



**LEAVES, A Newsletter of the  
INTERNATIONAL  
ENVIRONMENT FORUM**  
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**International Environment Forum** A Baha'i inspired organization addressing  
the environment and sustainable development

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Secretariat Email [ief@iefworld.org](mailto:ief@iefworld.org) General Secretary Emily Firth  
President Email [ief@iefworld.org](mailto:ief@iefworld.org) Arthur Lyon Dahl Ph.D.  
Postal address 12B Chemin de Maisonneuve, CH-1219 Chatelaine, Geneva, Switzerland

**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](mailto: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 International Conference,  
de Poort, The Netherlands, 14-17 April 2017**

**The Justice Conference 2017**  
FROM DISINTEGRATION TO INTEGRATION:  
NAVIGATING THE FORCES OF OUR TIME

“THE BEST BELOVED OF ALL THINGS IN MY SIGHT IS JUSTICE”  
—BAHA'U'LLAH

**SAVE THE DATE**  
FRI 14 - MON 17 APRIL

DE POORT CONFERENCE CENTRE  
NETHERLANDS

**CALL FOR PRESENTATIONS**  
The Justice Conference invites the submission of presentation and workshop proposals relating to this year's theme: "From Disintegration to Integration: Navigating the Forces of Our Time" and the related thematic questions. Submissions by legal scholars, practitioners, and others in non-legal fields are welcome. Proposals can be for shorter paper presentations or longer workshops aimed at generating discussion. Please send proposals (max. 200 words) with a short bio (max. 100 words) to [intjustconf@gmail.com](mailto:intjustconf@gmail.com) by 7 January 2017.

THE JUSTICE CONFERENCE IS A BAHAI-INSPIRED FORUM FOR THE EXPLORATION OF INTERNATIONAL LAW, GLOBAL GOVERNANCE, JUSTICE AND ETHICS. ALL ARE WELCOME TO PARTICIPATE.  
REGISTRATION TO OPEN SOON [WWW.DEPOORT.ORG](http://WWW.DEPOORT.ORG) | FURTHER INFORMATION: [INTJUSTCONF@GMAIL.COM](mailto:INTJUSTCONF@GMAIL.COM)

For its 21st International Conference, the IEF Governing Board has decided to partner with the **Justice Conference in de Poort, the Netherlands, on 14-17 April 2017**, over the Easter weekend. The theme of the Justice Conference is "*From Disintegration to Integration: navigating the forces of our time*". The conference will start at 15:00 on Friday 14 April, and end at noon on Monday 17 April.

The IEF contribution to the programme will be the following workshop: **"Environmental Changes as forces for disintegration and integration"**

*Human pressures are causing extreme climate change and the sixth mass extinction, among other environmental catastrophes. These manifestations of disintegration in ecosystems and the entire earth system require compensating efforts of integration including global environmental governance. Nature demonstrates the complementarity of disintegration and integration. Similar processes operate in human society, and systems science helps to explain their relationship. Higher levels of human integration may depend on ethical values including from religion. Climate change provides an example of the need for innovation*

*in integrating different societal dimensions such as science, education and governance. This workshops will explore a set of topics linked to this theme through presentations and interactive discussions.*

## **INDIVIDUAL ABSTRACTS**

### **Environmental Changes as forces for disintegration and integration**

Laurent Mesbah, American University, Sarajevo, Bosnia and Herzegovina

Nature offers beautiful examples of disintegration and integration as organic processes, at the molecular, cellular, organism, species, population, community, and ecosystem level. All living processes are essentially organic and follow precise and beautifully regulated natural laws.

The son of the founder of the Baha'i Faith, a great thinker and wise man Abdu'l-Bahá, wrote: "Reflect upon the inner realities of the universe, the secret wisdoms involved, the enigmas, the inter-relationships, the rules that govern all. For every part of the universe is connected with every other part by ties that are very powerful and admit of no imbalance, nor any slackening whatever".

If we look at the forest ecosystem for example we can see a disintegration of dying living organisms and materials such as leaves in the fall from which decomposers feed. Decomposers such as insects, fungi and bacteria, actually thrive on this abundant source of energy, and provide nutrients from which green plants will benefit, build material and store energy captured from the sun. Decomposers such as insects in turn become a source of food for example forest insectivore birds who in turn can also become a prey for other predators, connecting other organisms through the food chain and food web in the forest ecosystem. In this and all other ecosystems integration and disintegration are therefore very tightly connected and interdependent.

What can we say about human societies and these forces of integration and disintegration? What is the nature of human relationships with the natural environment? We do have significant evidence to affirm that we elicit important negative impact on the natural environment. The impacts of humans on planet earth have become so profound that scientists call this time the Anthropocene era. The disintegrating processes which includes climate disruption, biodiversity loss, habitat destruction and unsustainable use of natural resources constitute a real crisis and threat for humanity and for many forms of life. Human societies themselves are facing many crisis such as inequalities, financial, social, and all kind of injustices today are adding to each other and seem to be interconnected. Perhaps if we look at the root causes of these crises we could understand how these

disintegrating forces can provide the driving forces needed to build more just and sustainable human societies in better harmony with its natural environment.

### **The Systems Science of Disintegration and Integration**

Arthur Lyon Dahl, International Environment Forum, Geneva, Switzerland

Complex systems do not usually follow a smooth evolutionary curve towards greater integration and complexity, but experience what is called a punctuated equilibrium, with periods of stability interrupted by times of rapid change with bursts of creativity and reorganization. Dominant entities like the dinosaurs that have over-specialized and have lost the capacity to adapt die out, to be replaced by entities capable of rapid change and with new potentials for increased efficiency and integration (think early mammals). Human social systems seem to follow a similar pattern, and recent research suggests that higher levels of human organization can only be explained by the ethical principles of religion. The present time would call for learning communities accustomed to a culture of change and founded on strong spiritual principles.

### **Systems innovation for climate change**

Joachim Monkelbaan, Transitions Hub of Climate KIC, Brussels, Belgium

The transitions necessary to respond to climate change require systems innovation. Innovation is usually perceived as technical rather than about social change but the systems perspective obviously shifts that perspective. Integration is important at the science-policy-practice interface and in education. Bahá'í principles can shed new light on these issues.

### **The promises and pitfalls of integration in governance**

Sylvia Karlsson-Vinkhuyzen, Wageningen University, the Netherlands

Integration emerges frequently in current discourses on governance. The increasing functional interdependencies between traditionally separate policy areas such as energy, agriculture, health etc. leads to calls for integration in policy and implementation. Concepts such as environmental policy integration and mainstreaming of the environment appear in development plans and policy papers of national and international organizations. The Sustainable Development Goals and the Agenda 2030 in which they are embedded are explicitly 'integrative' and 'indivisible' among its 17 goals and 169 targets, many of which are

synergistic while some are clearly antagonistic. This presentation will highlight some of the promises and pitfalls of governance to aim for such high degree of integration.

### QUESTIONS FOR DISCUSSION

- How can we draw on the lessons of nature to understand better the challenges of disintegration and integration in human society?
- What is the role of ethics and values in integration?
- Can a systems perspective help to give us hope in the better world that can emerge from this age of transition?
- What innovations might help us to reinforce processes of integration?

### ABOUT THE PANELISTS

#### Laurent Amine Mesbah

Born and grew up in France in a multicultural background, Laurent Mesbah did research and teaching in plant genetics at the Free University in Amsterdam, the Netherlands, where he completed his PhD. In addition Dr Laurent Mesbah completed a certificate of advanced studies in Environmental Diplomacy at the University of Geneva and is member of the International Environment Forum since its foundation. Laurent has been living in Bosnia and Herzegovina since 2000 with his family. He has been involved in education and youth empowerment as well as in managing, implementing and evaluating projects related to sustainable development with international organisations. Laurent teaches environmental sciences and value based leadership at the university and co-founded and leads Bloom Earth School in Sarajevo.

#### Arthur Dahl

Dr. Arthur Lyon Dahl is President of the

International Environment Forum and a board member of ebbf - Ethical Business Building the Future. A scientist by training, he has 50 years' experience on sustainability, international environmental governance, development, indicators, and systems science. A retired Deputy Assistant Executive Director of UNEP, he lived and worked many years in Africa and the Pacific Islands, and consults with the World Bank and UNEP. His recent work includes values-based education for sustainability. His books include: "Unless and Until: A Baha'i Focus on the Environment" and "The Eco Principle: Ecology and Economics in Symbiosis".

#### Joachim Monkelbaan

Joachim Monkelbaan, has recently been named manager of the Transitions Hub of Climate KIC in Brussels, Belgium. He has degrees in law and recently completed a Ph.D. at the University of Geneva looking at international governance for the transition to sustainability. He previously worked for IUCN, UNEP and the International Centre for Trade and Sustainable Development.

#### Sylvia Karlsson-Vinkhuyzen

Sylvia works as Assistant Professor with the Public Administration and Policy Group of Wageningen University since 2011 and is also Adjunct Professor in Global Environmental Governance with the University of Helsinki, Finland. Sylvia's in her research seeks to understand the key determinants of what makes a need for personal conversations on values, frameworks and stories, going beyond the superficial to share doubts, fears, hurts and vulnerabilities. Only this can lead to authenticity, learning to listen to others, and true dialogue. Unfortunately, the reliance on new technologies is reducing group participation.

## Why should the UN and in particular UN Environment Engage More with Faith-based Organizations?

by Arthur Dahl on 4. February 2017

UN Environment publishes a Perspectives series that presents views from Major Groups and Stakeholders of Civil Society or about issues that are relevant for them. IEF President Arthur Dahl was invited to prepare a Perspective on "**Why should the UN and in particular UN Environment Engage More with Faith-based Organizations?**" This has now been published as No. 23 in the series and is available at <http://hdl.handle.net/20.500.11822/14497> or <http://wedocs.unep.org/bitstream/handle/20.500.11822/14497/PERSPECTIVE%2023%20002.pdf>, or read the text [on line](#). PERSPECTIVES is coordinated by UN Environment's Major Groups and Stakeholders Branch.

## From Deficit to Abundance: Capacity for Meaningful Contribution in all Populations and People

<https://www.bic.org/statements/deficit-abundance-seeing-capacity-meaningful-contribution-all-populations-and-people#wSmdbYzMA8yAQLv8.99>

A statement of the Bahá'í International Community to the 55<sup>th</sup> Session of the Commission for Social Development, UNITED NATIONS—25 January 2017

*“People may individually be poor, but collectively we see a wealth of capacity in the community.”  
~ an individual assisting communities in Central Africa to establish locally supported schools*

Poverty eradication has been a goal of the United Nations for decades, yet lasting solutions have proved elusive. As representatives gather to seek “strategies for the eradication of poverty to achieve sustainable development for all,” we must ask ourselves, frankly and honestly, why sizable segments of the global population still lack basic material necessities.

The range of deeply rooted challenges seen today testifies to an economic order growing increasingly dysfunctional. Ills such as extremes of wealth and poverty, growing inequality, and systemic corruption are destabilizing societies and tearing at the fabric of far too many communities. And these challenges highlight, in turn, the scarcity of any true social consensus about fundamental aspects of contemporary economic arrangements, such as the nature of work, the purpose of wealth, and one's duties to others and to the community. It is only natural, for example, for a society which aggressively lauds material wealth to become grossly unequal, or for moneyed interests, unmoored from a compelling sense of social responsibility, to shape laws in ways that perpetuate intractable forms of inequality.

Addressing structural issues such as these will require innovative approaches from quarters that have not traditionally been seen as sources of answers. In this regard, the Bahá'í International Community suggests that it will be vital for the United Nations system to develop its ability to see capacity and strength in populations that, at times, may have been given labels such as “marginalized.” Put more simply, lasting progress toward the eradication of poverty will require moving from a deficit mentality to a mentality of abundance.

Movement in this direction has already begun, at least at the level of discourse. Discussions in the development arena increasingly affirm that communities with limited financial resources are not

silent and devoid of activity until international actors arrive. At the same time, interaction with such populations is frequently framed in terms of needs, challenges, shortcomings, and shortages. The agency of low-income communities is acknowledged at the level of concept. But functionally, they are often approached primarily as recipients of services and assistance – consulted to a degree about their views and preferences, but rarely embraced as capable and equal partners in a collaborative enterprise.

This dichotomy hamstringing efforts to address the roots of poverty. Assumptions, biases, and prejudices result in productive capacity being squandered and steps forward being overlooked or dismissed. The application of low-tech innovation provides one example. Notable advances in energy efficiency and the production of renewable power are arising in the context of rural patterns of life. These developments are universally significant, as energy consumption will need to become more sustainable in countries at all levels of income. Yet such innovations are often seen as relevant only to the kinds of places in which they appear – suitable, perhaps, for “south-south cooperation,” but irrelevant to the needs and realities of industrialized societies.

Beyond their capacity for technological innovation, low-income populations hold potential for social innovation as well. Ultimately, the eradication of poverty will not be an exercise in the distribution of material resources alone, a matter of mere accounting. To address poverty in real and lasting ways will be to build new patterns of society itself, reflecting moral and spiritual principles such as equity, solidarity, justice, and compassion. It will involve the construction of new ways of being together, new ways of relating to one another, new ways of organizing our individual and collective affairs. And in this, high-income areas have no more knowledge or expertise than low-income ones. The village in the highland steppes is every bit as

capable of building cohesive and vibrant patterns of social life as the apartment complex in the metropolis.

The challenges facing those with few material resources are significant. Such populations will need support, education, training, and assistance, the same as any other. What must be plainly acknowledged, however, is that no group or region has the capacity to eradicate global poverty on its own, according to its particular views and guided by its understanding alone. From a practical standpoint, the magnitude of transformation required is simply far too great. But a moral reality comes into play as well – that the advancement of all humanity requires the efforts of all humanity. Just as every member of the human family has the right to benefit from a materially, socially, and spiritually prospering civilization, every member has the capacity to contribute towards its construction.

To embrace the implications of this overarching principle is to acknowledge that no group already has what is needed to bring about the world we collectively desire for ourselves and our children. In this, the financially wealthy are as dependent on the underprivileged as is the reverse. Similarly, the “developed” world will have as much to learn from the “developing” world as vice-versa in the coming years. This might be challenging to some, and runs counter to ideologies of exceptionality or uniqueness. But dependence of this kind, expressed through relationships of mutual support and assistance, is a source of great strength, not weakness. Through it, expression is given to the fundamental principle that social action should operate on the ideal of universal participation. And on its foundation, areas that have long been excluded or discounted can come to be embraced as vibrant sources of ideas, tools, resources, and approaches every bit as effective – and needed – in high-income areas as low ones.

Translating these ideals into practical realities will involve challenges to be sure, not least for multilateral bodies such as the Commission for Social Development. But Agenda 2030 is a universal process, and that very universality provides a powerful means for reconceptualizing the role that various actors – particularly less affluent populations themselves – play in the eradication of poverty.

Embracing the constructive potential of thousands of grassroots communities, each with its own circumstances and realities, will be an intensely

local process. As such, progress will come less from finding the “right” policy intervention and applying it everywhere, than by coming to a deeper understanding of the process by which effective approaches are determined, implemented, and modified.

What might this look like in practice? Steps that might help the United Nations and the Commission identify and embrace capacity wherever it is found include:

**Expand conceptions of expertise and sources of solutions.** International fora often seek solutions from a relatively narrow set of sources. Research academics and policy specialists offer contributions that are valuable indeed. But over-reliance on such resources can impoverish a discourse, leading to fixation on technical recipes and policy fixes. Insight is generated also by communities working to nurture more humane patterns of social interaction, by individuals striving to build capacity in others, by institutions seeking to apply traditional knowledge to contemporary challenges. Expertise of these kinds must be consciously sought and included in global discourse.

**Seek knowledge from those experiencing policy.** Representatives of communities who will be affected by policies need to be included in the formulation of those policies, as a matter of justice. Yet “a place at the table” can easily devolve into tokenism and optics. Decision-makers must therefore be prepared – indeed, eager – to learn meaningful lessons from partners on the ground. Only to the degree that they embrace grassroots collaborators in this way can it be said that their initiatives truly seek insight wherever it can be found.

**Seek universal solutions from low-income populations.** Gone are the days when high-income areas were openly exalted as the model of what society should be. No longer, then, can the achievements of some be dismissed as applicable only to those with limited financial resources. If the international community is to sincerely recognize the capacity of low-income areas, it must be ready to acknowledge those areas’ advantages, embrace their accomplishments, and learn from their experience.

**Capture narratives behind successful approaches.** Collecting numerical data is important, but 50 people actively contributing ideas and asking questions is much different than 50 passive

bystanders. In addition to detailing policies that achieved results, it will be important to capture and tell the story behind successes – how the initiative was developed, how it evolved over time, how objections were resolved, how features were

communicated. Qualitative analysis of this kind helps frame thinking in terms of lessons learned and allows insights to be extracted, aggregated, and applied to future action.

## Recently published in *Sustainability: The Journal of Record*

<http://online.liebertpub.com/doi/pdfplus/10.1089/sus.2017.29077.ih>

An article written by Ian Hamilton, Representative for Sustainable Development and team member at the U.S. Baha'i Office of Public Affairs (OPA) in Washington, D.C., was recently published in *Sustainability: The Journal of Record*. Typically articles in this journal are behind a pay-wall, but they agreed to open up this PDF article

**free download until March 8<sup>th</sup>. GET IT NOW!!**

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### Ian Hamilton, Representative for Sustainable Development

Ian works on a number of related issues including climate change, climate finance and sustainable consumption and production while seeking to promote principled dialogue in the sustainable development space – often in collaboration with other like-minded organizations. Prior to joining the Office, he worked at the World Bank and African Development Bank. Ian holds a B.B.S in Management and an M.Sc in Sustainability and Corporate Social Responsibility.



Editorial

# Seeing the End in the Beginning: The Role of Faith

Ian Hamilton

*We are all one race living in a shared ecosystem.*

To even the most casual observer of society, humanity appears to be perched on the precipice of apocalyptic disaster. Economic inequality has been growing steadily for 30 years, the effects of extremism are being seen in numerous countries around the world, the polarization of political discourse seems to be at levels not seen since the 20th century, and the vagaries of democracy have upended political, economic, social, and environmental systems in Europe, the United States, and beyond.

consciousness shaping many of humanity's global endeavors to protect society and our planet.

Considering both viewpoints, how does one reconcile the integrative steps that humanity has recently taken toward being a more sustainable, flourishing society with the evidence of disintegration we see all around us? There is no simple answer to this question, but perhaps one element of a response could be the concept of faith. Faith can take many forms: faith in political processes, faith in others, and religious faith. As a representative of a reli-

For many, the world appears to be disintegrating at an

# Wilmette Institute Web Talk #24

## Globalization and Current Events – A Baha’i Perspective

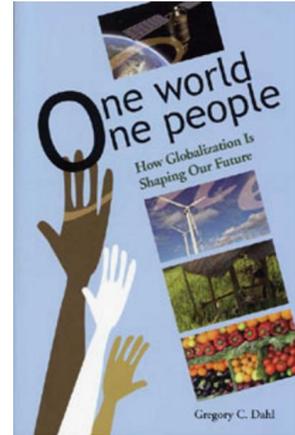
Presented by Gregory Dahl <https://www.youtube.com/watch?v=PlqREoZcW7Q>



### Principles discussed include:

1. Acting on principle
2. Consultation
3. Unity, inclusiveness, overcoming prejudices
4. Truthfulness and trustworthiness
5. Honesty and moral rectitude
6. Positive attitude
7. Moderation
8. Equality
9. Work and jobs
10. Service, generosity, overcoming ego
11. The earth is but one country
12. Non-involvement in partisan politics
13. Cooperation and reciprocity
14. Administering with love
15. Learning from tests

### For more information:



## New Environmental Feature in the Wilmette Institute eNewsletter

Dr. Betty Fisher, the Editor of the Wilmette Institute's eNewsletter initiated a monthly feature on Living Responsibly, an effort supported by an IEF member. This was the January piece: **Living Responsibly Making Your Daily Life a Beautiful Prayer: Search as Service!**

This month we are introducing a new feature in the Wilmette Institute eNewsletter. Every month we will publish an action that will help you be more socially and environmentally responsible in your life. Feel free to send us ideas. *January's action is this:* Search as Service! Instead of using Google to search for an answer to your question, use the search engine <https://www.ecosia.org/>. You will get the answer you need. But, more important, Ecospia will plant a tree for every search you make (using 80 percent of its revenue for the project). Forests are important for biodiversity and water security. They are also good for the climate (they absorb carbon dioxide) and make for happy people. In nine months, one Baha'i "planted" 507 trees and counting.

## The Myth Gap: What Happens When Evidence and Arguments Aren't Enough?

by Alex Evans. London: Eden Project Books, Transworld (Penguin), 2017. 152 p.

### Book review by Arthur Lyon Dahl

In a world in which science and technology built through rational processes have transformed our economy and lifestyle and created wealth unimaginable in the recent past, it is ironic that rational arguments and scientific evidence are not enough to influence political decisions or to change individual behaviour. This book by Alex Evans, former political advisor to the British government and the United Nations, explores why the rational approaches of climate scientists and others addressing the environmental challenges of a society hitting planetary boundaries have failed to produce the necessary change. It has important lessons for anyone working at the science-policy interface or in public education on environmental issues.

Evans' thesis is that stories, particularly myths with deep symbolic meaning, are necessary to go beyond an intellectual understanding to a change in heart. Using climate change as the example with which he has worked most closely, he describes the shift in strategy after the failure of the Copenhagen Climate Summit in 2009, when the climate movement went from science to activism, building a mass movement by telling a terrific story. He draws on George Marshall's excellent book "Don't Even Think About It" ([reviewed here](#)) about the diversity of approaches used by the anti-science movement of climate skeptics. In particular, enemy narrations only lead to political polarization and people closing themselves in bubbles of confirmation bias.

For issues so fundamental, it is necessary to create a mental shift or epiphany that is as much emotional as rational. This was a role of myth, but as religions have taken myths as literal truth and

engaged in political activism, people have disengaged from religion, creating a myth gap. Trust has collapsed. We see marketing as myth and shopping as ritual.

Those who have warned of scarcity, collapse of civilization and the end of the world have only seen that such warnings are counterproductive, producing competition for resources and fragmentation. Evans' hope is that "our current moment of crisis and transition proves to be the catalyst for powerful renewal and innovation in our core myths." (p. 37) He cites historical examples in China with the rise of Taoism and Confucianism, and with Judaism and Christianity. He notes that history has shown a basic direction towards non-zero-sum cooperation and higher levels of social complexity, with a drift towards interdependence and moral progress, but suggests that we could go either way. Taking a longer view, we need stories about a better life of happiness based on goodness, where personal enjoyment is replaced by service to others and a sense of purpose.

Raising a theme dear to the Baha'is, Evans states that humanity is in its teenage years, and we need trial by ordeal to grow as a species. We have repressed our vulnerability and grief. Myth needs to describe reality, deal with despair, and give hope for the future. It should address our guilt with redemption and atonement, including the restoration of our damaged environment.

In a globalized society, we need larger, global-scale myths with a longer view of a different good life and a new purpose based on ethical values of justice and care for the creation, recognizing that everything is connected. A significant part of the book is devoted to the myth of the Everlasting Covenant being broken, represented today by the systemic evil in many institutions of society, like fallen angels. He asks how do you mend a broken covenant? His answer is atonement to achieve justice through sacrifice. He cites Gandhi referring to the willing sacrifice of the innocent as the answer to insolent tyranny, as well as Christ and many other examples, with sacrifice of the ego leading to resurrection. The Judaic traditions of Sabbath and jubilee not only allowed environmental resources to rest and regenerate, but also emphasized the importance of the alternative good life over materialist productivity. The jubilee every 50 years restored land rights to everyone and erased debts. Restoring the covenant brought the creation back into balance.

Myth is fundamentally a guide to behaviour. We need the right kind of myths with a larger perspective and a longer view describing a better good life, processing our grief and guilt, and leading to redemption and environmental restoration. They should encompass new values towards justice and sustainability. All the wisdom traditions, whether religious or philosophical, have had such myths. Today, the myth gap is being filled by efforts like mindfulness, becoming aware of how we interpret the world. There is a need for personal conversations on values, frameworks and stories, going beyond the superficial to share doubts, fears, hurts and vulnerabilities. Only this can lead to authenticity, learning to listen to others, and true dialogue. Unfortunately, the reliance on new technologies is reducing group participation.

Evans suggests starting with religion as the remaining domain with significant group participation. The Pope's Encyclical "Laudato Si" ([reviewed here](#)) helped to support the positive outcome at the Paris Climate Conference (COP21) in 2015. He calls for a dialogue within and between religions. For the Millennials, other kinds of communities are forming, and are exploring scenarios of possible futures. With the new technologies, we may be able to create new myths of a future of redemption and restoration. The nations have already agreed on the framework for that vision in the 2030 Agenda and the Sustainable Development Goals. Evans concludes with the hope that the disasters that seem inevitably to lie ahead will produce the spirit of solidarity and connectedness necessary to achieve that vision.

There is so much in this book that resonates with a Bahá'í perspective on the world, the trials it must go through to purge itself of a materialistic civilization, and the vision of the just and sustainable world that can emerge in the decades and centuries ahead. The Bahá'í Faith could itself be the extended myth that Evans is calling for, restoring the Eternal Covenant and enabling the epiphany in each person who is ready to set his or her steps on a path of sacrifice and service. Its embrace of the two complementary knowledge systems of science and religion corresponds to Evans' vision. He provides many useful suggestions for the stories we should be telling to touch the hearts and minds of those who are troubled by the present state of the world and need inspiring visions of the future to help them find a way forward.

## Waste management in Colombia

<https://www.youtube.com/watch?v=QRWg0XETILM>



Ms. Bitá Correa, a member of the Baha'i International Community's delegation to the 55th UN Commission for Social Development, New York, described a youth environmental project at a side event organized by the BIC on the topic "Rising Generations: Youth as Drivers of Prospering Communities." on 3 February 2017 [Video link]

Ms. Correa, program director at FUNDAEC (Fundación para la Aplicación y Enseñanza de las Ciencias), a Baha'i-inspired agency in Colombia, spoke about the experience of a group of young people on the north coast of Colombia who undertook a service project to promote better practices in solid waste disposal – an effort that ended up transforming the habits of their entire community.

The young people had been engaged in program of study that emphasized their own agency, stressed the importance of learning together, and encouraged projects of service to the whole community. They decided to focus on environmental issues, and, over a period of about six months, they analyzed the patterns of consumption in the community – noting also how solid waste was disposed.

"It became apparent that trash was being left on the street or being dumped in the river," said Ms. Correa. So the youth organized a series of clean-up days in the community. They bought trash cans and placed them strategically. They also visited families and shared what they had learned about composting and recycling. Ultimately, said Ms. Correa, the community essentially re-organized its entire approach to solid waste disposal, thanks to the initiative of young people.

"One thing we have observed in the various programs that are being offered in the Baha'i community worldwide has been the willingness and energy with which youth have participated when given the chance," she said. "They want to engage and participate. They want to see that their actions actually have an impact."

## 5 ways businesses are turning up the heat on climate change

<https://www.weforum.org/agenda/2017/01/are-businesses-turning-up-the-heat-on-climate-change-top-5-trends-to-watch-in-2017>

### Increasing investment

There are multitudes of great projects tackling climate change scattered across the globe – but it is not enough. There will need to be a step change in the level of investment going into sustainable business models and infrastructure development to tackle the scale of the challenge and meet the commitments governments made in the Paris Agreement.

The good news is that it presents a huge economic opportunity. The International Finance Corporation has identified almost \$23 trillion of climate investment opportunities in emerging economies as a result of the Paris Agreement and the most recent report from the Business and Sustainable Development Commission indicates that developing sustainable business models could

unlock \$12 trillion of economic opportunities and create almost 400 million jobs by 2030.

To realize these opportunities there will need to be a significant ramping up of sustainable finance with increased collaboration between public and private financial institutions to take advantage of blended finance options. We may be seeing early signs of this ramp-up in investment with \$81 billion in green bonds issued in 2016 – almost double the amount issued in 2015. There also needs to be a collective effort to break down barriers to investment in emerging economies – in particular, finding solutions to issues such as currency risk.

### Phasing out fossil fuel subsidies

Fossil fuel subsidies – totalling \$493 billion in 2014 – prevent a competitive landscape for a clean energy transition in many countries. This level of support distorts markets and makes unabated coal, gas and oil appear favourable – crowding out low-carbon alternatives that are critical to avoid

dangerous climate change. This also has implications for employment – renewable energy generates more jobs than fossil fuel regardless of whether you measure it by dollars invested or by electricity generated.

In 2009, the G20 agreed to phase out fossil fuel subsidies, the focus now needs to be on agreeing deadlines for those subsidies to stop – preventing taxpayers' money flowing into a twilight industry rather than supporting more promising future technologies. Corporate support for phasing out fossil fuel subsidies will be particularly important in regions where phasing out fossil fuels is politically challenging, either due to the stronghold of the fossil fuel sector or the perceived conflicts around development.

Fortunately, the economics of clean energy technology is now unstoppable. It is estimated that by 2020 solar photovoltaic will have a lower cost than coal or gas across the globe and has become a compelling investment opportunity (for example since 2013). This economic argument makes it tough to justify anything other than a shift to clean energy.



An energy installation on a property leased to Devon Energy Production Company by the Catholic Archdiocese of Oklahoma City is seen

near Guthrie, Oklahoma, September 15, 2015.  
Image: REUTERS/Nick Oxford

### **Standardizing corporate reporting on emissions and climate risk**

There were several lively conversations around the draft recommendations on climate-related financial disclosure released by the industry-led Task Force in December 2016. The intent of the recommendations is to encourage better and more consistent information on climate-related risks facing a business – and how businesses are managing those – so that shareholders can make more informed decisions about their investments. The consultation phase is ongoing with final recommendations to be presented at the G20 meeting in July 2017.

Corporate support for increased transparency and consistency on reporting greenhouse gas emissions and climate-related risks will increase

understanding of the economic advantages of switching to sustainable business models. Support for the recommendations came from carbon intensive sectors as well as the financial community – with some suggesting that consistent reporting on greenhouse gas emissions and climate-related business risks should be mandatory. In 2016 several ratings agencies also announced plans to start factoring climate risks into their ratings – suggesting that the era of greater reporting and disclosure of climate risks is upon us.

### **Putting an effective price on carbon**

The conversation around carbon pricing has matured significantly over the last few years and the emergence of the Carbon Pricing Leadership Coalition, which is convened by the World Bank, provides a strong platform for carrying this conversation forward. This year in Davos the discussion revolved around what an effective price would be to enable investments to shift rather than a debate on whether a carbon price is a good idea or not. Ninety-six percent of CEOs taking part in an informal survey indicated that by 2020 a price on carbon above \$20 a tonne would be needed to effectively shift investment. And most think the price should rise over time with more than 63% saying it should be above \$40 by 2025.

Many of the businesses providing a view have already set an internal price on carbon – and therefore are not just providing a best guess but are speaking from their own experience. A recent report from CDP indicated that more than 1,200 companies disclosed their plans or current practice of placing a price on their carbon emissions as an approach to managing carbon risk. A clear sentiment from CEO discussions was that setting an internal price on carbon was a smart way to stress-test medium and long-term business strategies and investments.

### **Increasing collaboration**

The landmark Paris Agreement on climate change formally recognizes the role that 'non-state actors' – such as businesses – will need to play in driving climate action. Global organizations working with thousands of companies have come together to form the We Mean Business Coalition and are driving the trend for setting science-based targets and making a commitment to 100% renewable energy. Collectively, the companies in these coalitions have immense resources and diverse expertise. For example, the 79 CEO Climate Leaders that signed an open letter to

government leaders in support of a global deal on climate change have combined revenues of more than \$2.1 trillion and combined greenhouse gas emissions of more than 820 million tonnes. To put this in perspective, if they were a country they would be the sixth largest emitter globally. And this doesn't include the emissions generated by the suppliers who provide materials for their products

or the customers who use those products. In other words, what these coalitions do, matters.

The World Economic Forum's Climate Initiative is a platform to help accelerate climate action in support of the Paris Agreement, with a particular focus on market-led, low-carbon and climate-resilient growth.

## Designed by nature

<http://web.unep.org/stories/story/created-nature>

February 1, 2017

In the Spanish region of Andalucía there are several concentrated solar plants that, from the air, look amazingly like the floral heads of sunflowers. This is no artistic or random arrangement, but a highly practical one. The hundreds of heliostats, or mirrors, rotate with the sun to reflect concentrated sunlight towards a central tower, where water is heated to steam, which drives a turbine that produces electricity. However, having this many heliostats takes up a lot of space unless they are optimally arranged.

By placing the heliostats closer together in a fanned-out layout, they were able to build a spiral-like pattern that reduced the land used by 10 percent without affecting efficiency.

At that point, researchers decided to look to nature to see if they could further optimize the pattern. They used the florets of a sunflower as a source of inspiration as these are arranged in a stunning spiral fashion; each floret is turned at a "golden angle" of about 137 degrees with respect to its neighbour. When the researchers twisted each mirror to be 137 degrees relative to its neighbour, their tests showed that the optimized layout took up 20 percent less space than the current layout. The improved layout takes up 20 per cent less land and is more efficient than the current design. Read more

"How can you not be excited by the prospect of finding solutions for sustainability just outside your door? This is yet another reason for protecting ecosystems and biodiversity," says UN Environment ecosystems specialist Niklas Hagelberg.

### Biomimicry

According to the Biomimicry Institute, biomimicry is an innovative approach that taps into nature's time-tested designs and processes to solve the problems humans face. Over billions of years, living organisms on Earth have learned to adapt and survive, just as we need to today. By applying lessons from these life forms, we can create solutions that fit in seamlessly to the ecosystems that surround us, making our products, processes, buildings, and even entire cities more energy and material-efficient, less toxic, and more resilient.

Biomimicry goes beyond simply creating devices that look like something in nature (biomorphism) or using natural materials (bio-utilization) in designs. Instead, biomimicry look to emulate how living organisms function within an entire systems context.

### Solutions are all around us

Biomimicry is still an emerging practice, but it has the potential to fundamentally reshape the way we build our world by offering a new way to create a resilient future.

Here are a few examples of products, or solutions, inspired by nature:

Sharklet™ is a synthetic surface inspired by the skin of sharks which deters colonization by certain disease-causing microbes. Because the artificial surface works without killing microbes, there is no selection for resistance. "Sharklet™ is the world's first technology to inhibit bacterial growth through physical surface

modification alone. The surface topography is made of millions of microscopic diamonds that disrupt the ability for bacteria to aggregate, colonize, and develop into biofilms. [Read more](#)

Perennial grain cropping, or permaculture, is a form of agriculture developed to mimic natural systems. This strategy takes advantage of benefits found in natural systems, such as resilience to most perturbations, self-regulation, accumulation of "ecological capital," stable soils, carbon sequestration, nutrient cycling, food production, and biodiversity. [Read more](#)



The tip of a mosquito's mouth is composed of several moving parts that work into skin with the minimum of fuss, and the minimum of pain. Materials researchers and engineers at [Kansai University](#) in Japan saw amazing potential in the structure of the mosquito's mouth. They used sophisticated engineering techniques that can carve out structures on the nanometer scale. The result of this blend of materials science and biology was a [needle that penetrates like a mosquito, using pressure to stabilize and painlessly glide into skin](#). Tests proved it worked flawlessly.

The efficient drill of the wood-boring wasp's ovipositor (an egg-laying spike) works on the same basis. Two toothed blades ratchet a central drill deeper and deeper into the wood. Because of the efficiency of this design, no motor is needed—just the delicate force the wasp exerts. This goal of guided, smooth penetration is exactly what neurosurgeons need in their tools.

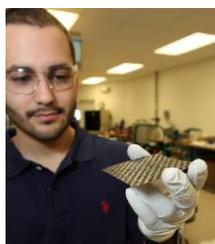
Scientists say the way [ants navigate](#) could have applications in designing computer algorithms to guide robots.

## Conclusion

Seeing the natural world as an endless source of research and development makes us realize how valuable the plants and organisms in our ecosystem can be. As species die off from human-made causes, thousands of potential solutions die with them. Biomimicry reminds us that there is much we have left to learn from the natural world and must work to protect it. Perhaps this is something we should bear in mind as we move towards World Environment Day on 5 June 2017 and its theme of connecting people with nature.

## Next Generation Batteries Could Provide Power to Microsatellites, CubeSats

<https://www.nasa.gov/feature/next-generation-batteries-could-provide-power-to-microsatellites-cubesats>



Daniel Perez, Ph.D., a graduate student from the University of Miami, displays a piece of the prototype structure for a new solid-state battery in the Prototype Laboratory at Kennedy Space Center in Florida. The size of the battery is so small that it could be a prime candidate for use in microsatellites, including CubeSats. Researchers at Kennedy are collaborating with experts at the University of Miami. The university partnership is funded through the Small Spacecraft Technology Program, in NASA's Space Technology Mission Directorate. Photo credit: NASA/Dimitri Gerondidakis

*By Linda Herridge, NASA's John F. Kennedy Space Center, Feb. 10, 2017*

Sometimes good things come in very small packages. Just ask Dr. Luke Roberson, senior principal investigator for Flight Research within the Exploration Research and Technology Directorate at NASA's Kennedy Space Center in Florida.

Dr. Roberson is collaborating on research of a new solid-state battery prototype with Dr. Ryan Karkkainen, a composite material expert at the University of Miami. The chemistry and structure for the battery was developed by Xiangyang Zhou, Ph.D., associate professor of mechanical and aerospace engineering, also at the university. Three students from the university currently are working on the prototype with Roberson.

“Creating a structural battery material could revolutionize the way NASA operates small payloads. Rather than placing a battery in the experiment taking up 20 to 35 percent of the available volume, the battery now resides in the payload structure, thereby opening up additional free space for researchers to perform more science,” Roberson said.

The size of the battery is so thin (2-3 millimeters) that it is a prime candidate for use in microsatellites, including [CubeSats](#). The university partnership is funded through the Small Spacecraft Technology Program, in NASA's [Space Technology Mission Directorate](#).

Space is key in a CubeSat, which is usually no bigger than a large toaster. They hitch rides as secondary payloads with larger payloads on rocket launches. This new battery's size would occupy about one-third of the area of batteries currently used to power the miniature satellites, thus allowing more space for the compact science payload.



Daniel Perez, Ph.D., a graduate student from the University of Miami, prepares layers of the prototype structure for a new solid-state battery in the Prototype Laboratory at NASA's Kennedy Space Center in Florida. Photo credit: NASA/Dimitri Gerondidakis

Daniel Perez, a Ph.D. student in mechanical engineering from the University of Miami supporting this project, visited Kennedy to learn how to make the structural pieces for the battery prototype.

In an area of the Prototype Lab, Perez secured several layers of the small carbon fiber squares on top of each other in a vacuum bag. He attached a vacuum hose to the bag to draw out all of the air from the carbon fiber and compress all of the fibers together, a process called debulking. After about an hour, the squares were carefully uncovered and moved to a 250-degree oven where the resin epoxy in the carbon fiber was cured.

Perez will produce several more layers in the same way. These will serve as the layers that provide the structure for the battery. Back in Miami, two other students are working with Dr. Zhou on a prototype of the solid-state structural battery layers that will be placed between the layers of compressed carbon fiber squares.

"It is a great experience to learn about fabricating composites from NASA professionals at Kennedy Space Center," Perez said. "With the knowledge I gain here, I will be able to apply it to structural battery research to increase the mechanical performance of this technology."

Roberson said composite reinforcement and mechanical/electrical testing will be performed at Kennedy in the near future.

Could this new type of battery transfer to other applications? Roberson thinks so.

"This technology could be used on satellite structural trusses, the International Space Station, or to power habitat structures established on another planet," said Roberson. "Commercial applications could include automobile frames or tabletop battery rechargers."

Power grid fluctuations are a concern for everyone. Roberson said if this type of battery could be added to current homes or buildings or included in the walls during construction, they would be an added or alternate source of power. With the proper structure elements, the batteries can be made to be impact and moisture resistant, and flame retardant.

"We have a great team working on this project, and I hope this technology will become a safe and efficient method to store energy while replacing electrically inert structural components in a wide variety of applications," Perez said. "We're all working hard for this technology to improve our spaceflight systems and contribute to the advancement of this industry."