INSIGHTS REPORT

Bioregional Weaving Labs

A collective strategy for unlocking nature's potential to reverse climate change and stop biodiversity loss

March 2022

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INTRODUCTION

This report is the result of extensive research, initiated by the Bioregional Weaving Labs (BWL) Collective, a growing coalition of 25+ system changing social innovators that are building bridges to address the urgent climate and biodiversity crises. We are not just collaborating, but we are weaving our teams and resources together to form a single team of teams with a shared vision and mission.

Weaving is the practice of interconnecting people, projects and places to each other and to a shared purpose; fostering collaborations for systemic impact; facilitating collective learning; and embodying the change we wish to see. Together we developed the concept of Bioregional Weaving Labs.

Among us are partners with decades of experience like **Ashoka**, the largest global network of system changing social entrepreneurs; **Commonland**, a well-known enabler of large-scale landscape restoration across the world; **Presencing Institute**, a renowned global action research community that applies Theory U to societal transformation; and **Drawdown Europe Research Association (DERA)**, building on the acclaimed Project Drawdown model and framework to guide and facilitate science-based climate action.

Together, our organisations are leading large scale landscape restoration projects around the globe, initiated and led by hundreds of impactful socio-environmental entrepreneurs, supported by scientists from all over the world, and engaging with thousands of people and communities who are shifting the social field from ego-system to eco-system awareness. These projects show us the potential of solutions that are designed to help people and planet thrive together; what we call **Nature-based Solutions (NbS)**.

We believe NbS are key to create transformative change; nature is offering us solutions to reverse climate change and biodiversity loss, while ensuring a just transition to a regenerative world where all beings can thrive. Since we know from our own experience what impact community driven NbS can make, we wanted to understand in depth **why it is taking decades for NbS to be implemented at scale**.

What our research has made clear is that, too often, the stakeholders involved in NbS work in fragmented silos, put ego before eco, and are not ensuring that transformation processes are truly inclusive and well governed. In addition, women, youth, minority groups, and vulnerable communities are among the most affected by climate change and biodiversity loss, but their voices are usually not well represented in the design and implementation of NbS. Therefore, we must move away from traditional leadership towards collective eco-system leadership, and to cocreate inclusive, holistic, and integrated approaches instead of fragmented ones. Above all, we must become aware of our interconnectedness with each other and with the planet and aim for **collective impact**.

In Ashoka's recently published and latest global Ashoka Fellow study 'The Unlonely Planet (2022)' we see the pattern of the world's leading social entrepreneurs finding effective strategies to help everyone become changemakers. As Diana Wells, President Emerita of Ashoka, summarises, "the prosperity of society hinges on our ability to operate as a global community that builds better outcomes for all. The pandemic has forced us to reckon with the truth—our ability to survive and thrive as individuals is interconnected to others' ability to do the same. The future depends on our ability to prepare ourselves and one another to be changemakers in daily life."

Fortunately, there is a growing movement of people and organisations that are embracing this vision. Our coalition partners are at the forefront of this movement, and we are now providing **a practical strategy for organising collective approaches** that enhance the spread of NbS around the world.

This report presents our analysis of the systemic barriers that prevent just, inclusive, and participatory NbS from mainstreaming. This analysis forms the basis for a strategy how to collectively organise for systemic change, to create enabling conditions for NbS to spread faster and catalyse a widespread transition to a **regenerative future**.

HOW TO READ THIS REPORT

In **Part 1** of this report, we are first reviewing the state of the world to understand exactly how we are crossing planetary boundaries, and what are the main drivers behind it. We conclude with a number of corner stones for our collective intervention, and explain what expertise the BWL Collective is weaving together for collective impact.

In **Part 2** we explore the concept of Nature-based Solutions (NbS) and analyse the systemic barriers that prevent them from mainstreaming.

In **Part 3** we dive deeper into the work of the socio-environmental entrepreneurs of our BWL Collective, to explore the role of social innovation in ensuring a rights-based, inclusive, and participatory design and implementation of NbS. We also analyse how their approaches are contributing to shape a new regenerative, economic architecture.

In **part 4**, we present our collective strategy to organise for collective impact via 'Bioregional Weaving Labs', to remove systemic barriers and ensure NbS can be implemented on a large scale, at speed.

Annex, we provide a glossary of terms and a broader explanation of each of the researched NbS models.

Photo by Gabriel Jimenez on Unsplash

PART 1

A NEW APPROACH IS ESSENTIAL

1. THE STATE OF THE WORLD

"*With humanity facing a 'triple environmental emergency' of biodiversity loss, climate disruption and escalating pollution, now is the time to act. We are reaching the point of no return for the planet; we are ravaging the very ecosystems that underpin our societies, and in doing so, we risk depriving ourselves of the food, water and resources we need to survive*."

Secretary-General António Guterres, launching the United Nations decade on Ecosystem Restoration 2021-2030; the timeline identified by scientists as humanity's last chance to prevent catastrophic climate change.

1.1 A POINT OF NO RETURN

The past three centuries comprise the single greatest leap in human technological advancement in history. The industrial revolution has brought an unparalleled, but unequal and unsustainable development, that has come at a huge cost. Greenhouse gas emissions are warming the planet, changing climate patterns, melting polar caps, and rising sea levels at an alarming rate. Current large scale agricultural practises and overexploitation of the oceans have subdued ecosystems worldwide and are decimating the biodiversity on which all life on Earth depends. Mainstream economic models have produced immense wealth for few at the expense of many, deepening societal rifts.

Humanity's ecological footprint exceeds by nearly two thirds the Earth's biocapacity, because of our current production and consumption patterns. This equates to a yearly consumption of 1.7 planets' worth of resources to meet current demand[1]. On present trajectories, by 2050 this value will stand at approximately 3 Planet Earths[2].

In 2020, for the first time in history, all major long-term risks for human society were environmental in nature[3]. The WEF report stresses that extreme weather, climate action failure, natural disasters, biodiversity loss and human-made environmental disasters together dominated the concerns of the world leaders and decision-makers.

The Covid-19 pandemic points to a direct link between the zoonotic disease outbreaks and two main factors: the destruction of nature[4] and commercial wildlife trade[5]. Therefore, scientists are calling the governments to help reduce the risk of future pandemics by preserving biodiversity, controlling deforestation, and regulating the wildlife trade, which involves the sale and consumption of wild animals that can host dangerous pathogens[6].

The pandemic further showed us that when human activity decreases, nature and biodiversity can renew, heal itself and blossom again.Instead of embracing this incredible power of nature to regenerate, we are dominating over nature which is becoming the greatest threat to our existence. The Planetary Boundaries framework shows us why we seem to have arrived at a point of no return and to underline the urgency and importance of acting now.

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[1] Global Footprint Network (2021) Ecological Footprint. (Online) Available at: https://www.footprintnetwork.org/our-work/ecological-footprint/ (Accessed on August 25th, 2021)

[2] European Commission. (May, 2020). Circular Economy Action Plan. For a Cleaner and More Competitive Europe. Luxembourg: Publications Office of the European Union. (online) Available at: https://op.europa.eu/en/publication-detail/-/publication/45cc30f6-cd57-11ea-adf7-01aa75ed71a1/language-en/format-PDF/source-170854112 (Accessed on August 19th, 2021)

[3] Franco, E. G. et al. (2020) The Global Risks Report 2020 – 15th Edition. World Economic Forum (2020) Available at: https://www.weforum.org/reports/the-global-risks-report-2020 (Accessed on September 6th, 2021)

[4] Conservation International (2021). Impact of Coronavirus on Nature. (Online) Available at: https://www.conservation.org/stories/impact-of-covid-19-on-nature (Accessed on October 11th, 2021)

[5] Keatts, L. O. et. al. (2021). Implications of Zoonoses From Hunting and Use of Wildlife in North American Arctic and

1.2 CROSSING THE PLANETARY BOUNDARIES

In 2009, Johan Rockström and a group of internationally renowned scientists identified nine processes that regulate the stability and resilience of the Earth system. They proposed quantitative planetary boundaries within which humanity can continue to develop and thrive for generations to come. Crossing these boundaries increases the risk of generating large-scale abrupt or irreversible environmental changes.[7] On a global scale, 4 out of the identified 9 processes are already crossing critical boundaries: two processes have already been pushed out of their respective safe operating spaces, namely, the ones relating to climate change and land-system change, and two have crossed the threshold into the high-risk zone; the biogeochemical flows (comprising phosphorus and nitrogen cycles) and the biosphere integrity (comprising genetic and functional diversity).[8]

Climate Change
According to the last report by the Intergovernmental Panel on Climate Change (IPCC) published in 2021, increasing global greenhouse gas concentrations in the atmosphere are unequivocally a result of human activity, with CO2 concentrations at a 2 million years high. Global sea levels have risen 0.20m since 1901 and the oceans have acidified. Climate zones have shifted poleward in both hemispheres, hot extremes have increased in both frequency and intensity, as have instances of heavy precipitation (instances during which the amount of rain or snow experienced in a location substantially exceeds what is normal), increasing the risk of catastrophic heatwaves, droughts, and floods.[9] The climate change boundary has far been exceeded and current trends place us on a track of high risk, whereby more extreme negative effects of climate change will be experienced worldwide, in all likelihood this century.[10]

Land System Change
The changes in land systems often characterised by converting forests, grasslands and wetlands into croplands, have dramatic biophysical and biogeochemical repercussions, leading to shifts in surface temperatures, increased instances of heavy precipitation and evapotranspiration (the sum of water evaporation and transpiration from a surface area to the atmosphere) resulting in the release of previously stored CO2, consequently contributing to regional and global warming.[11] Agriculture and other extractive activities often result in overexploitation of the land and its resources, thereby degrading it.

It is estimated that worldwide 25% of all land is severely degraded, and 36% is in a moderately degraded condition.[12] Intensive use and continued mismanagement of land have depleted the soils of nutrients.[13] Presently, this is assumed to negatively impact the lives of 3.2 billion people through the loss of biodiversity and the ecosystem services it provides, equating to 10% of the world's annual GDP.[14]

Biogeochemical Flows
The green revolution of the 1960s and 1970s introduced the application of fertilisers, pesticides and irrigation creating the

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Boreal Biomes: Pandemic Potential, Monitoring, and Mitigation. Frontiers in Public Health. (Online) Available at: https://doi.org/10.3389/fpubh.2021.627654 (Accessed on November 20th, 2021)

[6] Tollefson, J. (2020). Why deforestation and extinctions make pandemics more likely. Nature. (Online) Available at: https://www.nature.com/articles/d41586-020-02341-1 (Accessed on November 20th, 2021)

[7] Stockholm Resilience Centre (2021). Planetary boundaries. (Online) Available at: https://www.stockholmresilience.org/research/planetary-boundaries.html (Accessed on November 2nd, 2021)

[8] Steffen, W. et al. (2015). Planetary boundaries: Guiding human development on a changing planet. Science, 347(6223). (Online) Available at: https://www.science.org/doi/10.1126/science.1259855 (Accessed on September 30th, 2021)

[9] IPCC (2021). Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge University Press. (Online) Available at: https://www.ipcc.ch/report/ar6/wg1/ (Accessed on September 30th, 2021)

conditions in which high-yielding modern varieties could thrive.[15] It provided the basis for a quantum leap forward in food production but did not remain without consequences. Excessive application of fertilisers, such as nitrogen and phosphorus, leads to the contamination of nearby aquatic systems, triggering eutrophication (the process by which an entire body of water, or parts of it, becomes progressively enriched with minerals and nutrients).

This process often results in hypoxic or anoxic conditions: oxygen is essential for life, but the supply in rivers and coastal waters around the world is decreasing - dropping more frequently, over larger spans of time and space. “Hypoxia” is a name for this condition when it turns critical, referring to less than 2-3 milligrams of oxygen per litre of water. With “anoxia” there is none (0 mg/L oxygen). This has disastrous consequences for the local ecosystem.[16] The effects of using fertilizers and pesticides can extend downstream from agricultural areas into marine coastal areas, creating oceanic “dead zones”, as is the case in the northern Gulf of Mexico.

Current estimates for biogeochemical cycles place these processes well beyond the safe operating space.[17] The role of industrialised agriculture can no longer be denied.

Biosphere Integrity

Biodiversity is crucial for human wellbeing. It is our ecological life support system; biodiversity provides functioning ecosystems that supply services like oxygen, clean air and water, pollination of plants, pest control, wastewater treatment and many other ecosystem services. Biodiversity provides us with the raw materials for consumption and production. Many livelihoods, such as those of farmers, fishermen and timber workers, are directly dependent on it.

However, this precious biodiversity is collapsing before our eyes. Never in human history have we witnessed such a rapid decline in the abundance of wildlife on a global scale. Currently, approximately 25% of assessed plant and animal species are threatened, indicating that 1 million species might soon be lost. Global extinction rates now stand higher than at any time over the past 10 million years.[18] The trend is ubiquitous; across geographies and communities, wildlife populations are reducing in numbers, species are losing suitable habitat, and humanity is endangering its own survival by compromising the biodiversity that sustains it.[19]

1.3 CLIMATE CHANGE: CODE RED FOR HUMANITY

The Intergovernmental Panel on Climate Change (IPCC) Report (Aug 2021)[20] warns that climate change is widespread, rapid, and intensifying, and some trends are now irreversible, at least during the present time frame. The report provides new estimates of the chances of crossing the global warming level of 1.5°C in the next decades, and finds that unless there are immediate, rapid, and large-scale reductions in greenhouse gas emissions, limiting warming to close to 1.5°C or even 2°C will be beyond reach.

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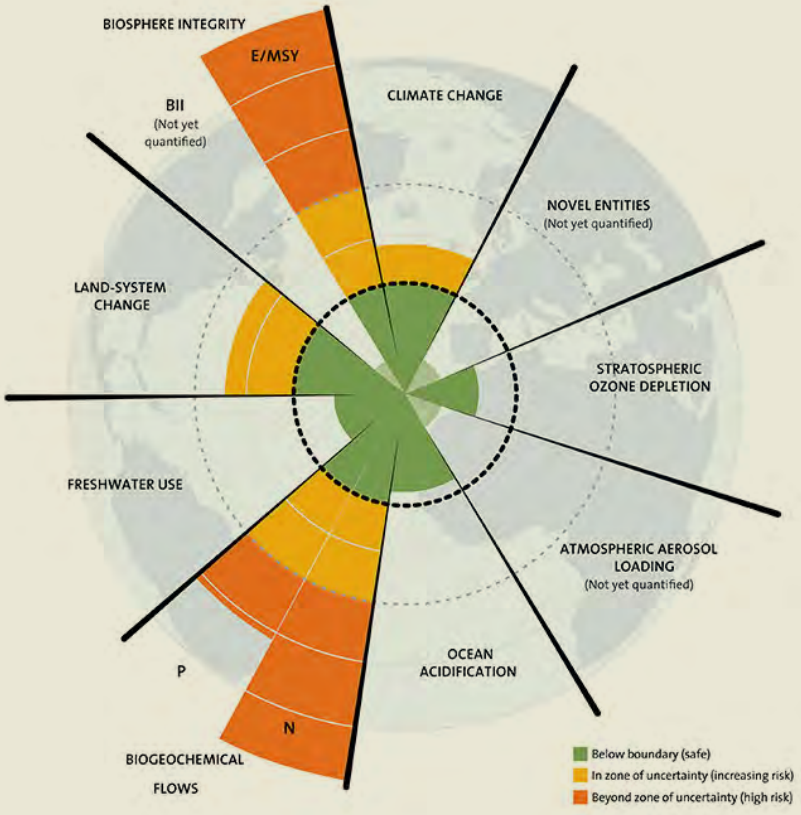
[10] Häyhä, T. et. al. (2018). Operationalizing the concept of a safe operating space at the EU level – first steps and explorations. Stockholm Resilience Centre Technical Report, prepared in collaboration with Stockholm Environment Institute (SEI) and PBL Netherlands Environmental Assessment Agency. Stockholm Resilience Centre, Stockholm University, Sweden. (Online) Available at: https://stockholmuniversity.app.box.com/s/hajg8ru0ihvxj8d5topjqp87285c4rj6 (Accessed on September 28th, 2021)

[11] Ramankutty, N., Foley, J. (1999). Estimating historical changes in global land cover: Croplands from 1700 to 1992. Global Geochemical Cycles, 13(4): 997-1027 (Online) Available at: https://agupubs.onlinelibrary.wiley.com/doi/10.1029/1999GB900046 (Accessed on September 29th, 2021)

[12] Orr, B. J., et. al. (2017). Scientific Conceptual Framework for Land Degradation Neutrality. A Report of the Science-Policy Interface. United Nations Convention to Combat Desertification (UNCCD), Bonn, Germany. (Online) Available at: https://www.unccd.int/publications/scientific-conceptual-framework-land-degradation-neutrality-report-science-policy (Accessed on September 19th, 2021)



Source: Steffen et al.2015

The report shows that emissions of greenhouse gases from human activities are responsible for approximately 1.1°C of warming since 1850-1900, and finds that averaged over the next 20 years, global temperature is expected to reach or exceed 1.5°C of warming. Climate change is already affecting every region on Earth, in multiple ways. Many characteristics of climate change directly depend on the level of global warming, but what people experience is often very different to the global average. For example, warming over land is larger than the global average, and it is more than twice as high in the Arctic. Experts warn that for cities, some aspects of climate change may be magnified, including heat, flooding from heavy precipitation events and sea level rise in coastal cities.[21]

But it is not just about temperature. Climate change is bringing multiple different changes in different regions – which will all increase with further warming. These include changes to wetness and dryness, to winds, snow and ice, coastal areas and oceans. The only way to prevent exceeding this threshold, is by urgently stepping up our efforts, and pursuing the most ambitious path.

The IPCC Special Report on Climate Change and Land gives an extent to which land use is forming a formidable wedge of contribution to emissions. Climate change is magnifying the pressures that humans are already putting on the land. But climate change is itself in part a result of the way in which humans use land, the report explains: “Conversion of natural land, and land management, are significant net contributors to greenhouse gas emission

[13] Potter, P., Ramankutty, N., Bennett, E. M., Donner, S. D. (2010). Characterizing the Spatial Patterns of Global Fertilizer Application and Manure Production. Earth Interactions, 14(2): 1-22. Available at: https://doi.org/10.1175/2009EI288.1 (Accessed on September 29th, 2021)

[14] IPBES (2018). Summary for policymakers of the assessment report on land degradation and restoration of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. IPBES secretariat, Germany: Bonn. (Online) Available at: https://research.utwente.nl/en/publications/ipbes-2018-summary-for-policymakers-of-the-assessment-report-on-l (Accessed on September 20th, 2021)

[15] Borlaug, N. (2007). Feeding a hungry world. Science. (Online) Available at: https://doi.org/10.1126/science.1151062 (Accessed on November 18th, 2021)

[16] Potter. et. al. (2010)

[17] Steffen et. al. (2015)

[18] IPBES (2019). Summary for policymakers of the global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and

(GHG) emissions and climate change, but land ecosystems are also a GHG sink."[22]

Because of the close links between unsustainable land use and climate change, solving one is made more difficult by the other. This also means that tackling one can have co-benefits – and trade-offs – for the other. This is perhaps the crux of the motivation for the report. But "none of these response options are mutually exclusive", which means it is working out how to combine them – in a "context-specific manner" – that is most likely to "achieve co-benefits between climate change mitigation, adaptation and other environmental challenges in a cost- effective way".

1.4. BIODIVERSITY LOSS: ONE MILLION SPECIES AT RISK OF EXTINCTION

The Global Assessment on Biodiversity and Ecosystem Services Report (2019)[23] by the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) warns that nature is declining globally at rates unprecedented in human history — and the rate of species extinctions is accelerating.

The Report assesses changes over the past five decades, providing a comprehensive picture of the relationship between economic development pathways and their impacts on nature. The Report also draws (for the first time ever at this scale) on indigenous and local knowledge, particularly addressing issues relevant to Indigenous Peoples and Local Communities.

If we want to halt biodiversity loss, slow the deterioration of nature, and meet biodiversity, climate, and sustainable development goals by 2030, "business as usual" will not work and will instead drive societies and economies to more risks.

While implementation of policy responses and actions to conserve and manage nature more sustainably has progressed, it has not progressed sufficiently to stem the direct and indirect drivers of nature deterioration. We need to put our societies on a transformative change through rapid and improved implementation of bold policy instruments, sustainable supply chains, and institutional innovation.

1.5 HOLISTIC APPROACH FOR PLANETARY AND HUMAN HEALTH

On June 10, 2021, the IPBES and IPCC released their first ever collaborative workshop report[24] highlighting that, not only are the climate crisis and biodiversity loss interlinked, but that we cannot address one without the other, and that work needs to centre human wellbeing. It concludes that we cannot solve climate change without solving biodiversity loss; if we ignore that they are inseparable, our solutions will not be effective.

Ecosystem Services. IPBES secretariat, Germany: Bonn. (Online) Available at: https://doi.org/10.5281/zenodo.3553458 (Accessed on September 22nd, 2021)

[19] WWF (2020). Living Planet Report 2020 - Bending the curve of biodiversity loss. WWF Switzerland: Gland. (Online) Available at: https://www.zsl.org/sites/default/files/LPR%202020%20Full%20report.pdf (Accessed on September 25th, 2021)

[20] IPCC(2021), Sixth Assessment Report, 'Climate Change 2021: The Physical Science Basis. Available at: https://www.ipcc.ch/report/ar6/wg1/

[21] UN (2021). IPCC report: 'Code red' for human driven global heating, warns UN chief. (Online) Available at: https://news.un.org/en/story/2021/08/1097362 (Accessed on January 30th, 2022)

[22] Carbon Brief (2019). In-depth Q&A: The IPCC's special report on climate change and land. (Online) Available at: https://www.carbonbrief.org/in-depth-qa-the-ipccs-special-report-on-climate-change-and-land (Accessed on January 30th, 2022)

[23] IPBES (2019)

[24] IPBES (2021). IPBES-IPCC Co-

The report acknowledges that policies have mostly addressed the climate and biodiversity crises separately. And it recommends developing new and better approaches that will look at providing a good quality of life for all. To do this effectively, solutions need to be designed and implemented in an inclusive, participatory way with local communities, so they are rooted in local needs, livelihoods, and politics.

The UN Global Environment Outlook 6 (GEO6)[25] is stressing that the window for action is closing, and to immediately focus on an integrated approach leading to not only economic prosperity, but also to human health and wellbeing. "The world is not on track to achieve the environmental dimension of the Sustainable Development Goals or other internationally agreed environmental goals by 2030; nor is it on track to deliver long-term sustainability by 2050. Urgent action and strengthened international cooperation are urgently needed to reverse those negative trends and restore planetary and human health".

The report shows that a healthy environment is both a prerequisite and a foundation for economic prosperity, human health, and wellbeing. It addresses the main challenge of the 2030 Agenda for Sustainable Development: that no one should be left behind, and that all should live healthy, fulfilling lives for the full benefit of all, for both present and future generations.

1.6 ACTIONS IN EU POLICY CONTEXT

It is especially important for people living in Europe to urgently act, given the fact that industrialised countries are currently responsible for 63 percent of the greenhouse gas emissions[26] that contribute to climate change, while developing countries suffer the worst and first effects of climate-related disasters. On a EU policy level, high ambitions are set and many plans are put in place, like: The European Green Deal[27], the Circularity Action Plan[28], the Farm to fork Strategy[29], the EU Biodiversity Strategy[30], and the EU Zero Pollution Action Plan[31].

The European Green Deal
To overcome the threatening challenges of climate change and environmental degradation, the European Green Deal aims to transform the EU into a modern, resource-efficient, and competitive economy, striving "to be the first climate-neutral continent", ensuring:
- no net emissions of greenhouse gases by 2050
- economic growth decoupled from resource use
- no person and no place left behind

One third of the 1.8 trillion euro investments from the Next Generation EU Recovery Plan[32], and the EU's seven-year budget will finance the European Green Deal. The European Commission also adopted a set of proposals to make the EU's climate, energy, transport, and taxation policies fit for reducing net greenhouse gas emissions by at least 55% by 2030, compared to 1990 levels.

Sponsored Workshop Report on Biodiversity and Climate Change. (Online) Available at: https://www.ipbes.net/events/ipbes-ipcc-co-sponsored-workshop-report-biodiversity-and-climate-change (Accessed on January 25th, 2022)

[25] UNEP (2019). Global Environment Outlook 6. (Online) Available at: https://www.unep.org/resources/global-environment-outlook-6#:~:text=The%20United%20Nations%20Environment%20Programme%27s,the%20global%20environment%20since%202012.&text=GEO%2D6%20shows%20that%20a,prosperity%2C%20human%20health%20and%20wellbeing (Accessed on January 25th, 20221)

[26] Center for Global Development (2015). Developing Countries Are Responsible for 63 Percent of Current Carbon Emissions. (Online) Available at: https://www.cgdev.org/media/developing-countries-are-responsible-63-percent-current-carbon-emissions (Accessed on January 24th, 2022)

[27] European Commission (2021b). A European Green Deal. (Online) Available at: https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en (Accessed on January 24th, 2022)

The EU Circularity Action Plan
It is one of the main building blocks of the European Green Deal. The EU's transition to a circular economy will reduce pressure on natural resources and will create sustainable growth and jobs. It is said to be a prerequisite to achieve the EU's 2050 climate neutrality target and to halt biodiversity loss. but it is also designed to pave the way to a "cleaner and more competitive Europe". The new action plan announces initiatives along the entire life cycle of products. It targets how products are designed, promotes circular economy processes, encourages sustainable consumption, and aims to ensure that waste is prevented, and the resources used are kept in the EU economy for as long as possible. It also introduces legislative and non-legislative measures targeting areas where action at the EU level brings "real" added value.

EU Farm to Fork Strategy
The Farm to fork strategy is (also) "at the heart" of the European Green Deal, aiming to make food systems fair, healthy and environmentally friendly. It aims to accelerate our transition to a sustainable food system that should:

- have a neutral or positive environmental impact
- help to mitigate climate change and adapt to its impacts
- reverse the loss of biodiversity
- ensure food security, nutrition, and public health, making sure that everyone has access to sufficient, safe, nutritious, sustainable food
- preserve affordability of food while generating fairer economic returns, fostering competitiveness of the EU supply sector, and promoting fair trade

The strategy sets out both regulatory and non-regulatory initiatives, with the common agricultural and fisheries policies as key tools to support a just transition. A proposal for a legislative framework for sustainable food systems will be put forward to support implementation of the strategy and development of sustainable food policy. The EU will support the global transition to sustainable agri-food systems through its trade policies and international cooperation instruments.

EU Biodiversity Strategy
The EU's biodiversity strategy for 2030 is a long-term plan to protect nature and reverse the degradation of ecosystems. The strategy aims to put Europe's biodiversity "on a path to recovery" by 2030 and contains specific actions and commitments. As a "core part" of the European Green deal it is also the proposal for the EU's contribution to the upcoming international negotiations on the global post-2020 biodiversity framework.

The main ecosystems on land in Europe are croplands (33%), forests (30%), pastures (16%) and urban land (2%). Centuries of diverse farming and forestry traditions, resulting in a wide range of agricultural and woodland landscapes, have significantly contributed to Europe's biodiversity. Europe is also home to a considerable diversity of species: there are 260 species of mammals, of which 40 are marine mammals, 500 species of fish, 500 of breeding birds, 150 of reptiles, 84 of amphibians and 90,000 species of insects, including 10,000 of butterflies and moths as well as 30,000 of beetles. However, Europe's biological richness is currently highly threatened by human activities.[34]

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[28] European Commission (2021c). Circular economy action plan. (Online) Available at: https://ec.europa.eu/environment/strategy/circular-economy-action-plan_nl (Accessed on January 22nd, 2022)

[29] European Commission (2021d). Farm to Fork strategy. (Online) Available at: https://ec.europa.eu/food/horizontal-topics/farm-fork-strategy_nl (Accessed on January 14th, 2022)

[30] European Commission (2021e). Biodiversity strategy for 2030. (Online) Available at: https://ec.europa.eu/environment/strategy/biodiversity-strategy-2030_nl (Accessed on January 23rd, 2022)

[31] European Commission (2021f). Zero pollution action plan. (Online) Available at: https://ec.europa.eu/environment/strategy/zero-pollution-action-plan_nl (Accessed on January 23rd, 2022)

[32] European Commission (2021g). Recovery plan for Europe. (Online) Available at: https://ec.europa.eu/info/strategy/recovery-plan-europe_en (Accessed on January 23rd, 2022)

[33] Convention on Biological Diversity (2022). European Union - Main Details. Biodiversity Facts. (Online) Available at: https://www.cbd.int/countries/profile/?country=eur (Accessed on

50% Of species and 65% of habitat types of European conservation interest have an unfavourable conservation status. Areas of extensive agriculture, grasslands and wetlands continue to decline across Europe while artificial surfaces continue to expand. Similarly alarming trends have been reported for species. In Europe, nearly one in six (15%) of the terrestrial mammals and 25% of marine mammals are threatened with the risk of extinction.35
The EU aims to enlarge existing Natura 2000 areas, with strict protection for areas of very high biodiversity and climate value. The EU biodiversity strategy also contains ambitious targets for Marine Protected Areas (MPAs): legally protecting a minimum of 30% of the EU's Sea area by 2030, of which at least a third must be strictly protected (10% of EU's seas).

The European Commission will put forward a proposal for legally binding EU nature restoration targets in 2021 and is preparing an impact assessment to support the development of EU nature restoration targets, and to assess their potential environmental, social, and economic impacts. The main objective of the EU initiative is to restore degraded ecosystems, and particularly those with the most potential to:

- capture and store carbon
- prevent and reduce the impact of natural disasters
- deliver further benefits, such as soil health and pollination
- improve knowledge and monitoring of ecosystems and their services.

EU Zero Pollution Strategy
In addition to affecting people's health, pollution is one of the main reasons for the loss of biodiversity. It reduces the ability of ecosystems to provide services such as carbon sequestration and decontamination. The public health, environmental, moral, and socio-economic case for the EU to lead the global fight against pollution is today "stronger than ever". As a "key deliverable" of the EU Green Deal, the zero-pollution vision for 2050 is for air, water and soil pollution to be reduced to levels no longer considered harmful to health and natural ecosystems, that respect the boundaries with which our planet can cope, thereby creating a toxic-free environment. This is translated into key 2030 targets to speed up reducing pollution at source. These targets include:

- Improving air quality to reduce the number of premature deaths caused by air pollution by 55%;
- Improving water quality by reducing waste, plastic litter at sea (by 50%) and microplastics released into the environment (by 30%);
- Improving soil quality by reducing nutrient losses and chemical pesticides' use by 50%;
- Reducing by 25% the EU ecosystems where air pollution threatens biodiversity;
- Reducing the share of people chronically disturbed by transport noise by 30%;
- Significantly reducing waste generation and by 50% residual municipal waste.

1.7 CONCLUSION

Planet Earth is a finite system in which a multitude of processes function together to maintain a state of equilibrium. These interconnected Earth system processes continuously transform and replenish what resources the planet holds and create the

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February 8th, 2022)

[34] Ibid.

necessary conditions for life to prosper. Humankind is an integral part of this natural system and relies on its continued stable functioning to thrive, notwithstanding human behaviour is also its greatest threat. The Planetary Boundaries framework and global environmental reports make clear that:

- Climate change is happening fast with huge impact on natural systems;
- Biodiversity is under severe threat;
- All processes are inextricably linked;
- Human activity is the cause of crossing the boundaries of the Earth system;
- Land degradation, due to changed land use and the mismanagement of this land, has become one of the major challenges currently facing humanity;
- The ocean, covering more than 70 % of the surface of our planet is important to not overlook when thinking of addressing climate change;
- International multi-stakeholder collaboration to address the root causes is essential;
- It is about whole systems change;
- We need a holistic approach to ensure planetary and human health for all.

We know by now that we must act urgently. High level plans for the EU are in place, catalysed by the EU Green Deal, with the ambition to be the first climate neutral continent. Industrialised countries should indeed act first and foremost because they are currently causing 63% of greenhouse gases.

The crucial challenge remains how to translate alarming analyses and high-level action plans into tangible actions on the ground, for everyone to play a role and to accelerate effective international collaboration towards common goals, which is crucial to our survival. Since the climate and nature crises are so complex and hard to address, we need everyone to play a role. Not only activists, NGOs, or politicians, but also young people, farmers, consumers, and corporations. Especially - as already identified as a major critique on NbS - we need to make sure no one is left out of this process – particularly those who the traditional environmental movement has tended to overlook, leave behind, or shun. Approaches that deliberately enable the previously disenfranchised to be part of the solution and empower those who will be the worst and soonest hit by the impacts of climate change are particularly important.[35]

The solution lies in social innovation and collective impact; to efficiently equip and organise everyone, to play a role in collaborative systems change. From farmers, fishermen, corporations, consumers, producers, governments, institutions, banks, to NGO's, policymakers, investors, and citizens - especially those from vulnerable communities and whose voices are often not heard.

[35] Ioan, A. et. al. (2021). Thinking Differently – ideas for action on planet and climate. Ashoka: Next Now Planet and Climate. (Online) Available at: https://www.ashoka.org/en-us/story/thinking-differently-%E2%80%93-ideas-action-planet-climate (Accessed on September 15th, 2021)

2. WEAVING THE CHANGE

2.1 INTERNATIONAL COLLECTIVE OF SOCIAL INNOVATORS

Weaving is the practice of interconnecting people, projects, and places in synergistic and purposeful ways. Weaving involves connecting people to each other and to a shared purpose; fostering collaborations for systemic impact; facilitating collective learning, iteration, and evolution; and embodying the change we wish to see.

As explained in the introduction, the 25+ partners of the growing BWL Collective bring their knowledge, resources, teams, and expertise together and strongly believe they can generate more impact together, and faster, than they would be able on their own.

In the BWL Collective we distinguish **partners who design and implement NbS**; (the socio-environmental entrepreneurs who work with nature and the communities) and **partners who create the enabling conditions for NbS to uptake and scale**. In Part 3 of this report, we will introduce 14 socio-environmental entrepreneurs and explore their NbS. In this section we introduce the partners who create the enabling conditions for NbS to scale, and **we explain the knowledge and expertise they bring into the BWL Collective, creating a whole that is greater than the sum of its parts**.

2.2 BECOMING SELF-AWARE FOR SYSTEMS TO CHANGE

Presencing Institute - An action research platform at the intersection of science, consciousness, and profound social and organisational change., Originating from MIT Sloan School of Management Senior Lecturer Otto Scharmer and colleagues, the institute has developed Theory U as a change framework and set of methodologies that have been used by thousands of organisations and communities worldwide to address our most pressing global challenges: climate change, food systems, inequality and exclusion, finance, healthcare and education. Building upon two decades of action research at MIT, the process shows how individuals, teams, organisations, and large systems can build the essential leadership capacities needed to address the root causes of today's social, environmental, and spiritual challenges.

"*We live in a world of disruption, drama, and despair; but at the same time, we also live in a world of unparalleled opportunity — the opportunity to step into new spaces and to sense and actualize the future that many feel is wanting to emerge*"[36]. - Otto Scharmer, founder of BWL Collective partner Presencing Institute. As a species, we have lost connection with nature, with the land, with our food, and we are struggling to find the path back to this basal relationship upon which the prosperity of both people and planet depends.

When we look underneath the surface, at

[36] Scharmer, O. and Pomeroy, E. (2020). Action Confidence: Laying Down the Path in Walking. Presencing Institute Blog. (Online) Available at: https://medium.com/presencing-institute-blog/action-confidence-laying-down-a-path-in-walking-3d42805116fd (Accessed on November 16th, 2021)

[37] Scharmer, O. C. (2018). The Essentials of Theory U: Core Principles and Applications. Berrett-Koehler Publishers (Online) Available at: https://www.presencing.org/resource/books (Accessed on November 16th, 2021)

[38] Kanamori, M. Kondo, N. (2020). Suicide and Types of Agriculture: A Time-Series Analysis in Japan. Suicide Life Threat Behavor, 50(1):122–137. (Online) Available at: https://doi.org/10.1111/sltb.12559 (Accessed on November 17th, 2021)

[39] Borges, H. (2020). Awareness Based Systems Change: Deep Resonance. Presencing Institute Blog. (Online) Available at: https://medium.com/presencing-institute-blog/awareness-based-systems-change-deep-resonance-bef9ca451749 (Accessed on November 16th, 2021)

[40] Lewin, K. (1951). Field Theory of Social Science: Selected Theoretical

what drives this collective behaviour, we can recognize a paradigm of separation; the idea that human beings exist as separate individuals, and as separate from nature. According to **Otto Scharmer**, founder of BWL Collective member **Presencing Institute**, we can distinguish three divides[37]: an *ecological divide*, a social divide, and a spiritual divide.

The ***ecological divide*** addresses a disconnect between self and nature. Our current global agriculture (and land use) system thrives on production that generates wealth for an increasingly smaller number of large farms, forcing smallholder farmers out of production, while simultaneously degrading the ecosystems that form the very basis of this wealth creation. One illustration of the ***social divide*** is a disconnection between consumers (citizens) and farmers in the food system, because of an industrial approach to development. There is an increasing polarisation between farmers and government, indicated by farmers' protests worldwide. The ***spiritual divide*** reflects a disconnect between one's self, and Self - the capital Self is reflecting a persons' highest potential, what they are here for on Earth. A sign of the spiritual divide is expressed in increasing numbers of farmers facing burnout, depression, and suicide. Although exact numbers are hard to determine as suicides by farmers are under-reported, studies show suicide rates in rural areas are higher than urban areas.[38]

For the Presencing Institute, systems change should therefore start on the level of awareness to change our mental models and our behaviour. **Eva Pomeroy**, Research Lead at **Presencing Institute**, stresses when we are looking at making a shift at the level of awareness, it is about seeing yourself as a part of much broader and complex living system, which involves the social world and the natural world of which we are part of and in deep relationship with.

Presencing Institute developed a holistic awareness-based systems change methodology based on three core premises[39] with the aim of addressing today's complex problem by holistic and systemic approach:

1. You cannot understand a system unless you change it.[40]
2. You cannot change a system unless you transform the consciousness of those enacting the system.
3. You cannot transform consciousness unless you make the system sense and see itself.

To make the system sense and see itself, we need to use the knowledge of head together with the knowledge of the open mind and the open heart combined with an open will.[41]

Open Mind means that the precondition for action is operating from a place of not knowing, from genuine curiosity and inquiry. Operating from an open mind means developing the capacity to see what was previously unseen, including disconnects and shadow, and to perceive the self and the system differently.

Open Heart assumes that the seed for action comes from opening the heart and being touched by the world. Rather than getting lost in one's own emotions, we can use the heart to tune into the world. And if we connect with an open heart, we can discover a source of energy that allows us to do something that no one thought was possible. Therefore,

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Papers. Edited by Dorwin Cartwright, New York: Harper & Brothers. (Online) Available at: https://doi.

[41] InHive (2021). Social Change Network Playbook for Practitioners and Funders. (Online) Available at: http://www.inhiveglobal.org/wp-content/uploads/2021/11/ihhive_playbook.pdf#network (Accessed on January 5th, 2022)

the precondition to do something magical or impossible is the opening of the heart by connecting with someone or something new and different that begins to activate another level of inspiration and commitment.

Open Will means that the movement into action comes from letting go of preconceived ideas about what action should look like and becoming an instrument for emerging possibility. The thing about being an instrument is that we are holding something we don't know. We don't know what is emerging, but we are committed to holding its' coming-into-being anyway. Open will emerges from stillness and manifests as the movement from sensing to realising the future that calls us forth.

Source: Presencing Institute Source: Presencing Institute

Pomeroy highlights that if a group is trying to shift a system and imposes it on others, it will inevitably bring tensions. But the shift can take place on a deeper level. If there is anything that is going to inspire that, it is the climate crisis. "What else affects all of us and makes our interconnectivity more visible than the emerging climate disaster?", she remarks. So, the methods around bringing collectives together and making the shift together from a healing perspective, holds the potential to shift the system - because we are the systems.

2.3 GROWING THE PRACTICE OF WEAVING

The Weaving Lab - A global community that is growing the field of 'weaving'. Through peer-to-peer learning it is deepening its practice, advancing research, and strengthening the community of practitioners – so that together, we can create systems change that enable people and the planet to thrive.

Weaving is the practice of interconnecting people, projects, and places in synergistic and purposeful ways. Weaving involves connecting people to each other and to a shared purpose; fostering collaborations for systemic impact; facilitating collective learning, iteration, and evolution; and embodying the change we wish to see.

Ross Hall, co-founder of **The Weaving Lab** explains: "As weavers, we focus on co-creating thriving networks and communities

that enhance the wellbeing of self, society, and nature. We cultivate spaces and projects for learning, connection and innovation that develop meaningful relationships between people, ideas, teams, projects, organisations, networks, places, and nature. Through our practice and research, we have identified four key dimensions of weaving. Each weaving dimension integrates knowledge, skills, and ways of being: Connecting community; Collaboration for systemic change; Learning together and Embodying universal wellbeing.

Because the challenges we work on are so complex, we embrace the power of collective action and emergence. We create conditions for diverse and inclusive learning ecosystems in which people feel belonging and meaning. This is why connecting people, ideas, projects and nature in interdependent communities is important to us. We foster trustful relationships and aim to align communities to a shared set of values and purposes.[42] As our communities evolve, we grow with them to see how we can nourish and support the whole ecosystem.

Many of the big challenges of today are systemic and require us to tackle their root causes instead of symptoms. As weavers, it is therefore important to adopt a systemic mindset by sensing our role and embracing uncertainty. Based on such an understanding we then co-create life-affirming narratives and implement fine-grained strategies. To do so we attract funding, align our teams, and spread innovations that work. But doing is not all there is to it as we need to periodically step back to evaluate to adapt our approach.

We continuously improve our practice by working together, sharing stories, generating evidence, and supporting each weaver's journeys. We put learning at the centre in all of what we do to thrive together. We do this in many ways: We gather in interactive sessions; we share tools and frameworks.[43] We reflect by ourselves and together and we learn from the patterns and wisdom of the natural world.

As weavers, we have a willingness to sit with the problems and potentials in our interconnected world. Based on this we develop practises that nurture our well-being. This includes our personal well-being in terms of emotional, mental, physical, and relational aspects, and also societal and ecological well-being. The embodiment of qualities and virtues is crucial for systemic change. Inner and outer change are truly interdependent. Therefore we practice being aware, empathic, present, adaptable, playful and more".

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[43] NetEdu Project (2020). The SchoolWeavers Tool. (Online) Available at: https://www.neteduproject.org/weaving-circle-for-systemic-impact/ (Accessed on January 5th, 2022)

2.4 COLLECTIVELY MOVING TOWARDS REGENERATION AND DRAWDOWN

Drawdown Europe Research Association (DERA) - A research community presenting 100 solutions for humanity to reach climate drawdown, the point at which greenhouse gas concentrations in the atmosphere begin to decline on a year-to-year basis. The concept 'Project Drawdown' was founded by Paul Hawken in the US and was brought to Europe by translating the set of global drawdown solutions to the European context, and by creating an open opportunity assessment model through their research and modelling platform for investors, policymakers and other stakeholders. This resulted in a growing ecosystem of partners, research members and users that are turning research into action by ensuring that it remains living and useful. DERA aims to rapidly begin to reverse global warming while working towards a regenerative and equitable world.

From an ecological perspective, 'regeneration' means the regrowth by an animal or plant of an organ, tissue or part that has been lost or destroyed. But it can also be understood as 'rebirth' or 'renewal', and as the act or process of 'regenerating' or the state of 'being regenerated'.

Paul Hawken, noted environmentalist, inspiration, and partner of **Drawdown Europe**, takes an innovative approach to regeneration, understanding it also as a process, as an all-inclusive movement led by communities that engage humanity to reverse climate change and biodiversity loss. This approach "weaves justice, climate, biodiversity, equity, and human dignity into a seamless tapestry of action, policy, and transformation that can end the climate crises in one generation".[44]

In his book 'Regeneration. Ending the climate crises in one generation', Hawken describes how this inclusive movement is spreading rapidly around the world and can engage most of humanity "to save the world from the threat of global warming, with climate solutions that directly serve our children, the poor, and the excluded."[45]

The framework of regeneration is based on co-creation, bridge-building, circularity, compassion, and healing, instead of fighting, getting into competition and focusing on endless growth. Thanks to its positive connotation of 'being able to renew itself', the regeneration movement can inspire people across generations, cultures, and backgrounds to act, to discover its change-making potential, and embrace its mindset changing power.

As we will explain further in this report, due to its participatory and creative nature, social innovators are uniquely positioned to foster the regeneration movement to reverse climate change and halt biodiversity loss, as the challenges are multifaceted and require societal shifts towards more sustainable behavioural patterns.

Drawdown Europe is – together with a global community of scientists – continuously reviewing, analysing, and compiling so-called 'drawdown solutions'; a set of practises and technologies that either through reducing greenhouse gas emissions and/or by sequestering atmospheric carbon-dioxide

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[44] Hawken, P. (2021). Regeneration: Ending the Climate Crisis in One Generation. (Online) Available at: https://regeneration.org/ (Accessed on October 22nd, 2021)

[45] Ibid.

[46] Wilkinson, K. (Eds.) (2020). The Drawdown Review. Climate Solutions for a New Decade. (Online) Available at: https://www.drawdown.org/drawdown-review (Accessed on October 15th, 2020)

hold the potential to lead society to carbon neutrality and beyond.

For each solution category the potential impact in gigatons of CO2-eq between 2020 and 2050 is calculated and compared to a baseline scenario of business as usual. Two scenarios are used for these calculations, varying on the degree of ambition in bringing solutions to scale: the less ambitious scenario leads to drawdown by mid 2060s and a global temperature rise of 1.85˚C (above pre-industrial levels), on a path to 2˚C by 2100; the more ambitious scenario is expected to reach drawdown by mid 2040s and a peak warming of 1.52 ˚C by mid-century.

Drawdown solutions and respective potential for reducing atmospheric CO^2-eq[46]:

MITIGATION OF CLIMATE CHANGE: DRAWDOWN SOLUTION CATEGORY	CO^2-EQ (GT) REDUCED/SEQUESTERED (2020-2050)
Plant-rich Diets	65.01 – 91.72
Reduce Food Waste	90.7 – 101.71
Conservation Agriculture	9.43 - 13.4
Regenerative Annual Cropping	14.52 - 22.27
Nutrient Management	2.34 - 12.06
Tree Intercropping	15.03 – 24.4
Managed Grazing	16.42 - 26.01
Grassland Protection	3.35 - 4.25
Forest Protection	5.52 – 8.75
Temperate Forest Restoration	19.42 – 27.85
Tree Plantation (on degraded land)	22.24 – 35.94
Abandoned Farmland Restoration	12.48 – 20.32
Sustainable Intensification for Smallholders	0.68 – 1.36
Efficient Ocean Shipping	4.4 – 6.3
Coastal Wetland Protection	0.99 – 1.45
Coastal Wetland Restoration	0.99 – 1.01
Industry (total)	128.8 – 143.8
Transportation (total)	58.0 – 97.4
Buildings (total)	73.7 - 141.2
Bicycle Infrastructure	2.56 – 6.65
Health & Education	85.4

NbS can be classified under these drawdown solutions categories. Through an Open Opportunity Assessment Model the potential of drawdown solutions (including NbS) can be analysed per country, or per bioregion. It can become clear amongst others:

- what the allocated land area is in m^2 that can be used effectively for specific NbS
- What the total Greenhouse Gas (GHG) reduction potential is in kilo tons Co2-eq/year, or per km2
- What the relative GHG reduction potential is; the % share of potential reduction of the current emissions
- What the CO2 sequestration potential is in kilo tons/year

With the right funding it is also possible to calculate the specific drawdown potential for a specific NbS individually. The analyses will help to create concrete data and common language to convince decision makers to invest in NbS, instead of only turning to clean energy solutions to reach the goal of zero greenhouse emissions.

2.5 PIONEERING A NEW ECONOMIC ARCHITECTURE

New Economy - Creating and implementing new and regenerative business models. By applying concrete research, experimenting, and pioneering, it is implementing the New Economy. The New Economy is a system in which it becomes accessible for everyone to learn, mobilise, and consume in a healthy living environment. By developing products and services that contribute to the climate solution, regenerative business models combine the power of business with the power of nature and provide climate solutions. Combined with a regenerative revenue model these climate solutions benefit local society and the natural ecosystems.

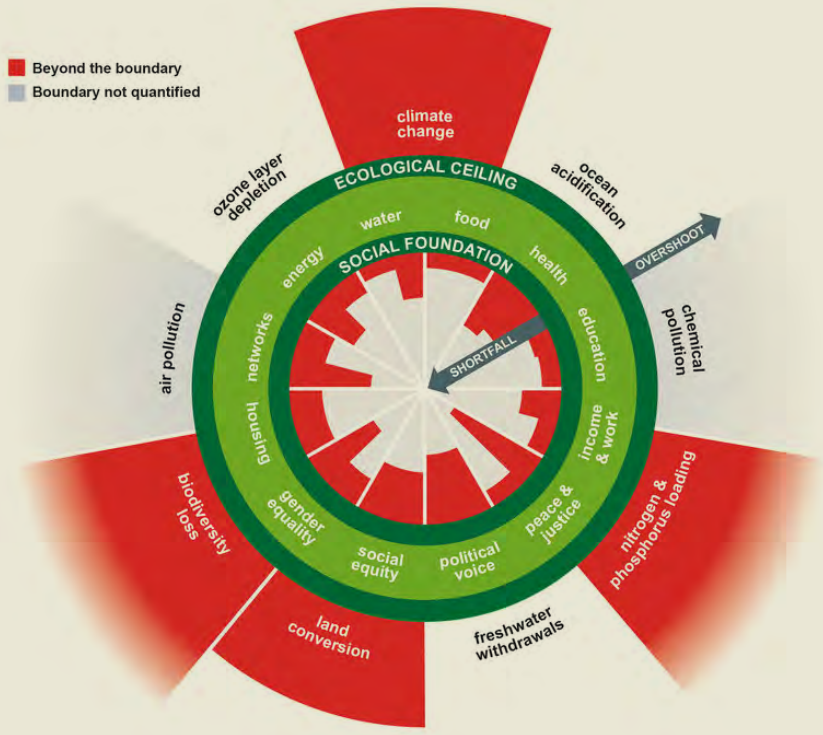
Interventions that address environmental challenges need to be economically sustainable to ensure enduring impact. On the other hand, economic activities need to be environmentally regenerative, because current economic activities are core contributors to the environmental crises we are now facing. Activities that drive over-consumption, over-extraction, waste, pollution, soil erosion, biodiversity loss, and climate change have pushed us dangerously beyond some of the planetary boundaries which delimit a safe and sustainable operating space for humanity.

Many of these activities are underpinned by problematic policies, incentives, and measurements. And these systemic mechanisms often reinforce - and are reinforced by - problematic mindsets, such as our appetites for luxury and convenience, our valuing of money and material possession over other forms of wealth, and our addiction to perpetual economic growth. Some of these mindsets come from a failure to understand that the wellbeing of any one of us is wholly interdependent with the wellbeing of all other humans and of the natural environment together. Therefore, it is essential to redefine the roles that each of us can play to create a new economic architecture.

How can governments help us to create economies that do not surpass their optimal size, beyond which growth costs more than is healthy for the planet? Can governments get beyond using GDP growth as the single goal of economic systems and value 'quality of life' over 'standard of living'? What policies and measures would redefine the purpose of economies to include more holistic notions of human and planetary wellbeing?

How can businesses shift consumer behaviours for the better? How can they create ownership structures and employee and supply chain incentives that prioritise the wellbeing of the natural environment and people ahead of short-term financial profit and shareholder return? And how can we, as individual consumers, households, shift our mindsets so that we are more aware of ourselves as nature, more thoughtful about the impact of our actions, and more careful in our choices? In many ancient cultures, the idea of 'living well' means living in harmony with nature and with each other, enjoying simplicity, play, and beauty. How can we rediscover and truly embody such values and how would this change our economies?

New Economy is a partner of Doughnut Economic Action Lab, affiliated with The Doughnut Economy model developed by Kate Raworth[47], a well-known example for turning today's degenerative economy towards a regenerative one. **Pepijn Duijvestein**, founder of New Economy, thinks it is essential to produce and consume within the Doughnut boundaries to ensure safe climate transition. This will demand a redesign of our value structures and a new design of business models. We need business models that create multiple values for society, the planet, and future generations. This requires rethinking and redesigning of our propositions and revenue models to benefit organisations in relation with the total addressable market. This way we will restore the balance and produce and consume within the planetary boundaries.



[47] Doughnut Economy Action Lab (2020)

The Doughnut combines the diagram of the nine Planetary Boundaries – as explained in the first part of this report - with the concept of social justice and human rights. An ecological ceiling ensures that humanity is not crossing the planetary boundaries that protect Earth's life-supporting systems. The inner ring of the Doughnut, the social foundation, is defined by taking the aspects considered necessary by all countries, to create the minimum living circumstances for a human to have a happy and healthy life: food, clean water, housing and sanitation, energy, education, healthcare, income and work, access to networks and political voice, as represented in the UN SDGs (Sustainable Development Goals).

The idea behind the Doughnut Economy framework is turning the Planetary Boundaries into a source of creativity. The boundaries unleash our human potential to co-create healthy ecosystems, thriving communities and regenerative economies that are built upon participation, belonging, and meaning.

To what extent a (socio-environmental) entrepreneur is already contributing to the regenerative economy can be assessed using the Trajectory of Ecological Design (adaptation of Bill Reeds' diagram[48] with interpretations and perspectives of New Economy). Some entrepreneurs can gradually shift from 'conventional' business, through the phases of 'green' and 'sustainable' towards 'restoring'

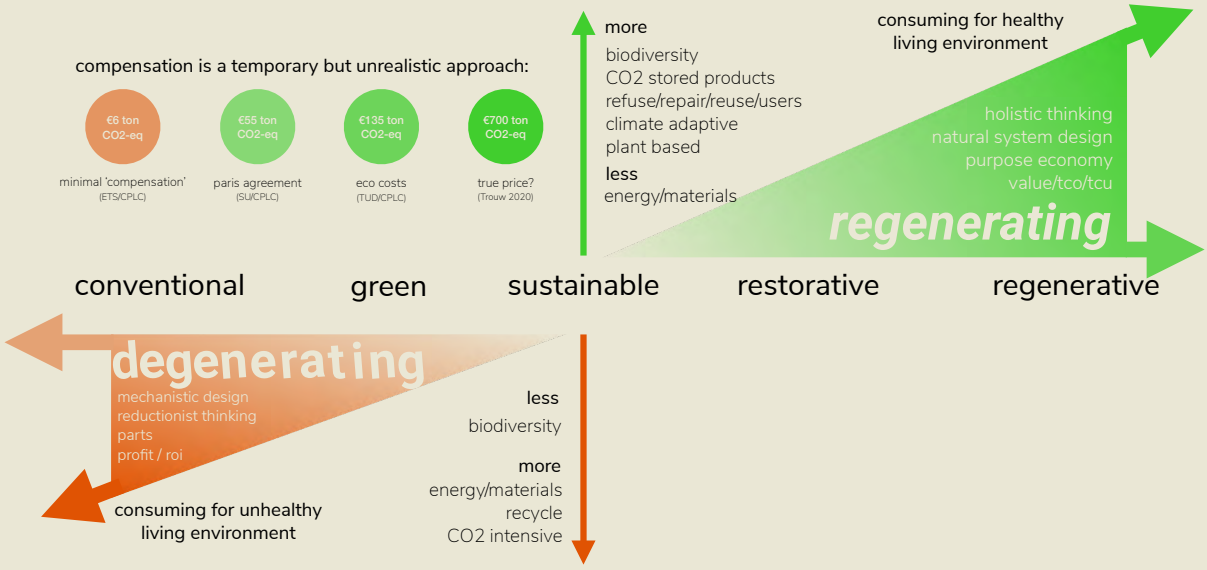


Figure is an adoptive from Bill Reed's "Trajectory of Ecological Design" Diagram with interpretations and perspective of New Economy.ECO

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and ‘regenerating’. Others must transform their activities to be able to move towards regenerating.

New regenerative business models should therefore always be developed in relation to a total addressable market. This diagram helps companies to create products and services that will balance their previous loss and damage in the degenerative economy. In a regenerative economy products and services are produced in relation to the needs of a total addressable market. The transition towards a regenerative economy is taking place within existing value chains that need to change as well. Therefore, it is essential to transform entire value chains, downstream as well as upstream.

2.6 GENERATING 4 RETURNS ON A LANDSCAPE SCALE

Commonland - A system change enabler of large-scale ecosystem landscape restoration projects, aiming to create a new norm for holistic landscape management and restoration of degraded landscapes at scale. By working on solutions at the landscape level, Commonland addresses biodiversity loss, mitigates impacts of climate change, uses regenerative agriculture, and revitalises local communities. Its goal is to transform 100 million ha of degraded landscapes by 2040, in places where ecological balance is restored, people, the economy, and nature can thrive together once again. By implementing a practical system change framework on the ground, called the 4 Returns, Commonland strikes a new balance between economy and ecology.

As a landscape restoration enabler, the long-term goal of Commonland is to specifically transform the current economic model of landscape degradation that focuses on maximising return on investment per hectare (economic growth) into a new norm built around maximising 4 Returns per landscape. To achieve this, Commonland is building a proof of concept in large areas around the world. Together with their local partners, they are helping to restore degraded land and revitalise local rural economies and communities.

Commonland’s Design Strategist & Facilitator **Pieter Ploeg** explains that when partners, who are using the 4 Returns, are managing a forest, they are not just cutting down trees to turn it into lumber and make profit, but they are harvesting wood in such a way that they bring back also natural capital, social capital, and a return on inspiration.

To be able to make well-informed decisions for these types of investments, key stakeholders in any given landscape need reliable insights into risk and return. This information is essential to mobilise funding and scale up landscape restoration programmes. Developing a method capable of calculating the value of large-scale landscape interventions is essential to their mission, and to the mission of the BWL Collective.

When calculating the monetary value of landscape restoration, a comprehensive method should look beyond pure financial return. The developed 4 Returns valuation method also assigns values

Inspiration: Re-building the lost connection with nature through awareness and engagement will give people hope and sense of purpose.

Social Capital: We depend on healthy ecosystems to provides us with basic social needs. By taking care of nature, we bring back jobs, business activity, education and security.

Natural Capital: When biodiversity is restored, essential ecosystem services on which we are heavily dependent will return: fertile soils, water, biodiversity, biomass and carbon storage.

Financial Capital: Realising long-term sustainable profit through regenerative business models and bringing financial benefits to all the stakeholders involved.

to social and natural returns that solutions like regenerative agriculture and agroforestry bring to farmers, communities, governments, philanthropists, and private investors.
We recognise that not every natural or social intervention can be turned into monetizable cash flows, but landscape restoration can nonetheless deliver significant, quantifiable, and durable long-term social, natural, and financial returns. Just as important, it offers a return on the most important drivers of communities: hope and inspiration. While the total value of the 4 Returns is not considered monetizable, the tool contributes to a better understanding of the benefits and risks for investors.

To achieve these four returns, Commonland's 4 Returns framework first develops a landscape overview. Visually subdividing a landscape into zones based on physical, ecological, productive, and cultural characteristics creates a shared image of 'what is now' and 'what can be' for everyone. The impact organisation breaks down landscape restoration into three distinct landscape zones – Natural, Combined and Economic. Natural Zones focus on protecting and restoring native vegetation, trees, and biodiversity. Combined Zones restore topsoil and biodiversity and deliver sustainable economic returns through regenerative agriculture, agroforestry, and rotational grazing. Economic Zones are geared towards sustainable economic productivity with dedicated areas for value-added activities like agriculture-related processes.

As an integrated framework, 4 Returns was specifically created to make landscape restoration practical and thus attractive for people (4 Returns) and connected to a systemic approach at the landscape level (3 zones) over the course of a single generation, or a minimum of 20 years. By introducing concise language, a clear set of measurable indicators, well-formulated landscape zones and realistic time frames, the 4 Returns framework introduces much needed clarity to the complex issue of holistic landscape restoration.

Commonland developed a method capable of calculating the value of 4 Returns landscape

restoration. It builds a bridge between people living on the land and decision-makers in governments, businesses, and investors. It identifies nine key stakeholder impacts, ranging from biodiversity and water retention to job creation and direct financial return:

Nine key impacts were identified, converted into either cash flows or risk reduction (lower discount rate) and included in the 4 Returns valuation method.

Return	Impact	
	Sense of purpose	Inspiration and education activities around landscape restoration and integrated management bring back pride and give local communities a sense of purpose, **lowering future risk**
	Job creation	Newly created companies and regenerative agriculture and agroforestry practices create **new local jobs** and therefore **income for the people**
	Income tax (jobs)	**Income tax generated** through newly created jobs, and **avoided costs for the government due to decreased unemployment**
	Business tax	**Additional tax** arising from more (profitable) business activities (e.g. regenerative agriculture, water, agritech, and other businesses)
	Water retention	Regenerative agriculture practices in the Combined Zone and restoration of the Natural Zone improve **water retention** and local **water availability, lowering risk**
	Carbon sequestration	Regenerative agriculture, forestry and Natural Zone restoration and conservation practices result in **increased carbon sequestration**, which **can be monetised if a voluntary carbon market exists (assumed in vision and upside scenario for Altiplano Estepario)**
	Biodiversity	Natural Zone restoration improves biodiversity, increases pollination which increases crop yields **for regenerative and surrounding conventional farmers leading to higher profits and business tax**
	Erosion prevention	Regenerative agriculture and agroforestry practices and Natural Zone restoration and conservation prevent land erosion, **lowering risk**
	Financial return	**Direct financial returns for all stakeholders**, including increased earnings of regenerative farmers and additional local earnings from cluster companies (traders) and eco-tourism

The calculation is based on projected financial cash flows, which are computed for each of the identified returns on a year-by-year basis for a period of 20 years and set off against the projected yearly cash outflows required to carry out the landscape restoration interventions. The cash flows are based on the difference between business as usual (BAU) and the situation after interventions. The value at the start of the intervention, or net present value (NPV), is estimated by discounting the forecasted financial flows. To understand how 4 Returns creates value for multiple stakeholders, the method explores three scenarios – conservative, vision, and upside. All three scenarios include variables like crop yields and biodiversity effects but differ in size and scope. The vision and upside scenario take carbon sequestration into account.

The method currently only encompasses the monetizable value of the different returns based on expected tangible cash flows, so these estimates are on the conservative side. The inspirational, social, and natural benefits the method currently does not assign value to – as they are not assumed to generate cash flows for stakeholders in the landscape – may well prove to be most valuable in the long run.

The 4 Returns valuation method continues to evolve with partners, farmers, and leading experts around the world. We recognise that not every natural or social intervention can be turned into monetizable cash flows, but landscape restoration can nonetheless deliver significant, quantifiable, and durable long-term social, natural, and financial returns. Just as important, it offers a return on the most important drivers of communities: hope and inspiration. While the total value of the 4 Returns is not considered monetizable, the tool contributes to a better understanding of the benefits and risks for investors.

2.7 EVERYONE A CHANGEMAKER

Ashoka - The world's largest network of system changing social entrepreneurs, counting over 3.600 Ashoka Fellows operating across 95 countries and 5 continents. Driven by its "Everyone a changemaker" vision, Ashoka identifies and supports social entrepreneurs whose innovations solve deep-rooted social problems and engage other stakeholders across all levels, bottom-up and top down, to take agency. Ashoka is connecting them through a global community and facilitates multi-stakeholder collaboration to catalyse collective impact. Out of all Fellows worldwide, 400+ specifically focus on the environment and many of them successfully deploy Nature-based Solutions (NbS).

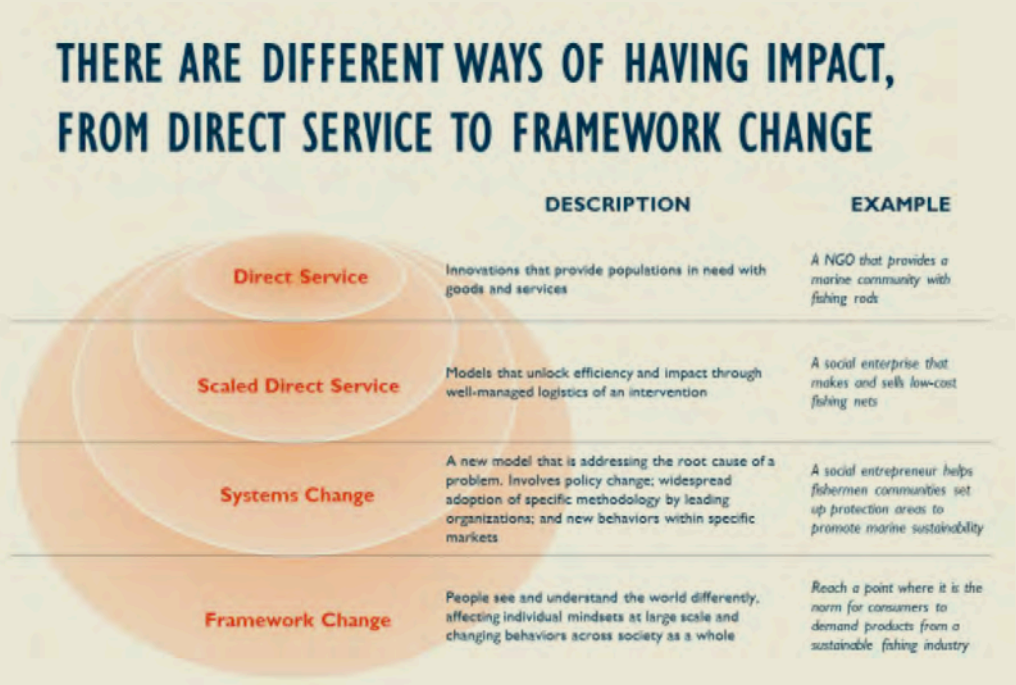
Systems change is creating a new and better pattern in society by tackling the root cause(s) of a problem. Social innovators everywhere are providing effective solutions that challenge current social, cultural, economic, and political systems. Although these innovations arise from different concerns and perspectives, they share a focus on co-creation across sectors, more systemic approaches that embrace complexity, and deeper and more diverse citizen participation.

Back in 1980, Ashoka recognised these unique features in a growing number of

entrepreneurs and launched the field of social entrepreneurship. Ever since, Ashoka is supporting transformative ideas for social change. This resulted in establishing the largest global association of 3.600+ system changing social entrepreneurs (Ashoka Fellows) across 90+ countries and 5 continents.

Although there is often this inspiring individual being the originator and catalysing force behind an idea, we must realise that social change cannot depend on a charismatic leader to show the way. Collaborations - and the collective leadership needed to achieve them - have been central to the most effective pathways for social change[49].

The most effective social entrepreneurs are those whose models help everyone be problem solvers. According to Ashoka's latest, still unpublished, Global Fellowship Study (Dec 2021), 88% of Fellows surveyed aim to influence societal mindsets and cultural norms with their ideas, 89% put young people in charge to lead and 93% have changed public policy at the national and/or international level[50]. These social entrepreneurs have changed the pattern in their field, and in doing so they help spot major new societal needs and opportunities, a kind of R&D engine for the world. Much more than solving individual problems, they provide us a new decision-making



[49] Rahman, R., Fenech, M., Freeman, N., Herbst, K and Matielo, D. (2018). Let's Bust the Lone Hero Myth: The Role of Collective Leadership in Systems Change. Social Innovation Journals. (Online) Available at: https://socialinnovationsjournal.org/editions/issue-52/75-disruptive-innovations/2908-let-s-bust-the-lone-hero-myth-the-role-of-collective-leadership-in-systems-change (Accessed on January 20th, 2022)

[50] Schon, G. The Future of Social Entrepreneurship Support. Social Innovation Journals. (Online) available at:https://socialinnovationsjournal.com/index.php/sij/article/view/2015/1760

architecture to meet future challenges with speed, intelligence, and inclusivity.

Therefore, what matters most in determining a changemaker's impact is not the size of one's budget or organisation, nor the number of those directly served, but rather measures of impact that include: independent replication, public policy change, market change, and shifting mindsets. This can be measured, as seen in Ashoka's image below, through direct service, scaled direct service, systems change, and/or framework change metrics.

Our current context, and the complexity of the problems we are facing, calls for 1) a new approach to understanding problems and 2) new ways of organising for transformational change.

A new approach to problem solving requires recognizing that there isn't a single, static problem but seeing how it is interconnected, shifting, and often difficult to understand. Too often, we still tend to think from a fragmented perspective; social, environmental, and economic challenges are often seen as separate from one another. This narrow view is reflected in how we address problems—focusing on one issue at a time and through siloed efforts.

We need to start seeing a whole pattern that can't be seen by looking at one part, but rather by looking at the interactions between many parts. This crucial shift in addressing problems is also determining how open we will design and implement our models; how much control we are willing to let go, and how much trust we will have in one another, to allow for true changemaking and system change to happen. Bringing together different perspectives can help to make sense of the full picture, balance potential competing goals or values, and pool knowledge and resources to envision new pathways for creating change.

To reorganise ourselves for transformational change we must shift from traditional to collective leadership. We need to develop new leadership skills like 'weaving' and 'theory U' to collectively work on all imaginary levels and navigate endless tension fields. We should realise the changemaking power we have as an individual but also as a collective. Ashoka calls this an 'Everyone a Changemaker world'.

An Everyone a Changemaker world is, by definition, one where everyone has the capacity and opportunity to contribute and to create positive change. In this world, everyone is powerful, everyone has a voice, everyone has access to needed resources, and everyone can thrive. When everyone is a changemaker, there is no place for systems of oppression and hierarchy because no groups dominate or exploit others.

In fact, when everyone is powerful, the systems that perpetuate inequality get dismantled and rebuilt, to enable equal access to opportunities and embrace the incredible range of perspectives, narratives, and lived human experiences. Together, changemakers are building a society that enables everyone to create positive change for the good of all and our planet.

2.8 CONCLUSION

The BWL Collective brings together a valuable body of knowledge and expertise. In a one-year weaving journey (Jan - Dec 2021), 20+ system changing organisations managed to weave their knowledge, expertise, resources and teams. The expertise and experience that they bring together creates a bigger whole than the sum of its parts:

Presencing Institute makes us aware of why we are collectively creating results that nobody wants. There is the divide between self and nature, between self and other and between self and Self. Capital Self being our highest future potential that we may develop; what we are here for on Planet Earth. Theory U offers a guided multi-stakeholder process to develop seven leadership capacities that will allow us to create a future of greater possibilities and heal the 3 divides.

The Weaving Lab offers peer-to-peer learning sessions with its worldwide community to share insights and best practises with the aim to continuously enhance our practice of interconnecting people, projects, and places in synergistic and purposeful ways.

Drawdown Europe Research Association shows us that regeneration, when we understand it as a process, is an all-inclusive movement led by communities that engage humanity to reverse climate change and biodiversity loss. It also presents us with 100 solutions to reach climate drawdown, by translating the set of global drawdown solutions to the European context and by creating an open opportunity assessment model through their research and modelling platform for investors, policymakers and other stakeholders.

New Economy, partner of Doughnut Economy Action Lab, brings in tools and support to redesign business models and create multiple values for society, the planet, and future generations. Its special diagram helps companies to create products and services that will balance their previous loss and damage in the degenerative economy, and to produce in relation to the needs of a total addressable market in a regenerative economy, to stay within limits of the planetary boundaries.

Commonland is providing a framework to transform the current economic model of landscape degradation - that focuses on maximising return on investment per hectare (economic growth) - into a new norm built around maximising 4 Returns per landscape: natural, social, financial, and inspirational. By implementing a practical system change framework on the ground, on a landscape scale, we can strike a new balance between economy and ecology.

Ashoka is connecting us with its worldwide network of system changing social entrepreneurs, specifically those with scalable NbS that are designed and implemented in a rights-based, inclusive, and participatory way. Ashoka is providing support with scaling the impact of social innovators to enable others to create positive change, and by providing training to develop collective leadership skills and become experts in multi-stakeholder collaboration. **Together, the whole is greater than the sum of its parts**.

The BWL Collective is determined to implement a collective strategy that:

- acknowledges that increased global warming and biodiversity loss is caused by **human behaviour**, and that system change starts from **deep awareness and ability to change ourselves**.
- increases the capacity of people to **collaborate for a shared goal**.
- works towards **regeneration**, thus nurtures a process of co-creation, bridge-building, circularity, compassion, and healing.
- develops **new economic models** that can guide more just and equitable decision-making to thrive within planetary boundaries.
- transforms the current economic model of landscape degradation and economic growth into a new norm built around **maximising 4 Returns** per landscape.
- Ensures that any meaningful intervention is **equipping *everyone* to play a role** and is fostering multi-stakeholder partnerships to create **collective impact**.

Photo by the Savory Institute

PART 2

SOLUTIONS THAT WORK WITH NATURE, WORK WITH US

3. KEY INSIGHTS FOR SOLUTIONS DESIGN: WE ARE NATURE

3.1 SOLUTIONS TO REFRAME OUR RELATIONSHIP WITH NATURE

Provided with overwhelming scientific and experimental evidence that climate change, biodiversity loss and human behaviour are interlinked, it seems crucial to our own survival to increase people's consciousness of this interconnectedness, with each other and with the planet. We should realise that **we are fundamentally part of nature**. We need to shift from 'ego' to 'eco'; to seeing ourselves as a part of a much broader and complex living system. This requires a fundamental mindset shift – and eventually a paradigm shift - that will inform our decision-making on all levels.

It is especially important for people living in Europe to urgently shift towards this realisation that industrialised countries are responsible for 60 percent of the greenhouse gas emissions that contribute to climate change, while developing countries suffer the worst and first effects of climate-related disasters because of their inability to adapt to climate change or to mitigate risk, combined with their geographical location.

We believe that solutions designed to work with nature - Nature-based Solutions - are the perfect entry point for people to become conscious of our interconnectedness; with each other and with the planet. NbS are translating high level action plans into concrete tangible actions. They have the potential to engage many different actors across different levels and they reinforce the process towards regeneration, inspiring a new economic architecture.

According to the Nature-based Solutions Initiative (NbSI) at Oxford, "NbS could play a key role in enabling another and even more fundamental paradigm shift that is being 'fast-tracked' by the current coronavirus pandemic. This is the transformation of a destructive global economic model centred around GDP and infinite growth, that ignores nature's value to people and its intrinsic value, to one where a healthy economy is defined by the social and ecological well-being it brings[51].

3.1 NATURE BASED SOLUTIONS (NBS)

The term Nature-based Solutions (NbS) has become all-encompassing in recent years. In essence, however, it simply denotes a course of action driven by nature for the benefit – and requiring the inclusion - of both people and planet.

NbS emerged from the major paradigm shift that took place in the late 2000s, that involved a move away from conserving nature for its own sake to conserving nature for people's sake, and from 'regarding people as passive beneficiaries of nature to active protectors and restorers'.[52]

Nature-based Solutions (NbS) are defined by IUCN as "actions to protect, sustainably manage, and restore natural or modified ecosystems, that address societal challenges effectively and

[51] Seddon N. and Smith, A. et. (2021). Getting the message right on nature-based solutions to climate change. Global Change Biology, 27 (8). (Online) Available at: https://onlinelibrary.wiley.com/doi/10.1111/gcb.15513 (Accessed on January 5th, 2021)

[52] Mace, G. M. (2014). Whose conservation? Science. (Online) Available at: https://www.science.org/doi/10.1126/science.1254704 (Accessed on January 5th, 2022)

[53] IUCN (2021b)

[54] European Commission (2021h). The EU and nature-based solutions. (Online) Available at: https://ec.europa.eu/info/research-and-innovation/research-area/environment/nature-based-solutions_en (Accessed on January 6th, 2022)

[55] UN Climate Change conference UK 2021 (2021). Protecting and restoring nature for the benefit of people and climate. (Online) Available at: https://ukcop26.org/nature/ (Accessed on January 5th, 2022)

[56] IISD (2022). UN Biodiversity Conference (CBD COP 15). International Institute for Sustainable Development. (Online) Available at: http://sdg.iisd.org/events/un-biodiversity-conference-cbd-cop-15-part-2/ (Accessed on January 6th, 2022)

adaptively, simultaneously providing human well-being and biodiversity benefits".[53]

The European commission defines NbS as "Solutions that are inspired and supported by nature, which are cost-effective, simultaneously provide environmental, social and economic benefits and help build resilience. Such solutions bring more, and more diverse, nature and natural features and processes into cities, landscapes, and seascapes, through locally adapted, resource-efficient and systemic interventions. Hence, nature-based solutions must benefit biodiversity and support the delivery of a range of ecosystem services".[54]

NbS gained popularity and momentum, predominantly as a climate solutions. At Cop26 the first ever "Nature Day" was organised within the UN Climate Change Venue[55]. It is hopeful to see an emerging attempt to bridge the climate and biodiversity agendas that can be followed up at the second part of the UN Convention on Biological Diversity's (CBD's) Conference of the Parties (COP 15)[56] in 2022.

3.2 NBS AS CLIMATE SOLUTIONS

NbS are also an essential component of the overall global effort to achieve the goals of the Paris Agreement on Climate Change[57]; Authoritative research indicates that NbS can provide over one-third of the cost-effective climate mitigation needed between now and 2030 to stabilise warming to below 2 °C, achieving nature's mitigation potential of 10-12 gigatons of CO^2 per year[58]. Therefore, they are a vital complement to decarbonization, reducing climate change risks and establishing climate-resilient societies.

NbS underpin the Sustainable Development Goals: they support vital ecosystem services, biodiversity, access to fresh water, improved livelihoods, healthy diets, and food security from sustainable food systems. They value harmony between people and nature, as well as ecological development and represent a holistic, people centred response to climate change. They are effective, long-term, cost-efficient, and globally scalable. They are win-win solutions.[59]

NbS vary in three important ways, which influence the range of benefits that they provide for people and planet[60]:

1. They encompass a **wide range of actions**, such as the protection and management of natural and semi-natural ecosystems, the incorporation of green and blue infrastructure in urban areas, and the application of ecosystem-based principles to agricultural systems. While healthy natural forests, grasslands and wetlands may store more carbon than their managed equivalents (e.g., owing to greater soil depth, age, and structural diversity), managed and hybrid systems such as city parks or green roofs contribute to urban cooling, storm-water management, and bring mental and physical health benefits.
2. NbS **vary in the extent to which they support biodiversity**, which in turn **affects their resilience**, i.e., their capacity to resist and recover from perturbation and maintain the flow of ecosystem

[57] IUCN (2021a). Nature-based Solutions for people and planet. (Online). Available at: https://www.iucn.org/theme/nature-based-solutions (Accessed on October 8th, 2021)

[58] UN Global Compact (2021). Nature-Based Solutions to Address Climate Change. (Online) Available at: https://www.unglobalcompact.org/take-action/events/climate-action-summit-2019/nature-based-solutions (Accessed on November 24th, 2021)

[59] UNEP (2019). Compendium of Contributions Nature-Based Solutions. Climate Action 2019 Summit. (Online) Available at: https://wedocs.unep.org/bitstream/handle/20.500.11822/29988/Compendium_NbS.pdf (Accessed on 15th November, 2021)

[60] Seddon et. al. (2021)

services. NbS that protect and restore natural ecosystems and/or make use of diverse native species can play a key role in securing climate change mitigation and adaptation services, while also contributing to cultural ecosystem services such as inspiration and learning from nature. By contrast, NbS that do not harness ecological principles and support biodiversity (such as those involving non-native monocultures) are more vulnerable to environmental change in the long term and may also produce trade-offs among ecosystem services (e.g., carbon storage, erosion control and water supply).

3. NbS differ in **how much they are designed and implemented by local communities**. Preferably, it is a participatory community-based climate adaptation strategy which may include sustainable management, conservation, and restoration of ecosystems, as part of an overall adaptation strategy that considers the multiple social, economic, and cultural benefits for local communities.

NbS can contribute to tackling climate change and biodiversity loss, whilst supporting many other sustainable development goals, but poorly designed schemes can have adverse impacts.

3.4 PRINCIPLES AND GUIDELINES FOR NBS

The International Institute for Sustainable Development (ISSD) did a review of. the International Union for Conservation of Nature's Global Standard on NbS, the World Bank's NbS guidance, the Oxford Nature-Based Solutions Initiative's Four Guidelines for NbS, World Wide Fund for Nature's enabling conditions for NbS, and the recently published NbS Youth Position. Based on this review, they summarise 3 key principles that are crucial for guiding NbS design and implementation[61]:

1. **Nature for nature's sake** - The emphasis of the 2021 Dasgupta Review[62] on valuing nature capital in its own right should guide all NbS practises, thereby avoiding the narrow monetization of ecosystems. We should remember why we need NbS in the first place: for the multiple benefits (4 returns: natural capital, social capital, financial capital, inspiration). We must for example not support NbS projects that undermine ecological capital (such as planting a single species of trees in a forest restoration project).
2. **Inclusion** - We must ensure a rights-based, inclusive, and participatory implementation of NbS. Stringent and robust social safeguards are essential for delivering NbS projects that are just, equitable, and inclusive. Decision-makers and practitioners must adhere to free, prior, and informed consent of indigenous people, local communities, and vulnerable groups and create an enabling environment for working together and generating local benefits.
3. **NbS are only part of the solution** - For NbS to be effective and sustainable, they must be accompanied by rapid emission reductions from sectors like energy, industry, transport, and land use. Also, sustainable consumption and production of natural resources, a rapid and just transition to renewable and clean energies, and

[61] Qi, J., Terton, A., Vaughan. S. (2021). Seeking Common Ground for Climate, Biodiversity, and People: How to get the debate on nature-based solutions right. International Institute for Sustainable development. (Online) Available at: https://www.iisd.org/articles/common-ground-nature (Accessed on January 6th, 2022)

[62] Dasgupta, P. (2021) Final Report of the Independent Review on the Economics of Biodiversity (Online) Available at https://www.gov.uk/government/publications/final-report-the-economics-of-biodiversity-the-dasgupta-review

[63] Nature-Based Solutions Initiative (2021). Nature-based Solutions to Climate Change. (Online) Available at: https://nbsguidelines.info/ (Accessed on January 6th, 2022)

[64] IUCN (2021d). Global Standard for NbS. (Online) Available at: https://www.iucn.org/theme/nature-based-solutions/resources/iucn-global-standard-nbs (Accessed on January 5th, 2022)

[65] IUCN (2020). Guidance for using the IUCN Global Standard for Nature-based Solutions. A user-friendly framework for the verification, design and scaling up of Nature-based Solutions. (Online) Available at: https://portals.iucn.org/library/sites/library/files/documents/2020-021-En.pdf

proactive adaptation measures are key. Recognizing the limitations of NbS and the need for rapid decarbonization also prevents its "misuse" and ensures accountability.

A consortium of 20 UK based organisations developed a set of guidelines, for delivering successful, sustainable NbS with long term benefits for people and nature[63]. The guidelines are intended to be complementary to the more detailed IUCN Global Standard for Nature-based Solutions,[64] including their published "Guidance for using the IUCN Global standard for NbS"[65] and the World Bank principles on NbS for disaster risk reduction and water management.[66] An open letter to promote the guidelines was sent to the head of COP 26, Alok Sharma, and it was adopted by the Together with Nature campaign as a call to action to corporations to commit to 4 principles when investing in NbS.

Those four principles are:

1. **NbS are not a substitute** for the rapid phase-out of fossil fuels and must not delay urgent action to decarbonize our economies.
2. NbS involves the **protection, restoration and/or management** of a wide range of natural and semi-natural **ecosystems on land and in the sea**; the **sustainable management of aquatic systems and working lands**; or the **creation of novel ecosystems** in and around cities or across the wider landscape.
3. NbS are designed, implemented, managed, and monitored by or **in partnership with Indigenous peoples and local communities** through a process that fully respects and champions local rights and knowledge, and generates local benefits.
4. NbS **support or enhance biodiversity**, that is, the diversity of life from the level of the gene to the level of the ecosystem.

According to the NbSI report 'Getting the message right on nature-based solutions to climate change , what is needed now is[67]:

1. **One clear voice on successful, sustainable NbS**: Practitioners and decision-makers need clear and coherent principles and standardised evidence-based frameworks. This will enable NbS to be designed and implemented using the best evidence-based criteria and will allow commitments on NbS for both climate change and biodiversity to be aligned, tracked, and improved over time.
2. **More holistic approaches across science, policy, and practice**: Capturing the full range of benefits arising from nature can incentivize additional investment, while managing trade-offs between benefits and among different sectors of society can channel this investment more effectively. Here we summarise the key elements of a holistic approach: (1) participatory design and implementation using different forms of knowledge; (2) a landscape approach that considers a wide range of connected habitats and the effects that interventions in one habitat or area have on others; (3) evaluating and managing the full range of benefits, trade-offs and conflicts across landscapes and societies and (4) implementing NbS as part of an integrated sustainability strategy across sectors. To implement NbS at scale and avoid simply displacing environmental impacts, land must be freed up from other uses, through a shift towards plant-based diets and widespread adoption of a circular economy

(Accessed on January 7th, 2022)

[66] World Bank (2018). Nature-based Solutions for Disaster Risk Management. (Online) Available at: https://documents1.worldbank.org/curated/en/253401551126252092/pdf/134847-NbS-for-DRM-booklet.pdf (Accessed on January 6th, 2022)

[67] Seddon, N. and Smith, A. et. al. (2021)

to reduce demand for raw materials.

3. **Mobilising and targeting finance for sustainable NbS**: There is a huge funding gap in investments in nature. While an increase in public funding would help plug some of the gap, there needs to be a substantial hike in investment flowing to NbS from the private sector. First, most private commitments to NbS are framed as offsets, which often involve greenwashing and there is a focus on tree-planting programmes, often imposed in a top-down manner, that can result in adverse impacts for local people and biodiversity. Second, it is difficult to determine what actions companies or banks are taking as few of those with pledges for nature define clear and actionable plans for implementing and verifying commitments. Third, even if companies and banks invest in ecologically and socially sound projects, the investments are not large enough to match the scale of their dependencies on nature.[68]

Other recommendations from the report are: Formation of intermediary bodies which help link good investors with high-quality NbS projects can also facilitate the transition to large-scale funding of successful, sustainable NbS.[69]

Additionally, there is a need to give more weight to NbS studies to provide professionals in the field with the required knowledge for planning, designing, implementing, maintaining, and monitoring NbS.

Besides, the absence of transboundary actors skilled in speaking the language of different groups and connecting stakeholders at different institutional levels is a critical barrier. These actors can come from different departments or institutions, to play the role of knowledge brokers and facilitate networking among scientists and policymakers.
Also, educational and training programs are mostly dedicated to traditional (instead of NbS) solutions. As a result, there is a critical need for knowledge brokers and educational programs which bring stakeholders together to network and co-create NbS.[70]

Governments can incentivize the sustainable management of resources through measures such as carbon and resource taxes, and regulation to reduce environmental externalities such as pollution while providing financial support for sustainable investments.

Companies must adopt regenerative and circular economy models and must appropriately embed natural capital into accounting procedures.[71]
Blended public–private finance can also support NbS, where governments underwrite the risk to companies of investing in unproven technologies.

Achieving the transition to a sustainable economy will require unprecedented collaboration between private and public sector actors, economists, and NbS researchers and practitioners.

3.6 NATURE-BASED ECONOMY

More research is needed with regards to the economic potential of NbS and their role in a just transition to the type of sustainable

[68] World Economic forum (2020). Nature Risk Rising: Why the Crisis Engulfing Nature Matters for Business and the Economy (Online) Available at: https://www.weforum.org/reports/nature-risk-rising-why-the-crisis-engulfing-nature-matters-for-business-and-the-economy (Accessed on January 5th, 2022)

[69] Monitor Institute (2009). Investing for Social and Environmental Impact. (Online) Available at: https://www2.deloitte.com/content/dam/Deloitte/global/Documents/Financial-Services/gx-fsi-monitor-Investing-for-Social-and-Environmental-Impact-2009.pdf (Accessed on January 5th, 2022)

[70] Sarabi, S. et al. (2020). Uptake and implementation of nature-based solutions: an analysis of barriers using interpretive structural modelling. Journal of Environmental Management, 270 ([110749). Online Available t: https://doi.org/10.1016/j.jenvman.2020.110749 (Accessed on January 5th, 2022)

[71] Seddon, N., Smith, A. (2021)

economy as for example envisaged in the European Green Deal.
The draft white paper for consultation 'From Nature-based Solutions to the Nature-based Economy'[72] published in 2021 was led by representatives of 11 Horizon 2020 funded nature-based solutions projects, joined in Network Nature, as part of the EC Task Force on Finance, Governance and Business Models of Nature-Based Solutions.

It aims to seek and secure the right conditions for NbS project investments to happen on a much larger scale than currently is happening. The White Paper is proposing a paradigm shift - a new approach to valuing natural capital and to enabling its incorporation in the economic system.

The whitepaper proposes the following definition of the Nature-based Economy as a starting point for further debate and consultation: "The Nature-based Economy encompasses all production, exchange and consumption processes related to activities concerned with the protection, conservation, restoration and sustainable use of natural resources by consumers, industry and society at large".

It explicitly recognizes nature as both providing a critical input to production and generating valued output in the economy. Attention is shifted from the role of individual actors, such as the public or private sector, to the integrated activities of all stakeholders in the 'consumption' and 'production' of nature. Inefficient use of natural resources, a finite source of capital, will be addressed by applying shadow pricing of ecosystem services in production and consumption

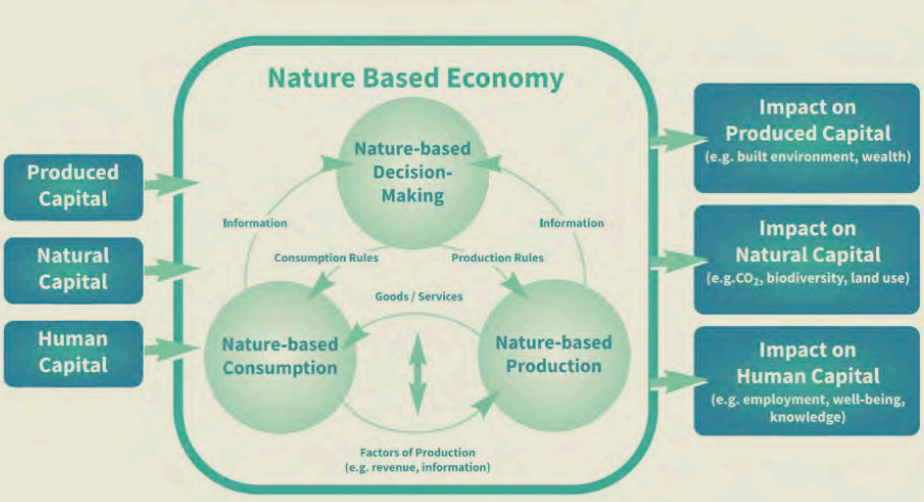


Figure 1.2 The Nature-based Economy perspective

[72] Network Nature (2021). Consultation process on draft Nature-Based Economy White Paper. (Online) Available at: https://networknature.eu/Nature-Based-Economy-White-Paper-Consultation (Accessed on January 5th, 2022)

activities coupled with tangible interventions to both reduce 'consumption' and increase 'production' of natural resources.

The white paper argues that NbS have the potential to play a significant role in the Nature-based Economy; 'super-charging' the transition to sustainable development decoupled from resource utilisation and carbon emission growth.

Also, the concept of Nature-based Enterprises is introduced. The characteristics of Nature-based Enterprises are profiled in terms of size, stage of development, challenges, and enablers. It concludes that specific policies need to be put in place to support the start-up and growth of Nature-based Enterprises as a key enabler on the supply side to meet increasing market demand for NbS.

The BWL Collective was too early in its development to provide validated input during the consultancy process for this white paper, led by Nature Network in 2021.

We think the notion of decoupling is hotly contested,[73] and the debate would benefit from a discussion about threading the needle between green growth and degrowth. We argue that the concept of a Nature-based Economy is interesting because it attributes a significant role to NbS and proposes a paradigm shift - a new approach to valuing natural capital and to enabling its incorporation in the economic system. **But we believe we need entirely new values that underpin economic activity, not just more environmentally efficient production.**

We aim to build further on the gained insights and to contribute to the debate around NbS and the Nature-based Economy, especially on an EU policy making and policy implementation level.

3.7 MARKET SUPPLY AND DEMAND FOR NBS

The Network Nature white paper mentions that the market for NbS is at an early stage of development with much potential for growth. From a policy perspective, stimulating demand and supply is not a simple proposition and requires consideration of the complexity of this market sector.

A multiplicity of actors is involved in both demand and supply of nature-based solutions with varying roles across value chains in different market sectors. Participatory processes leading to effective user participation and an openness to innovative approaches are an essential starting point for consideration in any policies to stimulate market demand. Demand-led policies must consider the nature of NbS as private goods and services (e.g. green buildings primarily paid for by the private sector but which may create public benefits such as urban cooling), public goods or services which can be enjoyed by many (e.g. urban parks primarily owned and paid for by the public sector but which may involve some private businesses such as coffee shops) and so-called common pool resources i.e. public goods where over-use of such resources would lead to negative effects (e.g. urban forests or nature reserves, again often owned

[73] Ward, J.D. at. al. (2016) Is Decoupling GDP Growth from Environmental Impact Possible? PLoS ONE 11(10). (Online) Available at: https://doi.org/10.1371/journal.pone.0164733 (Accessed on January 5th, 2022)

and managed by the public sector, but with increasing evidence of effective management by iv communities or NGOs).

We argue that we need to create a market for NbS on an integrated landscape level. This approach will offer the right scale to generate multiple returns (natural, social, economic), unlock large scale investments and influence policies to strengthen the market for NbS.

3.8 MORE RESEARCH AND EXPERIMENTING IS NEEDED

The concept of NbS is gaining traction but also needs further research and experimenting.
Many instruments like national climate action plans and EU biodiversity targets are in place. At a European level some of the most relevant policy contexts include the European Green Deal[74], the EU Biodiversity for 2030 Strategy[75] and the EU Recovery plan[76]. At a global level, 70 governments, private sector, civil society, and international organisations signed up to the NbS for Climate Manifesto at the UN Climate Action Summit in 2019, and NbS have been identified as part of the pathway to a global movement towards achieving the goals of the UN Decade of Ecosystem Restoration. The IUCN Global Standard for NbS and the EC Handbook on Evaluating the impact of NbS will greatly contribute to a more consistent understanding, implementation, and measurement of the impact of this concept globally.

The European Commission explains through their Horizon 2021 call for proposals titled "*Assessing the socio-politics of nature-based solutions for more inclusive and resilient communities*" that "NbS are already being delivered with increasing evidence on their effectiveness, but implementation issues persist, hindering NbS uptake and upscale[77]. There is a need to move beyond seeing the implementation challenge as primarily a technical issue, to develop our understanding of the economic, social, political, moral, and cultural dimensions of designing and implementing NbS.

Most of the available approaches seem inadequate to fully take into consideration synergies and trade-offs among different actions, notably in what concerns the social and cultural benefits of NbS. They often also fail to understand the social, political, and institutional contexts and the material and discursive elements that shape NbS implementation.
This, in turn, affects the long-term success of NbS, notably in contributing to the transformative change needed to address the biodiversity and climate crises. This understanding is particularly crucial when implementing NbS to support vulnerable communities and regions to cope with transformative change in old-industrialised, low-income, outermost, or disaster-hit areas.

NbS can also contribute to addressing inequities and well-being in communities and regions who need it most, especially in terms of the post-COVID19 recovery. Additionally, our understanding of how diverse actors –

[74] European Commission (2021b)

[75] European Commission (2021e)

[76] European Commission (2021g)

[77] Horizon Europe Framework Programme (2021)

who may operate at different scales and through multiple networks – are engaged in the development and implementation of NbS is still limited, especially when the deployment of NbS implies collaboration across different regions, administrative areas or simply different types of landowners".

The BWL Collective has explored with research partners Collegium Civitas (Poland), Radboud University (The Netherlands) and Hasselt University (Belgium), what research to focus on over the next few years:

1. **Inclusion of actors and their perception of NbS**

It is clear we must ensure a rights-based, inclusive, and participatory implementation of NbS. We must analyse how actors, especially vulnerable and Indigenous communities but also, nature 'for nature's sake' and in its own right, can be included in the co-creation process of transformative change towards effective NbS. Together with Collegium Civitas we aim to further research:

How can actors and especially women, youth and vulnerable communities be included in the co-creation process of transformative change towards effective NbS?

How can we better understand the meaning and perception of NbS from various perspectives of different actors and stakeholders, on the one hand to better understand their functioning in public discourses, and on the other one to identify factors that could unlock their take up and scaling, and integrating potential of NbS?

2. **Transformative governance**

There is an emerging growing consensus that transformative change is needed to address global and European goals for sustainable development (IPBES, IPCC refs). To achieve such fundamental change, transformative governance, defined as the formal and informal (public and private) rules, rulemaking systems and actor networks at all levels of human society that enable transformative change, is needed. However, sustainability stakeholders have had little experience with such governance so far. Together with Radboud University we aim to further research:

How can NbS be governed in a transformative way? In what ways does the role of change leadership influence the governance of NbS? How can landscape approaches stimulate transformative change?

How can the emerging EU frameworks (Green Deal Farm to Fork) support the transformative governance of NbS?

3. **A new financing mechanism for NbS**

We need to develop the economic architecture that is supportive to the scaling of NbS and attract investment, with the aim to multiply the positive social, environmental, and economic impacts for the benefit of society. Urgent societal issues such as the global biodiversity loss and carbon emissions are showing that traditional business models may have limited applicability and need to be adapted. Society is urged to rethink supply chains and develop novel business models to create not only economic, but also inspiration, and social and environmental values (like the 4 returns). Together with Hasselt University we aim to further research:

What are inspiring new business models? How can we develop an integrated business case for NbS on a landscape level?

How can we map and price liabilities in a landscape (like flooding, fire risk)? What are the most cost-effective NbS that can mitigate the important liabilities?

How can we co-develop the environmental, social & financial impact metrics bridging the gap between NbS and investors?

How can we identify and test a framework for the financial governance of multiple assets (the combination of several NbS in one geographic region)?

3.9 CONCLUSION

Solutions designed to work with nature are the perfect entry point for people to reframe their relationship with nature. NbS have the potential to engage many different actors across different levels and they are concrete tangible actions through which we can become conscious of our interconnectedness, with each other and the planet.

NbS - defined as actions to protect, sustainably manage, and restore natural or modified ecosystems, that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits - can play a major role to reverse climate change, if deployed effectively, in a just, inclusive, and participatory way.

The concept of a Nature-based economy with NbS at its core, is interesting because it attributes a significant role to NbS and proposes a paradigm shift - a new approach to valuing natural capital and to enabling its incorporation in the economic system. But we believe **we need entirely new values that underpin economic activity, not just more environmentally efficient production**.

The market for NbS is at an early stage of development with much potential for growth. From a policy perspective, stimulating demand and supply is not a simple proposition and requires consideration of the complexity of this market sector. **We must create a market for NbS on a landscape scale**. This approach will offer the right scale to generate multiple returns (natural, social, economic), unlock large scale investments and influence policies to strengthen the market for NbS.

The concept of NbS is gaining traction; guidelines and standards are in place. The BWL Collective strongly aligns with the analyses and recommendations for designing and implementing NbS, as published in 'Getting the message right on nature-based solutions to climate change' by Nathalie Seddon and Alison Smith:

1. One clear voice: practitioners and decision-makers need clear and coherent principles and standardised evidence-based frameworks.
2. More holistic approaches across science, policy, and practice: Capturing the full range of benefits arising from nature can incentivize additional investment, while managing trade-offs between benefits and among different sectors of society can channel this investment more effectively

3. Mobilising and targeting finance for sustainable NbS: there is a huge funding gap in investments in nature, there needs to be a substantial hike in investment flowing to NbS from the private sector.

More research into the social, political, and institutional contexts that influence NbS implementation is needed. **The BWL Collective aims to gain deeper insights in the inclusion of actors in NbS, transformative governance models and new finance mechanisms for NbS.** We hope to secure funding to conduct participatory action research with our stakeholders over the next few years, in close collaboration with our research partners Collegium Civitas (Poland), Radboud University (The Netherlands) and UHasselt (Belgium).

4. SYSTEMIC BARRIERS THAT PREVENT NbS FROM UPTAKING & SCALING

Despite clear NbS guidelines and recommendations, and despite the many effective NbS that are generating multiple benefits for people and the planet, we concluded earlier that still these solutions are not mainstreaming. Why is that?

We interviewed the partners of the BWL Collective, and validated our findings with additional desk research. Finally, these significant barriers surfaced:

4.1 NBS AS A CONCEPT REMAIN CONTROVERSIAL

Despite the NbS standards and guidelines, NbS are still receiving a lot of criticism. Recently, in November 2021, a large group of organisations, networks and movements published a manifesto 'Say NO to Nature-based Solutions'.[78] They state that "the climate damage caused when corporations keep releasing greenhouse gases into the atmosphere cannot be offset through planting trees, protecting forests, restoring soils or tweaking industrial farming practises" and "to meaningfully address the havoc wreaked by industrial agriculture, globalised industrial food systems and global trade, we need systemic transformation such as agroecology, local sustainable food systems, short supply chains and territorial markets". They claimed that "time has run out for dangerous "nature-based distractions ".

Debate at COP 26 has also proven that NbS remains a polarising concept. It is still unsure if NbS will be included in the final text of the Post-2020 Global Biodiversity Framework,[79] expected in May 2022.

4.2. NO ADEQUATE INFRASTRUCTURE FOR LARGE SCALE INVESTMENTS

There has never been more money and political will for environmental conservation and sustainability than in this decade.[80] However, most socio-environmental entrepreneurs and communities that are successfully deploying NbS cannot meet the needs of investors, banks, and pension funds for example, and vice versa. They don't seem to find each other to unlock the potential of exponentially scaling-up NbS if – amongst others - they would be fully valued for the benefits they can bring and receive proper investment.

Adequate investment in NbS will help reduce financial consequences of climate change, and can contribute to the creation of new jobs, to livelihood resilience and to reducing people's poverty.[81]

However, at present, NbS only receives a small share of climate finance. If the world is to meet the climate change, biodiversity, and land degradation targets, it needs to close a USD 4.1 trillion financing gap in nature by 2050. The current investments in Nature-based solutions amount to USD 133 billion – most of which comes from public sources.[82]

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[78] Focus on the Global South (2021). 257 groups say NO to nature-based solutions! (Online) Available at: https://focusweb.org/257-groups-say-no-to-nature-based-solutions/ (Accessed on January 4th, 2022)

[79] CBD (2021). First draft of the post-2020 global biodiversity framework. Convention on Biological Diversity. (Online) Available at: https://www.cbd.int/article/draft-1-global-biodiversity-framework (Accessed on January 5th, 2022)

[80] Landscape Finance Lab (2021). Incubating and Financing sustainable landscape at scale. (Online) Available at: https://www.landscapefinancelab.org/about/ (Accessed on January 5th, 2022)

[81] UNEP (2019)

[82] UNEP, WEF, ELD and Vivid Economics (2021). State of Finance for Nature. (Online) Available at: https://www.unep.org/resources/state-finance-nature (Accessed on February 8th, 2022)

Mark Cheng, Senior Advisor of **Ashoka** and founder of **Social Innovation Circle**, explained why NbS are hard to finance from his experience: "Most investors need to see a return on their investment within 4-7 years, at the latest. Most investment funds are even legally required to sell their investments within 7 years. This is normally too short for NbS, which requires a longer time frame to see results, so there is a mis-matching time horizon."

Also, the profit motive often conflicts with what NbS are trying to achieve. For example, the easiest way to monetize a forest is to cut down the trees and sell the wood. But this is often directly against what the NbS' goals are. So, if a NbS is planning to raise (traditional) investment, it needs to find a way of monetizing its impact (i.e. getting people to pay for the benefits it provides) which may even be more lucrative than short term alternatives (i.e. selling the wood). This may not be possible, because the sustainable solution is rarely the most profitable in the short term.

For investment into NbS to work, it is crucial according to Cheng, to find a group of 'customers' who value environmental restoration, conservation, and regeneration more than the short-term profits of environmental destruction, and who are willing and able to pay for this. Finding and building this database of concerned stakeholders who are also willing to pay should be a key task of players in the field of impact investment.

However, **stakeholders are often very diverse and uncoordinated**. For example, people who care about protecting forests or coral reefs are all over the planet. They are not the paying customers of a particular business, and therefore it is difficult to 'monetize' their concern into value that can be used to unlock investment. A key question for impact investment going forward must therefore also be: 'how can we convert stakeholder interests in NbS into monetary power to finance those solutions? **This could result in concepts like crowdfunding and circles of angel investors, rather than models for traditional investment.**

Paul Chatterton, Lead at **Landscape Finance Lab**, a WWF spin-off initiative and partner of the BWL Collective, thinks that investing in 'stand-alone' NbS is short term thinking, and investing in whole landscapes is the longer-term solution.

Most of the world's biodiversity, food production, freshwater and coral reefs lie in less than 100 landscapes. And these same landscapes are also the sources of much of the world's land-based climate emissions, poverty, and political vulnerability. Landscape programs are a powerful and holistic delivery mechanism for addressing global goals and fixing these problems. They can group the implementation of Sustainable Development Goal (SDG) solutions, to reduce costs and increase efficiencies. Most importantly they put the power, resources, and decision-making in the hands of the people who live in the landscapes and who most directly experience the problems. These are undoubtedly the people who in the long term must be able to hold the solutions.[83]

In Chatterton's experience there is an abundant amount of financing out there that could

[83] WWF Landscape Financial Lab (2020). Annual Report 2019. (Online) Available at: https://www.landscapefinancelab.org/wp-content/uploads/2020/03/LFL_Annual_Report_2019.pdf (Accessed on December 1st, 2021)

potentially be steered towards landscape restoration and rejuvenation, but we need unique and attractive financing approaches to secure the fragile pool of available capital solutions. **An integrated approach of best practices for large-scale landscape restoration can capitalize on the pledge of global governments and business leaders to reach net-zero emissions by 2050.**

Indy Johar, founder of **Dark Matters Lab** and partner of the BWL Collective, goes one step further. If we want to construct truly new micro-economic architectures and new flows of value and local credit mechanisms to finance these landscapes, **we first need largely risk and explorative capital provided by partnerships that recognize their capital is going to construct new types of financial instruments** (e.g. landscape portfolio asset management and smart landscape financing). We also need a new institutional design: what is the open-source institutional structure and governance that is going to absorb and organise this capital? And finally, **we need to digitalise these regional networks and build investment, cooperation, and crowdfunding (crypto) platforms.** Unfortunately, our current institutions lack the capability across all those domains.

According to Johar, a landscape can be regarded as a portfolio of integrated assets and liabilities; how to build a structure to finance that? For example, a tree is an ecological, regenerative asset that is subject to change; how do you calculate the value? Another challenge is governance: how do you mobilise communities to voluntarily organise themselves into a landscape level institution? What legal framework is needed? And finally, landscapes are fragile systems that require maintenance which needs to be modelled, measured, and verified. What is the tool for that?

4.3 NATURAL CAPITAL AND CLIMATE ACCOUNTING STILL EARLY STAGE

For NbS to integrate and scale in our current economic system, it is relevant that nature can be valued, and integrated into public and corporate decision-making, in a more structured way.

The desire to include environmental information in national accounts has resulted in the construction of a system of environmental-economic accounting. The System of Environmental-Economic Accounting—Ecosystem Accounting (SEEA EA)[84] is a standardised approach to measuring relationships between human activity and environmental outcomes, including ecosystem health and sustainability. It is a quantitative approach to natural capital accounting, and used for strategic risk assessments, operational management, and sustainability reporting. SEEA principles are now recognised as the most cost effective, actionable approach to natural capital accounting.

According to the SEEA EA 2020 Assessment, 89 countries have implemented the SEEA, showing a steady increase in the number of countries

[84] SEEA - UN (2021). Ecosystem Accounting in the News. System of environmental economic accounting. United Nations. (Online) Available at: https://seea.un.org/content/ecosystem-accounting-news (Accessed on December 10th, 2021)

compiling the SEEA over time[85]. In theory, the potential for this system is significant; it can enable countries to measure their natural capital and understand the immense contributions of nature to our prosperity and the importance of protecting it. However, based on a literature review and survey of SEEA experts, practical problems in implementing the SEEA are significant, especially in developing countries. Such issues include data availability and quality, as well as the availability of funding and human resources. Therefore, **data collection from NbS and easy access to relevant NbS data, as well as capacity development are needed to establish a successful implementation of the SEEA**.[86]

It is a positive development that countries are taking nature into account in their risk assessments and impact reporting. However, **Emmanual Faber**, former CEO of food multinational **Danone** expressed recently in a Time's article[87] that "society and citizens are going after governments for action or inaction against climate change. But **governments will have no other way than turning to companies to do the job, because governments are not doing the job themselves. The private sector will be front and centre of the climate transition**". He continued that "Environmental Social and Corporate Governance (ESG) has been sort of an easy path for CEOs and boards that wanted to look good but weren't ready to really walk the talk. That's the whole question of greenwashing."

Faber expects that companies can't hide for much longer because the IFRS (International Financial Reporting Standards, which sets rules for public companies) said that they have prepared a prototype for a climate standard that is going to be transparent, comparable, and reliable and audited. "*So by 2023, all companies will be able to—and in some cases compelled to—report under these new standards. Each company will have to report on its targets on CO2 emissions and its pathway to reduce that. Suddenly you can be compared, within peers, within an industry. And you start having a situation where the capital allocation can be based not only on profit but also on carbon.*"

This can give a big boost to NbS because most companies in the world are using resources from the soil. They started to realise more frequently that to produce food and raw materials we need healthy soil that can also capture carbon. In the corporate sector they are aware of this problem; they also know that nature holds a solution, but they still struggle to find a way to tap into the new opportunities. **Collaboration between corporates and Nature-based Enterprises can contribute to advance the field of natural capital and climate accounting, and also avoid greenwashing.**

It is also an interesting development that The New York Stock Exchange (NYSE) has built a new class of publicly traded assets called Natural Asset Companies (NACs) that enables investors to access investment in ecosystem services. NACs are sustainable enterprises that hold the rights to ecosystem services produced by natural, working, or hybrid land. **On a global basis, natural assets produce an estimated $125 trillion annually in ecosystem services, such as carbon sequestration, biodiversity, and clean water. This output underscores the financial potential of an asset class that is wholly based on environmental investment.**

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[85] SEEA (2021). The Global Assessment of Environmental-Economic Accounting. System of environmental economic accounting. United Nations. (Online) Available at: https://seea.un.org/content/global-assessment-environmental-economic-accounting (Accessed on December 10th, 2021)

[86] Pirmana, V., Alisjahbana, A. S., Hoekstra, R., Tukker, A. (2019). Implementation Barriers for a System of Environmental-Economic Accounting in Developing Countries and Its Implications for Monitoring Sustainable Development Goals. Sustainability, 11(22). (Online) Available at: https://doi.org/10.3390/su11226417 (Accessed on December 10th, 2021)

[87] Walt. V. (2021). A Top CEO Was Ousted After Making His Company More Environmentally Conscious. Now He's Speaking Out. Time. (Online) Available at: https://time.com/6121684/emmanuel-faber-danone-interview/ (Accessed on December 10th, 2021)

It is the question if it really creates a virtuous cycle of investment in nature that will help to finance sustainable development for communities, companies, and countries and if it will lead to transform our industrial economy into one that is more equitable.[88]

Despite all these developments, **Pepijn Duijvestein**, founder of **New Economy**, and member of the BWL Collective argues that our current financial system is not aligned with the aim to create shared value for society and our natural ecosystem. He thinks a radical transformation is necessary to create a financial system that values our natural ecosystem and at the same time benefits local communities. **It requires a transformational shift in all aspects of finance**, from revenue models, shareholder structures and goodwill, to benefits for the communities that are affected by them.

4.4 CARBON MARKET NOT WORKING FOR SOCIAL INNOVATORS WITH NBS

The global carbon market is expected to keep growing considerably due to the implementation of the Paris Agreement and a renewed global commitment to mitigate CO2 emissions. After COP#26, corporate willingness to pay within the context of their carbon offset strategies is high. Selling carbon credits could be a way to leverage the potential of NbS to reverse climate change. However, our research showed that **the traditional carbon market is rather used for greenwashing than supporting rights based, inclusive and participatory NbS for the benefit of all people and planet.**

NbS vary in the extent to which they support biodiversity, which in turn affects their resilience, for example their capacity to resist and recover from perturbation or severe drought and maintain the flow of ecosystem services. Trade-offs arise when (corporate) policies encourage NbS with low biodiversity value, such as afforestation with non-native monocultures. This can result in maladaptation, especially in a rapidly changing world where biodiversity-based resilience and multi-functional landscapes are key.[89] Also, trade-offs can arise in terms of carbon capture.

For example, scientists who examined an afforestation program in Chile found that it expanded the acreage covered by trees but decreased the total amount of native forests, which are more carbon-dense and biodiverse than plantations.[90]

One of the study's co-authors suggested that "**future subsidies should seek to promote the recovery of the many carbon- and biodiversity-rich natural ecosystems that have been lost instead of building new tree plantations", which unfortunately has become a worldwide adopted practice for carbon compensation schemes.**

NbS also differ in how much they are co-designed and implemented by local communities.[91]

As we clearly set out in the first part of this report; acceptance and embracement

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[88] IDB (2021). NYSE and Intrinsic Exchange Group announce a new asset class to power a sustainable future. Inter-American Development Bank - News. (Online) Available at: https://www.iadb.org/en/news/nyse-and-intrinsic-exchange-group-announce-new-asset-class-power-sustainable-future (Accessed on December 1st, 2021)

[89] Seddon et. al. (2021)

[90] Whieldon, E. (2020). Scientists see problems with some carbon-offsetting tree planting programs. S&P Global. (Online) Available at: https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/scientists-see-problems-with-some-carbon-offsetting-tree-planting-programs-59163058 (Accessed on November 18th, 2021)

[91] Seddon et. al. (2021)

of NbS by local communities is key for successful implementation. **The inclusion of communities is often neglected by the big players on the carbon market**.

Over the years, the situation on the carbon markets has been one of oversupply of credits. Accordingly, the average prices have dropped almost every year since 2008 (from USD 7.3 per ton CO2e to around USD 2.7 in 2019).[92]

The current dumping price results from large-scale renewable energy mitigation projects. The lowest average prices are paid for renewable energy projects (USD 1.4 /ton CO2e), whereas prices of new (nature-based) credits are rising: in 2019, prices for carbon credits from nature-based solutions and natural climate solutions rose by 30 percent.

Demand has also shifted from compliance with the Kyoto protocol and carbon credits generated through industry, waste, and renewable energy projects to carbon credits from nature-based solutions demanded by unregulated companies and individuals. Usually, the cost of carbon credits generated through NbS are more expensive because of higher project cost per unit carbon generated, and willingness to pay for those credits are low as cheaper credits are preferred.

Georg Schon, director of **Ashoka Europe Fellowship** suggests, based on research among Ashoka Fellows: "**What is needed is a complementary CO^2 compensation system that precedes the official voluntary carbon market and is tailored to the needs of social entrepreneurs and the NbS they are implementing. This requires the development of new carbon off-setting instruments encompassing small scale projects**. Also, low-cost, and technically simpler certification processes would be required. Payment schemes should be pre-financed while maintaining the highest standards for carbon certification."

Traditional CO^2 Certification schemes such as Gold Standard, Clean Development Mechanism, and the Verified Carbon Standard charge 10-20.000 EUR for certification; a significant investment that is often impossible to raise for a social entrepreneur. Specialised consulting companies often take over the management of the certification process and the implementation of the carbon mitigation project at high cost. Additionally, the certification process requires time and complex technical capacities from the social enterprise, which they in many cases lack.

Because financial compensation is paid retrospectively - first payment comes an average of 1,5-2 years after starting the project - new projects require large pre-investments from the social entrepreneur. Also, the average size of a certification purchase is much higher than the average NbS implemented by a social enterprise can offer.

Another way to meet demand is **to move beyond carbon credits generated from individual projects and into those generated by supporting jurisdictional efforts.** Jurisdictional programs could help scaling NbS by addressing systemic drivers of forest loss across large territories, for instance. Some jurisdictions are also preparing to offer carbon neutral commodities, like soybeans.[93]

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[92] Poolen, D. and Ryszka, K. (2021). Can voluntary carbon markets change the game for climate change? RaboResearch. (Online) Available at: https://economics.rabobank.com/publications/2021/march/can-voluntary-carbon-markets-change-the-game-for-climate-change/ (Accessed on November 24th, 2021)

[93] Poolen and Ryszka (2021)

These mechanisms could be the opportunity to combine traditional carbon offsetting with social impact. Socio-environmental entrepreneurs can offer both, especially through an integrated landscape approach. Through a portfolio approach (e.g 90% investment in traditional voluntary markets and 10% investment in a group of social entrepreneurs with integrated NbS in a landscape), private companies could combine carbon offsetting and CSR at a higher price/ higher social impact per ton of CO^2.

4.5 LACK OF LONG-TERM VISION AND STAKEHOLDER COMMITMENT

Important stakeholders that are required to collaborate still operate on short-term cycles driven by near-immediate returns, whereas social innovators operate over much longer time periods. This discrepancy in timeframes means that decision makers have little incentive to support initiatives whose benefits they will not be able to reap within their mandates.

Bach Kim Nguyen from **BeeOdiversity** remarks that politicians for example are there only for a couple of years, while he has long-term goals. He adds that "*in politics they often want to show results, but when you want to improve biodiversity, you will not see the results next year, but probably years after that*".

The focus on short-termism and lack of long-term thinking, causes ecological trade-offs and does not acknowledge the complexity of implementing effective NbS. Fortunately, we witness developments of (local) governments collaborating more and more with social innovators also over a longer period, which allows them to learn from each other.

The **Sea Ranger Service** is one such case. They optimised their business model to work with both government and the private sector - within the system - and know to leverage that capacity effectively for the protection of nature and restoration of biodiversity.

Similarly, **Fundacja Laka** leveraged its successful model to transform grass lawns into biodiversity rich flower meadows, to agree with the Polish parliament to transform roadside meadows across Poland. Their proposal was recently signed and approved by 90 deputies, which is a giant success for that kind of action in Poland.

Likewise, the **Kogayon Association** leveraged its successful establishment of a National Park to seek the endorsement of the Romanian president and strengthen their stance with previously uncooperative environmental authorities.

And **Hoge Kempen National Park** managed to form a partnership of municipal authorities, Limburg provincial and Flemish government, nature conservation and heritage organisations, farmers, hunters, and tourism organisations to restore landscapes, protect nature and preserve biodiversity in the region.

These examples show that these public-private collaborations can unlock a huge

potential for innovation. Therefore, more of such collaborations should be encouraged.

Next to mismatching time frames, another major cause for lack of collaboration to change systems is rising polarisation between stakeholders. Due to the increasing environmental and socio-economic challenges, different actors in the system seem unable to put 'ego' aside to be able to focus on 'eco'. This prevents people from finding true dialogue and co-creating solutions together.

Geert van der Veer from **Herenboeren** describes this as a major factor why NbS are not mainstreaming, in his case within the food sector: "On the one hand you have small scale innovative farmers trying to convince others that there is a more sustainable way of farming, while on the other hand you have industrial farmers who are managing much larger pieces of land, made huge investments that they are still trying to recoup and feel misunderstood, angry and left alone in their struggle to survive as farmers. We need to create safe spaces where dialogue can start. This can only happen on a regional level, where people still know each other, and personal connections can be nurtured. Also, on this scale we can start with creating the enabling conditions for farmers to thrive, like affordable access to land (so farmers can keep cattle in a more sustainable way for example), public funding to secure farmer's income during a transition period, and a knowledge sharing platform (to learn with each other how to make the transformation). But first and foremost, **we need to shift from a national approach to a regional based vision, to restore trust between people**".

4.6 INSTITUTIONS ARE WORKING IN SILOS

Despite promising ambitions, a major barrier preventing the scaling of NbS pertains to the way institutions and governments are organised, and how they address issues. They often operate extremely siloed and without an integrated approach they are hindering NbS from mainstreaming.
For example, the United Nations (UN) Sustainable Development Agenda is one that promotes connectivity, inclusivity, and partnership; it acknowledges interdependencies of the 17 social, environmental, and economic goals (SDG's) and encourages actions that promote synergies among them. Yet, despite the importance of taking account of synergies and trade-offs between these goals there is little evidence that this is happening in practice. As a direct result, many goals are unlikely to be met by 2030. In particular, the failure to stabilise and adapt to climate change (SDG 13) or protect biodiversity (SDGs 14 and 15) has been exacerbated by the fact that these issues are being treated separately when in fact they are deeply interwoven and share many of the same drivers.[94]

This systemic failure, of not fully recognizing the interconnectedness of the environmental, social and economic crises , trickles down in almost all institutions and sectors.

This is acknowledged by the UNDP and explained in their living research document 'Institutional and coordination mechanisms'[95]: "Structural issues include difficulty in getting

[94] Seddon et. al. (2021)

[95] UNDP (2017). Institutional and Coordination mechanisms. Guidance Note on Facilitating Integration and Coherence for SDG Implementation. Published by United Nations Development Programme. (Online) Available at: https://sustainabledevelopment.un.org/content/documents/2478Institutional_Coordination_Mechanisms_GuidanceNote.pdf (Accessed on November 18th, 2021)

ministries and members of parliament to develop a feeling of ownership over the sustainable development strategy and its implementation" and "National Councils for Sustainable Development (NCSD's) have prioritised particular dimensions of sustainable development or issues over others. This could point to a failure to understand the interconnected nature of different sustainable development issues and the need to address them in a coordinated manner."

For example, in the agricultural sector and for those relying on public funding, a major concern relates to the "siloing" of governmental departments and the misallocation of subsidies. There appears to be a distortion in the market because it does not reflect the true cost of goods. Farmers are not being compensated for the full range of ecosystem services they provide. This is making them reluctant to depart from financial profit maximisation models towards the regenerative approaches championed by the NbS.

According to **Brendan Dunford** from **Farming for Nature**, across the EU, environmental funding from the CAP is usually administered through agricultural ministries, whereas environmental ministries often go under-funded. As Brendan notes, "The people who distribute the bulk of environmental funding often don't have the background or expertise in this area, while those who do haven't access to the resources – or the credibility within the farming community - to deliver", often resulting in Agri-Environmental programs which don't meaningfully deliver for nature or for the taxpayer.

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Following lack of long-term commitment and lack of an integrated and coordinated approach between and within institutions, follows that **policies, and legal frameworks are often out of touch with reality or entirely non-existent and preclude the effective deployment of NbS**.

As **Geert van der Veer** from **Herenboeren** notes, "*legislation is not prepared for us*". The problem is exacerbated by the apparent difficulty in legally positioning social enterprises as entities aiming to solve social-environmental issues whilst generating some sort of financial returns, and which are not NGOs nor companies. Durukan Dudu from Anatolian Grasslands also observes: "*governmental institutions are still having difficulty in positioning us*".

We need integrated and holistic approaches to policy making and public funding, to match the needs of NbS and social entrepreneurs who successfully design and implement them. We need to enhance regional and international cooperation by forming synergies with national and international development cooperation agendas and initiatives that help to scale NbS.

[95] IUCN (2021c). Post-2020 global biodiversity framework. IUCN - Issues Brief. (Online) Available at: https://www.iucn.org/resources/issues-briefs/post-2020-global-biodiversity-framework (Accessed on November 18th, 2021)

4.7 SUPPLIERS OF NBS ARE NOT COLLABORATING

Even within our collective of experienced socio-environmental organisations, we concluded that we work too often in silos too. Before we started our weaving journey in 2021, the majority of 25 organisations never collaborated before with each other. Not because they don't want to but because they are absorbed by their own hard work to change systems and create multiple benefits at the same time, dealing with a myriad of stakeholders. They lack time, resources and/or network to exchange ideas and best practises; to learn from each other and co create strategies to integrate and scale.

Many socio-environmental entrepreneurs with effective NbS are already creating substantial system changing impact. But partly due to the fragmented approach, many still often struggle to unlock required investments to scale up further and to create a bigger impact. This could improve significantly when they collaborate and integrate their innovations.

4.8 NO HARMONISED IMPACT METRICS FOR NBS

While social enterprises need to better identify the impact of their NbS to attract donors and investors, impact measurement should not be primarily driven by the needs of those donors and investors. Rather, it should be an ongoing process of dialogue among the different stakeholders involved in the measuring process and interested in its results.

Donors, investors, and sponsors require concrete results and KPI's to report on. However, the holistic and all-inclusive nature of social enterprises means results are difficult to quantify and the benefits are often indirect and "invisible", like increased social cohesion or a sense of wellbeing.

As **Florin Stoican** from **Kogayon Association & Văcărești Natural Park Association** observes: "The majority of the companies, sponsors and donors want to give the money for direct results. But we offer nature for all, by changing the system. We offer indirect benefits, not direct benefits".

Over the past decade we are facing an explosion of models, frameworks, and indicators to measure sustainability. This makes it is hard to tell what framework is best to measure the impact of NbS, since they create impact on so many levels like climate change, biodiversity, social and economic issues, etc. For each of those fields new frameworks apply.

On top of that, those frameworks can be very extensive and technical, so they are very hard to use by social innovators and their communities. There are not many farmers who can works for example with the Post-2020 Global Biodiversity Framework[96], because it is too complicated to use and report on.

[96] IUCN (2021c). Post-2020 global biodiversity framework. IUCN - Issues Brief. (Online) Available at: https://www.iucn.org/resources/issues-briefs/post-2020-global-biodiversity-framework (Accessed on November 18th, 2021)

The lack of common impact metrics is causing concerns over the reliability of NbS, and for example their cost-effectiveness or resilience to climate change, compared to engineered alternatives.[97]

The European Commission published 'Evaluating the Impact of Nature-based Solutions: A Handbook for Practitioners' in March 2021. It provides a protocol for selection of key indicators of NbS impact and methods for their assessment, which can be applied to monitor reference parameters[98]. It is a much needed and useful attempt to serve the need for robust methods, frameworks and indicators that allow the quantification and the multiple levels of interaction associated with NbS, from co-design to implementation.

4.9 LACK OF A COMMON LANGUAGE TO PROMOTE NBS

Underlying many of aforementioned systemic barriers is the lack of a common language between stakeholders. According to **Ignace Schops** from **Hoge Kempen National Park**, there is a pervasive difficulty for environmentalists to adapt communication to different contexts and thereby persuade different stakeholders of alternative approaches. There's a need - yet poorly understood - to reframe the narrative and to "translate nature into a language people can understand".

To a large extent, this relates to the lack of clear and common metrics. As **Pam Warhurst** from **Incredible Edible** notes, "the money will follow the credibility of the metrics", given the fundamental role these play as tools for cross field communication, and to create a common language. This language in turn could bridge conflicting interests and allows social enterprises to overcome what is perhaps the greatest barrier to scaling socio-environmental innovations, namely insufficient cooperation.

Therefore, BWL Collective initiator **Commonland** thinks that building relationships and trust amongst stakeholders is paramount for the long-term success of any large-scale integrated landscape management and restoration project. For a large part, this trust is built on sound communication and a common language. **For this reason, the 4 Returns framework avoids technical terminology in favour of a language that can be understood and shared by non-expert actors across policy sectors at the regional, national, and international level.** Its communication tool plays a crucial role in translating the many ways in which integrated landscape management and restoration can contribute to policy objectives on climate, food security, economy, environment, and social progress.

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[97] Seddon et. al. (2020)

[98] European Commission (2021). Evaluating the Impact of Nature-based Solutions: A Handbook for Practitioners. Publications Office of the European Union in Luxembourg. (Online) Available at: https://oppla.eu/sites/default/files/uploads/evaluating-impact-nature-based-solutions-handbook-practitioners.pdf (Accessed on December 1st, 2021)

4.10 CONCLUSION

Through interviewing the partners of the BWL Collective and additional desk research, some clear patterns emerged, and we gained a better understanding of why NbS are prevented from mainstreaming. Identified issues include:

- NbS are often (mis)used to an end for corporate 'greenwashing' and carbon offset purposes; hence they are not valuing nature for nature's sake, not enhancing biodiversity, and not inclusive for all stakeholders (especially indigenous and vulnerable communities).
- NbS are often still 'stand-alone' solutions and are not integrated with each other to create a bigger impact. Many required stakeholders, including suppliers of NbS, work in silos which obstruct a holistic and integrated approach.
- Fragmented NbS lack the scale to offer an interesting business case to investors and corporate leaders, and they often cannot provide the impact KPIs that are required to unlock large scale investments.
- NbS are not valued for all the benefits they can generate. Evaluative models like natural capital and climate accounting are still at an early stage; social returns and 'inspiration' are underestimated.
- Institutional and corporate stakeholders stick to short-term thinking and profit maximisation while taking up and scaling of NbS requires a long-term vision and commitment.

In general, we lack a common language and inspiring stories to promote the multiple benefits of NbS to all stakeholders. Despite these challenges, NbS - when designed and implemented correctly - can overcome the issues for effective impact.

These systemic barriers are complex and involve a myriad of stakeholders; from NbS practitioners and their communities, to corporate leaders, investors, and policymakers. If we want to remove these systemic barriers, our research shows that essential building blocks for such a strategy are:

- Focus on the **quality of NbS** to ensure a just, inclusive and participatory design and implementation. Social innovators are uniquely positioned to set the standard.
- Convene diverse and uncoordinated international impact investors with particular interest in NbS into **trusted investor circles**.
- Develop **landscape level business cases for NbS**, with integrated approaches to landscape restoration, protection and regeneration that can offer unique and attractive propositions to secure the pool of fragile finance solutions.
- Build a relevant case to **attract risk capital to experiment with new models** like portfolio asset management for NbS, and develop new digital institutions to explore new forms of open-source structures and governance models (e.g. asset management by the local communities) that can absorb and organise new flows of capital into NbS.
- Ensure data collection from NbS is pragmatic, **bridging the needs from funders, sponsors and investors** to deliver on often complex KPI's with the capacity of NbS practitioners to deliver on those data. Ensure that collected data is openly

accessible for everyone to use and build further on.

- Stimulate **collaboration between corporations and social innovators**. Governments will turn to companies who in the end are the big players that need to reach climate and biodiversity targets; corporate leaders know that nature holds the solution but struggle to tap into new opportunities. Collaboration with social innovators with NbS helps innovation and advances the field of (obligatory)natural capital and climate accounting, and also avoids greenwashing.
- Develop **new carbon-offsetting instruments** for smaller scale but effective NbS that create biodiversity and social benefits, beyond carbon offset and profit. Also, move from carbon credits generated by individual projects to an integrated carbon strategy across specific (jurisdictional) territories, encompassing multiple (smaller scale) NbS.
- Encourage **public-private collaboration**, especially between governments and social entrepreneurs with NbS, to stimulate innovation and alignment on matching time frames (short termism-long termism). Also shift from high-level national policy thinking to pragmatic regional approaches that are essential to restore trust, and avoid further polarization between stakeholders.
- **Advocate for integrated and holistic approaches** in policy making and public funding, to match the needs of NbS and social innovators who successfully design and implement them. Enhance regional and international cooperation by forming synergies with national and international development agendas.
- Create (financial) opportunities for NbS practitioners to **learn from each other and share best practices** to avoid fragmented and siloed approaches and to facilitate collective impact.
- Collaborate to develop a shared taxonomy around the many new instruments, models and outcomes of NbS. Create a common language, and build a **shared and appealing narrative** about the solution that nature holds to reverse the climate and biodiversity crises.

the Sea Ranger Service

PART 3

THE CRUCIAL ROLE OF SOCIAL INNOVATION IN NBS

5.1 ENGAGING EVERYONE & SHIFTING MINDSETS

The work of many social innovators magnifies impact as it progresses from direct service to scaled direct service, and then to systems change and/or framework change. To illustrate with an example: as a response to deforestation, a solution can be tree planting (direct service); a concept replicated by many others. Finding out what drives people to log trees illegally is addressing the root causes of the problem. It can be system changing to provide people with affordable healthcare facilities and alternative business models to stop them from earning an income to pay for their food and healthcare, through practices that harm the environment. This mindset shift can eventually lead to a new paradigm, to the pursuit of planetary and human health instead of financial profit. **In other words, the most effective social innovators are those whose models help *everyone* be problem solvers.**

14 of such social innovators and their social enterprises/foundations (all led by Ashoka Fellows) are partners of the BWL Collective:

1. Savory Institute (co-founded by **Daniela Ibarra – Howell and Alan Savory**, US) - Equipping land managers with innovative tools and curricula for holistic land management and regenerative agriculture via the establishment of regional hubs around the world.
2. Herenboeren (founded by **Geert van der Veer**, The Netherlands) - Supporting families in establishing self-owned nature-driven cooperative farms.
3. Anadolu Meralari (or 'Anatolian Grasslands', founded by **Durukan Dudu**, Turkey) - Designing and running large-scale landscape restoration projects, developing holistic enterprises and business models for regenerative agriculture and carbon offsetting.
4. Vazapp (co-founded by **Antonio Stasi**, Italy) – Providing farmers in remote rural areas opportunities to exchange experiences, encouraging cooperation, and disseminating knowledge through cultural events.
5. Farming for Nature (founded by **Brendan Dunford**, Ireland) - Recognizing, supporting, and rewarding farmers for enhancing the natural health of the countryside.
6. GIY ('Grow It Yourself', founded by **Michael Kelly**, Ireland) - Inspiring and enabling a global movement of people who grow their own food at home or in the community to reconnect with nature.
7. Incredible Edible (founded by **Pam Warhurst**, UK) - Inspiring citizens to grow food in public spaces and share it across their communities and become part of a wider community and commitment to food activism and community resilience
8. BeeOdiversity (founded by **Kim Bach Nguyen**, Belgium)- Redefining the role of bees in our ecosystems through offering an innovative scientific monitoring tool using bees as drones to capture valuable data about the environment.
9. Fundacja Łąka (founded by **Maciej Podyma**, Poland) - Facilitating the growth of biodiverse flower meadows in city centres, near roads, and on brownfields to preserve biodiversity.
10. Sea Ranger Service (founded by **Wietse van der Werf**, The Netherlands) - Training

unemployed youth to become Sea Rangers to protect the ocean and restore ocean biodiversity at scale.

11. Bioregional (co-founded by **Sue Riddlestone**, UK) - Providing a framework and a process for One Planet Living, that enables companies, communities, and city-regions to make it actionable and desirable a to create a world where people enjoy happy, healthy lives within the natural limits of the planet, leaving space for wildlife and wilderness.
12. Kogayon Association & Văcărești Natural Park Association (founded by **Florin Stocian**, Romania) - Cultivating citizen-driven functional conservation systems for natural heritage and environmentally protected areas to ensure natural prosperity and sustainable development.
13. Hoge Kempen National Park (founded by **Ignace Schops**, Belgium) – Providing a (Re) Connection model for natural ecosystems, increasing socio-economic benefits through ecotourism while also protecting the environment.
14. Klub Gaja (founded by **Jacek Borek**, Poland)- Engaging citizens in taking practical actions for the natural environment and animal rights, like tree planting with communities or with schools.

NOTE: *At the end of this report - included in the Annex – a broader explanation is provided for each of their models including concrete impact data based on the 4 returns (natural capital, social capital, financial capital, and inspiration).*

Through in-depth interviews with these social innovators and through additional desk research, we gained a deep understanding of their successful strategies to mobilise everyone to play a role, and to shift mindsets to achieve wide acceptance of NbS and their implementation.

5.2 PROVIDE SOLUTIONS FOR PEOPLE'S EVERYDAY LIFE

An important reason for the weak response to climate change and biodiversity loss from the wider society is related to risk perception and to the salience assigned to environmental issues. In fact, people have difficulties in representing and understanding the relevance of events that they consider distant in space.

Particularly, until the consequences of climate change and of the depletion of natural resources are directly experienced, people tend to underestimate them and are thus not willing to act to prevent them.[99] Accordingly, several studies have shown that farmers who directly experienced the consequences of global warming such as floods, a steep increase in temperature, or extreme drought have a higher perceived risk of climate change and are consequently more willing to act to prevent it.[100, 101]

That is why it is crucial to design solutions for actual problems that people encounter in their daily lives, in the environment they work and live in. Are they earning enough income, are they living in a nice neighbourhood? This is also stressed by **Paul Hawken** from **Project Drawdown**, who thinks **we must address current human**

[99] Bickerstaff, K., Simmons, P., Pidgeon, N. F. (2006). Public perceptions of risk, science and governance: main findings of a qualitative study of six risk cases. Centre for Environmental Risk. (Online) Available at: http://psych.cf.ac.uk/understandingrisk/docs/report_2006.pdf (Accessed on October 15th, 2021)

[100] Dang, H. L., Li, E., Nuberg, I., & Bruwer, J. (2014). Understanding farmers' adaptation intention to climate change: A structural equation modelling study in the Mekong Delta, Vietnam. Environmental Science and Policy, 41: 11-22. (Online) Available at: https://doi.org/10.1016/j.envsci.2014.04.002 (Accessed on October 25th, 2021)

[101] Azadi, Y., Yazdanpanah, M., Mahmoudi. H. (2019). Understanding smallholder farmers' adaptation behaviors through climate change beliefs, risk perception, trust, and psychological distance: Evidence from wheat growers in Iran. Journal of environmental management. (Online) Available at: https://pubmed.ncbi.nlm.nih.gov/31513997/ (Accessed on October 25th, 2021)

needs, not future existential threats, real as they are, with initiatives that directly influence daily lives, like electric vehicles, the concept of 'fifteen-minute city', bioregions, food localization, etc.

Farming for Nature, founded by **Brendan Dunford**, started from the realisation that some modern agriculture practises are impoverishing the land and depleting natural resources. Dunford's model aims to provide farmers with resources, advice, and renewed self-esteem to restore the ecosystem and act for the benefit of the countryside where they live and work, which also results directly in their own social and economic benefit. This strategy engages farmers who otherwise would have little choice but to opt for continuing with unsustainable farming practises that they know and have invested in all their lives, and which while more profitable in the short-term fail to deliver sustainable livelihoods.

A similar approach has been adopted by **Durukan Dudu**, founder of **Anadolu Meraları (Anatolian Grasslands)**. This social enterprise – that is The Turkish Hub of **Savory Institute** as well - promotes regenerative agriculture practises based on the principle of holistic land management. It is aimed at enriching the soil but also on improving the quality of life and increasing of economic opportunities in rural landscapes. Dudu's strategy is to create socially, economically, and ecologically viable (business) models and to build human capacity for project development and implementation with an entrepreneurial scope.

He is setting up "RegenHives"; learning sites where farmers can experience and learn what benefits regenerative agriculture can bring to them. Instead of being conceived as an abstract concept it now becomes a reality in front of their eyes, which stimulates them to adopt it. For this purpose, Dudu also started OTAG, a network of regenerative agriculture incubation hubs in Sweden, that enable a new generation of social entrepreneurs and land managers to build their capacity with practical tools and know-how.

Pam Warhurst, founder of the communal food growing movement **Incredible Edible**, believes that - to deal with current environmental challenges - we must radically change our behaviour. But she realised that to engage the people, her strategy had to shift away from abstract goals like 'climate change' and 'biodiversity loss'. Her lightbulb moment came when she thought: "We have just got to stop worrying about abstract climate change, roll up our sleeves, and see what we can do in our own neighbourhood". Pam started inspiring people around her to reconnect with local food production in community spaces and to take collective action. People loved the social aspect of it; getting to know your neighbours and jointly greening communal spaces.

Warhurst often refers to food as her 'Trojan horse', because the main aim is to create more conscious consumers who, through their small everyday choices, can have a significant impact on the food chain and on their environment. She is inspiring people not to wait for some government to act, but to do it themselves, in their own towns together with their respective communities, and to reconnect with nature.

5.3 CREATE TRUST THROUGH EMPATHY AND DEEP LISTENING

Successful social innovators can perceive the needs arising in their community and therefore develop effective solutions to meet those needs. They exhibit abilities in deep listening that enable an uninhibited focus on people's story and nurture a co-creative approach to developing solutions with them. **The trustful relationship with community members represents one of the key ingredients to mobilize people towards collective action** and uncover the path towards emerging futures. It appears repetitively across different projects, countries, and communities, regardless of the mission of the social entrepreneurs. The message is clear but very important: if we wish to regenerate the planet, we must listen to local people.

As **Daniela Ibarra Howell**, co-founder of **Savory Institute**, explains:

"The first thing we need to do when we aim at mobilizing people is creating a sense of trust. To do that, we need to learn to listen to local communities, so to truly understand the local context. A way to do that is to use art and storytelling, as Ashoka does in the weaving sessions. This phase is crucial at the start of a project (...) It's important to work with the emergent leaders in the community, provide them with the tools and the expertise to move forward with the implementation phase, provide them with the tools necessary to co-design the implementation phase, and then bring in the expertise. If the expertise is not there, we should build capacity at the local level and then let any replication or expansion of the co-created solutions happen from the grassroots up".

We must recognize that building trust takes time. Systems work starts in the communities who are living and experiencing the current system. Creating time, space, and context to work across differences is therefore essential.

The importance of creating trust through empathy and deep connection is also stressed by **Antonio Stasi**, co-founder of **Vazapp**, an association created with the idea of building a network of small farmers in the rural south of Italy, where small producers lack the information and economical resources to keep up with the new demands of the market. Vazzap organises regular "Contadinners" (pun created from the word "contadino", which in Italian means 'farmer'), where all the participants gather around the dining table, share their experience, and feel part of a supportive community. Antonio uses these moments to share his personal life story to break the ice and create a trustful relationship with the farmers. He himself is the son of a farmer, who returned to his rural hometown with the mission to make it a more prosperous place to live. These moments of sharing are a fundamental step for building trust between the social entrepreneur and the local community and allows for creating a jovial and positive atmosphere in which to operate.

According to BWL Collective member **Presencing Institute**, humility, vulnerability, surrender and trust are the leadership qualities we need to nurture, to lean into the current moment and to

source the courage to act. Trust in oneself, in the community and in the universe is the enabling condition to step into the emerging futures and convert current social and environmental crises into an opportunity to be re-born and to re-create the foundation of our civilization.

During the U-Lab processes led by the Presencing Institute, trust is built through deep listening, and it is the most reported outcome coming from the U-Labs' participants. Deeper listening includes the capacity to be aware of one's level of listening, listening more open-heartedly, with greater empathy, less judgement, and a genuine desire to understand the other. Presencing Institute also witnessed that the capacity to listen more deeply and be aware of one's level of listening increases participants' capacity to hear perspectives that are different from their own. "*The kind of deeper listening where I'm really listening to what people are hoping to get out of things, or the kind of walking in their shadow and understanding their approach and how they deliver a service, so that my own understanding is better enhanced and I can empathise better*", stressed one of the U-Lab participants.[103]

5.4 LEVERAGE ECO-LOGICAL, SOCIAL, AND ECONOMIC BENEFITS

Social entrepreneurs can convince communities of the feasibility of their NbS for nature but also for associated social and economic advantages. They tackle the root causes of the problem from a holistic perspective, **considering not only the benefits for the environment, but also the positive economic and social outcomes for the communities that live in that place.** This is a crucial aspect to consider, if we want the ecosystem restoration, regeneration, and nature conservation to be perpetuated by local communities themselves, without a constant and direct intervention by the social innovators.

For example, **Anadolu Meraları**, founded by **Durukan Dudu**, explains to farmers how to avoid middlemen and how to directly sell their products in alternative markets, increasing their incomes. **Anadolu Meraları** also created the first and only Turkish brand (SafiMera), that sells products cultivated by farms through regenerative practices. For Dudu, co-ownership, and management of farms by local communities holds the potential to drive change at scale, whereby consumers become prosumers and create their own sub-enterprises within farms, generating new economies. This, he notes, is not only ideologically good, but also ecologically and economically sound, providing farmers with a sustainable income.

Another example of the creation of a positive economic outcome, is provided by **Farming for Nature**. The initiative created a scoring system to evaluate the amount of biodiversity and the pollution of water and soil in the area cultivated by a farmer. The healthier the environment is, the higher the score, which results in monetary compensation for the farmer through public funding. This project has already obtained the support of the Irish government and is now spreading across Ireland as a successful program that combines land regeneration with farmers' wealth.

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[103] Pomeroy, E. and Oliver, K. (2020). Action Confidence as an Indicator of Transformative Change. Journal of Transformative Education. (Online) Available at: https://doi.org/10.1177/1541344620940815 (Accessed on November 16th, 2021)

According to the instrumental learning principles defined in psychology but also based on experience of the interviewed social entrepreneurs, people will tend to repeat a behaviour that leads to a rewarding outcome, where the reward can be represented by money (e.g. economic incentives or profit that can be generated by the initiative itself) but also with a more general sense of well-being (eg. a stronger sense of community). A financial reward in exchange for virtuous actions alone - despite promoting the desired behaviour - does not induce the desired mindset shift. That is why, together with positive economic benefits, social innovators are also providing people with positive social outcomes, reinforcing the sense of community, and creating a supportive social environment.

This is precisely why **Farming for Nature** developed an 'ambassador's program' to re-establish farmer's self-esteem and standing in the local community as a valued ecosystem service provider. Brendan Dunford emphasises that "Result-based payments are an innovative way to incentivise and reward farmers but it's not just about the pocket, it's also about the head (research, education, training) and heart (engagement and wellbeing) as well".

5.5 USE DATA AND EXPERIENTIAL KNOWLEDGE TO EDUCATE

Another cognitive obstacle that is preventing people from actively engaging to solve environmental issues has to do with the difficulty in understanding what they need to do to have an effective and meaningful impact. To help people with this, it is useful to **provide them with clear data and predictions about the effect that their everyday choices will have on the environment** and guide them towards actions that could maximize their positive contribution.

A successful example of this data-driven approach is represented by **BeeOdiversity**, the environmental consultancy created by **Bach Kim Nguyen**, that uses bees as monitoring tools for the health of a particular ecosystem. More specifically, Nguyen had the idea of using the pollen collected by bees to evaluate the amount of floral biodiversity and of heavy metal and pesticides in the environment. By doing so, BeeOdiversity not only helps industries and farmers to measure their negative impact on nature, but also – by feeding them with scientific evidence – provides them with advice on how to increase their sustainability and limit negative impact on the environment. Through this educational approach and by providing clear data and impact measurement tools, Kim Nguyen engages companies that otherwise would not have acted as efficient for biodiversity conservation.

Regarding the sense of agency, **Pam Warhust**, founder of **Incredible Edible**, is convinced that every big change starts from knowledge, from making people aware of the impact that they can have through each one of their small everyday decisions. Human beings, given the necessary tools, will preferably make environmentally friendly decisions when it comes to their purchases, and through this

they have the very powerful ability to influence local economies. Incredible Edible shows people that they can simply learn by doing, by growing their own food in community spaces and experience how nature works. People watch their own food growing by taking care of the soil and begin to appreciate the seasons, the amount of rain, sun hours and eventually revalue the food on the table and the way it was produced.

And of course, BWL Collective member **Drawdown Europe** is a great example of educating people by using scientific data. They provide decision makers with clear and proven facts on how NbS can reverse global warming. By doing so, they provide people with new insights, also triggering people's imagination of what the potential is. The data and the way they are presented provide decision makers with a sense of trust that investing in these kind of solutions makes sense for them.

5.6 CHANGE PEOPLE'S PERSPECTIVE ON MAKING SUSTAINABLE CHOICES

Climate change and biodiversity loss are building over a long timeframe and require us to abandon our short-termism and evaluate the long-term consequences of our actions. A possible explanation why we are not managing well to think about future consequences of our current behaviour could be the human bias towards immediate rewards and their tendency to devalue long-term advantages[104], probably due to an evolutive adaptation.[105,105]

Therefore, **it can be easier to start with small steps that bring immediate rewards**. It is striking to see that once people get started taking small steps, they seem to also start shifting their longer-term perspective.

This perspective is shared by **Sue Riddlestone**, founder of **Bioregional**, who developed the "One Planet Living" framework to incorporate sustainable choices in people's everyday life. The framework is based on ten simple principles of social, environmental, and economic sustainability, with the aim of preserving the planet's resources for future generations. "It's a fantastic tool for making sustainability accessible to all", stresses one of the One Planet Living Framework followers and practitioners. Thanks to the accessible step by step approach there are now more than 1.3 million people around the world living in, working at, or visiting organisations and communities with a deep commitment to this framework.

Related to this, neurocognitive researchers have proven that **gratitude is a good candidate emotion to favour this shift in timeframes,** since it appears to reduce the discounting for future gains.[107]

Geert van der Veer, founder of **Herenboeren**, notes that by connecting people to the very source of their sustenance - producing and consuming their own food - people comprehend their dependence on seemingly

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[104] Loewenstein, G., Prelec, D. (1992). Anomalies in intertemporal choice: Evidence and an interpretation. The Quarterly Journal of Economics, 107(2): 573-597. (Online) Available at: https://econpapers.repec.org/article/oupqjecon/v_3a107_3ay_3a1992_3ai_3a2_3ap_3a573-597..htm (Accessed on October 29th, 2021)

[105] Fawcett, T. W., McNamara, J. M., Houston, A. I. (2012) When is it adaptive to be patient? A general framework for evaluating delayed rewards. Behavioural processes, 89(2): 128-136. (Online) Available at: https://doi.org/10.1016/j.beproc.2011.08.015 (Accessed on November 1st, 2021)

[106] Santos, L. R., Rosati, A. G. (2015). The evolutionary roots of human decision making. Annual review of psychology, 66:321-347. (Online) Available at: https://doi.org/10.1146/annurev-psych-010814-015310 (Accessed on November 1st, 2021)

[107] DeSteno, D., Ye, L., Dickens, L., Lerner, S. J. (2014). Gratitude: A Tool for Reducing Economic Impatience. Psychological science, 25(6):1262-7. (Online) Available at: https://doi.org/10.1177/0956797614529979

abstract environmental factors such as sunshine, rain, or climate. Because people feel gratitude for these gifts of nature, they begin to make different decisions – also on seemingly unrelated topics in their lives - while taking into consideration the importance of preserving nature for future generations. "Some Herenboeren cooperative members were so inspired by nature and the experience of growing and consuming their own food that they decided to change jobs to contribute more and ensure a healthy and sustainable food system for future generations", clarifies Van der Veer.

And finally, **using arts and culture can also be an extremely effective way to help people shift their perspective**. A great example to illustrate this, is the approach of **Jacek Bożek**, founder of **Klub Gaja**, a Polish civil association for environmental protection. Bożek stresses the responsibility that everyone of us has: "We are a part of Nature, we are part of everything. And we have a responsibility for that, for water, for our sky, for the forests." To make people feel this responsibility, Klub Gaja enables people to understand nature by using art as a platform for cooperation. It is mobilizing people from all ages through theatre, music, festivals, and creative workshops.

With the purpose of sensitizing key stakeholders to the importance of protecting biodiversity along the river Vistula, Klub Gaja organised workshops where participants created masks for elements of nature (clouds, water, fire, animals). The purpose was to imbue these elements with an equal voice to humans, when discussing the future of the river. Participants also sat in a circle to emphasize this equality. In a playful, artistic and spiritual way, stakeholders were reminded that all is interlinked, and we are all part of nature.

5.7 CREATE INCLUSIVE PATHWAYS FOR PEOPLE TO CONTRIBUTE

Another important consideration is, as stated earlier in the report, that environmental challenges disproportionately impact upon people living in poverty and low-income communities, women, members of Indigenous communities and culturally marginalised communities, older people, minorities, and displaced groups.[108] Therefore, it is crucial to listen to these voices and to **co-create inclusive and environmentally just solutions** that strengthen their resilience and have a positive impact on the whole of society.

Understanding this, **Florin Stoican**, founder of the Kogayon Association and **Văcărești Natural Park Association** in Romania is involving local citizens from all backgrounds in nature conservation. When asked about the target group of his initiative, he states: "*Our project aims at including everyone. We work with disabled people, minorities, migrants... Everyone is invited to take part in our projects and activities (...) For example we developed projects with NGOs in Bucharest to create special paths for blind people focused on sounds, because they hear the birds very well,*

(Accessed on November 2nd, 2021)

[108] UNEP (2021). Becoming #GenerationRestoration: Ecosystem restoration for people, nature and climate. Nairobi. (Online) Available at: https://wedocs.unep.org/bitstream/handle/20.500.11822/36251/ERPNC.pdf (Accessed on August 25th, 2021)

but they don't have the possibility to look at them. This way we can still engage them."
By designing solutions in an inclusive manner, social innovators imbue communities with a sense of agency. It makes people feel that they matter and that their contribution to solve the problem can make a difference.

And sometimes the 'unusual suspects' who are normally not engaged in environmental protection, restoration and regeneration can provide the best solutions.
A great example is the **Sea Ranger** Service founded by **Wietse van der Werf**, who involves unemployed young people and navy veterans to manage marine protected areas and protect ocean biodiversity on behalf of government agencies. The social business also builds their own zero-emission ships to carry out the work at sea in a clean manner.

The model, supported by both the Dutch government and the European Commission, relies on an extremely broad coalition, including marginalised young people, veteran organisations, maritime companies, government agencies and shipbuilding firms. Speaking on inclusivity, Van der Werf remarks: "*I think a clear indicator of wealth in a society are the opportunities available to young people. The way in which we contribute is by seeking out these most deprived areas which really seem to be forgotten and working there to give young people a perspective for the future.*"

"*We've found unlike minded people and appealed to their intrinsic motivation to mobilise them around a common purpose. We don't have any activists or environmental campaigners in our network. It's all partners, allies and investors that have never been involved in conservation, but that find our model appealing for different reasons*". In this model, multi-stakeholder inclusion is a result of a sincere invitation to all stakeholders to become part of the solution, without any bias that it would be impossible to engage unlike minded people around one joint cause. There is something in it for everyone; unemployed youth get the opportunity to gain unique working experience leading up to a paid job, navy veterans can share their valuable expertise and training skills beyond their navy career and the government finds in the Sea Ranger Service a sustainable supplier to help carrying an important responsibility; the management of protected marine areas.

More examples of this strategy 'to design inclusive pathways' are also published in Ashoka's Next Now Report 'Thinking Differently – ideas for action on Planet & Climate'.

5.8 TURN DATA INTO STORIES THAT MOBILISE

"*I guess we are lighting a spark... We are more and more involved with other people by empowering, coaching, and supporting them to make the change. So, if anything, it's us guiding and instigating others, with our visions and experiences. And giving them very practical means to make it happen.*" These words by **Wietse van der Werf** from the **Sea Ranger Service** capture the essence of the important role social entrepreneurs can play. Indeed,

they display a positive mindset and think about practical solutions to the problems that environment and society are facing. By taking concrete action, they become an example for people in their communities and inspire and motivate them to do the same.

However, as the Ashoka Next Now report on Planet and Climate also highlights, data and knowledge gathered about inspirational actions has not realised their full potential yet. Therefore, there is a huge opportunity and need to better use them and make them available in an accessible way.[109] We need to tell better stories to enable people to recognize how climate change and biodiversity loss will affect them, and how issues happening in different corners of the world relate to each other. Thus, **we need stories that make us see the patterns in our current systems and inspire us to act**.

An example of such inspiring storytelling is shared by **GIY (Grow It Yourself)**, an initiative by **Michael Kelly**, whose mission is to inspire global movements of food growers, using the power of media and communication. Specifically, GIY has produced a TV series ("Grow, Cook, Eat", available on Amazon Prime) that reached over 2 million people worldwide. It aims to show people how easy it is to grow your own food: you can grow vegetables and fruit in a very small garden, or even in containers on an apartment balcony; you don't need half an acre or a polytunnel to do it. Each episode focuses on a particular vegetable and takes people through the entire process, from sowing the seed, to harvesting and to cooking. The series has inspired many to follow the example and by 2030, GIY aims to reach 100 million GIY'ers worldwide through campaigns, media projects, products, and educational resources.

GIY also developed 'The Chefs' Manifesto', which is an action plan established on the idea that restaurant chefs can be powerful advocates and examples for a better food future – inspiring people to make changes in their kitchens and communities and empowering them to call on governments and companies to play their part. It was researched that 40% of the Irish population dines out at least once a week so the impact that chefs have on consumers can be significant. Consequently, 900+ chefs from 80 countries all over the world have committed to The Chefs' Manifesto to be an inspiring role model for others.

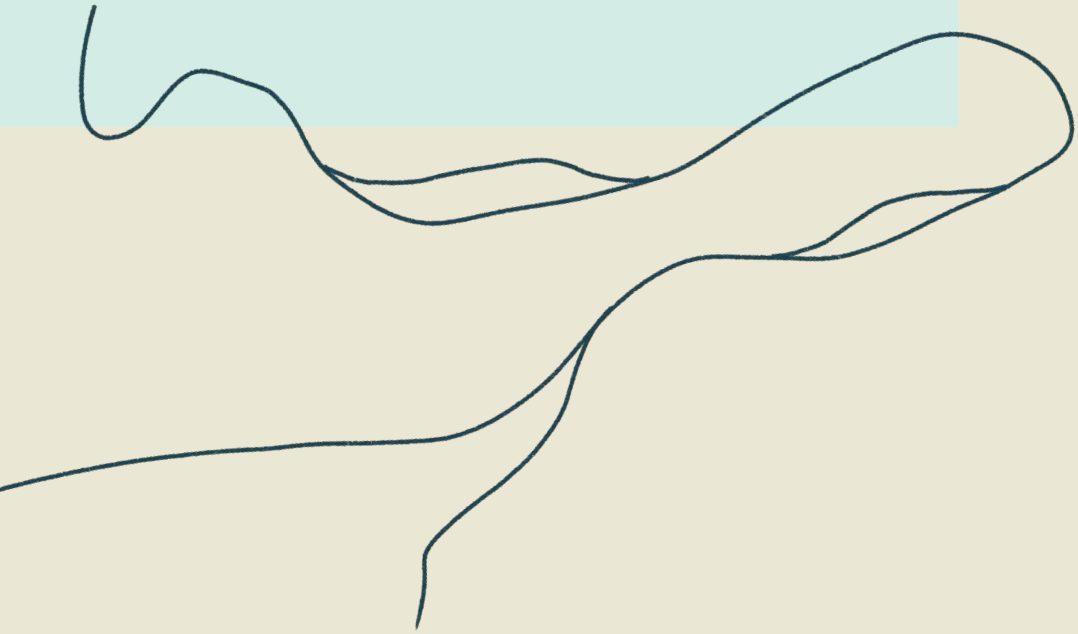
More examples of this strategy 'to turn data into mobilising stories' are also published in Ashoka's Next Now Report 'Thinking Differently – ideas for action on Planet & Climate'.

5.9 CONCLUSION

The 14 interviewed socio-environmental entrepreneurs successfully engage a diverse range of stakeholders across levels to be changemakers for the planet and climate. Through their community-based, co-creative and inclusive approach they engage local actors, including youth and vulnerable groups in their NbS. They also find effective ways to engage and steer (inter)national companies, institutions, and governments towards the pursuit of common goals. In this way,

[109] Ioan. et. al. (2021)

social innovators galvanise change from the bottom-up as well as from the top-down. Through social innovation, diverse social groups and communities are enabled to co-create, develop, and share ideas to address the pressing socio-environmental needs and challenges. By doing so, they are shifting mindsets which are informing decision making on all levels. **When all actors can jointly experience the multiple benefits that NbS can bring, and value ecologic, social and economic benefits equally, it changes people's negative perception of NbS and increases their uptake and scaling.**



6. UPDATING OUR ECONOMIC ARCHITECTURE

To remove the systemic barriers that prevent NbS from mainstreaming, it is equally important that we learn how to value the multiple benefits of NbS. The 4 returns framework helps us to define this: what is the natural, social, financial, and inspirational capital generated by a NbS? In the annex you find an overview of the impact generated on 4 returns, for each of the NbS of the 14 interviewed socio-environmental entrepreneurs.

In a regenerative economy, entirely new values underpin economic activity, and the business models are per definition focused on generating multiple returns, beyond financial profit making, and challenging the concept of endless growth. In this section we explain how the BWL Collective members design and implement strategies along the 7 Principles of an increasingly popular regenerative economy framework - the Doughnut Economics[110] - and how this shapes new business and governance models.

6.1. EMBRACE THE 21ST CENTURY GOAL

The continuous growth of the gross national product (GDP) has been the goal of mainstream economics' ever since the mid-20th century. Kate Raworth argues that economic growth alone cannot by itself solve all the problems our societies are facing, nor can economic growth be infinite due to the scarcity of natural resources. Delivering well-being for people and the planet (our "planetary household") as laid out in the picture of the Doughnut should be the main purpose of economics instead of growth and profits.

This purpose of living within planetary boundaries is strongly emphasised by **Bioregional**, co-founded by **Sue Riddlestone**. Its mission is to share tools about sustainable living as a solution to consume differently and have happier and healthy lives within the planetary natural boundaries. To enable communities to live within the means of the planet, the organisation created One Planet Living Framework with ten simple guidelines to provide tools to citizens, communities, cities, and regions to live in a more sustainable way. Bioregional considers overconsumption to be the root cause of unsustainable development. The need for sustainable consumption and production therefore is discussed through the entire framework of One Planet Living.

Besides comprehensive guidelines and tools to ensure safe and just space for people and planet, Raworth highlights that we also need a new dashboard of indicators to measure economic performance. **Eric Beinhocker** of the **Institute of New Economic Thinking** at the Oxford Martin School articulates this as the following: "We manage what we measure, and for too long, policymakers have been measuring the wrong things when it comes to assessing what is a good or healthy economy". As a solution, he proposes to follow up-to-date frameworks that are rooted in an interdisciplinary understanding of human well-being.[110]

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[110] Ibid.

To illustrate this, the renowned Triple Bottom Line - an accounting framework that incorporates three dimensions of performance: social, environmental, and financial, also commonly called the three Ps: people, planet, and profits - has apparently failed to have the desired impact of system change. The founder of the model, **John Elkington** concluded that "to truly shift the needle, however, we need a new wave of TBL innovation and deployment... frankly, I'm not sure it's going to be enough. Indeed, none of these sustainability frameworks will be enough, as long as they lack the suitable pace and scale — the necessary radical intent — needed to stop us all overshooting our planetary boundaries."[111]

Pam Warhust from **Incredible Edible** proposes measuring the performance of our economic models by a new type of framework. "One that would feed back through an economic model that would say: yes, that was the cheapest thing to do, but fundamentally the cost to human health on that was huge. Or, the extinction of a species was immeasurable, so this wasn't a smart strategy", she argues.

This vision is shared by **Partha Dasgupta**, author of the recent Dasgupta Review on the Economics of Biodiversity. He highlights that **GDP cannot be used to measure the economic health of nations because it does not include "depreciation of assets" such as the land degradation and biodiversity loss**.[112] We need, therefore, a new set of indicators to measure economic performance that consider both the value of natural capital and human well-being in a single model - such is the 4 Returns framework (explained in the previous chapter).

Natural capital is the stock of natural assets essential for our existence. It includes geology, soil, water, and all living things. From this natural capital we derive ecosystem services which make human life possible. All the social entrepreneurs of the BWL Collective recognize that we as human beings are embedded in nature, and dependent on many ecosystems that provide essential services to society, from pollination and filtering of pollution to climate, air to breath, water regulation and food.

These services are often treated as though they have no value, with ecosystems too frequently managed for short-term gain at the expense of broader, longer-term societal benefits. There is, however, an increasing awareness around the trade-offs associated with these developments (for instance, consider True-cost accounting[113] and SEEA, the System of Environmental-Economic Accounting[114]) and efforts to incorporate ecosystem values in decision making are growing – through partnerships, in government, and in the private sector.

Brendan Dunford, founder of **Farming for Nature** witnessed a distortion in the market – meaning that farmers are only paid for one ecosystem service, food, at the expense of all the others. Depending on how you farm the land it is possible to deliver additional ecosystem services such as water cycling, soil quality restoration, pollination, or carbon sequestration. Therefore, Brendan argues that **the role of farmers needs to be reinvented for the 21st century, by not thinking about farmers simply as "food producers" but recognizing them as managers of these essential "Ecosystem**

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[111] Elkington, J. (2018). 25 Years Ago I Coined the Phrase "Triple Bottom Line." Here's Why It's Time to Rethink It. Harvard Business Review. (Online) Available at: https://hbr.org/2018/06/25-years-ago-i-coined-the-phrase-triple-bottom-line-heres-why-im-giving-up-on-it (Accessed on 3rd November, 2021)

[112] Dasgupta, P. (2021). The Economics of Biodiversity: The Dasgupta Review. London: HM Treasury (Online) Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/962785/The_Economics_of_Biodiversity_The_Dasgupta_Review_Full_Report.pdf (Accessed on October 18th, 2021)

[113] True-cost accounting (also referred as full-cost accounting, total value, or total impact) aims to assign non-market goods, such as environmental or social assets, with a monetary value that allows for their inclusion in the cost-benefit analysis of businesses and decision-makers. The goal is to translate these invisible resources, that nevertheless affect value creation, into a common currency for strategic decision-making. For a more thorough explanation check: https://fao.org/nr/sustainability/full-cost-accounting

Services". Following this innovative framework, he created a results-based payment model whereby farmers are paid for the ecosystem services they deliver.

During his PhD researching honeybee colony losses, **Bach Kim Nguyen** was astonished with the high mortality rate of bees. Aiming to change this, his social enterprise **BeeOdiversity** created an innovative NbS called 'BeeOmonitoring' to protect bees, but also to revalue them as crucial players in the natural ecosystem. Bees provide us with an important ecosystem service, ensuring pollination and enabling the reproduction of flowering plants, essential for food production, human livelihoods, and biodiversity[115]. **One third of the food we eat requires pollination, most often from honeybees[116]. Without them, our food system would collapse.** Concretely, bees pollinate 70 of the approximately 100 crop species that feed 90% of the world's population, and consequently, honeybees are responsible for $30 billion a year in crops[117]. Raising awareness about this value that bees represent for society is one part of Nguyen's strategy, but with BeeOmonitoring the bees are also used as living drones to provide direct services to companies and governments. The bees collect valuable data about the state of the environment that can be used to inform private and public decisions on more sustainable practices.

Recognizing the need to also restore the habitat for valuable biodiversity, **Fundacja Łąka**, founded by **Maciej Podyma**, began converting monoculture grass lawns into diverse flower meadows. According to the organisation's findings, their simple but efficient NbS can increase biodiversity by 60-70% while reducing CO^2 emissions threefold through healthy soil. Fundacja Łąka recently succeeded in convincing 80 government deputies in the Polish Parliament to recognize this value of nature, and to sign for a large-scale investment to transform lawns bordering highways in Poland into diverse meadows, to boost biodiversity and attract pollinators into healthy ecosystems.

In a regenerative economy social entrepreneurs create products and services that add value to society, economy and our natural ecosystems. **Pepijn Duijvestein** from **New Economy** explained about the relation between investments and our economy's dependence on ecosystem services: "Regenerative entrepreneurs create products such as biobased insulation material, food and textiles that add value throughout the growth phase, the use phase and return to our ecosystems as a resource that strengthens our ecosystem services. More and more organisations realise their dependence on ecosystem services and start to invest in their future".

Social innovators, therefore, aim to **inspire citizens, organisations, and policymakers with smart ideas to revalue natural capital and its ecosystem services**, making sure we do not take them for granted any longer.

6.2 SEE THE BIG PICTURE

The 20th century narrative about the efficiency of the market, the incompetence of the

[114] For a more thorough explanation check: https://seea.un.org/ (Accessed on December 5th, 2021)

[115] FAO (2019). Declining bee populations pose threat to global food security and nutrition. Food and Agriculture Organization of the United Stations, News. (Online) Available at: http://www.fao.org/news/story/en/item/1194910/icode/ (Accessed on September 24th, 2021)

[116] Natural Capital Project (2018). Natural Capital Project: Protecting pollinator habitats through smart seed mixes. The University of Minnesota, Institute on the Environment. (Online) Available at: http://environment.umn.edu/discovery/natural-capital-project/natural-capital-project-protecting-pollinator-habitats-through-smart-seed-mixes/ (Accessed on September 24th, 2021)

[117] BBC (2014). What would happen if bees went extinct? BBC Eart, Science and Environment. (Online) Available at: https://www.bbc.com/future/article/20140502-what-if-bees-went-extinct (Accessed on September 24th, 2021)

state, the domesticity of the household and the tragedy of the commons has pushed us towards social and ecological crisis.

The new economic structure that Raworth proposes, recognizes 1) the power of the market — and so it embeds it wisely; 2) the partnership of the state— so it holds it to account; 3) the key role of the household — so it values its contribution; and 4) the creativity of the commons — so it aims to unleash their potential. As such - within the economy itself - households, the market, the state, and the commons all have an equally important role to play and meet human and planetary needs. None should be given primacy over the others, but they should all be supported to serve human welfare in mutually complementing ways.

A well-recognized initiative that embraces the big picture and strives to create a prospering local embedded economy, is **Hoge Kempen National Park** situated in Belgium, founded by **Ignace Schops**. The applied model – the Reconnection model - has inspired and reconnected hundreds of thousands of citizens with nature. With their support, Ignace brought together businesses and conservationists to protect this nature reserve. Ignace's innovative local development approach is showing corporates the value of nature in the eyes of consumers and is encouraging entrepreneurs to invest and leverage nature reserves to foster ecotourism and sustainable economic development. Representing the united voice of citizens and local governments, Ignace is also leveraging public and EU funds to bring all the stakeholders together and negotiate for the good of all.

Another successful example is the **Sea Ranger Service**, founded by **Wietse van der Werf**. They work with an innovative social business model training young unemployed people in becoming Sea Rangers while conserving ocean biodiversity at scale. The social enterprise addresses three problems simultaneously: 1) the high unemployment rates of young people coming from coastal, often impoverished communities, 2) lack of capacity – in terms of ships and personnel - to protect and restore the endangered oceans and 3) government's duty to protect oceans and the need for a partner to execute this. The Sea Ranger Service business model drives transformation of unemployed youth (households) into protectors of the ocean (commons), paid for by the government (the state) and offshore industry that eventually hires Sea Rangers as skilled personnel (market). This model is changing an industry not prone to innovation and historically responsible for the demise of biodiversity and the world of nature conservation from within.

6.3 NURTURE HUMAN NATURE

It is now becoming widely accepted that humans aren't rational economic beings as previously factored in economic models and thus policy and decision making. Rather, people are social, interdependent, fluid in values, and dependent on the natural world. Humans are among the most cooperative species on the planet and are unique in that their cooperation is supported both by nature and culture. Different cultures over time have developed a variety of norms and institutions

[118] Beinhocker (2020)

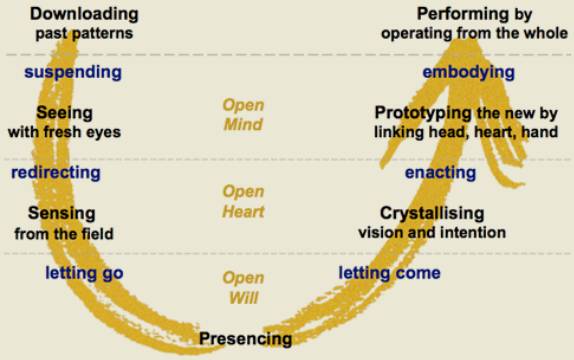
to harness social instincts into cooperation for a variety of purposes – economic institutions being one of them.[118] But our economies are designed from the perspective of the "rational man", and that needs to change.

BWL Collective partner **Presencing Institute** is strongly aware of the systemic change needed in todays' individualistic, competitive, and rational culture, which can be basically formulated and understood as 'where one wins, another loses'. Founder of the institute **Otto Scharmer** and **Katrin Kaufer** argue in their award-winning book 'Leading from the Emerging Future: From Ego-System to Eco-System Economies'[119] that the surface landscape of symptoms and the underlying structural disconnects (divides discussed in the previous chapter) arise from the same deep source: a framework of economic thought that is stuck in the past and is unable to address complex challenges and demands of our time. They describe 4 frameworks of economic thought that articulate four different economic logics or paradigms that give rise to four different operating systems:

- The 1.0 Economic Operating System that is based on traditional awareness and hierarchical thinking.
- The 2.0 Economic Operating System that is based on ego-system awareness and me-centric thinking (in neoclassical economics, this "me" is referred to as 'homo economicus', an idea of a human being who acts only by maximizing self-interest).
- The 3.0 Economic Operating System that is based on institutional stakeholder awareness and some negotiated coalitions that internalize concern for the well-being of key stakeholders (For instance, companies negotiate and partner with labour unions).
- The emerging 4.0 Economic Operating System that is based on ecosystem awareness: an awareness that envisions the well-being of all the human beings and therefore, serves the well-being of the whole.

While transitioning these paradigms, the Theory-U framework shows how groups and organisations can develop core capacities to create new emerging futures and experience transformational shift processes from "Ego- to Eco-awareness": the shift in a mindset where we care about the wellbeing of others instead of just looking out for ourselves.

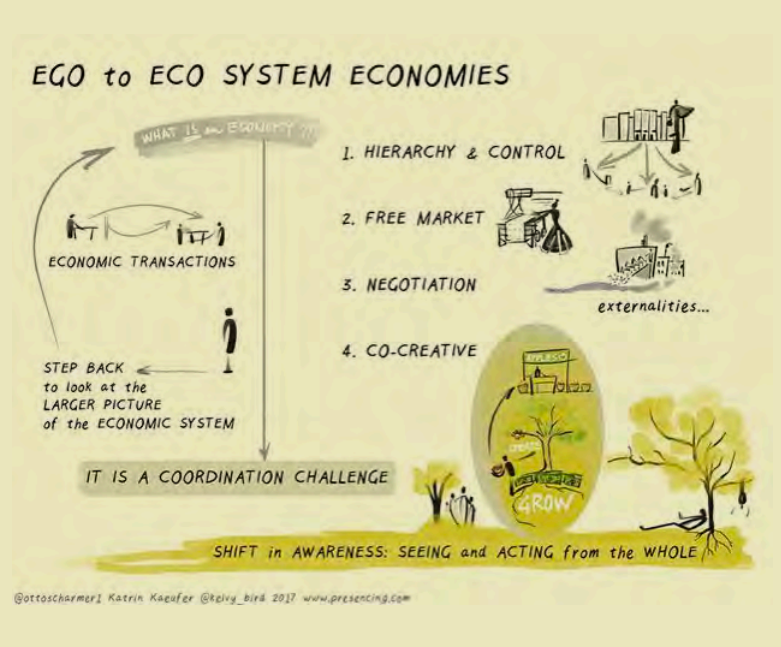
When operating with ego-system awareness,



we are driven by the concerns and intentions of our small ego self. **When operating with eco-system awareness, we are driven by the concerns and intentions that are informed by the well-being of the whole.** The prefix eco- comes from the Greek oikos and concerns the "whole house." The word economy can be traced back to this same root. Transforming our

[119] Scharmer, O. and Kaufer, K. (2013). Leading from the Emerging Futures. From Ego-System to Eco-System Economies. Berrett-Koehler Publishers (Online) Available at: https://ottoscharmer.com/publications (Accessed on November 16th, 2021)

current ego-system economy into an emerging eco-system economy means reconnecting economic thinking with its real root - the well-being of the whole house instead of money-making or the wellbeing of a few selected ones.



Meanwhile the whole house for the Greeks represents something very local, nowadays it rather concerns the well-being of our global communities and planetary eco-systems.

6.4 THINK IN SYSTEMS

Conventional economics assumes that perfectly rational agents (firms, consumers, investors, banks, governments) face clearly defined problems and arrive at optimal behaviour that is consistent, and in equilibrium with, the overall outcome caused by this behaviour. However, this rational, equilibrium system is restrictive and often unrealistic.[120] The world, the economy, and the systems within it do not function like machines.

Choices the economic agents make involve actions that take place in the immediate or distant future, and therefore, they are characterised by some degree of 'not knowing'. Moreover, the economic agents have imperfect information about other agents and must, therefore, try to make sense of the situation they are facing, using various tools, methods, or strategies. To illustrate, if there is an entrepreneur who is choosing to invest in a new technology, he may simply not know how exactly the technology will work, how the public will receive it, how the government will regulate it, or who will compete with this product. This is a fundamental uncertainty in which the economic agents constantly navigate and create subjective beliefs to make sense of these situations.

Thereafter, the economic agents explore, react, and continually change their actions and strategies in response to the outcome they mutually create. This further requires them to deal with the situation again in a new way. Agents thus live in a world where their beliefs and strategies are being constantly "tested"

[120] Arthur, W. B. (2021). Foundations of complexity economics. Nature Reviews Physics (3): 136–145. (Online) Available at: https://doi.org/10.1038/s42254-020-00273-3 (Accessed on October 22nd, 2021)

for survival. These beliefs and strategies together create a complex system.[121] **We should, therefore, stop looking for the control levers (order and equilibrium) and instead start navigating it as a complex, organic, always evolving system.**

Florin Stoican, founder of **Kogayon Association** and **Vacaresti National Park**, is catalysing a citizen-driven movement for the creation of a functional conservation system for protected areas in Romania. To do so, he navigates smoothly through the complexity, and he adjusts afresh whenever necessary to go with the flow of the economic agents' behaviour. He did not know before starting his project how all the economic agents would react to his innovation, however, his ability to navigate the uncertainty and facilitate open conversations among all the agents involved to align their interests is very successful. Being aware of the Vacaresti National park's strategic location and visibility, Stoican mingles among the local inhabitants, city-dwellers, and potential eco-tourists, to understand the situation they face; he engages companies to show them the value for their own business in protecting the environment; and he negotiates with national government by emphasising the economic value for the region.

6.5 DESIGN TO DISTRIBUTE

The more unequal societies are, they are shown to be less healthy and happy and face a higher degree of environmental degradation.[122] Redistributing income is not enough to address the situation, for most of the rise in inequality we see today is due to wealth concentration resulting from returns on capital.

The 20th century was characterised by the development of centralised technology and institutions, and growth of (concentrated) wealth, knowledge, and power in the hands of the few. In the 21st century - despite this hangover - **we can design technology and institutions to distribute wealth, knowledge, and empowerment to many.** Initiatives and organisations that are distributive by design share the value created with all the co-creators and they further distribute it among all the stakeholders. Moreover, **Kate Raworth** argues that social enterprises are designed to generate multiple sources of values and share them throughout their networks.

An example of such an enterprise is **BeeOdiversity**. **Bach Kim Nguyen**, based in Belgium, founded this social enterprise with a well-though idea of "design to distribute". His aim was to create a different type of 'sustainable' company. He decided to become a social entrepreneur to create and distribute values and revenues for not only public institutions and companies, but also farmers and beekeepers, while simultaneously protecting bees. "It's not for the profit, but it's for the impact that I am doing that", he notes.

Furthermore, much of the time, the farmers and beekeepers create a cooperative after attending the BeeOdiversity workshops that enable them to see how they can sell their products in another way. Since BeeOdiversity has partnerships with many cities, some even develop a (local produced) label for them. "*Then we are really creating*

[121] Arthur, W. B. (2013). Complexity Economics: A Different Framework for Economic Thought. Working Paper, Santa Fe Institute. (Online) Available at: https://sfi-edu.s3.amazonaws.com/sfi-edu/production/uploads/sfi-com/dev/uploads/filer/a1/3e/a13e8ad4-cd39-4422-8cc3-86c543699f6d/13-04-012.pdf (Accessed on October 16th, 2021)

[122] Nazrul Islam, S. (2015). Inequality and Environmental Sustainability. UN/DESA (Department of Economic and Social Affairs) Working Papers. (Online) Available at: https://www.un.org/esa/desa/papers/2015/wp145_2015.pdf (Accessed on November 3rd, 2021)

a value. The cities promote the local production and it's new! - Because originally, the farmers and beekeepers would only sell into retail. We work also with them to change and minimize risks and to identify subsidies and grants they could obtain, and we also calculate - if they are changing their strategy - what will be the economic benefit for them", Bach Kim notes.

The distributive design of profit-creation is complemented by BeeOdiversity's innovative and participative decision-making model designed to discuss company's strategy that is based on the so called "circles". "We have a circle with beekeepers, and with our scientists, and every 6 months we have a meeting with each circle, the leaders of each circle can change. It is not fixed. It is really a participative system", Bach Kim explains. BeeOdiversity further developed indicators to evaluate how everyone who works in the social enterprise feels, and they discuss it every Monday during an internal participatory session. This decentralized institutional design fosters a friendly working environment where everyone feels appreciated, and where everyone's thoughts, feelings and knowledges are valued.

Community-supported Agriculture initiatives are another type of organisation that are created with distributive design in mind. The **Herenboeren** farming cooperative pioneered by **Geert van de Veer** in the Netherlands is aiming "to design new economic relationships and social forms for farming" by implementing horizontal decision-making processes, and costs and profit sharing among all the members of the cooperative. Famers involve local families directly in the decisions and labour which produce the vegetables, fruits, milk, and meat they all consume. Geert notes that the food produced, when compared with supermarkets' prices, is ultimately cheaper and more nutritious. Small operational costs are shared throughout the year, and from these is also covered the farmer's fair and stable income. Finally, the knowledge and best practices are shared when new cooperatives are created.

Van der Veer also co-founded **Aardpeer**, a community that is providing affordable access to land for nature-driven community farming. It wants to give as many farmers and food initiatives as possible the opportunity to cultivate the soil in a natural way and to promote biodiversity. In addition, they want to grow into a broad, inspiring movement that connects people with a heart for nature-friendly agriculture. By passing on the story of healthy soil and making a financial contribution, members can jointly guarantee a sustainable agricultural sector for the next seven generations. From January 27, 2021, anyone could buy bonds issued by Stichting BD Grondbeheer. With the money from those bonds, Stichting BD Grondbeheer buys land (or refinances land that it has already purchased in anticipation of the bond issue). The land is made available through a fair lease to nature-driven and socially connected farmers and food initiatives. This not only reduces the distance from farmer to citizen and from soil to plate. It also ensures that future generations can enjoy healthy food and a liveable planet.

BWL member **New Economy** supports social entrepreneurs with the creation of innovative business models that combine systematic thinking with new finance and

ownership models that should benefit existing local ecosystems and communities. Carbon capturing and storages can be an extra revenue model, given that the benefits created by these models are re-invested in companies and systems that operate within the planetary and social boundaries. The business and ownership models that New Economy co-creates enables and empowers communities to act as stewards with a shared purpose. The models guarantee that the value created remains within the community and region where they live, and residents become the impact holders that make their society thrive. New Economy developed 'Co-Operate'; co-ownership models in the urban context of social housing. Co-Operate strives to have a positive effect on the circular ambitions of a neighbourhood and the wellbeing of its residents. Research shows the positive relation between the wants and needs of residents and NbS for sustainable housing development across seven generations.

6.6 CREATE TO REGENERATE

With regards to the environment, our current economic setup is eating up Earth's resources at one end and spewing out waste from the other - a linear model. We should instead strive to design a circular economy with all the energy and resources in constant flow – reused, renewed, returned to the planet's life cycle where the "waste" of one process can be turned into input for another process. Social entrepreneurs who develop NbS feel strongly connected with and inspired by the cycles of nature. This connection enables them to design restorative and regenerative solutions, and therefore, abandon the philosophy of 'take-make-use-dispose'.

It is possible to design not only circular businesses, but also entire circular communities. This is the work of **Sue Riddlestone** with her initiative Bioregional. The ten principles of the One Planet Living Framework were created after **Bioregional's** experience designing BedZED eco-village - the UK's first and largest sustainable housing unit well-known for its zero-carbon homes, green urban spaces, and efficient renewable energy.

The eco-village draws energy it needs from photovoltaic panels, wind cowls, biomass, and a CHP heating system (CPH is an energy efficient technology that generates electricity and captures the heat that would otherwise be wasted to provide useful thermal energy). The development harvests rainwater uses water-saving appliances and systems and recycles sewage water. The homes are highly energy efficient, reducing heating by 90 per cent. Total energy consumption is reduced by 70 per cent compared to conventional homes. Household waste is also recycled - there are six recycling sites around village - and food composting is heavily encouraged. For instance, 86% of BedZED residents buy organic food and 39% grow some of their own food.[123] Barely any cars are allowed on site to encourage car sharing, cycling and public transport.

[123] Bioregional (2009). BedZED seven years on The impact of the UK's best known eco-village and its residents. (Online) Available at: https://globalwellnessinstitute.org/wp-content/uploads/2019/12/BedZEDsevenyearson_lowres.pdf (Accessed on October 20th, 2021)

6.7 AIM TO THRIVE RATHER THAN TO GROW

Regenerative economy recognizes that, like the natural world around us, nothing grows forever. It spreads through others, instead of scaling up in size. To illustrate this, **Geert van der Veer**, founder of Herenboeren, uses a metaphor of a tree: "There is no tree growing for eternity; it splits and replicates itself. And if we want to make it grow forever, it will increasingly lack diversity", he says.

Following that principle, the **Herenboeren** movement designed a model of cooperatives where each of them is collectively owned by 200 households (the "Herenboeren"). When a group of another 200 families come together from a different location, the movement spreads in territory, and a new cooperative is established. It spreads, therefore, through others, as a seed that germinates next to the original tree. And it thrives when it maintains its healthy size. Geert is also emphasising that they want to contribute to a learning ecosystem, where he can offer his support via sharing of knowledge, values and experience to enable similar models to thrive; it is not about growing Herenboeren as a dominant brand.

Another example of an initiative that is successfully scaling across regions, countries, and continents without growing the initial organisation itself, is the global communal food movement **Incredible Edible** co-founded by **Pam Warhust**. This citizen-driven movement from Todmorden – UK was founded with a core principle that says: "Don't wait for permission or funding – just do something today, however small, and the result will grow". Everyone who eats - and all human beings do so - is welcome to join the movement and "*let germinate a seed of consciousness and cultural change across the world*". Thanks to this vision and inspiring words, the concept scaled worldwide through others who adopted the vision. Founded in 2008, by 2016 there existed 100 groups in the UK and 600 globally, all part of the Incredible Edible journey.

6.8 CONCLUSION

Through promoting the principles of a regenerative economy in the design and implementation of NbS, social innovators are offering new business and governance models, based on steward ownership and cooperation. They produce for an addressable market, in balance with nature instead of dominating over nature. This can have far-reaching implications across societal structures and mechanisms, **inspiring the creation of a new economic architecture** that brings forth many more models that are circular and regenerative, just, inclusive, and participatory, and can function within the planetary boundaries.

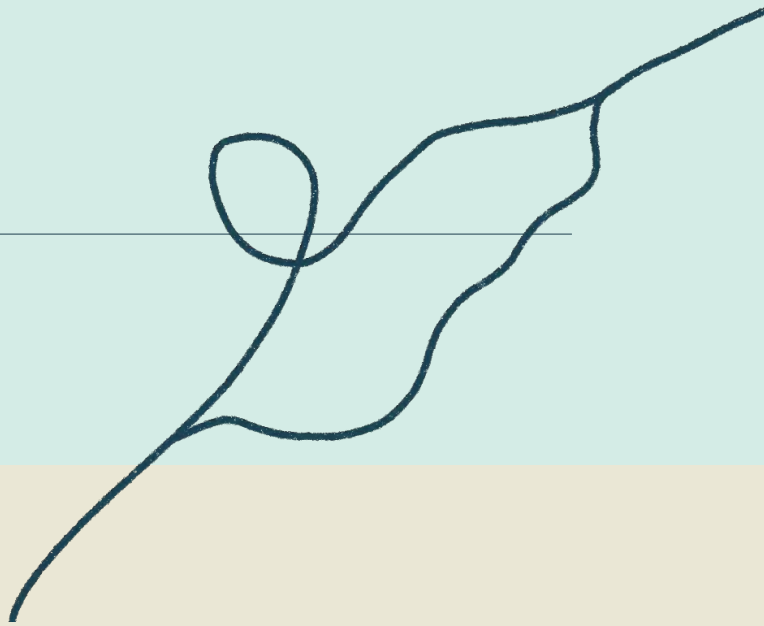


Photo by Herenboeren

PART 4

A HIGHLY SCALABLE MODEL TO REGENERATE BIOREGIONS

7. REGENERATING BIOREGIONS

Through our extensive research the BWL Collective gained important insights to inform a collective strategy.

Firstly, NbS - defined as actions to protect, sustainably manage, and restore natural or modified ecosystems, that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits - can play a major role to reverse climate change and biodiversity loss, if deployed effectively, in a just, inclusive, and participatory way.

Secondly, solutions designed to work with nature are also the perfect entry point for people to reframe their relationship with nature. NbS have the potential to engage many different actors across different levels and they are concrete tangible actions through which we can become conscious of our interconnectedness, with each other and the planet.

And thirdly, NbS are generating multiple benefits beyond financial profit. If we can value them, and natural, social, and financial benefits are valued equally by all actors involved, it can inspire the creation of a new economic architecture. This will bring forth models that are regenerative, just, inclusive, and participatory, and function within the planetary boundaries.

The systemic barriers that prevent NbS from mainstreaming are however complex and involve a myriad of stakeholders; from suppliers of NbS and their communities, to corporate leaders, investors, and policymakers. Therefore, we need to engage everyone to play a role, to collaborate on a holistic approach and aim for collective impact.

Social innovators have successful strategies to engage multiple actors across different levels. They enable diverse social groups and communities to co-create, develop, and share ideas to address the pressing socio-environmental needs and challenges. They make all actors (from citizens to corporate leaders to politicians) jointly experience and revalue the multiple benefits that NbS are bringing to them.

Accordingly, social innovators are creating significant impact with their NbS. But we – as NbS practitioners and enablers - are still operating fragmented. To remove the systemic barriers, like the lack of an adequate financing mechanism to unlock large scale investment for NbS, we need to start operating on a larger scale. What if we could develop a scalable model to reinforce our efforts, and weave ourselves and other key stakeholders together for collective impact?

Commonland and Presencing Institute's experience with organising labs - that combine the 4 returns landscape restoration approach and Theory U to mobilize stakeholders – and Ashoka's experience with collective impact and weaving, formed a source of inspiration for the BWL Collective to learn from and build further on.

7.1 BIOREGIONAL WEAVING LABS

"*The Bioregional Weaving Labs concept is a ground-breaking and desperately needed solution to the climate and biodiversity crisis. What better way of tackling these complex and interdependent challenges than weaving together people into trustful communities who work and learn together to implement baskets of proven, mutually-reinforcing solutions that transform their own bioregion?*" - Ross Hall, co-founder of The Weaving Lab.

Based on all insights gained and described in this report, the BWL developed the concept of 'Bioregional Weaving Labs'.

A Bioregional Weaving Lab (BWL) is a geographically grounded and co-created multi-stakeholder partnership process, to respond to the climate and biodiversity crises and the ever-increasing needs from landscapes to 'heal', and from people to reconnect with the environment. In a bioregional setting, we invite key local innovators and stakeholders who can represent the system – like socio-environmental entrepreneurs, citizens' initiatives, farmers, fishermen, NGO's, policymakers, politicians, bankers, corporates, citizens, youth, elderly, and others - to take part in a collective learning journey and build bioregional cohorts of changemakers.

They commit to a shared vision for their bioregion, co-create and proto-type new tools and frameworks that can be used to inspire others to also be a changemaker and to mobilise their communities for collective action towards the required systems change. This process leads to a rights-based, inclusive, and participatory design and implementation of NbS and to improved enabling conditions for NbS to integrate and scale in their bioregion.

With this integrated landscape approach based on the joint expertise, experience and networks of the BWL collective, we can mobilise hundred thousands of people to take agency and be changemakers in their own bioregions.

Before 2025, we aim to have successfully established BWL's in 10 bioregions across Europe that will accelerate regeneration in these bioregions, while continuously learning from each other and exchanging best practices in an international Learning Network that we have recently launched.

The 10 bioregions will hopefully become successful flagships, inspiring other bioregions to follow the example and contribute to the restoration, protection and regeneration of at least 1 million hectares of land and sea in Europe, over the coming two decades.

7.2 WHY BIOREGIONS?

We strongly believe in a bioregional approach because it offers a unique opportunity for people to re-connect to the ecological and cultural characteristics of the region they live in, and to reimagine and reinhabit that landscape: to reconnect with the environment. And on the other hand, it is the perfect size to shape a new economic architecture and develop a landscape level business case for NbS.

We envision a bioregion as a tapestry of woven, rights-based, inclusive, and participatory NbS, where communities feel engaged and are taking agency.

Bioregionalism is the philosophy that suggests that political, cultural, and economic systems are more sustainable and just if they are organised around bioregions. It envisions a possible future wherein our models of economic and social governance are more localised, democratic, and self-sustaining. At its core, bioregionalism aims to address the inequitable distribution of resources and the disproportionate strain that current economic models place on natural environments and local people. Bioregionalism can be also seen in sustainable land management practises such as regenerative agriculture and permaculture. Its ideologies are also manifested in worker and consumer cooperatives, community development finance and ecovillages.[124]

From an ecologic point of view, a bioregion is "a specific geographic area that is distinct from others by the characteristics of its natural environment. A bioregion is larger than an ecosystem and is in fact usually host to several. A bioregion is large enough to encompass all the biological activity and ecological processes necessary for life to sustain itself, and for local habitats and ecosystems to preserve their biological integrity. They are certainly influenced by administrative and political boundaries but are neither defined nor constrained by them".[125]

The localised interconnectedness in bioregionalism is meant to create a sense of awareness of natural resources and domino effects, and ultimately to foster interest and care for nature amongst the bioregion's residents, who are incentivised to place higher value on local natural capital. Because of diverse environmental conditions or disparate cultural circumstances, the challenges differ between geographies. Hence, so must be the methods and solutions proposed. Different cultures will prompt different methods, different approaches, and reporting on different returns.

7.3 THE BIOREGION BUSINESS CASE FOR NBS

It is crucial to rethink the way we try finance and scale NbS. We should stop looking at them in a fragmented manner as if they are stand-alone solutions.

A landscape can also be regarded as a portfolio of integrated assets; natural resources to mitigate and reduce, balance or transform liabilities, from a negative to positive impact on all indicators and values. The challenge we will address is how to build a structure to identify different indicators and values and how to finance that? To construct truly new micro-economic architectures and new flows of value and local credit mechanisms to finance NbS on a landscape scale, we first need a new institutional design. We will explore the question: what is the open-source institutional structure and governance that is going to absorb and organise this capital? Another challenge is governance and ownership: how do you mobilise

[124] Bove (2021)

[125] Bove, T. (2021). Bioregionalism: A Model for a Self-Sufficient and Democratic Economy. (Online) Available at: https://earth.org/bioregionalism/ (Accesed on November 11th, 2021)

communities to voluntarily organise themselves into a landscape level institution? What legal frameworks are needed? Landscapes are fragile systems that require maintenance that needs to be modelled, measured, and verified. What is a tool for that? And finally, will we maximize digital solutions to bring bioregional networks together and potentially build investment, cooperation and crowdfunding platforms?

Our current institutions lack the capability across all those domains to design this, unfortunately thus extracting (natural) resources and (human)capital and money out of the regions. BWL is bringing multidisciplinary research and expertise together and has the opportunity with the BWL cohorts, their communities and partners in 10 bioregions to test these prototypes and provide recommendations to enhance and contribute to landscape level Portfolio Asset Management and Smart Landscape Financing that is sustainable, responsive and inclusive. It is the long-term vision of the project that our research will lead to the possibilities of (after this project) building an automated, digital, data driven platform for landscape level Portfolio Asset Management and Smart Landscape Financing.

Meaningful interventions will vary per location across the bioregion landscape. For example, carbon sequestration might be making more sense in one place than in another place. Drawdown Europe Research Association can provide data to assess this for example. For some liabilities, like flooding risk, it will be complex to determine who owns the risk since they need to be crystallised across multiple partners, and every location will be different.

Because of these dynamics we need to be able to build typography of the whole bioregion landscape and convert the mapped liabilities into a price. This allows decision makers to make a choice where to invest their money. Commonlands' 4 returns model is providing a direction, and with help of research partners like Uhasselt we can explore how we can price liabilities.

We also need to map categories of validated NbS and build a portfolio of opportunities; ensuring the selected NbS are just, inclusive, and participatory. Ashoka's 40+ years of searching and selecting social innovators as Ashoka fellows is an important expertise for this task.

We need to be able to steward the portfolios and show decisionmakers (governments, institutions, landowners, corporations) what the liabilities are, what the risk is (expressed in a price), what the NbS/opportunities are to mitigate those risks, what the most cost-effective solutions are, what level of investment is needed to turn opportunities into assets, how we can jointly manage those assets and how we will monitor progress and measure impact.

This is a dynamic model that we need to be able to continuously adjust in real time, based on available and changing data. Therefore, we need to integrate everything in an automated, data-driven online platform, to be able to adjust, but also to make it accessible for the widest range of people in the bioregions. It is key to go from engaging 60-80 key stakeholders in a BWL to engaging 30-40% of the population in the bioregion. This also offers a completely new way of financing NbS.

With the launch of the first BWLs we aim to build capacity among the cohorts to think and organise on this scale, and to cocreate and prototype the new digital institutions that are needed to integrate and operationalize this model at scale. If we manage to do this right, we have the potential to mobilise 100.000 new changemakers in each bioregion, resulting in 1 million new changemakers for climate and biodiversity across Europe.

7.4 LABS AS AN APPROACH

Labs are increasingly being applied to experiment and address complex societal challenges and form social alliances. There is a wide range of types of labs: Social Innovation Labs, Living Labs, Urban Living Labs, Urban Transition Labs and Public Sector Innovation Labs, based on systems and design theory and/or complexity science.

Labs take a systemic approach: they focus on disrupting the underlying patterns that contribute to socio-ecological problems.[126] A diverse group of stakeholders commits itself to a long-term journey they do not know the outcome of but hold a shared intention for. By creating a space for authentic communication, mutual learning and inviting a systemic perspective, relationships between the various stakeholders are transformed. They learn to see different possibilities for the system they create together and can form innovative ideas to move in that direction.

The BWL process is designed around proven methodologies and frameworks developed by members of our collective, like 'Theory U' (Presencing Institute), 'Weaving' (The Weaving Lab) and 'Changemaking' (Ashoka), and the '4Returns Framework' (Commonland).

Weaving has proven to be an extremely effective way to unite and activate a different range of stakeholders across levels around a common vision. Theory U creates the safe space for weaving of stakeholders, solutions and communities that is based on shared principles of regeneration, a deep consciousness of our interconnectedness and the realisation that we are all fundamentally part of nature. The implementation of the 4 Returns framework in each landscape is guided by a co-creative process to establish a common vision that guides stakeholders during the many years ahead. Changemaking is to enable everyone to play a role.

7.5 BIOREGION COHORTS THAT REPRESENT THE SYSTEM

For each BWL we invite 60-80 key local stakeholders to participate. Who do we invite to form these bioregion cohorts? Multi-stakeholder collaboration on a systemic issue requires a shift from a traditional mechanistic problem-solving approach to an integrated, collaborative, systemic (and transformative) way of working. All parts of the system need to be involved: farmers and landowners, government (local, national, and international level), the financial system, interest groups,

[126] Drimie, S., R. Hamann, A. P. Manderson, and Mlondobozi, N. (2018). Creating transformative spaces for dialogue and action: reflecting on the experience of the Southern Africa Food Lab. Ecology and Society, 23(3):2. (Online) Available at: https://doi.org/10.5751/ES-10177-230302 (Accessed on November 18th, 2021)

citizens. These stakeholders need to be willing to engage in dialogue and generative learning.

To see the whole system as fully as we can and work with the different types of complexity, we need a diversity of voices and perspectives in the room that reflects the system. It is important to ensure a diversity of voices in terms of for example socio-economic backgrounds, ethnicity, gender, religion, age, and ability. Diversity in perspectives allows us to spot blind spots in our thinking and increases the chances of developing prototypes that address root causes. Experiencing the richness of working with and learning from a diverse group, also helps us to understand the value of biodiversity more deeply as embodied in nature, reinforcing a connection to nature.

Crucial to invite are the local change leaders and citizens' initiatives. These are the changemakers already creating impact; the ones we want to support. And next we will invite all stakeholders that are relevant to remove systemic barriers in the bioregion: from farmers, foresters and fishermen to corporate leaders, politicians, policymakers, investors, bankers, and citizens.

7.6 BUILDING TRUST IN A SPACE OF BELONGING

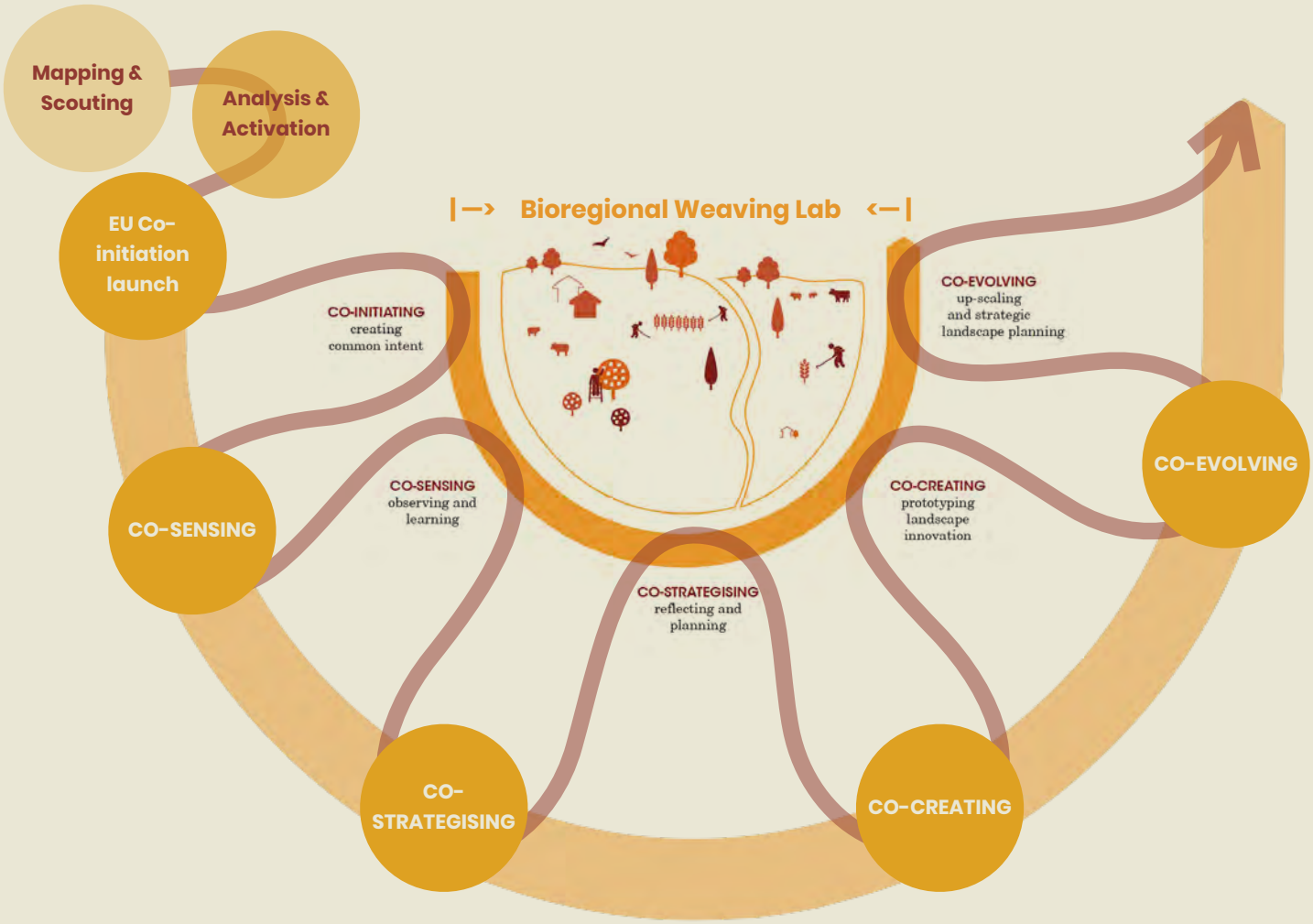
We see great potential for these new kinds of social alliances; multi-stakeholder partnerships coupled with a sense of belonging to a territory, that can inspire people to act more cohesively, better manage conflict and respond more adaptively to an uncertain future. When partners are willing to shift their perspective from ego (short term personal gain) to eco (long term well-being of the whole), awareness based systemic change can happen.
The deep quality of attention and care in these spaces are nurturing and reinforce people's commitment to the work. It is a space where stakeholders can deepen their relationship with themselves, with those around them and with nature. Also, the use of art and music creates the right atmosphere for people to open up and be vulnerable.

It takes time and skill to build trust, transparency, and a willingness in the system to collaborate across borders and on 'unknown territory'. People may have a shared intention, but the shape of the actual work they'll be doing - that which is needed - becomes clear only during the process itself. It requires a learning mindset, a willingness to be confronted with one's own limitations.

To be part of the solution, we must first recognise how we are part of the problem. These deep learning capacities need to be cultivated across all levels: at the level of individuals (holding the space for self-awareness), groups (deep listening and dialogue), organisations (from centralised to ecosystems), and the evolution of larger systems (coordinating through seeing the whole).[127] Finding the right leverage points in the system will be a story of trial and error.

Transformative spaces like these are by their nature challenging at times. The work that is needed might even include working on social

[127] Scharmer, O. C. (2019). Vertical Literacy: Reimagining the 21st-Century University. Presencing Institute Blog. (Online) Available at: https://medium.com/presencing-institute-blog/vertical-literacy-12-principles-for-reinventing-the-21st-century-university-39c2948192ee (Accessed on November 18th, 2021)



European Weaving Journey (Learning Infrastructure)

and historical trauma, deeply rooted conflicts, displacement, and histories of colonisation, to restore and 're-story' the narrative of identity and relationship to the bioregion.

Conflicts will also come up. With tools and mechanisms for safe(r) and effective space holding, a Lab can offer a constructive space to address and work with conflicts in support of the benefit of the whole. People may step in and out of a Lab process. An open infrastructure - a 'container' - that supports the continuity of a Lab is therefore important.

7.7 SELECTING 10 BIOREGIONS

Pre-phase 1: Building a bigger picture - research design and exploration
Building on the work of change agents in the bioregions, we always depart from a clear need for our collective intervention in a bioregion. In this phase, we explore the potential within our networks, the potentials on a European level, creating a clear understanding of how a BWL can contribute to scale-up opportunities in a bioregion and understanding the potentials on a system level (policies, trends of big corporations, etc.).

It is important to understand, at least to some extent, how the landscapes are shaped and how they function today. Together with the members of the BWL Collective we designed a process to map the bioregions with the highest impact potential, from an ecological, social and an economic perspective.

One of the most important criteria to start a Bioregional Weaving Lab, is to have a Bioregion Ambassador present in the area; this could be a social entrepreneur who is already a member of the BWL collective, or a local innovator who is already working on regional transformation, has a broad network and relevant work experience in the area.

Pre-phase 2: Deep dive into selected bioregions
Together with the Bioregion Ambassadors, we build a strong, local weaving team in each selected bioregion to lead the launch and facilitation of the Bioregional Weaving Labs. We invite one or more local 'weavers' to join the bioregional team. These hands-on people with intimate knowledge of the bioregion will facilitate further collaborations and collective impact approaches.

With the local weaving team will perform a first 'scan' of the bioregion. We invite key stakeholder and innovators from the bioregion, who are already working towards a transformation of the area. In small-scale co-sensing workshops, we investigate:

- Environmental and geographic landscape - what are the problems, dynamics, strengths and vulnerabilities that shape the identified bioregional landscapes?
- Stakeholders - who are the relevant stakeholders in the landscape and what are their challenges, dreams and ambitions? What is their relationship towards each other and the landscape?
- What is the on-the-ground willingness and openness towards a BWL to scale existing

solutions and address system barriers in the bioregion?

The findings are consolidated into communication documents, shared per bioregion with a clear connection to the BWL design, which is adapted to meet each bioregion's needs.

Pre-phase 3: Deep analyses and stakeholder activation
A deeper analysis and activation of the stakeholders is the last crucial phase before co-initiating a BWL in the bioregion. The Bioregion Ambassador and Weaving Team, with the support of the BWL Collective, will assess the following:

- Which solutions are already creating impact in the bioregion?
- What is the total addressable market for our woven solutions?
- What is the total regenerative potential (4Returns) for the different solutions?
- How do we unlock the largest potential in the bioregion?
- How can we adapt to the local context and improve the business models?
- What system barriers need to be addressed in the BWL?

Potentially, if funding is already in place, we can even calculate how much CO2 emissions would be reduced or biodiversity increased if the region would adopt a specific category of NbS, and what this would mean in terms of the social and economic value it creates in the region.

We regard the analysis as a first scan of what puzzle-pieces (solutions) are already creating impact in the region, which ones fit together (weaving potential), and which pieces are still missing.

Local ownership & engagement means results are more relevant to local needs, thus increasing local stakeholders' commitment to and engagement in identifying sustainable solutions to community challenges. Together with the Bioregion Ambassador and Weaving Team we will identify key stakeholders and invite them into the BWL process.

7.8 LEARNING NETWORK OF BIOREGIONAL WEAVING LABS

We are establishing a Community of Practice (CoP) with the Weaving Teams from all 10 bioregions in Europe. The aim is to build their capacity and equip them to organise a BWL in their own bioregion.

This will be an on- and offline learning journey for the bioregion Ambassadors and Weaving Teams to learn (more) about Theory U, weaving, system change, collective impact, landscape restoration, the 4 returns framework, drawdown solutions, ecosystem leadership and integrating and scaling NbS on a bioregion level.

The program is an interactive process of learning by doing together with and from peers and applying learnings immediately in the local BWL processes. It is supporting the Weaving Teams in each bioregion to link, integrate and implement the transition

experiments they are co-creating with the respective cohorts. In this way, experiments grow from niche alternatives to new patterns, structures, and ultimately new systems.

Ultimately, we are creating an open-source learning ecosystem that allows bioregional weavers from other continents to also learn, exchange knowledge and best practices. This enables future Weaving Teams across the world to work more effectively and allows for replication of the process in new bioregions.

This Learning Network can grow into a unique acceleration platform focussed on bioregional transformation to nurture the implementation and scaling of NbS towards the restoration, protection and regeneration of 1 million hectares of Europe's land and sea.

7.9 THE LAB PROCESS

A Bioregional Weaving Lab consists of five underlying phases, based on Theory U, with various workshops, learning journeys, and dialogue interviews. This framework can be used by the local weaving teams to adapt it to the needs of the local cohorts that participate in the BWL's. Every bioregion will be different, so the design should always tailor for the local needs.

PHASE 1 - Bioregional (landscape) Partnership Formation (co-initiating)
We facilitate the development of a bioregional partnership, based on the principles of co-initiation. With all stakeholders in the

bioregional cohorts, we co-create an inspiring shared intention for the bioregion based on the 4 Returns framework. We focus on nurturing deep and trustful relationships among the stakeholders, increasing awareness of each other's purpose, values, and work. From here we start to notice which liabilities there are in the region, which NbS have high potential for implementation in the area, and which systemic barriers need prioritised addressing.

The desired outcome is that the cohort feels fully committed to a shared vision and goal for the bioregion, and a first shared idea of which systems we might need to change. Stakeholders will look at their own blind spots, can practise deep listening, share the same language (4 Returns framework), understand the importance of system change thinking, feel belonging to a group of like-minded people and have gained a sense of trust.

PHASE 2 - Shared understanding (co-sensing)
The cohorts will collectively 'sense' the bioregional system-dynamics from within, connecting to the highest potential and opportunities for change and the biggest barriers for scaling NbS in the bioregion. Through learning journeys, dialogue interviews and shadowing they will deepen their understanding of the underlying structures and mindsets that need to be addressed for system change. The primary focus here is to learn from what is already working, what NbS are already proven successful in other parts of Europe, and what could be possible if we would really all work together.

The aspired outcome is that the cohort gained a good sense and shared understanding of the edges of the local/national/global systems, what policies are in place, what are the liabilities, where are the blind spots in the bioregion and already explore successful NbS (from the growing 'portfolio of opportunities' of the BWL collective) that could be relevant to mitigate the liabilities.

PHASE 3 - Collaborative vision and planning (co-strategizing)
Integrating and reflecting on the learnings from the co-sensing phase, the stakeholders will move from learning into action, by connecting to joint inspiration and a common will. To transform the deeper structures and mindsets, all stakeholders need to also connect with their own role in bringing about the necessary system change and mindset shift. Stakeholders will step over the threshold into thoughtful and heartfelt action and start selecting the most preferred and cost-effective NbS that can mitigate the risks caused by climate change and biodiversity loss in their bioregion.

The aspired outcome is that participants processed and reflected individually on their purpose, long term commitment and goal for the future. The cohort has a collective understanding of opportunities for proven NbS from elsewhere, to integrate and scale into the bioregion.

PHASE 4 - Acting through Prototyping (co-creation)
In the co-creating phase, stakeholders will develop the landscape portfolio asset management model, and create a business case for their bioregion. They co-create

digital MVPs per bioregion for a Smart Landscape Financing platform. We support selected NbS with a scaling impact strategy, replication strategies and business modelling. The focus in this phase is on prototyping; we act, reflect, and adapt to learn quickly and integrate strategically. We will also organise an NbS Prototype Festival, inviting people from the region to get engaged.

The desired outcome is that committed teams have been formed out of the cohort that have co-created prototypes, based on scaling (or replicating) relevant NbS into the local context. The business models are in place (including the carbon cases) and the vision plan for the bioregion, based on the 4 Returns framework, is ready. Financing is secured to start first prototyping, and thousands of people in the bioregion are made aware and engaged to some level around the potential this can bring to them.

PHASE 5 - Monitoring and learning (co-evolving)
The last step in the process is our chance to unlock large scale investment to integrate and scale NbS into the existing bioregional system. Having leveraged the NbS that are most suitable for the bioregion with the required financing, we work with stakeholders to develop the strategic action plans and the scaling, monitoring and impact measurement of the chosen solutions.

It is important to acknowledge that the entire process of Bioregional Weaving Labs is not a linear process. Some one-on-one collaborations are expected to emerge already from the start of the process.

Each bioregion context is different and will determine the final design and outcome of the intervention. We work with complex and very unpredictable/organic systems and so we are building something to be flexible and to work with the power of 'emergence' too.

7.10 CONCLUSION

With the establishment of 10 Bioregional Weaving Labs and the accompanying Learning Network, we can create the spaces to engage 60 key stakeholders in each bioregion that hold the potential to mobilise hundred thousands of others that are needed to shift the paradigm towards the realisation we are a fundamental part of nature and to unlock the power of nature to reverse climate change and biodiversity loss.

We hope to inspire social innovators, citizens initiatives, farmers, funders, investors, policymakers, corporate leaders, citizens, youth, and other stakeholders to join this movement by becoming an active participant or contributor to one of the Bioregional Weaving Labs, and/or by supporting the Learning Network of Bioregional Weaving Labs in Europe. We can provide more information through our Whitepaper "The Big Regenerative Scale up' (Feb 2022).

GLOSSARY OF TERMS

4Returns framework: A systemic, science-based framework that is being tested in over 1 million hectares around the world. Developed by Commonland in close collaboration with scientific institutes, business schools, farmers, and experts, it is a guiding framework that supports stakeholders to transform degraded ecosystems by focusing on 4 key returns over the course of a single generation, or 20 years. The 4 Returns are inspiration, social capital, natural capital, and financial capital

Ashoka Fellows: A community of the world's leading system changing social entrepreneurs, selected by Ashoka. They champion innovative new ideas that transform society's systems, providing benefits for everyone and improving the lives of millions of people.

Bioregion: In line with (environmentalist) bioregionalism, a bioregion is defined in terms of the unique overall pattern of natural characteristics of a geographical area, including climate, seasons, landforms, watersheds, soils and native plants and animals. Under this definition, people are also counted as an integral aspect of a local's life and a bioregion will therefore entail a unique cultural identity, meaning that livelihoods and the interests of local communities are a key starting point.

Bioregional Weaving Lab: A facilitated multi-stakeholder partnership process for a bioregion that supports local innovators and stakeholders to engage their communities in collaborative systems change. This is done by co-creating strategies for collaborative systems change that can shape the right conditions for successful integration and scaling of NbS.

Bioregion ambassador: A locally based key changemaker from our collective that acknowledges the need for a BWL and will help with mapping the key stakeholders in each bioregion.

Collective: A group of entities that share or are motivated by at least one common issue or interest or work together to achieve a common objective. Collectives can differ from cooperatives in that they are not necessarily focused upon an economic benefit or saving but does not exclude that.

Ecosystem restoration: Assisting in the recovery of ecosystems that have been degraded or destroyed, as well as conserving the ecosystems that are still intact. Healthier ecosystems, with richer biodiversity, yield greater benefits such as more fertile soils, bigger yields of timber and fish, and larger stores of greenhouse gases.

Healthy Ecosystems: An ecosystem is the complex of living organisms, their physical environment and all their interrelationships in a particular unit of space. A healthy and diverse ecosystem is one that provides abundant and beneficial services to its constituents, such as food, water, shelter, economic livelihood, recreation, and natural beauty.

Nature-based solutions (NbS): Actions to protect, sustainably manage, and restore natural or modified ecosystems, that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits (source: IUCN)

Regeneration: an all-inclusive movement led by communities that engage humanity to reverse climate change and biodiversity loss (as described in our partner Paul Hawken's book 'Regeneration', weaving justice, climate, biodiversity, equity, and human dignity into a seamless tapestry of action, policy, and transformation that can end the climate crisis in one generation).

Regenerative economy: An economy that promotes sobriety rather than infinite abundance is circular and can work without extracting new materials. It is a local economy that promotes interaction between actors, leads to cooperation instead of competition and develops life and evolution rather than destroying it.

Theory U: A change framework and set of methodologies developed by Otto Scharmer, senior lecturer at MIT, used by thousands of organisations and communities worldwide to address our most pressing global challenges.

Thriving communities: In thriving communities, people have access to resources and support to gain equitable access to meaningful employment, living wages, affordable housing, transportation, healthy food, clean water, comprehensive healthcare, quality education and childcare.

Weaving: An emerging practice of leadership aimed at creating thriving communities, continuously aligning, learning, and collaborating toward a shared purpose. People must collaborate continuously to improve their system.

Weaver(s): People who can bring all stakeholders together, support them in their change process and match them with internationally proven solutions, taking the Bioregional Weaving Lab forward. One could also call this person a quartermaster; someone sent ahead to prepare for something entirely new. A forerunner or trailblazer who is skilled in bringing the right stakeholders together for a joint cause.

Illustration by Kyra Sacks

ANNEX

14 NATURE BASED SOLUTIONS

JACEK BOŻEK

KLUB GAJA

Klub Gaja is a Polish environmental organization. For over 30 years, it has been engaging people in Poland in practical actions for the conservation of nature and animal rights. Its founder, Jacek Bożek, developed a novel solution previously non-existent in Poland: using art as a platform for nature conservation. Through theatre, music, festivals, and workshops people are engaged and drawn towards a deeper connection with nature.

Humanity is a part of the wider ecosystem and can only thrive if a compromise is reached between our needs and wants and nature's ability to provide. This requires respect, cooperation and understanding, which are likewise pivotal for the thriving of communities. To promote these values, Klub Gaja raises awareness on the importance of respect for nature, promoting ecological and civic activities within communities while conserving biodiversity.

Through art, Klub Gaja mobilizes and inspires people from the wider society, across age groups, to respect and listen to nature, thereby improving well-being and building social capital around nature treasured as a common good. Ultimately, Klub Gaja fosters social change and all-inclusive development. "...the whole of my work is to try to involve people, nature, animals, culture – show that we are the same, we are together." - Jacek Bożek

4 RETURNS – IMPACT REALISED SO FAR:

RETURNS	INDICATOR	STATUS
Inspiration	Partnerships with educational institutions, local governments, public institutions, and companies	5.000
	Community members involved in program “Tree Day” (2005-2020)	760K
	Community members involved in program “Adopt a River”	196K
Social	Participants in educational programs (2014)	130K
Natural	Trees planted under the program “Tree Day” (2005-2020)	940K
	Shelters/nesting boxes built for varied wild animals	1700
	Waste collected	5100 T
	Rivers and reservoirs adopted in the program “Adopt an Establishment of the largest ornithological reserve in Poland, the Vistula near Zawichost (2010) River”	772
	Establishment of the largest ornithological reserve in Poland, the Vistula near Zawichost (2010)	
Financial	Funding secured for tree planting and nature protection (2020)	EUR 50K
	Generated income from activities (2020)	EUR 100K

Mitigation of Climate Change:

Drawdown Solution Category	**Towards SDGs**
Forest Protection Temperate Forest Restoration Tree Plantation (on degraded land) Health & Education	4 – Quality Education, 13 – Climate Action, 15 – Life on Land, 17 – Partnerships

Note: Klub Gaja does considerable work on river restoration and protection with a track record of significant impact throughout Poland. Rivers and inland wetlands play an important role in global carbon cycling as well as nutrient and water cycling and constitute some of the most important biodiversity hotspots on the planet. These ecosystem services are, however, not contemplated in the presented frameworks.

MACIEJ PODYMA

FUNDACJA ŁĄKA

Poland has some 750K hectares of lawns on roadsides, highways and the cities across the country. These lawns act as 'green deserts', leading to the loss of habitat for pollinators and devastating biodiversity. Adding to the problem, pesticides used for lawn care kill not only weeds, but also bees and other insects. To address this urgent problem, Fundacja Łąka seeks to boost biodiversity by turning around short-cut lawns in the city into wildflower meadows, thereby changing the way people think about the urban culture and nature.

The initiative pushes for a nature-based solution for the monoculture lawn problematic by sowing beautiful and bio-diverse flower meadows in city centers, near roads, on brownfields, or roofs. The co-benefits are improved water retention, soil quality and air filtration. Research findings indicate biodiversity increases of 60-70% and three-fold decreases in CO2-eq emissions. The organization has sown meadows across the country and completed projects with major municipalities, such as Warsaw or Krakow, and plans to further convert 400K Ha and be 100% self-reliant in seed production by 2024.

Any comprehensive and effective solution to biodiversity loss and wider environmental crisis must necessarily be self-sustainable. Similarly, a thriving ecosystem is a resilient one, one that replenishes itself in face of adversity without human input. It is based on this premise that Fundacja Łąka is reimagining short-cut lawns and contending with the vogues that are driving biodiversity's demise. Through community engagement they are tapping into traditional values and raising awareness on the cultural and artistic value of wildflowers. The goal is that people acquire a different and more holistic perspective on the surrounding environment and by doing so collectively thrive as a community.

"...we need to think what would be on this planet when we disappear – if we are planning for thriving ecosystems, it should be self-sustainable, and we want to achieve that goal." - Maciej Podyma

4 RETURNS – IMPACT REALISED SO FAR:

RETURNS	INDICATOR	STATUS
Inspiration	People involved in over 750 events	20K
	Partners and clients	6
Social	Participants in educational programs (2014)	161
	Ex-convicts employed for seed production	
Natural	Wildflower meadows setup	+85 Ha
	Birdboxes hung	+1500
	Trees planted	+100
	Bees and other pollinators fed	+5M
Financial	Municipal budgets spent on lawn maintenance	Reduced

Mitigation of Climate Change:

Drawdown Solution Category

Conservation Agriculture
Regenerative Annual Cropping
Grassland Protection
Health & Education

Towards SDGs

3 – Good Health and Well-Being, 4 – Quality Education, 10 – Reduced Inequalities, 13 – Climate Action, 15 – Life on Land, 17 – Partnerships

SUE RIDDLESTONE

BIORE-GIONAL

Bioregional is an international award-winning social enterprise and sustainability charity whose goal is for everyone to live happy, healthy lives within our planet's natural limits, leaving space for wildlife and wilderness. From its experience on real-life projects such as BedZED eco-village (formally named the Beddington Zero Energy Development), the UK's first and largest sustainable housing unit and well-known for its zero-carbon homes, it created One Planet Living.

One Planet Living is a framework and process for sustainable living that enables companies, communities, city-regions, and new building projects to make sustainable living actionable and desirable. One Planet Living is free to use, with paid-for training and expert support available. It contains ten simple principles that cover all aspects of social, environmental and economic sustainability.

Sue is particularly focused on reaching a tangible impact and achieving the SDGs, with a special attention to the goal 12 – Responsible Production and Consumption. She is spreading out the One Planet Living framework through city networks, as well as the built environment networks - and that is the way the organisation gets the general population engaged in the city strategies.

4 RETURNS – IMPACT REALISED SO FAR:

RETURNS	INDICATOR	STATUS
Inspiration	Countries inspired by and committed to One Planet Cities Programme (by 2021)	5 (UK, Russia, Canada, South Africa, Brasil)
	Total number of people around the world inspired by, living in, working at or visiting organisations and communities with a deep commitment to One Planet Living (by 2021)	1.3 M
	Long-term partnerships to review sustainability progress and ambitions (One Planet Living worldwide)	10
Social	People worldwide trained to use One Planet Living Framework in their projects and organisations (2019-2020)	1.024
	Organized Learning Events (One Planet Oxfordshire 2020)	31
	Creation of new sustainable jobs (Oxfordshire regions 2011-2019): reaching half of 2031 target (85.600)	48.000
	Oxfordshire affordable and sustainable housing programme (2017-2020): number of new affordable homes	1.320
	Weekly sessions of conservational projects that integrate “green gym” run by the Conservation Volunteers in Oxfordshire (2020)	15 attendees / week
	Oxfordshire Weight Loss and Lifestyle Service (2020) 12 venues	delivered in
	Supporting Oxfordshire’s older people to stay independent (2020)	900
Natural	Advising local authorities on achieving net-zero emissions (Oxfordshire Greentech Impact 2019/2020) attendees	18 events / + 1300
	Helping major UK casual dining chains reducing carbon footprint and identifying the best areas for big, bold changes (2019/2020)	3 ongoing projects (Mitchells and Butlers, Pizza Hut Restaurants, Nando)
	Grassland and woodland CO2eq sequestration (2005-2018)	+ 63%
	Boosting local low-carbon development in Oxfordshire: Businesses improve their energy bills and CO2 emissions through energy audit	130 businesses

	First ever “Tiny-Forest” (dense, fast-growing woodland) planted in Oxfordshire in 2020 (one Tiny Forest absorbs 30x more carbon compared to traditional planting and attract 500 animal and plant species within 3 years)	600 trees planted
	Adaptation to climate change: improving protection of homes by building flood defence (homes impacted / Oxfordshire 2010-2020)	1.050
	Oxfordshire’s recycling and composting rate (2017-2018)	57.2 %
Financial	Support to local SMEs to create more circular business models (Oxford Greentech Impact 2019/2020)	500 hours of consultancy
	Supporting thriving local economy: Increase of micro, small and medium size businesses (Oxfordshire region 2017-2020)	From 36.225 to 37.410
	Money secured to a new Oxfordshire Air Quality website	£ 160.000

Impact data referring to One Planet Oxfordshire and 0ne Planet Living worldwide (2020)

Inspiration	New communities inspired after getting to know Fremantle One Planet Living Project and starting new sustainable communities	5
Social	Attendees of cultural events	1.7 M
Natural	Afforestation through civil engagement and 40,000 shrubs	6000 trees
	Reduction in water use	25 %
	Municipal staff commuting by sustainable modes of travel	40 %
	Installations of solar panel on homes	1000
Financial	All council tender that must correspond to sustainability criteria	50 K USD

Impact data referring to One Planet Living Fremantle (Australia): Achievements after 5 years of implementation 2015-2020

Mitigation of Climate Change:

Drawdown Solution Category	**Towards SDGs**
Industry (total) Transportation (total) Buildings (total) Reduced Food Waste Health & Education	3 – Good Health and Wellbeing, 9 – Industry Innovation and Infrastructure, 11 – Sustainable Cities and Communities, 12 – Responsible Consumption and Production, 13 – Climate Action, 17 – Partnerships

Note: Consisting of a framework for sustainable development, One Planet Living is applicable to the full range of human environments, whatever those are. The solutions used and approaches taken depend entirely on the specificities of the context, meaning that throughout their portfolio Bioregional has employed not some, but a myriad of different drawdown solutions.

MICHAEL KELLY

GROW IT YOURSELF (GIY)

Food is the cornerstone of human civilization, and its production is one of our most impactful activities on biodiversity and the environment. Any vision of a future where both ecosystems and communities thrive must, therefore, necessarily include a system that produces, distributes, and consumes food for the benefit of both people and the planet. Working towards this vision, Grow It Yourself inspires, educates, enables, and connects people to grow their own food and thereby acquire "food empathy", that is, a deeper understanding of where and how their food is produced.

By raising awareness to the bigger picture and the impacts of the current food system, the initiative imbues people with a deeper consciousness of the food chain and related environmental problems, and consequently enables a change in attitudes and behaviours essential in promoting sustainable food alternatives. An essential aspect of this approach is promoting networks within and between communities, allowing people to reinforce positive behaviour, share journeys, and mobilize at scale. By 2030, GIY aims to reach 100 million GIY'ers worldwide through campaigns, media projects, products, and educational resources.

"...fundamentally what we do is help people get more curious about their food. So, where it comes from, how it's produced, and so that ultimately results in changed behaviours and changed attitudes." – Michael Kelly

4 RETURNS – IMPACT REALISED SO FAR:

RETURNS	INDICATOR	STATUS
Inspiration	Viewers of “Grow Cook Eat” television series	+ 2M
Social	People reached through GIY programs	900K
	Schools taking part in a GIY program	+ 5000
Natural	GIYers make healthier and more sustainable choices regarding food production and consumption, in turn impacting pollution, greenhouse gas emissions, biodiversity, soil quality and water use.	
Financial	Gross profit for the financial year of 2019	1,233,600

<u>Mitigation of Climate Change:</u>

Drawdown Solution Category	**Towards SDGs**
Plant-rich Diets Reduced Food Waste Health & Education	2 – Zero Hunger, 3 – Good Health and Well-being, 4 – Quality Education, 12 – Responsible Consumption and Production, 13 – Climate Action, 15 – Life on Land, 17 – Partnerships

GEERT VAN DER VEER

HEREN-BOEREN

Herenboeren supports communities in developing nature-driven cooperative farms and grow alternatives to current large-scale food production systems, thereby shortening the value chain between soil and people and reconnecting these with nature. Through sustainable business models, the innovation provides the means to produce and distribute food along nature-driven, socially connected, and economically supported lines. The goal is to integrate society and economy back into the ecosystems on which they depend. The benefits extend into the local communities through increased health, happiness, and love, which by many standards constitute better metrics of human development than current economics.

Through the food system, and drawing on regenerative organic farming, Hereboeren is working towards this integration by raising awareness within communities and advocating for the required policy mechanisms. The strategy is to allow people to experiment with the realities of farming under regenerative agriculture, thereby persuading them on the benefits through personal experience.

“What we teach people, or what they actually teach themselves by the experiences, is that we can create healthy ecosystems which can provide us with food.” - Geert van der Veer

4 RETURNS – IMPACT REALISED SO FAR:

RETURNS	INDICATOR	STATUS
Inspiration	Number of partner organisations	11
	People involved	10.000 families
Social	People fed per farm	500
	Farmers employed	13
	HBNL employees	26
Natural	20 Ha regenerative farms	10
	Decrease in meat-eaters per farm	15-30%
Financial	Investment secured	EUR 3.2 M
	Turnover	EUR 2.16 M
	Breakeven	20 farms

Mitigation of Climate Change:

Drawdown Solution Category	Towards SDGs
Plant-rich Diets Reduce Foodwaste Conservation Agriculture Regenerative Annual Cropping Nutrient Management Tree Intercropping Health & Education	2 – Zero Hunger, 3 – Good Health and Wellbeing, 11 – Sustainable Cities and Communities, 12 – Responsible Consumption and Production, 13 – Climate Action, 15 – Life on Land, 17 - Partnerships

Note: By connecting people to the very source of their sustenance, Herenboeren elicits a whole change in behaviour that extends far beyond farm boundaries. Once people comprehend their dependence on seemingly distant environmental factors, such as sunshine, rain, climate, etc, they begin to make different decisions on entirely unrelated topics in their lives.

IGNACE SCHOPS

(RE)-CONNECTION MODEL / HOGE KEMPEN NATIONAL PARK

Starting from the desire to create opportunities for people and nature in a region degraded by a history of coal mining, Ignace Schops understood the untapped potential of nature to promote social inclusion. The overwhelming success of a cycling network in simultaneously promoting environmental conservation and socio-economic development prompted the creation of a model for the reconnection of society with nature, notably implemented in the Hoge Kempen National Park. The (Re)-Connection model builds on the premise that a thriving ecosystem is a connected ecosystem. It is one where nature is not jailed away but is embraced and valued, not solely because of the innumerable vital services it provides, or for an economic value, but simply because it is.

For this intrinsic value to be recognized, people need to be made aware of what they might soon be losing and reconnect with nature. The model attempts to reestablish this connection by changing the current paradigm of economic development and inserting nature into it, accounting for biodiversity and creating alternative opportunities for local communities. Much of this work, therefore, involves bringing together all the different stakeholders in a region and, through storytelling and groundwork-based empirical evidence, show and share the benefits of combined socio-economic and ecological development.

4 RETURNS – IMPACT REALISED SO FAR:

RETURNS	INDICATOR	STATUS
Inspiration	National Park Coalition partners	32
Social	Direct and indirect jobs created	5.000
Natural	Forest and heathland managed and protected	12K Ha
Financial	Annual turnover	EUR 191M
	Annual spill over effects into local economy	EUR 60 M

Mitigation of Climate Change:

Drawdown Solution Category

Forest Protection
Bicycle Infrastructure
Temperate Forest Restoration
Managed Grazing
Health & Education

Towards SDGs

11- Sustainable Cities and Communities, 13 – Climate Action, 15 – Life on Land, 17 – Partnerships

ANTONIA STASI & GIUSEPPE SAVINO

VAZAPP

Diversity is a prerequisite for any thriving ecosystem, yet it is often lacking under current intensive agricultural practices. These, create a detachment from the underlying nature and incentivize continued destruction. A fundamental change in mindset is needed whereby people reconnect with biodiversity and each other and by doing so, regain a sense of responsibility for the land that sustains them. This social responsibility is underpinned by trustworthy relationships, and it is the basis for a thriving community and the health of the environment. Tackling the foundational culture, Vazapp attempts to change mindsets and foster relationships to reinstate a community social responsibility. Through this approach, Antonio Sasi notes, the communal perception of its natural heritage is changed, and by consequence their use of it, in new, better, and regenerative ways.

Vazapp is driving a rural revolution aiming to counteract the problem of rural exodus by leveraging a team of multidisciplinary professionals with a common interest in nature-based holistic and regenerative agricultural approaches. Through community events, such as farmers' dinners, the initiative provides a knowledge and experience sharing platform for rural communities encouraging cooperation among otherwise estranged farmers, building trustful relationships and reinstating a sense of community.

4 RETURNS – IMPACT REALISED SO FAR:

RETURNS	INDICATOR	STATUS
Inspiration	Community events organized	54
	Farmers engaged through 76 “contadinner” meetings	700
Social	Companies engaged through 76 “contadinner” meetings	600
Natural	Organic and regenerative farming yield positive externalities in the form of healthy soil and increased biodiversity	
Financial	Through diversifying investment and creating alternative activities within farms, such as hospitality, farmers income is increased	

Mitigation of Climate Change:

Drawdown Solution Category	Towards SDGs
Conservation Agriculture Regenerative Annual Cropping Nutrient Management Health & Education	2 – Zero Hunger, 3 – Good Health and Well-Being, 8 – Decent Work and Economic Growth, 13 – Climate Action, 15 – Life on Land, 17 – Partnerships

FLORIN STOICAN

KOGAYON ASSOCIATION & VACARESTI NATURAL PARK

Kogayon Association is a citizen-driven organization that creates functional conservation systems for environmentally protected areas in Romania. The initiative is concerned with the management of protected areas, the conservation of bio and geodiversity and the key role ecotourism, public awareness and environmental education play towards that goal. Conversely, the Văcărești Natural Park Association aims to generate increased demand for nature among city dwellers and mobilize them and their resources towards the protection of the country's natural heritage.

A thriving ecosystem is one that extends beyond its apparent boundaries and connects all forces impacting, and being impacted by, the underlying biodiversity. It is precisely on this connection that the Kogayon and Văcărești Associations act; by aggregating all the different stakeholders in the system and aligning them on a common purpose. Through a two-sided approach, the associations research, advocate, and lobby authorities for the protection of nature whilst educating local communities on the real value of their natural heritage. The outcome is the preservation of nature, economic prosperity, and overall social equality, resulting in the co-creation of a thriving community.

4 RETURNS – IMPACT REALISED SO FAR:

RETURNS	INDICATOR	STATUS
Inspiration	Partners in the network	60
	People following the two associations on social media	85K
Social	Direct and indirect jobs created	+ 100
	Volunteers working with the two associations	300
	Visitors in the region (from a starting point of a few hundreds)	25K
Natural	Area of established Buila-Vânturariţa National Park	4186 Ha
	Area protected in the Bucharest Natural Park	185 Ha
Financial	Total investment secured	EUR + 300K
	Spill over effects into local economy	EUR 30 M

Mitigation of Climate Change:

Drawdown Solution Category	Towards SDGs
Forest Protection Health & Education	4 – Quality Education, 8 – Decent Work and Economic Growth, 10 – Reduced Inequalities, 11 – Sustainable Cities and Communities, 13 – Climate Action, 15 – Life on Land, 17 – Partnerships

Note: According to Florin, the priority for any attempt at solving the pressing issues of biodiversity loss and climate change must necessarily be to protect what wilderness there is left in the world. The primeval biomes of our planet are still the most important tool humanity has for tackling these issues. The work carried out by the Kogayon and Vacaresti Natural Park Associations in establishing and managing protected natural areas has far reaching impact, well beyond mere forest protection. Hence, the full impact is not fully represented by the above frameworks.

PAM WARHUST

INCREDIBLE EDIBLE

INCREDIBLE EDIBLE NETWORK

Incredible Edible is a communal food movement aiming to inspire citizens to grow their own food in community spaces and share it with the community, thereby encouraging them to learn new skills and support local food businesses. The goal of the initiative is to leverage the food system as a medium through which it is possible to engage people at a very simple level and through simple actions raise awareness on the interconnectedness of the world we live in, on the consequences of our actions and, by doing so, getting people actively involved in the betterment of the world in which we all live.

According to Pam Warhust, what we do matters. We can live well and prosper, collectively, by recognizing that we are part of a bigger picture, an interdependent ecosystem, and being conscious that that our actions have impacts. The key for that ecosystem to thrive is to shorten societal feedback loops, to embed at grassroots level, at a human scale, a more democratic model of decision-making. The human connection that follows allows for people in a community, regardless of different aspirations, to gain an awareness beyond themselves and collectively work towards the betterment of all.

4 RETURNS – IMPACT REALISED SO FAR:

RETURNS	INDICATOR	STATUS
Inspiration	Events featuring IE (2018-2020)	309
	Viewers of TED Talk	+1 M
	Togetherness hosted to a wider community (2018-2020)	348
	News and blog articles posted (2018-2020)	155
	Website views since it has been launched in 2018 (by 2020)	58.897
Social	IE groups in the UK	+ 150
	IE groups worldwide (2020)	1661
Natural	Total area used by groups to grow food (2018)	9763 m2
	Residents of Todmorden that had begun grow their own food following the example of Incredible Edible Todmorden (by 2017)	57 %
Financial	Residents buying more local food compared to 5 years go (IDT-Incredible Edible Todmorden 2017)	97 %
	Business owners that believe that IET has contributed to an increased number of customers (2017)	31 %

Mitigation of Climate Change:

Drawdown Solution Category	Towards SDGs
Plant-rich Diets Reduced Food Waste Health & Education	2 – Zero Hunger, 11 – Sustainable Cities and Communities, 12 – Responsible Consumption and Production, 13 - Climate Action, 15 – Life on Land, 17 – Partnerships

WIETSE VAN DER WERF

SEA RANGER SERVICE

The Sea Ranger Service works with an innovative social business model training youth from impoverished coastal communities to become Sea Rangers and restore ocean biodiversity at scale. The model has been piloted and validated in close collaboration with the Dutch government since 2016. Sea Ranger Service is focused on building zero-emission ships to ensure its services are provided in a clean and cost-effective way, thereby offering a unique offshore capacity to accelerate seagrass, coral, and oyster bed restoration significantly.

On a mission to regenerate 1 million hectares of seascape while training 20.000 unemployed youths towards maritime careers by 2040, the service measures its impact in new jobs created, biodiversity restored, and CO2 absorbed through regenerated seagrass. Through a combination of increased monitoring and enforcement of protected areas with ecological restoration, the Sea Ranger Service works to give nature a much-needed break.

4 RETURNS – IMPACT REALISED SO FAR:

RETURNS	INDICATOR	STATUS
Inspiration	Training unemployed youth to become Sea Rangers, safeguarding the oceans and creating blue economies has a direct impact in disfavoured coastal communities, restoring a sense of purpose and hope.	
Social	Trained and employed people from disfavoured coastal communities (2021)	108
Natural	Plastic pollution samples collected (1st half of 2019)	99
	Digital and physical observations of activity near protected wreck and reef sites	8.059
	Protected wreck and reef sites that are semi-permanently monitored	14
Financial	Investment secured to develop the SRS model (2019)	EUR 480K
	Innovation grant received (2020)	EUR 500K
	Project investment and funds raised since inception	EUR 4,5 MLN

Mitigation of Climate Change:

Drawdown Solution Category

Efficient Ocean Shipping
Coastal Wetland Protection
Health & Education

Towards SDGs

1 – No Poverty, 4 – Quality Education, 8 – Decent Work and Economic Growth, 10 – Reduced Inequalities, 13 – Climate Action, 14 – Life Bellow Water, 17 – Partnerships

DANIELA IBARRA-HOWELL
& ALLAN SAVORY

SAVORY INSTITUTE

The Savory Institute is on a mission to regenerate the world's grasslands and the livelihoods of their inhabitants by means of holistic management principles. The approach leverages livestock grazing to replenish the land, restore the soil, prevent desertification, foster carbon sequestration, and create financially viable communities. A significant component of this is the equipment of land managers with the necessary tools and knowledge to implement and measure the outcome of these principles. Through a strategy rooted in collaboration, storytelling, market support, and cutting-edge research, the initiative is shifting the paradigm around agriculture's role as a solution to many of the world's challenges. The Savory Institute aims to create a global network of 100 hubs influencing the management of a billion hectares by 2025.

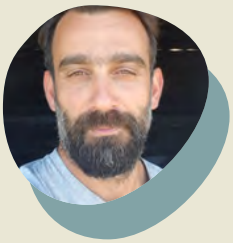
By instilling farmers with a regenerative mindset in the form of management principles that allow them to unleash the full potential of a system, the initiative hopes to transform them into stewards for biodiversity and reconnect them with the nature in which they operate. Further, through the Land to Market program, consumers at the other end of the value chain are empowered with choice through shorter and more transparent supply chains, thereby reconnecting with nature through the food system. The goal is to move from merely transactional to more relational value networks, which, coincidentally, is also good business.

4 RETURNS – IMPACT REALISED SO FAR:

RETURNS	INDICATOR	STATUS
Inspiration	Savory Hubs or regional learning centers worldwide	50
Social	Land managers trained	14,108
	Accredited professionals	149
Natural	Land area under holistic management \Ha	15,927,769
Financial	Grants and donations (2019) USD	1,826,890
	Earned Income (2019) USD	1,092,392

Mitigation of Climate Change:

Drawdown Solution Category	**Towards SDGs**
Grassland Protection Managed Grazing Health & Education	1 – No Poverty, 2 – Zero Hunger, 6 – Clean Water and Sanitation, 12 – Responsible Consumption and Production, 13 – Climate Action, 15 – Life on Land, 17 – Partnerships



DURUKAN DUDU

ANATOLIAN GRASSLANDS

Anatolian Grasslands (Anadolu Meralari) is Savory Institute's autonomous Hub in Turkey founded in 2014 by Durukan Dudu. The social enterprise promotes regenerative agricultural practices that enrich the soil. It creates and provides (business) models, innovations and tools to enable a new generation of entrepreneurs, land managers, projects leaders and teams – 'regenerators' – to successfully implement. practices. For this purpose, Anatolian Grasslands shares knowledge and expertise on proven regenerative farming techniques, recruits teams of local farmers and young individuals to own the production and regeneration processes and connects them to alternative markets and supply-chains. Additionally, Anatolian Grasslands established "RegenHive"; incubating learning sites for the application, demonstration, and collective learning of regenerative agriculture practices. Dudu also started Turkey's first and only "grass-fed & regenerative" food ecosystem/brand, called SafiMera.

Anatolian Grasslands educates local communities to manage for good, to make things better by regenerating the land and create something that transcends what nature alone can provide. The regenerative approach enables for a new paradigm where both people and nature prosper. For Durukan Dudu, co-ownership and management of farms by local communities holds the potential to drive this change at scale, whereby consumers become prosumers and create their own sub-enterprises within farms, generating new economies. This, he notes, is not only ideologically good, but economically and ecologically sound.

4 RETURNS – IMPACT REALISED SO FAR:

RETURNS	INDICATOR	STATUS
Inspiration	AG fosters mutually enriching human and nature relationships by the co-creation of regenerative rural landscapes with local communities.	
Social	Prosumer households involved	+300
Natural	Regenerative farms	+10 (1000 Ha)
	Common grasslands under holistic planned grazing/regenerative agriculture (by 2025)	+25K Ha
Financial	Turnover (SafiMera)	8 M TRY
	Revenue for regenerative producers	300 K TRY
	Direct investment secured (infrastructure) for holistic planned grazing/ regenerative agriculture project (in addition to yearly revenues of +1M TRY once the project is complete in 2025)	1 M TRY

Mitigation of Climate Change:

Drawdown Solution Category

Grassland Protection
Conservation Agriculture
Regenerative Annual Cropping
Nutrient Management
Managed Grazing
Health & Education

Towards SDGs

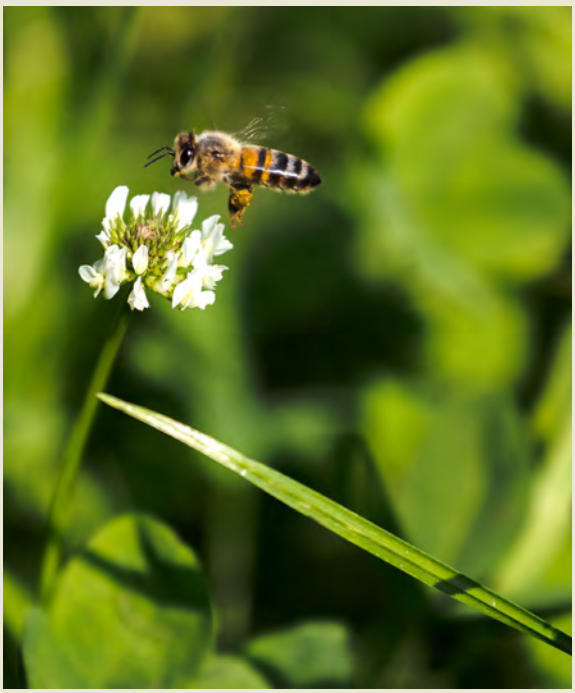
2 – Zero Hunger, 3 – Good Health and Wellbeing, 11 – Sustainable Cities and Communities, 12 – Responsible Consumption and Production, 13 – Climate Action, 15 – Life on Land, 17 – Partnerships

BACH KIM NGUYEN

BEEODI-VERSITY

BEEODIVERSITY

BeeOdiversity began from a desire to save bees and pollinators and the understanding that for that to happen the wider environment and biodiversity needed saving as well. The initiative has redefined the role of bees in our ecosystems, from honey producers to protectors of biodiversity through the development of an innovative science and nature-based, environmental monitoring tool, the BeeOmonitoring. The tool analyses samples collected by bees acting as natural drones and facilitates the assessment of the quantity and quality of floral biodiversity, the evaluation of pollution levels (heavy metals, pesticides, toxins, radioactivity, etc.), and identifying their sources. The initiative combines scientific expertise, innovative nature-based solutions, and environmental coaching techniques. BeeOmonitoring has won numerous awards recognising the innovation and societal impact of this tool.



4 RETURNS – IMPACT REALISED SO FAR:

RETURNS	INDICATOR	STATUS
Inspiration	People made aware each year	+ 50K
Social	Multinational clients over 100 project sites	+ 100
Natural	Area monitored and transformed each year	+ 50K Ha
	Area pollinated annually	+ 250K Ha
	Different pesticides identified annually	+ 50
	Plant species identified and protected annually	+ 200
	Annual plantings	20K
Financial	BeeOdiversity's models develop new nature-based services and products that promote the conservation of biodiversity with the added benefit of generating financial income.	

Mitigation of Climate Change:

Drawdown Solution Category	**Towards SDGs**
Conservation Agriculture Health & Education	6 – Clean Water and Sanitation, 9 – Industry, Innovation, and Infrastructure, 11 – Sustainable Cities and Communities, 12 – Responsible Consumption and Production, 13 – Climate Action, 15 – Life on Land, 17 – Partnerships

Note: BeeOdiversity's innovation yields considerable benefits for biodiversity and climate change mitigation that are not fully represented by the above frameworks. Most of its impact comes from the solutions proposed to clients in the most varied sectors - meaning that it is often indirect impact. Conservation agriculture represents an approximation of some of the solutions enacted by clients within the agri-food sector, and, therefore, does not comprehend the full potential of BeeOdiversity's solution for impact.

BRENDAN DUNFORD

FARMING FOR NATURE

Farming for Nature's mission is supporting farmers in becoming first responders to the biodiversity and climate crises. The organization aims to recognize, support, and reward farmers who work to improve their farms' environmental health and comprehends a range of initiatives such as sharing stories of FFN 'role models' with other farmers, advocating for 'results-based' payment schemes for farmers who deliver ecosystem services, supporting local, farmer-centred solutions to environmental challenges, and connecting with networks of researchers across Europe.

Farming for Nature builds on the premise that a thriving ecosystem is one that is ever evolving, complex and rich in all forms of life, be it wildlife or the rural communities who depend on it. These communities in turn thrive when working the land is an attractive forward looking and worthwhile pursuit, as well as an economically viable one. According to Brendan Dunford, the current system relies on a distorted market, in that it solely values provisioning ecosystem services at the expense of all the others, resulting in biodiversity-destroying monocultures and poor livelihoods. To correct this, Farming for Nature is educating and encouraging farmers to pursue regenerative practices, thereby producing both food and biodiversity. Further, it is putting a value on this biodiversity, accounting for the true cost of food and compensating farmers accordingly.

"*We've been basically putting a value on biodiversity, and motivating farmers to deliver more biodiversity, and supporting them through good knowledge transfer and encouragement to do just that.*" – Brendan Dunford

4 RETURNS – IMPACT REALISED SO FAR:

RETURNS	INDICATOR	STATUS
Inspiration	Setting and celebrating the new role of farmers as educators and ecosystem service providers, inspiring other farmers to follow suit	
Social	Increase in local employment (since 2010)	20 FTE jobs
	Knowledge sharing and creation of networks between farmers Improved representation of farmers with agri-environmental schemes, agencies and organizations	
Natural	Regenerative farms involved	328 (23K Ha)
	Landscape and biodiversity improvements (WTP)*	32.8 M
	Point-source pollution of water bodies	Reduced
Financial	Direct results-based payment to farmers (2019 average)	EUR 2,613
	Farm income	Increased
	Increase in local economic activity (since 2010)	EUR 23 M

Impact data are referring to the Burren Program

Mitigation of Climate Change:

Drawdown Solution Category	**Towards SDGs**
Grassland Protection Conservation Agriculture Regenerative Annual Cropping Nutrient Management Managed Grazing Health & Education	2 – Zero Hunger, 3 – Good Health and Wellbeing, 11 – Sustainable Cities and Communities, 12 – Responsible Consumption and Production, 13 – Climate Action, 15 – Life on Land, 17 – Partnerships

**WTP (Willingness to pay) - Ecosystem service valuation method corresponding to a "measure of the marginal benefits that users expect to enjoy from additional environmental service supply".*

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