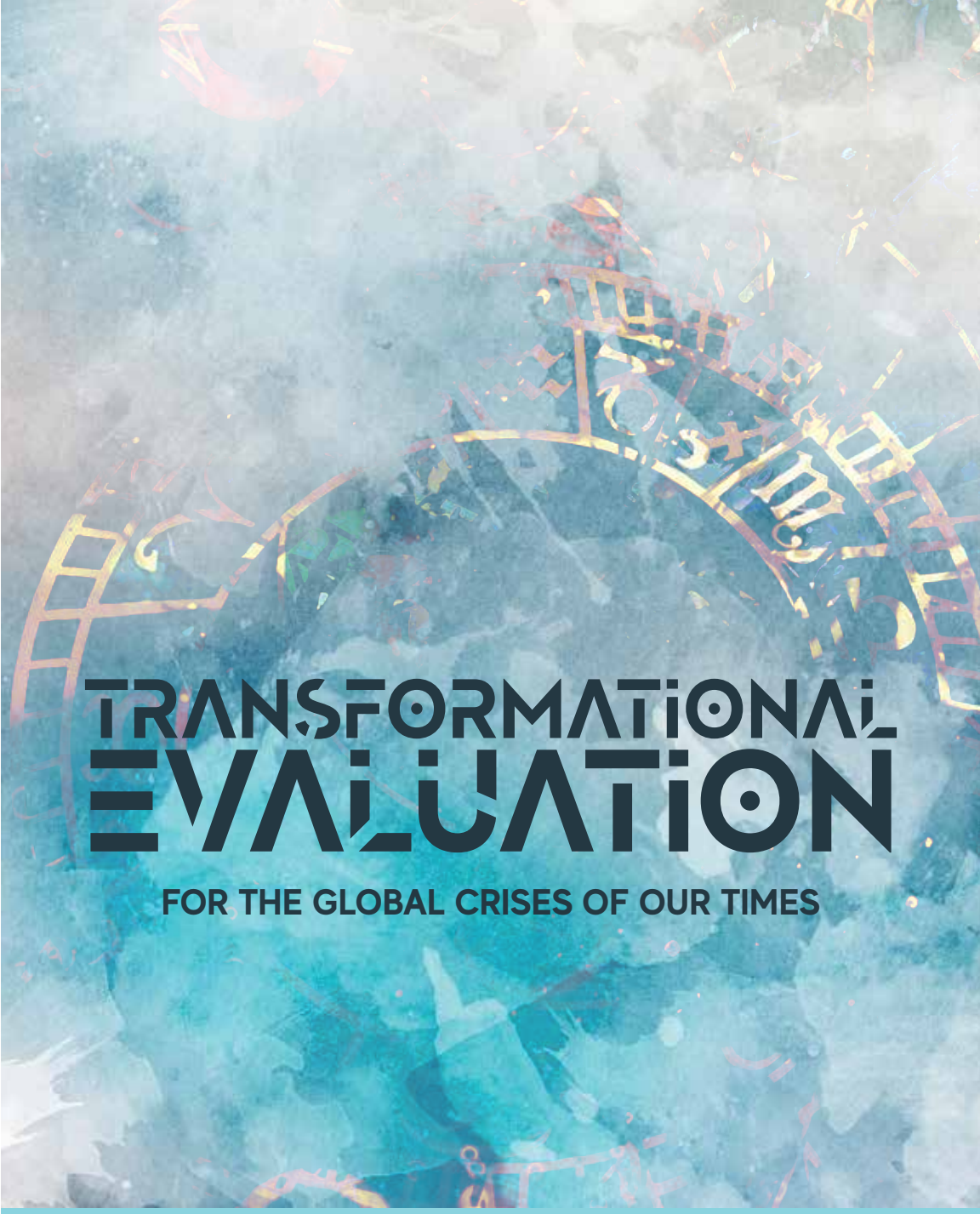

TRANSFORMATIONAL EVALUATION

FOR THE GLOBAL CRISES OF OUR TIMES

Rob D. van den Berg

Cristina Magro

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EDITORS

INTERNATIONAL DEVELOPMENT EVALUATION ASSOCIATION

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KNOWLEDGE CAPACITY DEVELOPMENT NETWORKING

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CHAPTER 2

Blue Marble Evaluation Perspective: How Evaluations Help Solve Global Crises

MICHAEL QUINN PATTON

Abstract. Given the global climate emergency and related threats to a just and sustainable world, systems transformation is the clarion call of our times. Evaluators enter the fray to assess the fidelity and impacts of hypothesized transformational initiatives and trajectories. Doing so requires solid ethical grounding. The ethics of transformation involves the interconnection between personal ethics (transforming our own behaviours), professional ethics (actively advocating a transformational stance among professional evaluators), society (examining evaluation's role in support of the public good and democratic processes) and the world (ensuring attention to and engagement with the global emergency by incorporating transformational criteria of equity and sustainability into all evaluations). This chapter examines the implications of transformative ethics for evaluation theory, practice and methods, concluding with Blue Marble Evaluation as a principles-focused approach to evaluating global systems transformation.

Blue Marble Evaluation

Blue Marble refers to the iconic image of the Earth from space without borders or boundaries, a whole-Earth perspective. We humans are using our planet's resources, and polluting and warming it, in unsustainable ways. Many people, organizations and networks are working to ensure that the future is more sustainable and equitable. Blue Marble evaluators enter the fray by helping design such efforts, provide ongoing feedback for adaptation and enhanced impact and examine the long-term effectiveness of such interventions and initiatives. Incorporating the Blue Marble perspective means looking beyond nation-state boundaries and across sector and issue silos to connect the global with the local, the human with the ecological. Blue Marble Evaluation brings evaluative thinking and methods to support those trying to bring about global systems transformation.

Blue Marble Evaluation integrates design, implementation and evaluation. Evaluators bring their knowledge and expertise to bear in the design of resilient, sustainability-oriented interventions and initiatives. When an intervention and, correspondingly, an evaluation fail to incorporate an ecological sustainability perspective, both are engaging from a closed system mindset, disconnected from larger patterns and realities – like turning a crank that is not connected to anything. It is essential for planners, implementers and evaluators at the beginning of their work together to analyse the sustainability and equity challenges that the formulation of the intervention and the implications for evaluation present. Blue Marble Evaluation premises and principles provide a framework for that initial review, ongoing development and adaptation, and long-term evaluation of systems transformation contributions and impacts (Patton 2019a; 2020a).

Blue Marble Evaluation looks backward (what has been) to inform the future (what might be) based on the present trajectory (what is happening now). Evaluators examine what has worked and not worked in the past, not just to capture history, but also to inform the future. Forecasts for the future of humanity run the gamut from doom-and-gloom to utopia. Evaluation as a transdisciplinary, global profession has much to offer in navigating the risks and opportunities that arise as global change initiatives and interventions are designed and undertaken to ensure a more sustainable and equitable future.

Global Pandemic Applications

The coronavirus pandemic has provided a glimpse into the magnitude of changes that a global emergency has set in motion. United Nations Secretary-General António Guterres (2019; 2020), among many others, has warned consistently throughout the pandemic that climate change looms over the world as a larger, farther-reaching global emergency for which COVID-19 has been but a dress rehearsal, an early warning of what lies ahead at greater magnitude, albeit slower manifestation.

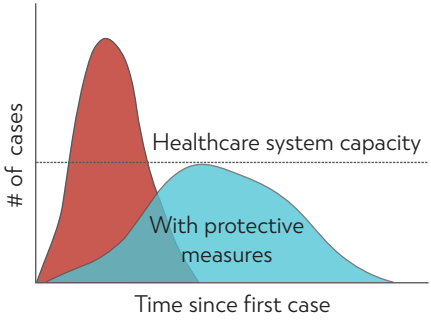
Evaluation responses to the pandemic were widespread and immediate but largely ad hoc and reactive (IEG 2020; Patton 2020b; Tolley 2020). Chelsky and Kelly (2020) of the World Bank described monitoring and evaluation during the pandemic as 'bowling in the dark'. *Better Evaluation* (2020) offered systematic, comprehensive guidance for adapting evaluation's response to COVID-19 based on the dimensions of the Rainbow Framework for Evaluation. All evaluation association conferences planned for 2020 had to be cancelled, but all associations issued statements about the continuing importance of evaluation and support for evaluators, and much evaluation training was moved online. Evaluators have been reflecting and blogging furiously and thoughtfully about what the pandemic and the climate emergency mean for evaluation (e.g. Bitar 2020; Chaplowe 2020; Feinstein 2020a; b; IEG 2020; Ofir 2020; Patton 2019b; Ramalingam et al. 2020; Vidueira 2020). Efforts abound at drawing lessons from the pandemic to inform the response to climate change (e.g. Euber 2020; Karalisi 2020).

Fundamental prevention and mitigation principles flowing from epidemiology and evaluation still apply, ignored though they may be by contemporary politicians (Mukherjee 2020). For example, the Centers for Disease Control and Prevention (CDC) *Field Epidemiology Manual*, developed scientifically over the course of decades, provides detailed protocols for addressing all aspects of a pandemic, including communications with the public. Politicians in the United States largely ignored that knowledge and wisdom because the CDC was muzzled for most of the first year of the pandemic (Duhigg 2020).

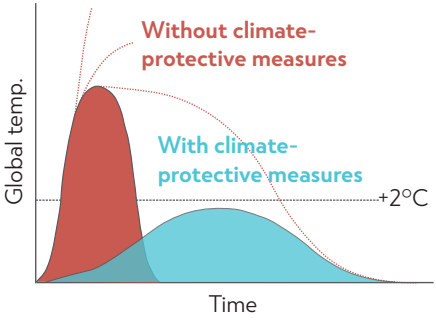
The global pandemic has provided substantial evidence to reinforce and highlight the urgency of the premise that major systems transformations are needed to address the global emergency that climate change and related global trends have brought on. Global warming; water, land and air pollution; biodiversity loss; species extinction and virulent infectious diseases pose existential threats to the future of humanity (Kolbert

Figure 2.1 Flattening the Coronavirus and Climate Change Curves

a. Coronavirus curve



b. Climate change curve



Source: a. Adapted from CDC/*The Economist* (original CC BY 2.0 E. Kim and C. T. Bergstrom); b. Hayes (2020).

2020; UNEP 2019). *The Economist* featured a cartoon showing two boxers fighting, one with the head of the world and the other with the head of the coronavirus. Observing the fight from outside the ring, but looming menacingly over it, was a much larger boxer with a fiery head wearing trunks labelled 'Climate Change'. The widely communicated and highly effective graphic that the CDC created depicting the need to 'flatten the curve' to fight the coronavirus (figure 2.1a) has been redrawn to communicate the urgent need to flatten the curve of global warming (figure 2.1b).

The pandemic has been global in scale and universal in impact, as is the climate emergency. The global climate emergency affects all of us, leading to calls for action in whatever niche we inhabit. For evaluators, that niche is evaluation, which has emerged as critically important in realizing the vision and aspirations of the Sustainable Development Goals (Rugg 2015; 2016). In this chapter, I will illustrate the relevance of principles-focused evaluation generally (Patton 2018) and Blue Marble Evaluation principles specifically (Patton 2020a) by examining the relevance of the principles to global challenges, including the COVID-19 pandemic.

Global Thinking Principle: Applying Whole-Earth, Big-Picture Thinking to All Aspects of Systems Change

The first principle of Blue Marble Evaluation is to think globally. Certainly, the coronavirus has been a global phenomenon of epic proportions. As this is being written, more than 5 million people have been infected globally, and more than 350,000 have died. The coronavirus originated in China

in December 2019 and spread rapidly throughout the world. International agencies, governments, multinational corporations, non-governmental organizations and communities have all been directly or indirectly affected.

Inadequate collaboration among countries, lack of transparency and integrity in reporting infections and deaths and failure to follow World Health Organization and CDC guidance exacerbated the pandemic. A great deal of time was lost in January and February 2020 as many public officials, especially President Trump, downplayed the scope, scale and significance of the pandemic. Previous infectious disease threats such as severe acute respiratory syndrome, Middle East respiratory syndrome, H1N1 influenza and Ebola had been contained. The ultimate long-term effects of the pandemic and its transformative dimensions are still unfolding, but as I write this in June 2020, there is a growing consensus that there will be no return to normal. COVID-19 is proving transformative even though much of the response to the pandemic has been an attempt to contain its systems-altering significance. A major evaluation challenge will be to track, document and extract lessons from just how transformative the coronavirus turns out to be. Blue Marble Evaluation principles can help guide the search for and validation of lessons, especially global thinking and action lessons relevant not just to pandemics, but also to the looming global climate emergency.

A team of internationally recognized experts, including Nobel prize winner Joseph Stiglitz and well-known climate economist Nicholas Stern, came together to assess the economic and climate impact of taking a green route out of the pandemic crisis. They catalogued more than 700 stimulus policies into 25 broad groups and conducted a global survey of 231 experts from 53 countries, including senior officials from finance ministries and central banks. Their analysis of whether COVID-19 fiscal recovery packages will accelerate or retard progress on climate change portrays the interconnection between the coronavirus pandemic, economic policies and environmental consequences, which taken together, portray the transformations necessary to attain a more sustainable and equitable future (Hepburn et al. 2020).

The Anthropocene Principle: Knowing and Facing the Realities of the Anthropocene and Act Accordingly

The Anthropocene, according to nomenclature designation, is a new era in the history of the Earth when human beings are affecting the Earth more than natural processes are. One of those impacts is the increasing encroachment of human beings on nature. This includes more interactions

between animals and humans and between domesticated and wild animals, which have exacerbated the possibility and reality of diseases moving from animals to humans. That appears to have been the case with the coronavirus, which it is suspected came from bats in wet markets in China. As of this writing, epidemiologists are forecasting that the coronavirus pandemic will not prove to be 'the big one' but that an even greater and more devastating virus is probable.

Human exploitation of natural resources in service to prosperity and efficiency increases the likelihood of global disasters. Major shortages of protective gear, ventilators, hospital beds, pharmaceuticals and, especially in the United States, testing have exacerbated the pandemic's impact. Siddhartha Mukherjee (2020, 30), an oncologist and author of the best-selling book about the history of cancer, *The Emperor of All Maladies*, has provided an in-depth analysis of how the efficiency mania in health care administration has cost thousands of lives during the pandemic. He quotes an operations expert at Harvard Business School on the culture of efficiency:

> We've been teaching how to squeeze…squeeze more efficiency, squeeze cost, squeeze more products at the same cost, squeeze out storage costs, squeeze out inventory. We really need to educate about the value of slack.
>
> Mukherjee asks: To what extent did the market-driven, efficiency-obsessed culture of hospital administration contribute to the crisis?
>
> His answer: The numbers in the bean counter's ledger are now body counts in a morgue.

By April 2020, when more than 4 million people had been infected worldwide, and 284,000 COVID-19 deaths had been documented, the debate shifted from public health approaches to the effects of economic depression. Trying to assess the full costs of the pandemic, a calculation that will go on for some time, should include *true-cost calculations* in which real costs to the natural environment, human welfare, equity and sustainability are included. The post-coronavirus economy will become, unintentionally, a transformed economy, 'reshaping every aspect of business' (Fortune 2020), with the nature and extent of the transformation still unfolding. The Blue Marble Evaluation Anthropocene principle guides the calculation of the costs of global actions on humans and the environment, on equity and sustainability. An example of how this can be done is the true-cost accounting framework, which measures the costs and benefits of interventions for ecosystems in ways that include human and environmental health (TEEB 2018).

Transformative Engagement Principle: Engagement and Evaluation Consistent with the Magnitude, Direction and Speed of Transformations Needed and Envisioned

The third overarching Blue Marble Evaluation principle (Patton 2020a) focuses on transformational engagement. Transformation cuts across sectors and issues. As noted earlier, the coronavirus pandemic is being described as a dress rehearsal for the global climate emergency. Transformation involves multiple, interdependent dimensions of sustainability. Caroline Heider (2017), former World Bank Group Director General Evaluation, articulated this perspective well in her reflections on the Development Assistance Committee criteria.

Taken together, these dimensions of sustainability – economic, fiscal, environmental, social – are complex. It will be difficult and costly to try to address them systematically in all evaluations. At the same time, we evaluators cannot afford to turn up with empty hands and concerns about missing data. We need to debate how we would evaluate interventions through these lenses of sustainability, see that the right questions are asked during the design of interventions and encourage the collection of relevant data (Heider 2017).

Although many are hopeful of a return to a pre-pandemic normal, the scope, depth and extent of the pandemic suggest that there will be no return to normal, nor will there be a new normal; turbulence, uncertainty and an atmosphere and reality of emergency is what the future looks like. Not only must health systems undergo transformation, but economic relationships, political institutions and societal decision-making processes are also all subject to transformation. The relationship between science and political institutions is in special need of transformation. The pandemic gave rise to the call to follow the science, but scientific protocols were not followed or not followed quickly enough, leading to the loss of thousands of lives and exacerbating the economic depression that has followed.

Nor is following the science a simple matter of following a recipe. Scientific knowledge about the coronavirus was emergent, sometimes contested among scientists, and part of the transformation needed is an infusion of evaluative thinking into political decision-making. Scientific information must be interpreted. Evaluation's special niche is synthesizing facts with values to make judgments and to do so systematically and transparently, which is the transformation needed to address future emergencies, including the global climate emergency.

Integration Principle: Integrating Blue Marble Principles into the Design of Engagement with and Evaluation of Systems Change and Transformation Initiatives

The coronavirus pandemic illustrates the importance of integrating design, execution and evaluation into a mutually reinforcing cycle that includes ongoing situation analysis, needs assessment, adaptive management and developmental evaluation. Under emergency conditions globally, there is not time to go through a sequence of in-depth situation analysis, comprehensive needs assessment, planning, design, implementation and evaluation. These things must happen simultaneously, interactively, dynamically and iteratively.

Among many other things, the global pandemic has powerfully demonstrated the interconnections among health care, school, community, economic and financial, entertainment and political systems. At any given moment, the focus has tended to be on some discrete and particular solution such as wearing masks, social distancing, more testing, quarantining the sick and flattening the curve, but the entire health care system was in crisis, an emergency that emerged and rapidly accelerated from years of neglect, ignored warnings and under-resourced health care systems at all levels. A major debate, still ongoing, is whether the problem will be solved with a vaccine or major transformations of health care systems to prepare for future pandemics and related global climate emergencies. The transformational engagement principle directs us to examine whether the actions proposed and implemented, such as giving people in the United States $1,200, transform systems or merely treat symptoms.

The pandemic epitomizes what it means to operate scientifically and evaluatively in a complex, dynamic systems emergency. Consider the nature of epidemiology and what evaluators can learn from that esteemed and crucial profession.

Epidemiology is a science of possibilities and persuasion, not of certainties or hard proof. 'Being approximately right most of the time is better than being precisely right occasionally', the Scottish epidemiologist John Cowden (2010) wrote: 'You can only be sure when to act in retrospect'.

Epidemiologists must persuade people to upend their lives – forgo travel and socializing, submit themselves to blood draws and immunizations – even when there is scant evidence that they are directly at risk.

Epidemiologists also must learn how to maintain their persuasiveness even as their advice shifts. The projections that public health professionals make at the beginning of an emergency – for example, there is no need to

wear masks; children cannot become seriously ill – often change as hypotheses are disproved, new experiments are conducted and a virus mutates (Duhigg 2020).

Evaluators have much to learn from epidemiologists about how to engage in complex, dynamic systems during emergencies, which is the world we are all likely to face with the worsening global emergency.

Evaluation Criteria for the Anthropocene

I have offered four overarching Blue Marble Evaluation Principles: global thinking; knowing and facing the realities of the Anthropocene; transformative engagement; and integrating Blue Marble principles into the design of, engagement with, and evaluation of systems change and transformation initiatives. These principles lead to a need for criteria appropriate for evaluating systems transformation aligned with the premise that major systems transformations are needed to address the global emergency that climate change and related global trends have brought on.

Evaluation has historically focused on project and programme effectiveness. The most influential and widely used criteria for evaluating development interventions are those that the Development Assistance Committee (DAC) of the Organisation for Economic Co-operation and Development (OECD) have adopted and disseminated (OECD DAC Network on Development Evaluation 2019). They call for interventions to be judged according to the following criteria:

- *Relevance:* Is the intervention doing the right things?
- *Coherence:* How well does the intervention fit?
- *Effectiveness:* Is the intervention achieving its objectives?
- *Impact:* What difference does the intervention make?
- *Sustainability:* Will the benefits last?

These criteria, originally formulated in 1991 and reaffirmed in 2019 (with the addition of *coherence* to the original five) are useful for those who are engaged in evaluating projects and programmes in familiar, comfortable, well-known and well-travelled ways. The 2019 revision amounted to some fine-tuning and tweaking but sent the message that the business of development and evaluation can go on as usual. The OECD website makes it clear that the revised criteria are less than optimal for addressing transformation. I have developed the ethical perspectives and challenges of the

new criteria further in my contribution to my forthcoming book *Ethics for Evaluation* (Patton in press) and discussed the criteria in depth in an article for the American Journal of Evaluation (Patton 2021).

The alternative to forcing the new wine of transformation into the old bottles of the DAC criteria is to bring attention to transformation by developing criteria that highlight the nature, scope and breadth of changes that the term *transformation* connotes. Responding to the systemic threats of the pandemic and climate emergency requires all hands on deck. Emergency responses, by definition, disrupt business-as-usual mindsets, modalities and methods, yet policymakers have yet to grasp the nettle, and evaluators had been mostly going about their evaluations in a business-as-usual mode, at least until the pandemic ended the pretence that 'normal' was a viable future and pushed the whole world into uncertainty about what the future holds. We now live and work in a *business as unusual world*, a post-normal world, a global emergency world, a time-is-running-out world. I therefore offer examples of alternative criteria to suggest what transformation-specific criteria might constitute and communicate. The criteria offered here (and in more detail in Patton 2021) result from two years of reflection, consultation and workshopping about criteria for transformation with others and receiving feedback. In sharing them here, I mean for them to illustrate possibilities and stimulate further contextual adaptation not to be treated as universal, standardized or mandated criteria.

Evaluation Criteria for Evaluating Transformation

Transformation Fidelity Criterion

Determine the extent to which the realities of transformational change initiatives match transformational aspirations and rhetoric. Ensure that what is called transformation constitutes transformation. Evaluate whether and how what is called transformational engagement constitutes a trajectory towards transformation.

Evaluation has a long history with the criterion of *fidelity*. There is much hype around transformation as the term has become widely used, and it has taken on a trendy cachet. Claims of transformation abound. Ensuring that such claims are meaningful and consistent with the face validity of the construct becomes a transformational evaluation priority under this criterion. Thus, the fidelity criterion aims to bring some rigour to the very notion of transformation.

Complex Systems Framing Criterion

Assess systems transformation using systems thinking principles and complexity concepts. Ensure that transforming systems is the transformational focus. Apply complex systems understandings, concepts and frameworks in evaluating transformation.

Transformation is not a project or programme. Transformational initiatives are not targeted to achieving SMART goals (Specific (simple, sensible, significant), Measurable (meaningful, motivating), Achievable (agreed, attainable), Relevant (reasonable, realistic and resourced, results-based), Time bound (time based, time limited, time and cost limited, timely, time-sensitive), which is the traditional criterion of effectiveness. Transformation means changing systems, which means addressing complexity dynamics in a world characterized by turbulence, uncertainty, unpredictability and uncontrollability. The focus of evaluation, the *evaluand* in our jargon, is *transformed systems*. Complexity rules.

Eco-Efficient Full Cost Accounting

Document and assess the full costs and benefits of systems transformations, including economic, social and environmental dimensions. Compare the full costs and benefits of baseline and transformed systems. Evaluate whether, how and to what extent transformational engagement generates net eco-efficient benefits.

Eco-efficiency offers a framework for examining transformation from unsustainable development to sustainability. This means looking beyond the traditional DAC efficiency criterion of examining the comparative costs (inputs) and benefits (outcomes) of an intervention within the boundaries of the intervention, essentially a closed-system analysis. Eco-efficiency opens and expands the analysis to examine the effects of creating goods and offering services on the use of environmental resources; effects on ecosystems; possible contributions to climate change, waste and pollution; and effects on human health, community well-being, cultural vitality and the full range of impacts on socio-ecological landscapes where humans and nature intersect. This is true-and-full cost accounting.

Adaptive Sustainability

Evaluate transformational sustainability as manifesting ecosystem resilience and adaptability at the nexus of humans and the environment. Employ a dynamic view of sustainability. Make ecosystem viability and resilience – not

programme, project or intervention continuity – the focus of sustainability. The DAC sustainability criterion focus on continuity is linear, mechanistic and static in formulation and evaluation. In contrast, at the conclusion of the 2019 IDEAs conference, participants from around the world adopted the Declaration on Evaluation for Transformational Change that included a *focus on ecosystem sustainability*.

> In all our evaluations, we commit to evaluating for social, environmental and economic sustainability and transformation, including by assessing contextual factors and systemic changes. We commit to assessing and highlighting, in all evaluations, unintended negative social, economic and environmental effects (IDEAS 2019).

Diversity, equity and inclusion

Evaluate how transformational engagement manifests the values of diversity, equity and inclusion. Evaluate whether, how and to what extent transformational engagement enhances systems-level diversity, equity and inclusion. This is consistent with Agenda 2023 and leaving no one behind.

Interconnectedness momentum

Identify, understand and evaluate the interconnections that are essential and integral to transformation. Evaluate whether, how and to what extent interconnections among people, networks, institutions, ideas and movements are deepened and enhanced to support, nurture, catalyse and accelerate transformational trajectories. Evaluate whether, how and to what extent dysfunctional and constraining interconnections are disrupted and broken to liberate positive transformational energy and momentum.

These six illustrative criteria constitute an interconnected set, but in closing, let me emphasize and spotlight two of the criteria.

Equity and Sustainability

On 25 May 2020, a white police officer murdered an unarmed African-American man, George Floyd, on the street in Minneapolis, Minnesota, arresting him and keeping him down with a knee on his neck. Pleas of 'I can't breathe' were ignored. Protests and demonstrations for justice spread around the world, many turning violent, with fires, looting and additional loss of life. The economic costs will be in the billions, but the historic and current costs of racism far exceed the short-term costs of violent protests.

The costs of systemic racism to communities of colour are incalculable. For a sense of the effects of racism on people and communities, Ta-Nehisi Coates's (2015) *Between the World and Me* is a good place to start.

The Floyd incident reflected and spotlighted systemic racism, which has become increasingly visible in the pandemic. In the United States, African Americans have twice the COVID-19 infection and death rates of whites. The same disparity of infection rates and mortality between white and non-white populations shows up in countries with majority-white populations worldwide. Job losses and food insecurity as a result of the pandemic have disproportionately affected African Americans and people of colour. The anger, grief and fear resulting from the health disparities of the pandemic were a powder keg that the George Floyd murder ignited and led to social justice protests around the world.

Climate change will affect the poor and powerless substantially more than those who are economically better off and financially privileged. The world is already seeing record numbers of displaced persons and refugees. Social unrest, health pandemics, economic turbulence, political distress and ineffectiveness, societal inequities and environmental unsustainability are all linked. Each of these feeds the others. Transformational solutions must likewise be interconnected. Blue Marble Evaluation principles guide evaluation of those interconnections.

Visionary Evaluation for a Just, Sustainable Future

So how does evaluation contribute to equity and sustainability?

Policy makers and funders ask: Does the intervention work? That is an overly simple question. The more nuanced question is: What works for whom, in what ways, under what conditions and with what results? That more-complex evaluation question recognizes that no intervention works the same for everyone. Some benefit more; some benefit less. Asking evaluative questions about different effects and disparities helps address lack of equity.

The coronavirus poses the challenge of invisibility, with many people spreading the virus themselves asymptomatic, making it difficult to detect who is infected. Hatred, white supremacy and xenophobia are also difficult to detect and the effectiveness of interventions difficult to assess. Interventions aimed at the invisible and evaluations of those interventions must be aimed at general observable behaviours (wearing masks, social distancing, equal access to health care, universal access to vaccines).

Questions of sustainability become increasingly important as the pandemic rages and the global climate emergency looms. Evaluation affects these issues by making the criteria of equity and sustainability a matter of priority for *all* interventions and evaluations. We say that *what gets measured gets done*, so unless equity and sustainability are measured, those issues will not be addressed. National and international organizations and initiatives must address equity and sustainability as core criteria for evaluation at every level from the local to the global, for all projects and programmes. Making equity and sustainability universal evaluation criteria means taking them seriously, tracking them over time, making comparisons, generating findings and drawing lessons to inform future initiatives. This is how evaluation contributes to a more just, sustainable world.

Evaluation and Futuring

Futurists work on scenarios for the future; evaluators tend to be historians. When we complete an evaluation, when we have produced a report, it is automatically and instantly history, it describes and communicates what has already happened, but futurists and evaluators share the same purpose – making the future more equitable and sustainable (Patton 2019c). Evaluators study the past in hope of extracting lessons and wisdom to affect the future. Futurists run scenarios and think about possibilities and trends to affect the present. What we are both trying to do, evaluators and futurists, is affect the present so that we affect the future. When an evaluation includes recommendations, the evaluator has transitioned from being a historian, describing what has already happened, to being a futurist. Recommendations require making assumptions and having some kind of framework for thinking about the future.

What futurists have learned is that the least likely scenario is a straight-line projection of the past, yet historically, most evaluation recommendations have assumed a straight-line projection of things in the future as they have been in the past. What we are learning with Blue Marble Evaluation is to think about the future in terms of complex, dynamic systems. The turbulence, uncertainties, non-linearities and emergent phenomena in the world require ongoing, real-time monitoring. The increasing intersection between humans and nature that I discussed at the beginning of the chapter reinforces the notion that the least likely future scenario is a straight-line projection of the past. Conceptualizing and modelling multiple, diverse possible trajectories integrates knowledge of past patterns into

thinking about alternative futures. *Trajectory analysis* makes evaluations dynamic rather than static.

Trajectory analysis includes examining the likely life cycle of an intervention. Intervention effects can occur over different periods of time and evolve according to different trajectories. Although some interventions produce steadily increasing outcomes over the project lifetime, in other cases, effects may reach a maximum and then gradually decline (Bamberger, Vaessen and Raimondo 2016). Trajectory analysis to evaluate resilient sustainability requires follow-up beyond the implementation phase of a project to find out how the intervention unfolds over the long term. Evaluation designs rarely include funding for such follow-up. The evaluation ends when the intervention funding ends because funding agencies require and support evaluation only for the project intervention time period they support and for which they are accountable. For example, the project implementation phase ends when the targeted schools have been constructed, the road or irrigation system has become operational or the training programme model has been finalized, but an end-of-project evaluation is too early to assess whether sufficient capacity for resilient sustainably has been built. Blue Marble Evaluation designs should propose and incorporate resilient sustainability evaluation criteria and follow-up designs if they are to evaluate the longer-term impacts of interventions and initiatives.

Creating alternative future scenarios has become standard practice in climate change modelling. What happens with a 1.5°C increase in temperature? A 2.0°C increase? The flattening-the-curve graphic for rising global temperatures (figure 2.1b) compares alternative futures, as did the original pandemic flattening-the-curve graphic (figure 2.1a). For the 5th Assessment Report of the Intergovernmental Panel for Climate Change, four scenarios – representative emission pathways – were modelled using alternative levels of radiative forcing (global energy imbalances) and greenhouse gas concentrations by the end of the 21st century. UNICEF used the Intergovernmental Panel for Climate Change trajectory projections to create alternative scenarios of the effects of climate change on the world's children by 2050. All the scenarios showed disastrous effects on children.

Beyond climate change modelling, futurist thinking undergirds trajectory estimates and alternative scenario modelling in economics (comparing growth models), meteorology (increasingly severe weather predictions), environmental impact assessments (pollution projections), mapping the health of ecosystems under various biodiversity loss scenarios, future global pandemics, acidifying oceans and massive increases in displaced persons and refugees worldwide.

Evaluators, futurists and alternative scenario modellers in diverse disciplines can work together to create flexible adaptive mindsets. We all must figure out what data to track, what trends to pay attention to and how to separate the signal (what is important) from the noise (what is insignificant). Together, evaluators, futurists and modellers can combine evaluative thinking with strategic thinking, critical thinking with creative thinking and inferential thinking with generative thinking. That is the way forward.

Conclusion

We must all work together on global issues – the global climate emergency and related challenges – because we are all in this together. Across disciplines, across countries, across nationalities, across positions from macro to micro, across private sector and public sector, across non-governmental organizations and governments – we are all in this together. We must combine our energies, knowledge and thinking to address these major, long-term, global Blue Marble challenges. Blue Marble Evaluation is a part of entering into transformational engagement for a more just and equitable future for our children and grandchildren and for the future for humanity on this, the home of all human beings, our shared Blue Marble.

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The COVID-19 pandemic has demonstrated the enormous challenges humanity is facing. It has been facilitated by other crises as climate change, biodiversity loss, economic exploitation, and increased inequity and inequality. The UN Agenda 2030 and the Paris Agreement on climate change call for transformational change of our societies, our economies and our interaction with the environment. Evaluation is tasked to bring rigorous evidence to support transformation at all levels, from local to global. This book explores how the future of the evaluation profession can take shape in 18 chapters from authors from all over the world, from North and South, East and West, and from Indigenous and Decolonized voices to integrative perspectives for a truly sustainable future. It builds on what was discussed at the IDEAS Global Assembly in October 2019 in Prague and follows through by opening trajectories towards supporting transformation aimed at solving the global crises of our times.

By combining practical experiences with perspectives drawn from new initiatives, this book offers invaluable insights into how evaluation can be transformed to support transformational change on the global stage.

Indran A. Naidoo, Director of the Office of Independent Evaluation of IFAD

Across continents, educational systems, and historical complexities, this book builds up the language we all should speak about our field. A mandatory read for all young evaluators.

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After reading these chapters you will have a sharper look at what is relevant when managing or doing an evaluation, and you will notice that 'business as usual' will no longer be an option.

Janett Salvador, Co-founder of ACEVAL, Former Treasurer of ReLAC

This book offers original, visionary discourse and critical perspectives on the challenges evaluation is facing in the post COVID-19 pandemic era.

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