



Global Footprint Network
Advancing the Science of Sustainability

No Small Feet

Global Footprint Network's Learning Path

Building support for addressing a dismal, challenging, & overwhelming problem by making it relevant, empowering, & solvable

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A generous grant from **MAVA Foundation** enabled Global Footprint Network to synthesize communication lessons from our decades of work in making overshoot prominent, measurable and actionable. The intention for these pieces is to allow for our own reflection and to benefit partners seeking to strengthen their own communication approaches.

Global Footprint Network's Learning Path

Ecological Footprint accounting was established to address the most significant overarching challenge humanity is facing in the 21st century. Yet to many it is a dismal, conflictive topic: it points to humanity's massive overshoot of resource demand, which is eroding at the life-support system humanity depends on.

While it is still possible to increase demand on nature even during times of global overshoot, eventually, and with time delay, depletion from overshoot will reduce the biosphere's capacity to deliver. Whether by design or disaster, the human demand for resources must become significantly lower.

Humanity can delay reducing its demand somewhat into the not-so-distant future, at the cost of even higher (imposed) reduction. In that future, our planet's biocapacity is even more compromised due to prolonged overshoot.

Any reduction will not affect everybody equally. Some people might even be fundamentally imperiled should their resource demand be reduced. Who is to carry the burden of the reduction?

All this makes overshoot a difficult topic that inspires few. The temptation to delay dealing with it is high, even though delays impose even bigger costs onto future (or younger or distant) generations. The secret hope may be that the costs of overshoot can be shifted to other people, and the burden can be shifted without guilt if the topic is generally ignored.

Global Footprint Network, which was established to be the steward of Ecological Footprint accounting, took on the challenge of making the topic overshoot attractive, engaging, and even empowering. It has been largely a communication and engagement project, built on an accounting system with a robust scientific foundation.

This summary traces the communication approaches and principles, and its learnings and failures, from the time Ecological Footprint was established in the early 1990s all the way to today.

1. The evolution of our communication approach

a) The beginnings (1990-1994 – Mathis’s Ph.D.)

Ecological Footprint thinking emerged in the context of growing global discussions around sustainable development, particularly stimulated by the Brundtland Report to the United Nations, *Our Common Future*, issued in 1987.¹ The report built on roundtables and solicited inputs from experts around the world.

Prof. William (Bill) E. Rees, a resources and environment professor at the School for Community and Regional Planning of The University of British Columbia, submitted a plea to include concepts of regional carrying capacity in the report to emphasize the significance of human dependence on ecosystems. But his submission did not affect the final text of “Our Common Future”. In fact, the definition for sustainable development promoted by the Brundtland Report (“meeting the needs of the present generation without compromising the ability of future generations to meet their own needs”, in paragraph 27 of the overview section) avoided an explicit reference to planetary constraints. However, in the subsequent paragraphs which explain their definition, the report made clear that depleting the planet does compromise the ability of future generations to meet their own needs.²

Other institutions were far more explicit about the challenge. In 1980, UNEP, IUCN and WWF published their [World Conservation Strategy: Living Resources for Sustainable Development](#), in which they introduced the notion of sustainable development. The introduction’s first paragraph made the challenge quite clear, with an explicit reference to the planet’s carrying capacity.

Human beings, in their quest for economic development and enjoyment of the riches of nature, must come to terms with the reality of resource limitation and the carrying capacities of ecosystems, and must take account of the needs of future generations. This is the message of conservation. For if the object of development is to provide for social and economic welfare, the object of conservation is to ensure Earth's capacity to sustain development and to support all life.

But the Brundtland Report chose not to pick that up. UNEP, IUCN and WWF doubled up with their *Caring for the Earth* follow-up report in 1990, in which they defined sustainable

¹ The report can be downloaded here: <https://www.are.admin.ch/are/en/home/sustainable-development/international-cooperation/2030agenda/un--milestones-in-sustainable-development/1987--brundtland-report.html>

² Paragraph 29 of the Overview section in the Brundtland report stated: “Sustainable global development requires that those who are more affluent adopt life-styles **within the planet's ecological means** - in their use of energy, for example. Further, rapidly growing populations can increase the pressure on resources and slow any rise in living standards; thus sustainable development can only be pursued if population size and growth **are in harmony with the changing productive potential of the ecosystem.**” (emphasis added, to underline the consistency with the Ecological Footprint research question). Slightly more detailed discussion can be found in Chapter 2: Towards Sustainable Development, particularly paragraphs 1 – 15.

development even more explicitly as “improving the quality of human life while living within the carrying capacity of supporting ecosystems.”

By 1989 [Mathis had joined the department where Bill Rees](#) was teaching environmental planning, initially for a Master’s program in community and regional planning. The common interest in questions raised by *Limits to Growth*, carrying capacity and resource flows, as well as the affinity between Bill and Mathis, led Mathis to stay with the department for his Ph.D., and to take on the challenge of bringing resource-based metrics to the fuzzy³ sustainable development debate.

Approaching sustainable development with carrying capacity in mind resonated with both Bill and Mathis. Bill had written about regional carrying capacity and about an imaginary capsule put over a city – pondering how big the capsule would need to be in order to support the entire city. Mathis proposed the idea of “appropriated carrying capacity”, first calculating how much hinterland Vancouver required to support itself. This developed further – and the name “Ecological Footprint” began to take the place of “appropriated carrying capacity” (Hence, Mathis’ thesis was named: “[Ecological Footprint and Appropriated Carrying Capacity: A Tool for Planning Toward Sustainability](#).” The use of the visual metaphor “the human footprint” combined with actual, numerical results, has certainly been a key feature to make the metric catch people’s imagination⁴ (even though often the metaphor overshadowed the actual concept, leading to inaccurate expectations and with those to less helpful, not-so-relevant criticism, see below).

The following is a summary of what we got right in the initial stage of Ecological Footprint development from 1990-1994. This helped us to overcome barriers (which are summarized by the statements in bold face):

- **Carrying capacity is unmeasurable.** The question of how many people could live on our planet is an unanswerable speculation about the future. To make the question empirically measurable, we turned it upside down, not using the speculative question of “how many people COULD live on the planet?” but “how many planets DOES it take today to support the current population?” This avoids any speculation about consumption, technology, efficiencies etc., and it does not make assumptions about whether current demand can be sustained or not (because it is possible to live in overshoot for some time). It simply describes current circumstances. It documents how much is being taken, compared to how much can be renewed. The tool can also be used to describe the cumulative impact of overshoot, similarly to how financial deficit accumulated into financial debt (in Footprint terms we distinguish between the annual overshoot and the accumulated “ecological debt”).
- **Extrapolations / predictions are always wrong.** Yes, it is next to impossible to accurately predict the future. With the carrying capacity discussion strongly associated with *Limits to Growth*, a computer model that ran long-term scenarios, our efforts were

³ We call it fuzzy because definitions are general and non-descriptive, making “sustainable development” unmeasurable and progress, or lack thereof, unaccountable.

⁴ William Safire from the New York Times traced the evolution of the term in his language column in 2008, available here: <https://www.nytimes.com/2008/02/17/magazine/17wwln-safire-t.html>

often mistaken as predictions. But this is exactly what we avoided (after carefully studying the opposition to *Limits to Growth*). Our Ecological Footprint and biocapacity efforts have focused on accounting, not prediction.

- **The monetary value of resources is going down.** The 1980s and 1990s were filled with debates between *Limits to Growth* proponents and cornucopian anti-Malthusians. Economists misinterpreted falling resource prices as “conclusive evidence” that resource scarcity was on the wane. Most notable was the [famous bet between Paul Ehrlich, an ecologist, and Julian Simon, a cornucopian economist](#). Simon claimed that resources are not limiting as they are getting ever cheaper. And with that statement, he won a bet against Ehrlich, as indeed, the average price of the chosen resources declined over the time period of the bet. What they both got wrong is the fact that prices do not necessarily depict actual physical scarcity, not least because of many market distortions.
- **Don't worry, technology will fix it.** This is a rhetorically astute argument as it is unresolvable. Any argument about the future cannot, for mathematical reasons, be settled, because the answer is always in the future. As a result, it leads to inconclusion and supports the status quo. In contrast, our response was, “maybe technology will fix our challenges.” But to know whether it does or does not, we need careful accounting that reveals whether we are, or are not, overusing our planet's life-support system.
- **Nobody can see CO₂, so why include CO₂ emissions in the Footprint calculation?** Early critics wondered why we included CO₂ emissions in the Footprint when those gases could not be seen – even though by 1989, the climate discussion was already in full swing (and the climate framework convention was signed in 1992). Back then, it was not yet clear which would be the more significant limitation to fossil fuel use: limited fossil fuel reserves underground, or climate change. During the oil crisis, the supply side got much more attention, an argument that regained momentum in the late 1990s and early 2000s with the peak-oil debate. We took a biological perspective and said that CO₂ emissions needed to be taken care of to maintain natural capital, hence it is a competing demand on the biosphere. Interestingly, the pendulum swung in the exact opposite direction. After BPs promotion of the carbon footprint, that portion of the Ecological Footprint became over 10 times more popular than the Ecological Footprint itself (using Google search as an indicator).
- **We didn't focus on publishing in inaccessible academic journals.** Rather, we chose to communicate through accessible visuals. Yes, we were published in some academic journals, but as the venture started before the wide use of the internet, we were able to accelerate communication by making our communications easily copiable (letter size), using easy cartoons that people would share for us, and speaking at conferences using overheads with cartoons (which was not that common yet).

Below are other aspects we got wrong:

- **Confusing normative and descriptive.** Because of the poetic ring, we initially used the term “fair earthshare” as the name for Earth's biocapacity per person. This confused descriptive statements with normative claims. Critics legitimately challenged us: “who are you to say what is fair?” Perhaps people in very hot places need more resources than those in temperate regions since cooling is far more difficult than heating. But the

real lesson learned is to not conflate description and norm. Hence, we also avoid the word “sustainable”, as it is imprecise. Rather, we use the Ecological Footprint to add clarity to what sustainability implies. (see the description in the [Living Planet Report 2000](#)). Mathis tried to kill the term “fair earthshare” but it still lingers because many righteous environmentalists liked the term and kept using it (Google still finds 1200 entries).

- **Disempowering language.** Ontario Hydro produced 10’000 “reduce your footprint” pin buttons. They also provided us with give-away coffee mugs, hats, and bags carrying the slogan. Mathis proudly distributed them at presentations, until a Chilean student at the back of the room asked after Mathis’ presentation: “So, why should I reduce my footprint? So that you can eat more chocolate?” This refreshing and astute observation helped us realize that the communication needs to be empowering and inviting to the audience, rather than condescending or commanding. The principles of non-violent communication, as outlined by Marshall Rosenberg,⁵ provided us with guidance on how to make our communications align with the authentic goal of “how to make people’s lives more wonderful”.
- **Fuzziness of sustainability debate (and lack of metric) is caused by lack of clarity.** How can the fuzzy thinking stimulated by the Brundtland Report be cured? Given that the World Conservation Strategy already had much more clarity about what was needed, it may have been too naïve to believe that the fuzziness was due to lacking intellectual capacities. We should have recognized that there was a benefit to keeping sustainability fuzzy; it serves those who want to maintain status quo, as it allows them to show concern without having to act.

b) Opportunistic proliferation (1994-2003 – Post Ph.D.)

After their time together at the University of British Columbia (1989-1994), Mathis and Bill continued to promote Ecological Footprint thinking through their own professional work. Mathis spent a short year with Earth Council in Costa Rica, as that organization, a venture of Maurice Strong to follow up on the 1992 Rio Conference, was interested in using the Ecological Footprint as a driver behind their envisioned “Earth Report”. But it became clear that the Earth Council did not have the strength to pull off such a report.

In late 1995, Mathis started a sustainability institute at Universidad Anáhuac de Xalapa, a private university in Veracruz, Mexico. Much of the focus was to keep advancing the footprint as a sustainability metric. The institute’s breakthrough report [Ecological Footprints of Nations: How much nature do they use? How much nature do they have?](#) was commissioned for Rio+5 (1997), and it is [available for download](#) (as a slightly restored version).⁶

⁵ Kye principles are described in his books, including: Marshall Rosenberg, 1999, Nonviolent Communication: A Language of Compassion, Puddledancer Press.

⁶ The report was distributed by ICLEI and included, as common the still early internet age, a 3.5-inch disk with all the excel calculation files. The report already includes many of the emerging communication principles which are still used by Global Footprint Network today.

This report was the foundation for the emerging National Footprint and Biocapacity Accounts. For the first time, we were able to calculate the Ecological Footprint and biocapacity of several countries (about 40), based on printed data from UN Statistical Yearbooks. Then, the National Footprint and Biocapacity Accounts only provided one-year estimates for each country, and a global time series was only produced and [published](#) in 2002.⁷ Additionally, the report was written using empowering, accessible language and focused on opportunities.

The approach resonated with WWF, just as they were about to start their Living Planet campaign in 1996. WWF Italy's launch of the network's Living Planet campaign in 1996 was accompanied with an Ecological Footprint study for Italy that the sustainability institute at Universidad Anáhuac was commissioned to produce. Soon after, the Ecological Footprint was made one of the pillars of the campaign's Living Planet Report, and it has been included in each edition of the report since its second edition in 2000. This collaboration, initially between WWF and Redefining Progress, where Mathis was its sustainability initiative director from 1999 to 2003, and thereafter between WWF and Global Footprint Network, also led to WWF's active use of the Ecological Footprint concept. WWF even used the tool to complement its overarching biodiversity goal with a [footprint goal](#): "By 2050, humanity's global footprint stays within the Earth's capacity to sustain life and the natural resources of our planet are shared equitably". The Living Planet Report experience, originally in close collaboration with Jorgen Randers and Jonathan Loh, strengthened the communication brand of presenting the National Footprint and Biocapacity Accounts data in clean, scientifically sound, descriptive, and graphically accessible ways.

This rapid uptake encouraged us to expand our communication with the wider public. Two opportunities arose for the Ecological Footprint initiative while Mathis was still at Redefining Progress (his tenure was from 1999-2003). Both initiatives were sparked by Rio+10 (2002), which enhanced the interest of the sustainability debate world-wide. One opportunity was to produce the first internet-based **personal Footprint calculator**, with Earth Day Network as a distribution partner. The opening page of the first global Footprint calculator can be seen [here](#). It turned out to be a popular calculator, which also excited Earth Day Network, the co-producer of the initiative, and sparked the creation of a plethora of calculators.

The other communication opportunity was the production of "**wallet cards**" summarizing key statistics of the Ecological Footprint. The idea was to minimize explanations, avoid interpretations, and only show intriguing data. The hope was that it could be easily distributed and would start conversations. This credit-card sized wallet card became a popular communications tool, even in the internet age – culminating in the CEO of one of Italy's largest banks begging Mathis for his own copy, as a CEO at the DAVOS / World Economic Forum had shown one to him. Global Footprint Network continued to produce those wallet cards, in collaboration with other organizations, in various languages, discontinuing only once Global Footprint Network had its own online data platform, making the wallet card obsolete.

⁷ The National Footprint and Biocapacity Accounts were maintained by the sustainability institute (Centro de Estudios para la Sustentabilidad) at Universidad Anáhuac de Xalapa up to 2001. They then were hosted at Redefining Progress from 2001-2003.

Also in 2002, we succeeded in getting a [footprint article published in PNAS](#), a top journal, which included the aforementioned time series for humanity's Footprint. Since the article was written in very accessible ways, it received significant media coverage.

What we learned above and beyond the beginnings:

- **Accessible language is key**, especially as we communicate across disciplines, and on the science-policy interface. We also have to win the hearts and souls of broad populations, who often have short attention spans.
- **Use engaging visuals**, including cartoons. Capturing key ideas in different ways transmits ideas faster and ensures that there are various entry points for people with different learning styles.
- **Align with large, well-established partners**. Particularly, our significant partnership with WWF, with initial contacts starting in 1996, and the Living Planet Report based collaboration initiated in 2000. Both of these partnerships were a game changer in increasing acceptability among scientists, government agencies and NGOs as well as in WWF becoming a communication amplifier of our message.

What did not work:

- **Our core slogan “living well, within the means of nature” did not resonate in the US market.** Overall, the words: “limits” and “overshoot” have been a challenge, particularly in the US market. Yet, Ecological Footprint accounting is essentially about addressing the dynamics of overshoot – the fact that it is possible to overuse what ecosystems can regenerate. This can only go on for some time, until depletion is so severe that it starts to limit how much can be taken, leading to a contraction and possibly a collapse of society. Overshoot is time-limited whether we like it or not, and the only choice is whether we get out of it by design, or disaster (as Peter Victor so aptly summarized). In other words, the challenge is not environment versus economy, but design versus disaster. But even today in 2020, the environment versus economy narrative is the dominant narrative, particularly in the US, where environmental regulations were revoked in order not to “strangle economic opportunities.”

Even after Limits to Growth, published by the millions in 1972, William Catton's “Overshoot” book in 1980 (one of the few sociological writings on the link between ecological constraints and society dynamics), and the years of campaigning on this theme, including with Earth Overshoot Day the concept of overshoot is still not commonly understood. In fact, many languages do not even have a word for it. That's as if you had a fundamentally life-threatening disease, and the doctors did not even have a term for it, let alone a therapy.

Inherent in the concept of overshoot is the recognition that we live on a finite planet. While the possibilities may be infinite, the biocapacity budget our planet provides is finite. We live on a limited planet. But limits (or any softer or even euphemistic synonyms) do not inspire, particularly in US culture, where the pickup of our message in the media has been one of the weakest in spite of a large proportion of visitors to our

website coming from the US. Overshoot is explained best in the English language, and the most influential literature on overshoot stems from the US, yet the message is still not heard.

The reason may be that the implications run counter to the US narrative of unlimited, individual freedom, and weak allegiance to societal commons. The reality is that overshoot is politically challenging. If we accept that we have physically exceeded planetary limits and that we are concerned about other species and people suffering from poverty, the conclusions are strikingly obvious. But few dare to say it publicly, because the two obvious conclusions represent political suicide. They are:

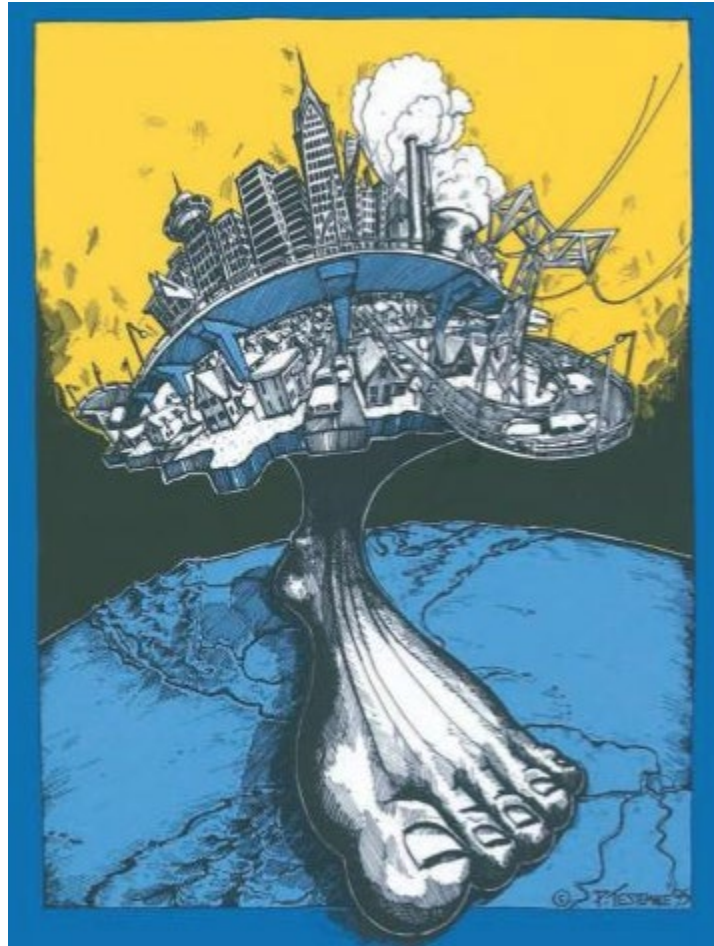
- we need to shrink (at least factor 3 lower material metabolism, as global average)
- we need to share (more equitable distribution of what we have)

Core to political success is the promise of a better future. But both conclusions tell the political elite that they will have to give up, something that the economic growth narrative has been able to elegantly circumvent (the first conclusion is ignored, and the second is avoided by promising more to everybody, a little later). Global Footprint Network's challenge is to find pathways that are empowering to our audiences, while being consistent with the physical reality of planetary limits.

Global Footprint Network has approached this by using the word limits as sparsely as possible, using softer words (such as “within the budget of nature, within the means of nature, within the regenerative capacity of nature”) and by emphasizing that the possibilities to deal with this finite reality are infinite. We have also tried to play off time against space, saying that assuming an infinite planet makes our existence on our planet finite – vice-versa, accepting the finite nature of our planet enables an infinitely long existence on our planet. But still, particularly in culture (for instance, in US media), where limits concepts are unpopular, the Ecological Footprint uptake is far more sluggish. It can even be seen as divisive, as pointed out by former congressman [Bob Inglis](#) in a CERES webinar. Rather than limits, he suggests, environmentalists should focus on efficiency and economic opportunities that can be gained by addressing climate change.

- **Overshoot was not understood, or not a common frame**, as mentioned above. This is still true today, although to a lesser extent, largely thanks to Earth Overshoot Day. Still, many languages lack an adequate translation for overshoot. This fragmented understanding of the sustainability challenges is one reason that the modern sustainability debate is still largely focused on carbon and climate change, ignoring that this is just one, albeit a significant, manifestation of overshoot, and that reducing carbon might lead to shifting pressures onto other portions of the biocapacity. Also, this focus on carbon keeps the sustainability narrative stuck in a sense of “inescapable tragedy of the commons.”
- **Illustrated communication made the results look marginal**. While cartoons served as easy communications in the early days, and were easily photocopiable, it seems that the

cartoon undermined (or at least did not strengthen) the sense of scientific rigor and the serosity of the matter.



This title image of the first Ecological Footprint book “Our Ecological Footprint”, published in 1995, is an early example of how cartoons were used in Ecological Footprint communications.

c) Establishment and expansion (2003-2008 – Global Footprint Network’s beginning)

With the wider recognition of the Ecological Footprint and its resonance around the world, time came to start a proper organization for the Ecological Footprint – and this became the starting point of Global Footprint Network in 2003.

One of the first pieces of work was to develop a branding brief, spearheaded by Susan Burns and Jill Tidman. The essence of this approach included: addressing the global challenge comprehensively, and being optimistic, scientifically sound, actionable. This also translated into the visual representation of the Global Footprint Network venture – using positive colors, using pictures to illustrate that showed “multiples”, i.e., many of a kind of a resource such as a stack of cut trees, a school of fish, a wheat field, bags of rice, etc. We did NOT use depictions of ecological destruction as to illustrate our work.

We deliberately stayed agnostic regarding the question of economic growth, whether decoupling is possible or not, whether strong sustainability needs to be preferred over weak sustainability, or whether technology will be able to overcome the constraints. We also avoided making absolute statements, and we framed contradictions as questions rather than confirmations. Our position was mainly this: we provide a measurement stick to make questions empirically testable. Let's test rather than get lost in speculation, because speculating about inherently unresolvable questions only cements the status quo. (For example, the question of whether or not technology will save us is inherently unanswerable since the future can never be conclusively predicted.)

In essence, we have focused our communication on:

1. always using clean, positive, non-accusatory communication;
2. inviting others into the field;
3. using the National Footprint and Biocapacity Accounts as a common starting point to increase numbers' consistency;
4. strictly separating description and interpretation (no use of the "fair earthshare" term, and no battle cry like "reduce your footprint!");
5. keeping a positive, recognizable brand;
6. focusing on the possibilities, not the probabilities of achieving it;
7. building the market (and standards help to speak with one voice, avoiding fragmentation and confusion due to inconsistent approaches and results); and
8. encouraging consistent communication and comparable results to build a convincing collective narrative.

The initial theory of change built on enabling others (hence the choice of the name "network"). as discussed below, providing not only basic guidelines on methodological approaches, but also on the use of consistent, well-defined terms.

We focused on building a market based on a common analysis and language. We did this by:

- **Developing common standards** was a key piece to accomplish point 7 and 8 above. We followed the ISEAL guidelines in developing them, together with the wider Ecological Footprint community and published them on the web here (www.footprintstandards.org).⁸ Through an involved community process, the initial ones were in 2006 with the updates in 2009. Section V of the standards were entirely focused on communication. These standards emphasized the importance of consistent terms, clear definitions, separating normative and descriptive statements, clear referencing, etc. The goal was to enable consistent and empowering language across the community, while avoiding the production of Ecological Footprint reports with unsubstantiated statements, which could create a backlash for the entire community. The standard was voluntary, and Global Footprint Network never had the resources to develop a "standard certification."

⁸ Global Footprint Network never had the capacity to developing a certification approach or an enforcement mechanism. So the standards just offered a reference point and guidance.

- **Facilitating the build-up of the Footprint analysis market** by always delivering projects with partners. Most of the results and reports Global Footprint Network produced have been published under the name of a partner organization, or at least jointly.
- **Building a partner network** – culminating in three conferences (two in Siena in 2006 and 2010, one in Cardiff in 2007).
- **Engaging key players.** One core strategy, established in 2005, was to implement an official Ecological Footprint project within ten countries in a period of ten years. The program was called “**ten-in-ten**”. Through our first country, Switzerland, we learned the VIA approach, a three-step offer that showed a non-threatening way forward. VIA, an acronym invoking the Latin word for path, stood for **V**erification, **I**nterpretation, **A**pplication. It suggested that before countries would use the Ecological Footprint in any projects or applications, those countries should first go through an official verification process of their country’s Ecological Footprint and biocapacity results. We suggested that it would serve them best to ask their administration’s researchers to provide a review and compare the results with their own data before using the results in other projects. Otherwise an interpretation or application of the results would just be caught in criticism – applications could easily be undermined by criticism of the Ecological Footprint in general. Therefore, only once there is trust in the basic country results should they move on with interpreting the results. Then, the Footprint should be applied only once the administration has a coherent interpretation of the results, i.e., some basic agreement of what the results mean for the country. We reached 12 countries⁹ within 8 years, mostly through verifications. We surpassed our goal of ten-in-ten.

What did not work:

- **Ten-In-Ten** did not produce the breakthrough we expected, and partnerships with countries eroded easily – with changes of priorities or shift in ministries. For instance, to avoid corruption, staff in Ecuadorian ministries have to change ministry every three years, which undermines any possible continuity and weakens institutional knowledge. Another example is that although the [2008 EU report](#)¹⁰ was well prepared and carefully researched, it did not produce results. The method, although presented as neutral, generated debates within administrations, making it a difficult cause to take on for

⁹ Switzerland, United Arab Emirates, Belgium, Japan, Luxembourg, UK, Germany, France, Philippines, Indonesia, Ecuador, Spain, EU. Spain produced an elaborate report, but it was taken off the website within days of its appearance. Argentina had a “Footprint office” in its ministry of industry, but we were never able to establish contact with them. Latvia also set itself a Footprint target, without direct engagement. Costa Rica included the Ecological Footprint in its State of Environment report without a direct collaboration. Post the ten-in-ten campaign, we continued to engage with national governments, as occasions arose.

¹⁰ Its title was: *Potential of the Ecological Footprint for monitoring environmental impacts from natural resource use: Analysis of the potential of the Ecological Footprint and related assessment tools for use in the EU’s Thematic Strategy on the Sustainable Use of Natural Resources*, produced by 4 consultancies, and producing very positive conclusions.

bureaucrats. A key example was a large EU project commissioned by the environmental arm of the European Commission (DG Environment) which, after a large study, concluded that the Ecological Footprint was a valuable indicator. But the desk officers dealing with the study ran into roadblocks when rolling the Ecological Footprint out. Therefore, they abandoned it. Engaging with nations was slow and expensive. Even though all seriously pursued scientific analyses of the National Footprint and Biocapacity Accounts by national government institutes confirmed the results (and led to a few improvements), it seldomly inspired countries enough to pursue the tool further. Nor did it dissuade the same countries to stay skeptical. Most often, in too many cases, our collaboration was relegated to environmental ministries with little influence and weight in the political debates, and even less in managing the drivers of biocapacity deficits. This put the ministries in the odd position of being the carrier of “bad news” while not being able to offer solutions. This dilemma was particularly pronounced in the UAE, leading to a slow but steady strangling of the Ecological Footprint initiative.

- **Key decision-makers and competitiveness.** As Ten-in-Ten progressed, we realized that we were steered towards the environmental ministries in most countries, which automatically marginalized the effort. The ministries saw themselves as in charge of the impacts of Ecological Footprints, but did not have authority on managing the Footprint itself. It was just “bad news” with little opportunity for constructive action, in their view. This led us to believe that we needed to get the information into the hands of relevant decision-makers. We identified the most relevant, critical decision-makers of each country as those who guarded the “competitiveness paradigm”. We assumed, by drawing on our experience, that these would not be the ministers (who are public faces and have to portray the right rhetoric in their public appearances) but rather the senior administrators – particularly the senior officials running the finance and economic development ministries. These senior administrators are in charge of keeping problems off the ministers’ desk, and they focus on what is necessary to keep the country’s economy strong. Most of them are trained at US Universities, with economics degrees, therefore operating with the paradigms acquired at these schools (Kahneman calls entrenched paradigms “thinking fast” conclusions¹¹). Because of their training, they did not take resource constraints very seriously, when compared to many other factors. These people, being quite influential, are also sought after and hard to access. In response, the strategy we adopted was to find out who their trusted, informal advisors were, because all of them have advisors with whom they explore new ideas in an informal, non-committal way, who they do not fear as potential competitors (childhood friends, etc.). We assumed that in the end, it may just be 5’000-10’000 high impact government administrators that own the overarching paradigm. They are very smart

¹¹ Daniel Kahneman distinguishes “[thinking fast](#)” (instinctive, automatized assessments) and “thinking slow” (deliberate, logical processing). Professional training consists partly in guiding students through key insights via “thinking slow” so then, as professionals, they can use this insight in abbreviated ways through “thinking fast.” This embodiment of professional knowledge makes professionals faster in their decisions. But it also blinds them from other possibilities as their reactions get automatized. In other words, if the paradigm is context appropriate, thinking fast is very efficient, but if the paradigm no longer fits, fast thinking becomes a major stumbling block to learning and adapting. This is what the French call “*déformation professionnelle*” (or professional de-formation).

and excellent at saying “no” to most proposals.

We gained access to a few “informal advisors” to these top-decision-makers – but realized that doing so was quite costly, slow, hard to sell to philanthropic institutions, and unpredictable.

Rather than to go the competitiveness route, we decided to enter the finance world, building on earlier work from 1999 on the link between resource demand and competitiveness.¹² This turned into a four-year engagement with the UNEP Finance Initiative and many financial institutions. In this initiative, we aimed to translate our data and concepts into financial language, thus gaining some traction. Perhaps our project also ended up being most limited because of our communication approach. Global Footprint Network, as a source, was not trusted as it was not a conventional content provider to the finance industry. Our NGO provenance undermined our image of being a provider of neutral information. With the financial crises, interest rates dropped so low that the sovereign debt market, which we focused on, was financially becoming less attractive. This market’s low yields reduced the general interest in the market, and ecological features would not differentiate loans sufficiently to whet the appetite of the financial industry for our data.

- **GDP criticism** – going nowhere. Interest in looking at alternatives to GDP (including the European Commissions “Beyond GDP” initiative) nearly collapsed with the financial crisis of 2008, in spite of a very prominent positioning of the Ecological Footprint at the significant European Commission conference in 2007. At the high-level conference, hosted by the Commission president Barroso and attended by two more of his commissioners, the Ecological Footprint was one of the most mentioned alternative indicators together with the HDI (the UNDP’s Human Development Index). The initiative was nearly recast as GDP and Beyond and has not recovered since this effort in 2007, with only minimal updates to the [official website](#). The [Ecological Footprint is still described](#) in the indicator section of the website, with only sporadic new activities otherwise.
- **Carbon footprint becoming prominent.** With the BP initiative on [positioning the carbon Footprint](#), “footprint” became a more prominent metric. More focus was put on the “carbon” Footprint and its link to the underlying question of biocapacity and overshoot was lost. There was no backlash against the “footprint” term, something that “peak oil” suffered from, even though mathematically there always will be a “peak”.
- **Orthodox focus on climate and carbon.** With the UN climate conference in Copenhagen in 2009, the international focus on climate and carbon reached a new level. But this came at the cost of shifting attention to other environmental concerns, or climate related aspects apart from carbon emissions. Most large environmental foundations shifted their efforts with it, and even pooled their resources, giving the most attention to a narrow climate perspective (as exemplified with Climate Works). It boiled down to

¹² Sturm, Andreas, M. Wackernagel and Kaspar Müller, 2000. *The Winners and Losers in Global Competition: Why Eco-Efficiency Reinforces Competitiveness: A Study of 44 Nations*, Verlag: Rüegger, Chur/Zürich. ISBN 3 7253 0658 3 (adapted and improved version of the German edition of 1999)

figuring out where we can get the most overall emissions reductions per dollar investment. By doing this, it largely ignored: the potential for rebound effects; the synergies between various environmental challenges, including land-use change, displacement effects; and the synergies between green investments and climate change, etc. For the Ecological Footprint, an aggregate view looking at all pressures under one umbrella no longer fit in to the conversation.

Emerging criticism: Pushback against the growing success

More and more criticism started to appear, in response to the growing prominence of the Ecological Footprint. Some was ideologically driven (as the ones by the “ecomodernists”), but even academic criticisms were often not particularly relevant, but based on misunderstandings of what the Ecological Footprint’s research question focused on. Still, the wave of criticism generated an aura of “the criticized Ecological Footprint method”. Our communication strategy struggled – we feared that responding made us look defensive while giving more light to the criticisms. In contrast, not responding made us look tone-deaf.

It has not been easy or obvious for us to understand, what part of the methodology was most challenging for others and we needed to address more proactively. On the one hand, Ecological Footprint principles and methodology are fairly basic (we sometimes call it, tongue-in-cheek, a “pedestrian science”). We just add up the productive areas for which human demand competes. But perhaps this simplicity makes Ecological Footprint accounting academically not exciting enough, as such simple accounting does not evoke a sense of “edge of knowledge,” novelty, or intriguing sophistication.

On the other hand, much of the criticism did not address these simple principles, nor match where we felt Ecological Footprint accounts need to be improved. The criticisms rather focused on the interpretation of results, or implied that critics were interested in different research questions than those the Ecological Footprint covers.

As a result, we had not found ways to turn this new (albeit negative) attention into positive publicity. By early 2020 we started a fresh approach: we framing criticism as a “badge of honor”. We wanted the world to know that we appreciated the attention, that we have listened to criticisms and suggestions, and all that without getting into unproductive dogfights. We want to learn from useful criticisms and put to rest those that are based on misunderstanding.

As a result, we dedicated a special [webpage to the topic of criticism](#) and included a detailed guidebook. The guidebook contains all of the criticisms that we are aware of. We do not expect many to dig deep, but it provides an enormous amount of resources both sharing the criticism (we are not hiding it) and providing answers. Whether this approach is successful, we cannot judge conclusively. But it seems that since then, we have witnessed fewer criticisms and unfounded accusations. We still have much to learn about how to deal with criticism most elegantly and productively.

“Ecological Footprint is a great communication tool, but it is not policy relevant.”¹³

Some criticism draws inspiration from our communication success. The popular appeal of the simple message is used as an indication that the underlying science must be compromised. We recognize that the results seem to communicate well, given all the media stories, especially when translated into an Earth Overshoot Day date. Whether these results are policy relevant needs to be determined by decision-makers. Obviously, to be policy relevant, the results need to be scientifically sound (hence the many national government reviews we initiated). Our assumption that regeneration (or biocapacity) is the materially most limiting factor, and competition for biocapacity is the most useful lens that can be used to understand that resource dependence has never been dismantled. Since physical reality does shape policy outcomes, we believe there must be a link to policy. Whatever policy analysts assume, physical reality is the ultimate arbiter regarding the question whether the policy analysts’ conclusions were realistic. One reason some analysts argue that the Ecological Footprint is not relevant to many current policy decisions may be rooted in the fact that many of these decisions are not sustainability relevant, i.e., that they are blind to the sustainability imperative. The more realistic our assumptions, the more likely our policy bets will turn out as we hoped.

Is a detached, neutral description inauthentic?

Given the communication successes and the pushback, Global Footprint Network kept reflecting on what would need to change in our strategy and communication approach. One valuable, deeper introspection became possible through work with support of the Tap Root Foundation (see their deck in the appendix).

While Global Footprint Network strives for a descriptive, empowering style, shying away from judgmental adjectives, and gloomy interpretations, our level-headed presentation have been perceived as “detached” and therefore inauthentic. There is the possibility that communication expressing more anger, despair or frustration may make us more human and authentic. This was a particularly significant finding of the communication review by the Tap Root Foundation. This insight was an additional argument for the need to separate the accounting part of the organization from the application/interpretation part – not least to quell the potential sense of a perceived conflict of interest. Since we’ve built a separate organization (see Footprint Data Foundation (FoDaFo) www.fodafo.org) for National Footprint and Biocapacity Accounts calculation, Global Footprint Network’s language can now become more pointed and judgmental. Even as of 2021, we have not yet fully found our new voice, and it is something we continue to explore.

¹³ O’Neill et al wrote in their 2018 Supplementary to their NATURE SUSTAINABILITY PAPER that “A review of the footprint based on a survey of 34 internationally-recognised experts and an assessment of more than 150 papers concluded that the indicator is a strong communications tool, but that it has a limited role within a policy context” citing Wiedmann, T. & Barrett, J. A review of the ecological footprint indicator — Perceptions and methods. Sustainability 2, 1645-1693, doi:10.3390/su2061645 (2010).

d) Consolidation and reorientation (2009-2021 – Global Footprint Network and FoDaFo)

With their increased prominence, the criticism or narrative challenges have become more sophisticated. Also, the newness of the Ecological Footprint has worn off, reducing many audience's natural curiosity about the Ecological Footprint, from which Global Footprint Network profited during its early years when this concept was still a novel and fresh idea for many.

Global Footprint Network also started to take on a more unique communication approach based in a view of the world that may not have been that common, including among environmental groups. Our sense was that while many organizations are advocating for a better future, they stand on quite distinct premises. And this affects the narrative and focus profoundly. We identified three key paradigms (and a longer discussion is available [here](#)¹⁴). All three paradigms advocate for achieving a better world for all by either:

1. growing the possibilities for all (the economic growth paradigm);
2. banking on perpetrators eventually being punished and the victims compensated (the “great reckoning” paradigm); or
3. choosing the best next steps, given the context (the “self-determination” paradigm).

While the first paradigm has the largest market share, it does not need an overall plan as long as every project adds to economic opportunities. There is no timeline (we'll get to the better world eventually) or trade-off (everybody will be better off). For that paradigm, Ecological Footprint accounting is a nuisance. It makes the limitation of the paradigm obvious given the finite nature of planet Earth. It becomes a center of conflict as it erodes the magical promise of an ever-growing cake.

The second one occupies nearly the remainder of the market. It is the opposition; it has a powerful narrative (David vs. Goliath), and it is based on fairness and justice. The downside is that it generates more finger-pointing than results, and it leads to “waiting for the better future,” diminishes the sense of agency, and confuses motivation (social justice) with strategy (justice will prevail). The Ecological Footprint has some resonance with this second paradigm as it points out unfair distribution, the urgency to act, and the need to have global governance.

The third one is the smallest and least heroic. But It is the most actionable, and it is consistent with the sustainable development challenge. It invites us to recognize the situation, and then make decisions that are concordant. By truly understanding the context, it also becomes obvious that decisions must be replicable (rather than excluding others from doing the same), otherwise they will backfire. For this paradigm, Ecological Footprint results are helpful, as the results clearly illustrate the context we are in, and give guidance on which decisions are most effective in helping the entity, whether that be community, company, city or country, to be and stay successful.

¹⁴ provided as a PDF

This third path, which has been the one promoted by Global Footprint Network, has generated tensions with or disconnects from other environmental organizations, many of which operate in the second paradigm.

Language and framing are also strongly influenced by the respective paradigms. Poor framing is both a risk and distraction as it takes extra effort to overcome and aggravate misconceptions. The following are examples of language and framing, some of which are related to the three aforementioned paradigms:

- **“Sustainable”**. Ecological Footprint accounting is an attempt to help define the word “sustainable”, so using the word sustainable in Ecological Footprint efforts becomes additionally problematic as it starts to enter a circular logic. Also, sustainable has very distinct connotations, one of which is an attribute of an object (e.g., a piece of clothing, a house), meaning that the production of the object did not lead to depletion of an ecosystem; a better, more descriptive term for this concept may be regenerative. “Sustainable”’s second connotation is more context oriented, or systemic: does the object fit within its context, is it replicable across the entire population? A cow is not inherently sustainable or unsustainable, but 100 billion cows on the planet definitely is not sustainable. Therefore, we try to avoid using the term (unless it is in a name, such as “sustainable development”). **“Renewable”** or **“circular”** are also often poorly defined words. Again, our strategy is to be descriptive – offering metrics to help define the larger vision rather than adding ill-defined adjectives. (one confusion is that “renewable resources” are inexhaustible, while in reality the renewable resources are under more threat of destruction than the non-renewable ones). However, the emergence of the term “regenerative” may be helpful as it becomes more descriptive and evokes the biological context. With “regenerative”, the relevance of biocapacity becomes evident.
- **Accounting vs index**. In the metrics world, there is a lack of distinction between truly science-based measures versus other metrics. The most confusion is brought about by the proliferation of multi-dimensional indices that are, by nature, arbitrarily constructed and rarely tested in a meaningful statistical way to check whether they deliver what their architect’s promise. Such indices are based on arbitrary aggregations, such as the Environmental Performance Index, SDG-Index, Human Influence Index, Biodiversity Intactness Index, and others. These contrast with accounting approaches that are based on a clear question and a well-defined, common unit of measurement, such as Global Hectares used in Ecological Footprint accounting. Therefore, we separate ourselves from multi-dimensional indices.
- **“The Global Commons” versus overshoot as context**. Yes, we all live on one planet, and there are global commons. But emphasizing the global dimension of our challenges and calling them “global commons problem” invokes a stronger sense of “tragedy of the commons”. It implies that we need meaningful global governance as a prerequisite for action. But we do not have such governance – and we are far from having it. The UN is a consultative body, and the highest level of sovereignty is still nation states. This is why narratives have to focus on what is at stake for countries if they ignore our global overshoot reality. Global Footprint Network emphasizes “one-planet” and overshoot as

context, not as a “compliance issue” or imposition. How does this context affect you? Given “a storm is brewing”, what is the smartest thing to do with your boat? In essence, rather than invoking “global commons”, we encourage focusing the narrative on why entities should have “skin in the game.”

- **Noble versus necessary.**¹⁵ Many narratives implicitly carry a noble narrative. Noble means “it would be nice to do or have”. As a result, noble causes become lower priorities, maybe even merely voluntary weekend activities. Unless causes are felt by a sufficient number of people to be necessary **for themselves**, a transformation is unlikely to happen. If something is merely seen as necessary for humanity, but not directly for individuals, it becomes a noble cause. The latter is often called “tragedy of the commons” where the benefits of positive action are socialized while the costs remain with the actor. This is how the sustainability dynamic is perceived – little benefit for the individual, but a requirement for humanity. Our approach is to turn this upside down by deemphasizing the global commons aspect and demonstrating that those entities not ready for a future in which, we can anticipate, they will bear many of the costs themselves simply because they are not prepared. This is why we often show the biocapacity [creditor and debtor map](#), emphasizing the risk to each country (we had the fantasy of bringing such a map to the 2009 COP in Copenhagen, but were not able to find sufficient resources).
 - A corollary is that a necessary view shifts priority and makes scientific inquiries true inquiries. Our slogan is “**honesty beats performance**”. This means it is more important to show exactly what is, even though it may not be flattering, in an effort to give us a better chance to understand and learn – and this will eventually produce better performance. The noble approach is to show best possible performance, which can lead to distorted reports.
 - Recognizing that something is necessary for oneself puts “**skin in the game**”. In other words, it makes solving a problem as necessary for one’s own success. One could call this self-interest. But that term has negative connotations among many, particularly in the NGO community. It is seen as selfish, greedy, and short-sighted. But in reality, self-interest is much broader. It links to the existential need – as in the case of Greta Thunberg who sees that her life is at stake. Yes, she has self-interest, yes, she has “skin in the game” but few would characterize that as selfish and greedy.
 - **Hope versus despair.** Optimism, pessimism. Both are consequences of not being in the game. The basketball player in the field thinks about how to win, not whether he or she is optimistic. Both optimism and pessimism vanish once people become full participants rather than bystanders. Also, the distinction between solution and problem becomes meaningless for participants. Have you ever told your car mechanic or doctor to spend less time on diagnosing and to only focus on fixing?

¹⁵ A fuller, but still brief essay on this distinction is available here [From noble to necessary](#).

- **Consumption versus production.** Which one matters? International treaties focus on the production (or the territorial) side of resource consumption. One key reason is that territorial emissions are easier to count. A consumption perspective requires understanding the emissions embodied in imports and exports, which is more complex. But there are methods to assess consumption, just not with the same level of robustness. If analysis is really driven by need to know (rather than by compliance), then the question becomes “which questions are most relevant and important from the production angle”, and “which are most important from the consumption perspective?” Global Footprint Network argues that both are critical: the production perspective gives insight into potential constraints to maintaining production (and with that income). The consumption angle shows what wage earners can do with earned money. Constraints on both sides translate into political tension, but for different reasons. Resource limits on the production side will affect business profitability and employment numbers. In contrast, consumption limitations will affect what people can do with their income, and imposed reduction will generate a dissatisfied population clamoring for political responses.
- **Individual versus collective change?** Of course, it is both. All of society has to change, and so will the way all individual use resources. But this is not the question. The discussion falls apart when it is led from a moral perspective (see the second of the three paradigms). The moral perspective typically tries to determine whom to assign the responsibility for the problem. This narrative amplifies the “noble” frame. Discussions on what individuals can do implicitly carry the noble frame and include the “tragedy of the commons” assumption. It seems to answer the question of “how can you as an individual contribute to helping society succeed?” It does not ask “how can you protect yourself individually from the shifting context in which we live?” Therefore, we like to use the COVID example: “it is like COVID: the most effective thing for you to do to protect society is to protect yourself. This is similar to sustainability: protecting yourself, your city, your country is not only good for those entities, but it is the most effective thing you can do to protect society.” (see also discussion re: positive sum game). Focusing on individual actions can easily land as “rubbing salt into the wounds of guilt,” even if not intended. Again, this amplifies the noble narrative. Or it may be received as denying the systemic biases, from taxes and incentives to regulations and culture – some may call individual approaches therefore even “environmental neoliberalism.” The same discussion as to individuals versus society can be applied to the category error: government versus business. Again, it is both, and the question is, “who has skin in the game?” Some government agencies and some businesses may be fabulous allies as they have “skin in the game”, and others have an operating model that profits from denying the one-planet reality. In essence, it will take many participants, certainly **both** individuals **and** collectives. Clearly it is not an either/or.
- **“othering” – the idea that clearly separates groups.** Squeezing people into categories is not only disempowering, but also not helpful. Here a few examples:

- “Ordinary people” is a surprising adjective, as all people are unique. Rather than saying “the average French as a Footprint of 5 gha”, we say, “The French residents have, on average, a Footprint of 5 gha.”
- Many countries, regions, populations, or cultures claim otherness by invoking exceptionalism (what applies to them does not apply to us, and vice versa). While we recognize the existence of such thinking, we approach this attitude by acknowledging that exceptionalism is universal.
- One special case of “othering” is the use of terms like “developing and developed countries” (or substitutes like “North and South”, etc.) However, such binary terms are neither descriptive nor explanatory. In fact, there is no sharp definition. Using the terms is merely a thoughtless and destructive endorsement of the GDP fetish. In reality, there are not two types of countries, but over 200 different countries, all faced with the same laws of nature, yet each with unique features. Therefore, Global Footprint Network has banned these words from its publications. Often, people use the terms to categorize by income level and use income as an organizing principle. This is at least descriptive, such as in the case of using the term “low-income country” (with a defined threshold for income), if absolutely necessary.
- **Income versus wealth.** Many writers, including the World Bank, confuse income and wealth. Particularly when labeling people “poor”. Poor is a wealth concept, and we ask: poor in what? Culture? Biodiversity? Water? The problem of overshoot also makes clear: high incomes can mean rapid depletion of wealth. Investing in sustainability may mean reduced short-term incomes, but it leads to securing (or even building) long-term wealth. As a result, Global Footprint Network does not use the terms “poor” or “rich” and distinguishes between wealth (a stock) and income (a flow).

Common **misconceptions** that underplay the risk of overshoot include:

- **It is a trade-off between Economy versus Environment.** Rather than playing into this false dichotomy, we are building on Peter Victor’s framing: we recognize that we depend on Earth’s life-support system and that overshoot will end, whether we like it or not. Therefore, the real tension is about “ending overshoot **by design, not by disaster**”. Or in parallel: do you want one-planet prosperity or one-planet misery? If your car is heading down a ravine, do you prefer to sit on the hood, or in the driver’s seat?
- **Climate versus biodiversity** has been a challenge as biodiversity organizations have felt envious about the attention that climate got when compared to biodiversity. We are showing that all is compounding. It is not one versus the other, but rather these are all the consequences of the overwhelming competition for Earth’s biocapacity.
- **Climate change versus Footprint.** Some argue that the current focus is on climate change and carbon emissions, and this should not be distracted. We would argue that only focusing on carbon has three major disadvantages: a) it conjures the idea of “tragedy of the commons”, b) it ignores the co-benefits of and opportunities for solving

several ecological challenges simultaneously, and c) it masks the fact that we need to decarbonize without destroying the rest of the planet. It is a given that fossil fuel is now a major input to human society and historically, it has allowed people to overcome ecological constraints. So, decarbonizing comes with a high risk of burden shifting.

- **“losing last” as a strategy.** This is an unspoken, unacknowledged strategy of dealing with overshoot and its socio-economic ramification. But it reflects how most high-income countries seem to operate. While recognizing the potential for global turmoil due to overshoot, many regions feel themselves shielded from potential calamities by their incomes. They may assume that negative impacts will affect lower income countries first, with the privileged classes being affected much later, if ever.
- **Overshoot dynamics.** For many, overshoot does not resonate or may not be seen as relevant because demand is still able to increase, even though we have been in a global overshoot for decades. The unspoken misconception may be that overshoot cannot be that detrimental. What may be misunderstood is how forgiving natural capital is, or how long it can be depleted without radically reducing regeneration. But the effect delayed, which in reality is even more risky as feedback comes too late, at a time when resource dependence is even higher, leading to even larger adjustment requirements when overshoot redresses itself.
- **Short- versus long-run.** Oftentimes, arguments are made that sustainability is about future generations – an argument that has been made for over two generations (the 1972 Stockholm conference of the UN happened nearly 50 years ago, or two generations ago). Also, most of the infrastructure for 2050 is already built, yet by then, we should operate without fossil fuels. This already massively affects the net-present-value of current assets. Or, if we want to stay within 2°C, as prescribed by the Paris Agreement, humanity has already exhausted its carbon budget.¹⁶
- **“We are in a zero-sum game”**, while in reality, systems can produce both positive-sum and negative-sum games. For instance, entities that prepare for sustainability strengthen their own position, and make the world more resilient. The sustainability race can be won more easily when more entities are winning (unlike a soccer or tennis championship where only one team or one tennis player wins, and everybody else loses). Vice versa, amplifying overshoot becomes a negative sum game, as it puts us at risk, both individually and collectively. If it were a zero-sum game, the incentive for everyone to be defensive of their position increases. As a result, privileges are maintained at all cost.
- **Ranking versus rating.** An application of zero-sum thinking is ranking. Ranking organizes performers from the best to the worst. Because of the psychological power of social strata, people seem to love rankings, but they imply that one wins at the cost of another

¹⁶ 450 ppm CO₂ *equivalent* may give us a 66% chance never to exceed 2°C global warming, according to [IPCC's 2014 report](#), yet [NOAA tells us](#) that we have exceeded 500 ppm CO₂ *equivalent* last year– hence there may be no budget left.

one. Rather than ranking, rating is a much more reasonable approach for comparing sustainability performance, because all entities could (or even should) be AAA rated. The far more relevant question for a country is whether it is sustainable, rather than whether it is better than another country. In contrast, with most countries in the world currently depending on unsustainable levels of resource consumption, a high ranking does not protect a country from ecological calamity.

Throughout our existence, and given the excessively slow shift in public and professional perception of the overshoot challenge,¹⁷ Global Footprint Network has evolved towards emphasizing more of the basic tasks, which includes powerful, large-scale, public communication. The posterchild of such communication within Global Footprint Network's operation is Earth Overshoot Day, which is constructed around all these communication insights and principles.

This is why we may explain our core function these days more as “fomenting skin-in-the-game” rather than being “ecological accountants” – how we used to describe ourselves in earlier manifestations.

¹⁷ With the notable exception of the [Dasgupta Review](#), published by the UK Treasury in February 2021.

2. Where we are now

As explained, communication is becoming ever more central to Global Footprint Network's programs. It is essential to its theory of change. Our tactics are inspired by and aligned with the psychological counseling approach of motivational interviewing.¹⁸

a) The battle plan – our Theory of Change

Our task is to convince enough decision-makers that decisions reflecting and embracing resource security, particularly in the context of massive ecological overshoot, are particularly important for one's own long-term success.

To achieve our mission, we believe decision makers need both **the ability** and **the will** to choose a path that is aligned with “all thriving within the means of our one planet.” This is enabled by the Ecological Footprint being seen as a **trusted, relevant and an empowering metric**.

Therefore, as identified in our “[theory of change](#)”, we focus on the following outcomes:

- 1 Analysts, academics and advisors have the **data** to make the one-planet reality relevant
- 2 Decision makers have the **tools** based on those data which help them make choices that are consistent with one planet
- 3 Leaders **want to** use the tool in **concrete applications** — they are seen as **necessary for one's own success**
- 4 There is a **broadening sense of a new normal** — sustainability is seen as necessary, not noble

Our focus is on the following activities: Data from the independently and neutrally produced **National Footprint and Biocapacity Accounts** is the foundation of our work (by www.FoDaFo.org). It is strengthened by **improvements, reviews and criticism**—often in the form of **Ecological Footprint publications**. From this dataset, we produce additional assessments that demonstrate the strategic value of the data. The scaled data informs our psychologically crafted **Footprint Calculator** and **solution platform**, as well as our large scale campaigns like **Earth Overshoot Day** that engage ever larger audiences.

b) Becoming an engagement machine that produces “skin-in-the-game”

Informed by our decades of experience, we have sharpened our communication and use a number of guidelines and principles, outlined below:

1. **Ensure clarity of purpose: ending overshoot by design, not by disaster.** One key for the roadmap is recognizing the biological context we are in (that can be overshoot). Providing a roadmap based on a biological understanding of the world leads to more realistic and empowering options.

¹⁸ A standard introduction to motivational interviewing is William Miller and Stephen Rollnick (2012): *Motivational Interviewing: Helping People Change*, The Guilford Press; 3rd edition. A great summary of the approach is available here: [Chapter 3 – Motivational Interviewing as a Counseling Style](#).

2. **Use easily understood emotional metaphors, visual language, accessible arguments.** Rather than trespassing upon areas of expertise of other disciplines and instigating resistance or unnecessary conflicts, we **apply “deliberate naivety”** and ask others how to reconcile apparent contradictions.
3. **Never stray from clear science**, , and engage with actual users who depend on reliable results (such as national government agencies) for doing scientific reviews, since they are more meaningful than peer reviews by academic journals. Part of this strategy includes building FoDaFo – a neutral provider of basic Ecological Footprint results.
4. **Consistency and repetition produce results.** Stick to clear branding and careful choice of words (as discussed above). The clean narrative and avoidance of misconceptions and category errors is key as well (such as even-handed tone, no “should”, no labels like “developing countries”, no apocalyptic pictures, descriptive language, invitational rather than commanding language, focus on avoiding noble and emphasizing “skin in the game.” Persist with message and delivery to become known and trusted.
5. **Learn from constant feedback**, whether from peers or by looking at the communication and analytical numbers of media and social media uptake (where is the resonance?)
6. Unleash the power of information by always ensuring all **three conditions** are met:
 - a. scientific robustness,
 - b. high relevance of public topics
 - c. delivery of information is empowering for the audience.
7. **Work systematically to broaden and widen the engagement pyramid** with:
 - a. Large scale engagement with billions of media impressions (Earth Overshoot Day)
 - b. Interactive engagement with millions (calculator and social media ecosystem)
 - c. Applications with ever more visionary leaders (cities, companies)
8. Pay keen attention to the **psychological landscape**: how does a message land, and how does it leave the audience? Explore the psychological experiences of our audience. Communication has to address the question, “how can we make the audience’s life more wonderful?” This highlights the significance of inviting and empowering messages.
9. **Give clear guidance regarding next steps.** This is particularly important for business and project engagement (see attached lessons from Corinne Hansson).

c) Persistent challenges still requiring sharpened communication and more effective responses

We continue to be challenged by issues we have not been able to resolve yet. Communication remains an active area of discovery of trial and error. Below are a few communication challenges that we have experienced:

- **Overshoot** is well understood by primary school students through Earth Overshoot Day, but largely ignored by academia and the policy communities.
- **Self-interest**, the most powerful motivator for action, is still considered to be unclean by many potential allies. Our reaction has been to use related concepts to make the case more accessible, such as “moving from noble to necessary” or “engendering a sense of ‘skin in the game’.”
- Given the prominence of sustainability, our communication inevitably reaches people who have **preconceived notions**, rather than being uninformed. Since it is harder to unlearn than to learn, and since the sustainability topic has been perceived by most as a moralizing item, the question becomes: How do we break through preconceived notions?
- **The inevitable future.** There is no other possible future than a regenerative one. That is also at the core of the climate problem – acting too slowly will destroy a good portion of the planet’s regenerative budget. Meaningfully responding to the climate challenge does need to consider biocapacity. (see appendix on the advantage of a biological approach)
- **Reduction?** While humanity’s material metabolism has to be reduced, leading with the “reduction argument” backfires. Our communication director Ronna Kelly came up with an opening that inspires far more (even though in essence it means exactly the same): “Move The Date” of Earth Overshoot Day. This way of framing planetary limits and overshoot promises more: more resource security for all, a better future, and hope that it is possible to be safe. It also invokes the need for collective results: my reducing my footprint as society’s footprint increases does not produce a better future. It only generates frustration for myself, leaving me cynical. Still, we recognize that this issue of limits, and how to communicate them, it is still an area we have not fully mastered. This is made evident by US media continuing to shy away from Earth Overshoot Day.
- There is a **Footprint proliferation**: after we introduced the ecological footprint, it started to inspire others to develop water, material, nitrogen, biodiversity, etc. Footprint. Some of those confuse the narrative – adding to the noble argument (the “responsibility-based” approaches) or fragmenting the conversation. How do we communicate in the Footprint proliferation space to succeed with our goal to shift the narrative?
- **Novelty versus consistency and relevance.** Academia, including publications and academic advancement, seem to be driven more by novelty than robustness and relevance. The Footprint has aged, and newer approaches get preference, even if scientifically weaker.¹⁹ This means we should begin emphasizing the novelties while

¹⁹ Examples include: proliferation of multi-dimensional indices, poorly defined concepts such as “circular economy,” or UN’s focus on “material Footprints” even though material Footprints cannot be compared to a “regenerative” or sustainable rate (a part from setting an arbitrary level), the same amount of material has vastly

also building stronger ties with the academic community, as we have through the FoDaFo venture.

- **Facing criticism.** We engage with [criticism](#) in a way that leads to rational debate. Often criticism is taken at face value, while our results are questioned because “criticism exists”. How we should deal with criticism fairly and constructively so it becomes a forward-looking, meaningful debate is still a challenge to crack. The reality is that many mainstream organizations are fearful of the Ecological Footprint results as they question mainstream policies.
- **Plurality of audiences.** Here is the psychological model we are operating from: you can be either a leader or a follower. The latter mode’s dominant psychology is wanting to be accepted. This means giving them a sense that sustainability action is the norm, and participating gives them acceptance. Those in leading mode (and these are who we want to engage first and whose opinions we want to shift) need to recognize that what they want is consistent with what the world needs (we need to demonstrate to them that they have skin in the game) and then fight for what they want (which happens to be what the world needs). How do we make sure we speak in ways that resonates with all the critical audiences?
- **Learning from COVID.** Initially, our discussions focused on how COVID insights and shifts in perspectives could accelerate the sustainability transformation. There are many parallels, even though COVID has far shorter time-delays than climate and resources, and the personal threat is more direct and specific. With COVID, we are now learning how challenging the public psychology is, including disturbing phenomena like resisting wearing masks as a way to protest against COVID lockdown restrictions (even though not wearing masks increases the likelihood of lockdowns). Still, one common insight from COVID is the importance of protecting oneself in order to protect society. The same rationale should be applied to the sustainability transformation.

different impact, and there is some arbitrary choice about which material flows to include and which ones to exclude.

3. What's next

We have a clear vision and mission – and a long way to go. Currently, we believe that the most critical part of our work is becoming more effective at generating “skin in the game”. Luckily, we can draw on many lessons and experiences – and clearly, we need to experiment and learn much more to fully live up to our mission.

Related documents

- [Current Theory of Change](#) (2020 by Laurel Hanscom)
- [Driving Impact \(Gooal!\)](#) (by Mathis Wackernagel)
- [Three Paradigms](#) (by Mathis Wackernagel)
- [From noble to necessary](#) (by Mathis Wackernagel)
- [Exploring a Better Approach](#) (summary of Global Footprint Network communication philosophy)