

2050 Foundation

Learnings 2018-2020

Contents

| | |
|--|-----------|
| Preface | 3 |
| Projects 2018 - 2020 | 5 |
| CO2 Offsets | 5 |
| Guide for Funders to Assess and Value Impact | 6 |
| Plant Based Food: Proveg | 7 |
| CO2 Labelling: Eaternity | 8 |
| Nuclear Energy | 9 |
| Effective Altruism | 10 |
| Impact of Impact Investing | 11 |
| Lessons Learned | 13 |

Version History

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|---------|------------------|--|
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Preface

2050 Foundation started in 2018 with the objective to contribute to a better world for our (grand)children in the year 2050. In our vision, this should be a world where we no longer cannibalize upon our natural resources and that has equality of opportunity for all children around the world.

We pursued this objective with an open mind, seeking opportunities that could generate an outsized impact according to the principles of [effective altruism](#). Guided, coached and inspired by [Effective Giving](#) we were determined not to be guided by our emotions alone. Although the capital Cora and I have pledged to the foundation is substantial, seven million euro is negligible compared to the enormous scope of the problems at hand. We must be extremely smart and strategic to make an impact that lasts for generations.

Early in the process Cora and I realised that our money would go a lot further if we combined our money with our personal involvement. By being transparent about our decision to contribute to society instead of building generational wealth¹ we can influence other wealth owners to make a similarly bold decision. We joined [Founders Pledge](#) and went public in several media outlets about the size and destination of our capital. Moreover, our entrepreneurial and professional background can complement the financial capital with human capital as well. Although we acknowledge that this may be biased as a result of (entrepreneurial) overconfidence, we believe that we have something valuable to add in addition to our capital.

More recently we also changed our funding strategy. The next ten years may be our final opportunity to avoid catastrophic climate change. Instead of only reserving the returns on our endowment for philanthropic interventions, we decided to downspend the endowment at a higher speed. This reflects our belief that climate interventions today are worth much more than interventions in twenty years from now.

Our objective to maximize our impact turns out to be a complex and at times frustrating matter. It is easy to *believe* that a plant-based diet is a highly effective intervention to mitigate CO2 emissions, but this belief is highly dependent upon your *assumptions* regarding the tractability of consumer behavior. Similarly it is easy to believe that (contemporary) nuclear energy is an important and necessary part of the energy mix, but this belief is grounded in your *worldview* that the risk of nuclear radiation is less important than the challenges induced by an energy mix powered by renewable energy sources alone such as solar and wind (i.e. technological uncertainties regarding storage, extreme land-use requirements and the intermittency of delivery).

¹ Generational wealth refers to any kind of asset that families pass down to their children or grandchildren, whether in the form of cash, investment funds, stocks and bonds, properties or even entire companies.

We noticed that in the absence of a common set of data and commonly shared quantitative models, the application of effective altruism to climate change interventions becomes a fairly intransparent and subjective exercise. By selectively choosing your data and assumptions, there are many interventions that you can claim to be “highly effective”. In the absence of a common framework for presenting the multidimensional impact of interventions, each intervention lives in its own parallel reality and comparing interventions remains a daunting task. In short: without this data and quantitative model, choosing the most effective interventions is impossible.

After several projects and pivots as outlined below, the frustration with respect to impact quantification remained the common denominator. This is where we believe that 2050 Foundation can make an outsized impact: if we can contribute to research and support others to make better decisions on spending their private, public or philanthropic capital to prevent climate change, we are likely to move a lot more money to effective interventions than by focussing on our own endowment alone.

This document provides an overview of the projects and findings during the startup phase of 2050 Foundation. Its vision and strategy for the foundation to move forward will be shared separately.

We would like to thank Kellie Liket, Vera Schölmerich and Robert Boogaard of [Effective Giving](#) for their contribution to align our thinking with the principles of effective altruism. John Halstead of [Founders Pledge](#) has been a fruitful sparring partner on several topics regarding climate change. Adrian de Groot Ruiz and Michel Scholte of the [Impact Institute](#) have been very inspirational and have shared a lot of knowledge and insights regarding impact quantification. The relentless efforts of all of you to contribute to a better world is setting an example for living a worthy and fulfilling life.

Our gratitude goes out to our fellow board members of 2050 Foundation: Martijn van der Kroon and Stan van Wingerden. Your input and support has been invaluable.

Bloemendaal, December 2020

Cora Naus-Kaag
Founders 2050 Foundation

Martijn Kaag

Projects 2018 - 2020

2050 Foundation has been run as a lean startup. We have engaged in several projects to learn how 2050 Foundation is best positioned to have an outsized impact on the world. We have invested mostly time, and our financial contributions have been limited to less than 100k euro.

This report describes the projects we have been working on and the learnings per project.

CO2 Offsets

Carbon offsetting is "hot" and is becoming increasingly important in reaching the climate aspirations of consumers, companies, countries and industries. Some of the world's largest polluters, including Shell and the aviation industry, even use carbon offsetting to promote the "climate neutral" use of fossil fuels.

Many authors and organizations have already challenged the additionality of most land-based offset methods. More often than not, the CO2 extracted from the air through offsetting is less than projected, and the extractions would have happened anyway without offsets. But even if offsets do match the emissions, many land-based offset methods still increase the future costs of climate change mitigation because the total supply of cheap offset methods is limited. This argument is further explained in the [attachment](#).

The 2050 Foundation believes these false claims of "climate neutrality" are extremely harmful. Policy makers are being steered into the wrong direction, and the general public is misinformed on the impact of some of the most polluting industries.

Our hypothesis is that true, long term carbon- and climate neutrality requires investments of around 250 euro per tonne CO2 emitted from fossil fuels. This would extract more CO2 from the air in the short term, but this is required to accomplish neutrality in the long term. The line argument can be found [here](#).

We identified the possibility of outsized returns as follows. Shell, as an example, currently pays only around 3 euro per tonne CO2 and has thus far sold CO2 neutrality to end users for at least 80,000 tonnes of CO2 in the Netherlands. If it can be proved, in court, that this claim to customers of climate neutrality to end users is false, Shell should be required to pay the difference of around 200 million euro (247 euro times 80,000 tonnes of CO2) for additional nature preservation and reforestation. A similar line of argument can be made for CO2 neutrality sold by KLM (800 million) and many other private organisations. We estimate legal costs to be around 250k up to one million euros, leading to a multiplier of at least 1000x on our investment for historic CO2 emissions alone. If we apply the same

argument to future CO2 offsets in aviation and oil and gas sectors (in areas where successful litigation is possible) this intervention could direct up to 2 trillion euro to nature based solutions for the period up to 2030.

Success in this project is far from certain. We would face legal adversaries who's legal budgets far exceed ours. Moreover, as soon as 2050 Foundation engages in legal battles, we would no longer be independent and this would harm our cooperation with the words most influential and most polluting industries. This direction would therefore restrict our ability to be successful in many other areas.

Instead of being the plaintiff ourselves, 2050 Foundation will focus its efforts on building the research and argument required to be successful in a legal proceeding. As such, we will remain independent and we will make (scientific) contributions to the world's understanding of the short and long term effects of (nature based) CO2 compensation.

2050 Foundation has invested a substantial amount of time and energy in this project, and we aspire to contribute more in the upcoming years. One important observation is that the 0,4 FTE we have reserved for this project is insufficient to get us moving on this matter. For the upcoming years, we intend to increase our research capacity as part of our Climate Metrics and Climate Models effort. CO2 compensation will have a specific focus and we intend to scientifically validate our hypothesis on the long-term counterfactual impact of land-based CO2 offsetting.

For 2050 Foundation, this project has provided us important insight regarding impact quantification. Compensating fossil fuel emissions through planting trees on a tonne for tonne basis sounds fair as atmospheric CO2 concentrations remain more or less constant over the short and medium term. But if you incorporate the land-use requirements, and observe that the amount of land is already under stress, you arrive at a completely different conclusion.

Guide for Funders to Assess and Value Impact

Maximising our impact requires that we pick the most impactful interventions. Also, we should be able to look at total impact over time on a portfolio level: philanthropy may have a higher impact today, but the returns from (impact) investment may be used to generate impact (again) after the investment period. Although existing frameworks can be suitable for comparing similar projects within a specific cause area, they often fail to express impact in a language that enables comparison over time between (impact) investments, philanthropic interventions and other (traditional) assets. We believe that this common language is of fundamental importance to solving the most pressing issues of our time with the scarce resources at our disposal.

In cooperation with ACEE BV Investments (Nancy de Ruiten), PCG Investments / Jazi Foundation (Robert Boogaard) and Kellie Liket we set out on a journey to contribute to solving this challenge. We were lucky to be able to onboard Impact Institute as an advisor, and we supported the development of this the Guide for Funders to Assess and Value Impact.

Download:

<https://www.impactinstitute.com/guide-for-funders-to-assess-and-value-impact/>

The expected impact of this guide is to contribute to the common language and understanding required to express impact over various asset categories. The application of the guide is labour intensive and requires expert knowledge. As such, we expect that the guide will only be applied by large donors, impact investors and impact funds to quantify their impact decisions.

Software will need to be developed to make the procedures and datasource presented in this guide accessible for a larger audience. The guide provides a perfect blueprint to develop such software.

For 2050 Foundation, participation in this project has been fundamental to understanding (the complexities associated with) the quantification of impact. Moreover it has helped us to understand where 2050 Foundation can make a substantial impact in this space.

Plant Based Food: Proveg

Meat is consistently identified as the single food with the greatest impact on the environment, most often in terms of GHG emissions and/or land use per unit commodity². ProVeg is an international food awareness organisation working to transform the global food system by replacing conventional animal-based products with plant-based and cultured alternatives. 2050 Foundation was introduced to ProVeg by [Effective Giving](#).

We have supported further development of the [Proveg Veggie Challenge](#) with a one time donation of €30,000. In cooperation with another funder, this provided Proveg with the startup capital required to further develop their system. We believe that with this donation, 2050 Foundation can be attributed up to 25% of the total project impact as described below.

In contrast with the other projects, we have specific and verified data on the expected impact of this project. This is an exception to the rule that it is very difficult to quantify the impact on projects that you have sourced without the support of expert reviewers.

² <https://www.ipcc.ch/site/assets/uploads/sites/4/2020/02/SRCCL-Chapter-5.pdf>

The expected impact of this project is that over 2600 participants will adopt a plant-based diet, and that an additional 1300 participants will become vegetarian. This should result in the saving of almost 1,000,000 animal lives. The associated CO2 reduction from this intervention is 27500 tonne CO2e, and land-use should be reduced by over 250 hectare. Additionally, the Veggie Challenge can be used as a fundraising tool, which could yield a substantial increase in income for the ProVeg foundation.

For 2050 Foundation, this was the first substantial contribution to an external project. As such, it also served as a learning experience. How does it feel to donate to a project outside your control? Do we have the adequate capabilities to select the right charities to donate to? Do we feel we can make a difference?

In general this was a rewarding experience and we appreciated the interaction with the team of ProVeg. We also believe that this donation has the potential to offer substantial direct impact (through reduced meat consumption) and substantial leverage (through additional donations through the platform).

From an effectiveness perspective however, we feel that we could accomplish a similar impact with significantly less overhead by donating to one of the charities or funds recommended by [Founders Pledge](#), [GiveWell](#) or [Animal Charity Evaluators](#). Like many other foundations, 2050 Foundation lacks the scale and expertise to select the most effective charities. This donation could have been a good “bet”, but for future donations we intend to rely on the expertise of external evaluators.

CO2 Labelling: Eaternity

Since its inception, 2050 Foundation has been looking at the environmental labelling of consumer products, specifically food. Our hypothesis is that availability and transparency of the the environmental footprint of (food) products would incentivise consumers, retailers and producers to choose less destructive products and production methods. Moreover, NGOs and governments should be able to formulate more impactful policy and interventions.

2050 Foundation had intensive talks with [Evocco](#), [Questionmark Foundation](#), [TruePrice](#) , [Eaternity](#) and we have reviewed several others. We have discussed (impact) investments, cooperation and donations. One observation has been that many actors in this space rely on a proprietary database of impacts, and that this database drives their business model. 2050 Foundation believes that impact data should ideally be available as open source and free of charge, and that competition between various (closed source) databases does not benefit society as a whole. As such, we refrained from investing in either of these companies directly, but instead looked for opportunities to support the sector to make their data available as open source.

In cooperation with the Question Mark Foundation, we envisioned a project to expand their existing (open source) product database (for goods sold in the Dutch supermarkets) with CO2 footprinting. Questionmark tried this before, but this effort failed due to the high costs of executing the LCA (Life Cycle Assessments) of the individual products. Eaternity, a swiss based social enterprise, claims to be able to reliably calculate the CO2 footprint of food products for 3 to 10 euro per product.

2050 Foundation funded a project to assess the reliability of the Eaternity method. The results will be made publically available, and any detected shortcomings will be used to improve their model. 2050 Foundation has contributed 50% of the project budget of 25,000 euro. The other half has been funded by stichting Goeie Grutten.

The expected impact of this project is that the claim of Eaternity can be verified independently. If their claim is correct, an open source database with the CO2 footprints off the vast majority of the Dutch food consumption can be realized for less than 1 million euro (excluding maintenance costs). This would be a game changer! Among other things this would allow all supermarkets to report the CO2 footprint to their customers, and it would take away a major hurdle for CO2 taxing on food.

For 2050 Foundation this project helped to understand the world of Life Cycle Analysis and environmental impact quantification. And like the proveg donation, this served as an exercise for external donations.

Nuclear Energy

Founders Pledge has identified nuclear power as a [highly neglected and promising intervention](#) in our energy mix. 2050 Foundation has interacted with various stakeholders to identify if we could fulfill a role in the adoption of nuclear energy in the Netherlands.

We have observed that the landscape of the energy transition in the Netherlands is very polarized, especially with respect to nuclear energy. The advocates of nuclear energy point at the high (technical) uncertainties around the renewables, as well as the high costs in terms of land-use and materials that are required for the infrastructure of solar and wind. The opponents of nuclear energy dismiss nuclear energy because there is a risk of radiation and nuclear proliferation.

A recent [hearing](#) at the house of representatives confirmed this observation. None of the speakers provided a complete picture, nor did they illustratie the political tradeoffs and risks that are involved in the energy transition. Both sides selectively choose their assumptions and impact. Among other things the advocates point out the land-use requirements of sun and wind, whereas the opponents present risk nuclear radiation. Each party has their own set of assumptions and a specific worldview. In this dialog, the (political) trade-offs that need to be made remain hidden.

2050 Foundation may be able to contribute to this dialog. Not as an advocate or opponent for either technology, but by presenting all impacts and data in an independent manner. We believe that the assumptions and worldviews behind a policy recommendation should be transparent and based on science.

Moreover, policy advice should not only be static, but should incorporate the fact that there are many uncertainties. Now opponents of nuclear energy are comparing the “best case” scenario for one policy (100% reliable energy from renewable sources) to the “worst case” scenario of another policy (nuclear meltdown). And vice versa: advocates of nuclear energy compare the best case scenario of nuclear energy (100% safe energy from nuclear with a negligible amount of waste) to the “worst case” scenario of renewables (no technological innovations in storage and continued use of fossil fuels for decades to come). Instead, policy should be based on maximizing the expected value, taking into account the uncertainties that are present in each policy.

By making this contribution to the (Dutch) energy transition, 2050 Foundation may be able to support a debate on climate mitigation based on facts instead of emotions. We may provide political parties from all ends of the spectrum with a model and fact database that allows them to formulate an informed viewpoint that is based on their personal assumptions and viewpoint. This contribution may shift some advocates to become opponents and vice versa: 2050 Foundation does not pick a side. We just want a climate policy that leaves our children with a world worth inheriting.

Effective Altruism

2050 Foundation was introduced to [Effective Altruism](#) by [Effective Giving](#). We fully embrace the objective of impact maximization: how do we get the biggest bang for our buck. Because the world's challenges are vast, and the (philanthropic) resources are limited, we simply cannot afford to fund suboptimal interventions.

Putting effective altruism in practice, however, is time consuming, complex and at times frustrating. It is easy to believe the intervention you feel good about is also most effective, but it's infinitely harder to prove this in an objective manner. Unless you dedicate an entire research team for impact evaluation, the only practical way to practice effective altruism is to follow recommendations by organisations such as GiveWell, Founders Pledge and Effective Giving.

To deal with this complexity, the INT Framework is often used as an heuristic. Instead of explicitly calculating the expected value or cost effectiveness, the INT framework allows you to evaluate an intervention on several (comprehensive) dimensions. Its application is relatively cheap and much more comprehensive for the average funder than an expected value calculation. Although these dimensions are indeed important indicators of potentially

outsized impact, the framework is also [flawed](#) and does not necessarily maximize expected value.

Moreover, it is also quite susceptible to subjectivity. Take, for example, the neglectedness dimension. It has been [argued](#) that plant-based food is not neglected because there have been investments in this space up to 200 millions. On the other hand: it is [argued](#) that R&D investments are neglected because there is “only 22 billion” in investments in this space. Neglectedness and the other dimensions have no uniform definition, and it becomes relatively easy to make an argument that your chosen intervention aligns with the principles of effective altruism.

2050 Foundation believes that the effective altruism community could greatly benefit from a shared resource for data points and uniform calculation models for climate interventions. This is further elaborated on in our plan for 2021 - 2025.

Impact of Impact Investing

2050 Foundation has spent quite some time in investigating the impact of impact investing. In our initial theory of change, impact investing was a fundamental part of the impact we intended to make on society. This turned out to be harder than expected.

Our research revealed some simple heuristics that can be applied to investing in line with the principles of effective altruism (“getting the biggest bang/impact for your buck”). An important observation has been that 2050 Foundation, as a potentially concessionary investor (e.g. we are willing to lose money and/or accept below market rate returns) we should refrain from investing if other, less concessionary, investors are willing to make the investment as well. In these cases our involvement is unlikely to create a counterfactual impact unless our investment is needed to convince others to join (in this case we are catalysing other funds).

This observation has some serious implications: investing in public stock markets (e.g. through ESG (Environmental, Social, and Governance) funds or by buying stock of companies that we believe to be impactful) only has a limited impact. This does not mean that ESG classifications are useless: quite the contrary. The amount of capital that is currently deployed using ESG decisions (around 40 trillion dollar worldwide) is an important consideration for listed companies to improve their ESG practices. The demand for ESG stocks improves the access to capital for companies that perform well on ESG listings. This practice should therefore be considered to be a serious driver for change. If you must invest in public markets, please apply ESG screenings (and divest polluting industries), but understand there is more impact to be made elsewhere.

The highest impact is likely to be made through investments in early stage non-listed companies, either through direct investments or through private equity (impact) funds. In

areas where risks are high and liquidity is low you are more likely to fund change that would not have happened otherwise.

Taking this reasoning forward, on a dollar per dollar basis, (effective) philanthropy is most unlikely to happen without our funds. Because of the urgency of the climate crisis, 2050 Foundation has decided to focus more on philanthropy. We believe that climate interventions today are likely to be much cheaper than climate interventions in 20 years. Moreover, as the effects of climate change is becoming more apparent over the years, climate funding is expected to increase (e.g. less neglected) in a couple of years from now. This is another argument why we believe our climate interventions are more likely to be effective today. For this reason we have decided to downspend the endowment at a higher speed.

Learnings 2018 - 2020

We would like to share the following lessons learned with other investors and philanthropists.

1. Impact quantification remains a major challenge. It is costly, complex, non-uniform and (therefore) often more subjective than you'd like. This status quo is likely to decrease the effectiveness of billions in philanthropic and public spending. Funding that makes impact quantification easier and less expensive for other investors and funders is likely to have a multiplier effect.
2. For foundations without a dedicated research team, it is more effective to fund charities recommended by organisations like Founders Pledge, GiveWell and Effective Giving than to screen effective charities yourself. On your own you are unlikely to find the most effective charities (but because of the previous point, you are likely to argue that your own selection is the most effective indeed!).
3. For climate interventions, we would recommend asset holders who can afford it to downspend at a higher speed, because climate interventions today are likely to be cheaper and more neglected than interventions 20 years from now.
4. Impact investing is most effective if applied to early-stage non-listed companies that are unlikely to be funded by less concessionary investors. Investing in public listed ESG stock is better than not applying any screening at all, but there is much more impact to be found elsewhere.

Specifically for 2050 Foundation and its founders, we believe that the following applies.

5. 2050 Foundation believes that it can be more effective if she limits her scope to climate change mitigation and impact quantification,
6. 2050 Foundation believes it can play an important role in making impact quantification more accessible. She can do this through the funding of research, science and data sharing.
7. 2050 Foundation believes it can be most effective if she remains impartial. Instead of becoming an advocate for a certain technology or solution, we believe we can contribute most to climate change mitigation if we can provide an independent overview of all impacts and uncertainties associated with specific interventions.
8. The founders believe that their personal involvement with their donation is very likely to create a much higher impact. Although we acknowledge that this may be biased as a result

of entrepreneurial overconfidence, we will proceed with this assumption and will set up a new organization through which we can create our change.

With these learnings, 2050 Foundation is ready to move to the next phase.