneness.

An inclusive path forward

What is called for is the creation of spaces at all levels, by governments and communities, to openly and honestly analyze the impacts, whether intentional or not, of development endeavors, retaining elements which are conducive to the advancement of the whole human family, and discarding those which reinforce negative habits and patterns of life. Users of technologies, sometimes perceived as passive recipients of products created elsewhere, will need to be actively involved in the process of collectively identifying their priorities and consulting on the impacts of technologies within their context. In doing so, the establishment of institutional processes for systematizing learning about technology will allow them to contribute to a growing body of knowledge at the global level. At the national level, steps will need to be taken to understand how digital technologies can best be regulated to give expression to broader community aims and values while providing access to knowledge. And, given that their influence transcends national boundaries,

international policies—guided by principles of justice, universality, and dignity—will be indispensable in informing the responsible creation, use, and distribution of digital technologies. Moreover, recognizing that digital platforms are increasingly being used to make decisions about just transitions, these spaces will need to accommodate a diversity of voices. As in so many areas, the greatest change will be required from those who have largely benefitted from the prevalent paradigms as they make way for more holistic, just, and appropriate technologies.

The United Nations has a unique opportunity to demonstrate what such a constructive and explorative use of technology could look like and how it could amplify multiple perspectives. The UN will no doubt prove critical in creating social and political spaces where users of technology are able to enter into meaningful dialogue with creators of technology, as well as policymakers, to discuss the social and spiritual implications of their design, specifically questioning deeper motivations underlying innovations. And it could facilitate the sharing of knowledge created by actors at each level. These important considerations could be revisited periodically in international spaces such as this Commission.

Humanity is being propelled to greater degrees of integration. Accelerated by the coronavirus pandemic, this moment of transition presents an opportunity to draw on the wealth of potential at our disposal. We have the tools, through digital technologies themselves as well as genuine consultation, to ensure a just transition. We have the capacity to allow those historically excluded to participate in critical questions about humanity's future. When all members of the human family are provided the opportunity to contribute to the betterment of the world, and the full range of human capabilities express themselves in charting a meaningful life beyond solely materialistic considerations, true prosperity becomes possible. How much more potent, then, if the manner in which we approach the means of digital technologies serves the expression of this noble purpose of human flourishing. Should these be aligned, there is no limit to the power of innovation in creating a future reflecting the highest expression of humanity's aspirations.

Source: https://www.bic.org/statements/reflections-our-values-digital-technologies-and-just-transition

The Economics of Biodiversity

2 February 2021 UK Government Report

"The Dasgupta Review is an independent, global review on the Economics of Biodiversity led by Professor Sir Partha Dasgupta (Frank Ramsey Professor Emeritus, University of Cambridge). The Review was commissioned in 2019 by HM Treasury and has been supported by an Advisory Panel drawn from public policy, science, economics, finance and business.

The Review calls for changes in how we think, act and measure economic success to protect and enhance our prosperity and the natural world. Grounded in a deep understanding of ecosystem processes and how they are affected by economic activity, the new framework presented by the Review sets out how we should account for Nature in economics and decision-making."

The review "Economics of Biodiversity" is over 600 pages; there is an abridged version, and Headline messages of about 5 pages. All are available at https://www.gov.uk/government/publications/final-report-the-economics-of-biodiversity-the-dasgupta-review.

Here are two excerpts from the Headline Messages:

Our unsustainable engagement with Nature is endangering the prosperity of current and future generations.

Biodiversity is declining faster than at any time in human history. Current extinction rates, for example, are around 100 to 1,000 times higher than the baseline rate, and they are increasing. Such declines are undermining Nature's productivity, resilience and adaptability, and are in turn

fueling extreme risk and uncertainty for our economies and well-being. The devastating impacts of COVID-19 and other emerging infectious diseases – of which land-use change and species exploitation are major drivers – could prove to be just the tip of the iceberg if we continue on our current path. Many ecosystems, from tropical forests to coral reefs, have already been degraded beyond repair, or are at imminent risk of 'tipping points'. These tipping points could have catastrophic consequences for our economies and well-being; and it is costly and difficult, if not impossible, to coax an ecosystem back to health once it has tipped into a new state. Low income countries, whose economies are more reliant than high income countries on Nature's goods and services from within their own borders, stand to lose the most. Reversing these trends requires action now. To do so would be significantly less costly than delay, and would help us to achieve wider societal goals, including addressing climate change (itself a major driver of biodiversity loss) and alleviating poverty.

Transformative change is possible – we and our descendants deserve nothing less.

At their core, the problems we face today are no different from those our ancestors faced: how to find a balance between what humanity takes from Nature and what we leave behind for our descendants. While our ancestors were incapable of affecting the Earth system as a whole, we are doing just that. The transformative change needed in choosing the sustainable path requires the sustained commitment of actors at all levels. It also involves hard choices. Standard economic models view our choices as self-centered. There is growing evidence, however, that our preferences are affected by the choices of others – they are 'socially embedded'. Since we look to others when acting, the necessary changes are not only possible, but are likely to be less costly and less difficult than often imagined. The success stories from around the world highlighted throughout the Review show us what is possible. They also demonstrate that the same ingenuity that has led us to make demands on Nature that are so large, so damaging and over such a short period, can be redeployed to bring about transformative change, perhaps even in just as short a time. We and our descendants deserve nothing less.

Source: https://www.gov.uk/government/publications/final-report-the-economics-of-biodiversity-the-dasgupta-review

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/957629/Dasgupta_Review_-_Headline_Messages.pdf

10 Key insights in Climate Science 2020

57 researchers from 21 countries issued the report "10 Key insights in Climate Science 2020" in partnership with Future Earth, The Earth League and the World Climate Research Programme (WCRP).

You can watch a 2 min. overview video here: https://10nics2020.futureearth.org/10-new-insights-in-climate-science/resources-for-media/

For the full report, go here: https://10nics2020.futureearth.org/wp-content/uploads/2021/01/10-new-insights-in-climate-science-20210127.pdf

For the essential key points, read the excerpts below:

1. Improved models strengthen support for ambitious emission cuts to meet the Paris Agreement.

The climate's sensitivity to carbon dioxide – how much the temperature rises with a certain increase of emissions – is now better understood. This new knowledge indicates that moderate emission reductions are less likely to meet the Paris climate targets than previously anticipated.

Key new insights

- Earth's temperature response to doubling the levels of carbon dioxide in the atmosphere is now better understood. While previous IPCC assessments have used an estimated range of 1.5–4.5°C, recent research now suggests a narrower range of 2.3–4.5°C.
- This means that moderate emissions reduction scenarios are less likely to meet the Paris temperature targets than previously anticipated.
- Improved regional scale models provide better information about heavy rainfall events and hot and cold extremes, offering new opportunities for water resource management.

● Regional climate predictions can now be made up to a decade ahead with higher skill than previously thought possible.

2. Emissions from thawing permafrost likely worse than expected

Climate models anticipate CO2 and other greenhouse gases being released as permanently frozen ground – permafrost – thaws. However, the calculations have not yet included processes where the ground collapses abruptly and exposes deep layers of permafrost, as these have previously been difficult to quantify. Recent advances make it possible to better understand the impact of these processes on emissions and they are significant enough to have an impact on climate negotiations.

Key new insights

● Emissions of greenhouse gases from permafrost will be larger than earlier projections because of abrupt thaw processes, which are not yet included in global climate models.

● These abrupt thaw effects could as much as double the emissions from permafrost thaw under moderate and high emissions scenarios.

● Emissions from permafrost thaw could be yet higher due to effects on plant root activity, which increases soil respiration.

3. Deforestation is degrading the tropical carbon sink

The uptake of carbon by land ecosystems, the “land sink”, has grown as CO2 in the atmosphere acts as fertilizer. This effect is increasingly being countered by human-driven land-use change, particularly in the tropics. Other factors, such as shortage of other nutrients, water stress, and permafrost thaw could further impede the land sink. The future for the land sink as a whole is uncertain.

Key new insights

● Land ecosystems currently draw down 30% of human CO2 emissions due to a CO2 fertilization effect on plants.

● Deforestation of the world’s tropical forests are causing these to level off as a carbon sink but this is balanced by greater recent carbon uptake in the northern hemisphere.

● Global plant biomass uptake of carbon due to CO2 fertilization may be limited in the future by nitrogen and phosphorus.

● CO2 emissions from land-use changes continue to be high in the 21st century and remain a large threat to the land sink.

4. Climate change will severely exacerbate the water crisis

Crises of water quality and quantity are intimately linked with climate change. The impact mainly comes from extreme events of flooding and drought and is compounded by existing inequalities. Water extremes affected by climate already contribute to the migration and displacement of millions of people, and could further global migration crises.

Key new insights

● Crises of water quality and quantity are intimately linked with climate change and increasing extremes.

● New empirical studies show that climate change is already causing extreme precipitation events (floods and droughts), and these extreme settings in turn lead to water crises.

● The impact of these water crises is highly unequal, which is caused by and exacerbates gender, income, and sociopolitical inequality.

● Climate change coupled with socioeconomic drivers can impact access to water of good quality.

● Water-related climate extreme events are contributing to the migration and displacement of millions of

people; migration is being treated as an adaptation strategy within the international policy community

5. Climate change can profoundly affect our mental health

Understanding and managing the mental health impacts from climate variability and change are growing fields of research, providing evidence of effects such as stress, trauma, depression, and suicide. Climate can negatively impact our mental health through catastrophic events, rising sea levels or high temperatures, or indirectly through distress about future changes. It can affect anyone, but particularly those in vulnerable conditions. These mental health impacts can be addressed by explicitly including them in health systems, city planning, ecosystem and biodiversity conservation and protection, and by promoting access to natural areas and addressing social and environmental justice.

Key new insights

- Climate change can directly and indirectly adversely affect mental health over short and longer time scales. Growing evidence suggests the overall burden of mental health impacts of climate variability is high and will increase with additional climate change.
- Cascading and compounding risks are contributing to anxiety and distress.
- The mental health consequences of climate variability and change can affect anyone but disproportionately affects those suffering from health inequities.
- The promotion and conservation of blue and green spaces within urban planning policies as well as the protection of ecosystems and biodiversity in natural environments have health co-benefits and provide resilience.

6. Governments are not yet seizing the opportunity for a green recovery from COVID-19

Worldwide responses to the coronavirus pandemic have, as a side effect, led to unprecedented reductions in emissions of greenhouse gases and pollutants. CO2 emissions dropped by almost 9% for the first half of 2020, with a 17% reduction during peak restrictions. While it may seem encouraging from a climate perspective, the long-term impact will depend on the content of the economic recovery packages. Governments have announced trillions of dollars in stimulus packages but are not yet directing sufficient amounts to low-carbon investments while continuing to fund activities that may lock-in emissions-intense pathways.

Key new insights

- Temporary COVID-19 lockdowns resulted in a large and unprecedented global reduction in GHG emissions and visible improvements in urban air quality.
- The substantial drops in GHG emissions during COVID-19-induced lockdowns are unlikely to have any significant long-term impact on global emission trajectories.
- Governments all over the world have committed to mobilizing more than US$12 trillion for COVID-19 pandemic recovery. As a comparison, annual investments needed for a Paris-compatible emissions pathway are estimated to be US$1.4 trillion.
- Stimulus packages allocated by leading economies for agriculture, industry, waste, energy, and transport, amounting to US$3.7 trillion, have the potential to reduce emissions from these sectors significantly but governments do not seem to be seizing this opportunity.
- Governments' economic stimulus packages will shape GHG emissions trajectories for decades to come – for better or worse. If invested in climate-compatible activities, they could be a turning point for climate protection.

7. COVID-19 and climate change demonstrate the need for a new social contract

The coronavirus pandemic has exposed our societies' vulnerability to systemic crises. Climate change has the potential to be at least as disruptive and we cannot take for granted that current societal systems can gradually adapt as impacts worsen. Instead, new kinds of governance arrangements and global agreements are urgently

required to strengthen both the capacity for cross-national collaboration and public support for rapid action.

Key new insights

- COVID-19 and climate change exemplify transboundary risks that erode human well-being and economic security, particularly affecting the most vulnerable.
- The pandemic has spotlighted inadequacies of both governments and international institutions to cope with transboundary risks.
- Accelerating climate risks require innovative approaches to governance.
- Some communities and governments have demonstrated that COVID-19 risks can be addressed with innovative local, national, and international responses, and stronger global responses are needed.
- NGOs, community groups, youth movements, and many other social actors have shown that transboundary responses to global risks of climate change are also possible and there is mounting pressure on governments to act decisively. A new social compact would strengthen the prospects for a humane and just world with a stable climate.

8. Economic stimulus focused primarily on growth would jeopardize the Paris Agreement

An increasing number of studies provide solid evidence that there are substantial co-benefits of climate action and that it is economically optimal to pursue a 2°C or lower warming. This is due to significant cost decreases in low-carbon technologies, while models have been updated to fully capture the societal costs of climate impacts and pollution. Time is running out, however, meaning that green investments and societal changes are required immediately. Economic stimulus focused primarily on growth would jeopardize the Paris Agreement and thereby also threaten long-term social and economic prosperity.

Key new insights

- A growing number of studies highlight the economic benefits of strategies that stay well below 2°C or even 1.5°C.
- The costs of renewable energy, battery-electric vehicles, and other low-carbon solutions have fallen dramatically.
- A COVID-19 recovery strategy based on growth first and sustainability second is likely to fail the Paris Agreement.
- Investments are needed for a system transition but all must contribute to net energy or CO2 savings in line with the Paris Agreement.

9. Electrification in cities is pivotal for just sustainability transitions

Electrification is a key enabler of decarbonization, but the role of urban areas as an accelerator of these processes is only just emerging. Urban electrification can be understood as a sustainable way to reduce poverty by providing over a billion people with modern types of energy, but also as a way to substitute clean energy for existing services that drive climate change and harmful local pollution. Commercial actors such as utilities and investors are increasingly seeing electrification as markets for growth. The current transitions are an opportunity for increased self-sufficiency, decreasing inequalities, and better conditions for small- and medium-sized enterprises. They require a rethinking of energy systems, design thinking, and democratized decision-making.

Key new insights

- Urban electrification is a powerful pathway to an equitable energy transition.
- Over a billion people who currently lack access to electricity will benefit from stronger electrification efforts.
- Reductions in local air pollution and improvements to health and quality of life are tangible co-benefits of urban electrification.
- An actor-oriented, equity-based approach to the transition will maximize the benefits and mitigate the

risks of urban electrification, such as generating a new electrical divide.

- Key aspects for a successful transition include considering the constraints of the built environment, equity, governance, and how electricity-powered technologies interact with building design, urban, and mobility planning, and people's use of urban space.

10. Going to court to defend human rights can be an essential climate action

Courtrooms have become one of the front lines for those seeking to limit climate change. The cases that have been fought with climate change as a primary concern have meant an expansion of who and what has legal standing in courts and as a matter of law, and who may represent interests such as those of future generations. The novelty of these cases has meant that the courts learn from each other across jurisdictions, for instance, an international tribunal being influenced by how a national court has dealt with a case or vice versa. The urgency to address climate change has also meant that courts may take on roles as "lawmakers" and enforce action.

Key new insights

- Rights-based litigation is emerging as a tool to address climate change.
- Through such climate litigation, legal understandings of who or what is a rights-holder are expanding to include future, unborn generations, and elements of nature, as well as who can represent them in court.
- Climate litigation shows cross-fertilization between outcomes in different courts and tribunals, such as national case law influencing responses of international tribunals.
- Climate-related court cases address harm to people also across national boundaries. ● Courts come in as "lawmakers" to address climate change, given the absence of adequate climate action in other contexts.