Policy Paper - Working with Nature

In our crowded, urban and hot planet, there's an urgent need to raise public awareness about caring for nature in our daily lives - if we are to prevent a collapse in biodiversity with calamitous implications for all. Indisputable evidence emerging from thorough scientific research indicates that the planet is in danger of becoming increasingly uninhabitable in the coming decades.

As climate change strains nature's ability to deliver resources that people need to survive it is inevitably triggering conflict as people, especially those in the Global South, find themselves forced to migrate just to live. We rely on Nature to provide us with food, water and shelter; regulate our climate; maintain nutrient cycles and oxygen production and provide us with spiritual fulfilment and opportunities for recreation and recuperation to enhance our health and well-being.[1] We also cause great harm to nature through our economic systems which mis-use the planet for waste disposal - such as CO_2, plastics[2] and other pollutants.

For billions of years most of the world's carbon reservoirs were locked into living, decomposed and compressed biomass. But beginning with the Industrial Revolution in manufacturing processes and greatly speeded by recent advances in globalization in recent decades, this carbon has been released into the atmosphere through massive deforestation and burning of the carbon reservoirs - namely carbon and fossil fuels. It is time to reverse this trend and, not only keep the CO_2 locked up in and underneath the soil, but also bring the carbon back into the ground or into places and forms that function as storage in the long term.

Our economic system is geared to overexploit the very biodiversity that enables Nature to be productive, resilient and adaptable. Biodiversity is declining faster than at any time in human history. Current extinction rates are frighteningly high - 100 to 1,000 times higher than the baseline rate and accelerating. This multifaceted environmental and climate crisis is causing extreme risk and uncertainty for our economies and our lives, not least through the spread of disease.[3] Emerging infectious diseases – such as COVID-19 - are a wakeup call not to be ignored.[4]

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[1] https://www.gov.uk/government/publications/final-report-the-economics-of-biodiversity-the-dasgupta-review
[2] The EU Biodiversity Strategy for 2030: Pillar two: Restoring nature in the EU (p.14 - 20), European Strategy for Plastics
[3] https://news.un.org/en/story/2020/09/1072292
[4] https://www.gov.uk/government/publications/final-report-the-economics-of-biodiversity-the-dasgupta-review

Despite the flashing red lights and alarm bells of the catastrophic impact of climate change, people remain curiously disconnected from the crisis in their everyday lives and economic decision making.

To avoid the worst and in so doing limit climate change to a temperature-rise of 1.5 °C, Europe needs an all-of-society approach to the crisis. To achieve the dramatic changes we know are needed, we must find ways to engage our populations in Community Led, Nature based Initiatives (CLNI) outlined below. The urgently required mainstreaming would have the following impactful consequences:

- carbon savings resulting from active participation in CLNIs by five percent of the population would allow 85% of EU countries to meet their 2020 emissions reduction targets * (requires updating)
- participation of all EU citizens in CLNIs would lead to emissions reductions over the EU as a whole of up to 73%.[5]

Part A Community-led nature-based initiatives

The movement of community-led initiatives (CLIs) on climate change and sustainability is key to demonstrating practical ways of working with nature in ways that reap benefits for our societies rather than create a drain on resources, while at the same time reversing the underlying loss of biodiversity and creating green jobs.

There are myriad potential approaches being advocated to prevent the worst but everything from the daily news, to the latest report of the Intergovernmental Panel on Climate Change (IPCC), and our own observations indicate both a helplessness and ignorance of politicians and their advisors about what can and must be done. In order to implement the Agenda2030, Paris Agreement and European Green Deal, we need to shift policy to support entire populations' transition to sustainable lifestyles, economic activities and social interaction.

Communities for Future, the ECOLISE action programme is ready to help bring about the required transformational processes and win the engagement of a wide swathe of society for community-led action. We are not starting from zero. Rather we are standing on the shoulders of giants, thousands of members of the Ecovillages and community led organizations worldwide.

[5] ECOLISE (2019): Reshaping the Future: How local communities are catalysing social, economic and ecological transformation in Europe. The First Status Report on Community-led Action on Sustainability and Climate Change in Europe. Executive Summary, p.5

A major breakthrough has recently been made by the Boekel Ecovillage in the Netherlands - which has broken new ground in this context having been chosen in 2021 as the country's most sustainable housing initiative by the Dutch building sector. This is a remarkable achievement given the negative impact of the construction industry on climate change and with it, rapidly declining biodiversity. Through its clear communications - everything associated with the initiative must respect core principles of upcycling, recycling and sustainability - while meeting the expectations of a comfortable and modern lifestyle for families and individuals, Boekel has helped move the conversation on sustainability to the mainstream.[6]

For example Boekel Ecovillage won parliamentary approval to bypass national norms in order to test new sustainable building methods - thereby providing a Living Lab for companies seeking to test new environmentally relevant products without going through lengthy consumer safety testing needed for a mass market. The village of 36 families has attracted the enthusiastic support of its municipality for its low income housing and for transforming the biodiversity of the surrounding landscape through community led initiatives.

Mobilizing large numbers of people to take individual responsibility for their actions is key to bringing meaningful and timely change. Boekel Ecovillage is well on the way to doing so thanks to the extraordinary media attention it has received in the Netherlands. Triggering peoples' awareness of, and bonds with nature, with the land and soil, which are essential for life on Earth, is key to stimulate changing behaviour across societies. More than ever before people are motivated to stop climate change destroying civilization as we know it - but often lack the tools or knowledge about how they can take more than symbolic action. Boekel Ecovillage, as well as other CLIs, provide just such a roadmap to help better direct such initiatives globally, which aggregated across societies will be a powerful driver of change. Many of the solutions implemented by CLIs are already nature-based, thus, inspired and supported by nature rather than pursuing a business as usual approach so prevalent in contemporary society.[7]

The Boekel Ecovillage Example

The Boekel Ecovillage in the Netherlands is a shining example of a community which is working with nature in very practical ways. Many of its solutions have been inspired by many of the 10,000 ecovillages worldwide. Its ecological sustainability is reflected in the fact that it is the first residential area recognized

[6] Living Lab: Testing innovation in a real life situation

[7] https://ec.europa.eu/info/research-and-innovation/research-area/environment/nature-based-solutions_en

as a Voluntary Conservation Area (VCA).[8] It has also been recognized as the most sustainable organization by Dutch building sector for its path-breaking climate positive approach. A good example for practical regenerative approaches in working with nature at community-scale make the Boekel Ecovillage a great example for practical regenerative approaches in working with nature at the community scale.
The below examples are all contained on the Global Goals Community platform for sharing practical solutions to to reach the SDGs[9].

1. Production Services

1.1 Food

As in other ecovillages, one of the central characteristics of Boekel Ecovillage, is its own food production, which is already supplying its residents, including vulnerable members of the communities with 60% of their food needs with healthy, organic and local produce while applying principles of regenerative agricultures in its many forms[10] Beyond offering a diverse range of ecosystem services. leveraging polyculture for food production is which is a basic adaptation strategy in the face of climate crisis They also help ensure food security. More about Food Production by farmers can be found in the CfF Policy Paper Transition Design[11].

1.2 Drinking water

Boekel Ecovillage saves valuable drinking water by storing rainwater in underground tanks (90,000 liters) for usage in the toilets, the washing machines, irrigating the vegetable gardens and brewing beer.

1.3 Wood, fibers and other sources

The walls and roofs of the houses are all biobased, wood and hempcrete. While generally the building sector is responsible for 35% of all carbon output, the Boekel Ecovillage shows how this trend can be reversed: By using organic materials like wood and hempcrete they store 808 tons of carbon in their 36 houses. This is more carbon than was necessary to build them, which makes the ecovillage a carbon-negative building project.

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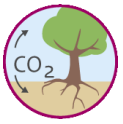
[8] The VCA is a label for good nature management in a geographically defined area. It applies mainly to the areas where the residents live and work: whether parks, estates, private farm land, business parks etc. The important thing is that the owner/s or manager has the ambition to improve the ecological quality of the site.
[9] Read CfF Policy Paper Economic Diversity for more information on the Global Goals Community.
[10] The EU Biodiversity Strategy for 2030: Pillar two: Restoring nature in the EU (p.14 - 20), “Plant three billion new trees in the EU, in full respect of ecological principles.”
[11] See CfF Policy Paper Transition Design

2. Ecosystem services

2.1 Carbon storage



The goal of net zero emissions can only be achieved if we not only significantly reduce emitting further GHG emissions, but also extract substantial amounts of CO2 from the atmosphere. In Boekel Ecovillage, carbon is stored in trees; biobased materials, used in the construction of buildings; in the soil[12], making it more fertile and increasing its water storage; and lastly in constructed wetlands, which are described in the following paragraph.

2.2 Soil, water, air quality regulation

The European Green Deal *"calls for the EU to better monitor, report, prevent and remedy **air, water, soil and pollution**"*[13]. One practical way towards water purification that is implemented in Boekel Ecovillage is the filtration of grey and black water with helophyte filters. In nature, water purification happens in two ways: separation and degradation. As in wetlands, in a helophyte filter – also called "constructed wetland" - the degradation is done by bacteria in combination with plants. Bacteria take up nutrients, turning organic matter into food for the plants and harmless by-products. Plants take up substances such as nutrients, metals, minerals and retain solids (separation), prevent algae growth and add oxygen.

2.3 Biodiversity

Food production is a central pillar of the Boekel Ecovillage's biodiversity plan. In line with the aims of the EU biodiversity strategy, the polyculture food production allows for the elimination of pesticides and fertilizers, enhances the soil fertility, as well as its carbon and water storage. This also supports pollinators and has an overall positive impact on the conservation and restoration of biodiversity. Having a measurable biodiversity plan makes it part of the worldwide Voluntary Conservation Area[14]. If it succeeds, the province will connect the ecovillage to the Dutch Nature Conservation Area[15]. The Ecovillage Boekel strives to become an example of humans living in balance with the inhabited ecosystem. Its biodiversity plan lays

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[12] The EU Biodiversity Strategy for 2030: Pillar two: Restoring nature in the EU (p.14 - 20), "Propose legally binding EU restoration targets by 2021, and restore significant areas of degraded and carbon rich ecosystems by 2030."
[13] EU Commission May 2021: Pathway to a Healthy Planet for All EU Action Plan: 'Towards Zero Pollution for Air, Water and Soil', p.1
[14] The EU Biodiversity Strategy for 2030: Pillar one: Protecting nature in the EU (p.10 - 12): Effectively manage all protected areas, defining clear conservation objectives and measures, and monitoring them appropriately.
[15] The EU Biodiversity Strategy for 2030: Pillar one: Protecting nature in the EU (p.10 - 12): Legally designating new protected areas, 4% more of land.

out different actions to provide shelter and food for all kinds of species as their presence brings balance in their natural surroundings.

2.4 Soil fertility

Another central aim of the Biodiversity Strategy is to protect soil fertility, reduce soil erosion and increase soil organic matter.[16] In Boekel Ecovillage, soil fertility is enhanced in the context of its food production. On top of the beneficial impact of its polyculture on the soil fertility, the ecovillage applies lava sand to add minerals and trace elements to the soil.

2.5 Soil erosion

Among the soil conservation practices that are used, mulching has been successfully applied to reduce soil and water losses in different contexts, such as agricultural lands, fire-affected areas, rangelands and anthropic sites.[17]

2.6 Pollination

"In Europe, around 84% of crop species and 78% of wild flowering species depend, at least in part, on animal pollination."[18] The biodiversity plan of the Boekel Ecovillage – just as the Biodiversity Strategy of the EU – therefore rightly addresses the need to reverse the trend of severe decrease of pollinators[19]. The impact measurement is carried out by an ecologist from the VCA Platform, who checks the progress of the species they protect and gives advice if the species don't thrive as planned.

2.7 Natural mechanisms for pest suppression

Most pests and diseases live off one particular crop, which is why monocultures are susceptible to pests and diseases and therefore dependent on pesticides. The polycultures in Bokel Ecovillage address this issue, as they function as natural mechanisms for pest suppression.

2.8 Mediation of noise, wind and visual impacts

Trees and shrubs are perfect to mediate noise, wind and visual impacts, therefore the ecovillage is going to plant at least 50 trees surrounding their 36 houses.

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[16] The EU Biodiversity Strategy for 2030: Pillar two: Restoring nature in the EU (p.14 - 20), Restore soil ecosystems

[17] https://www.researchgate.net/publication/306087413_Mulching_practices_for_reducing_soil_water_erosion_A_review

[18] The EU Biodiversity Strategy for 2030, p.17

[19] The EU Biodiversity Strategy for 2030: Pillar two: Restoring nature in the EU (p.14 - 20), "Reverse the decline of pollinators."

2.9. Flood protection

Boekel is on a hilltop, which makes it possible for the ecovillage to support it's municipalities' disaster flood plan, as it can be a refuge for people in the surrounding area if there is a flood. The community has sleeping places for students from the Knowledge and Education Centre on Sustainable Development Goals. When there is a flood in the area, courses are cancelled, so refugees can sleep in these bedrooms.

2.10 Prevention of heat islands

Extreme heat causes more deaths than any other weather extreme. With temperatures rising as a consequence of the climate crisis, it is important to prevent as much as possible heat islands at the local level. To avoid heat stress, the ecovillage is planning to insulate their houses well and plant a large number of trees around them.

The Boekel Ecovillage shows how diverse approaches towards working with nature regeneratively can be realized at the scale of a community. It is one of thousands of CLI across the world, paving the way to a regenerative society. The social dimension of CLIs sets them apart from individual or commercial initiatives as they take a whole of society approach built on diversity, social justice and provide more economic opportunities to the disenfranchised. Guided by these fundamental values they encourage open source innovation leveraging collective ownership and decision-making processes. By focussing on what works the solutions reached typically require modest financial investment, making them affordable and relevant especially for rural and urban communities of modest resources and for the Global South.

Part B - The policy change narrative

The current state of the world in the lack of environment and climate action demonstrates that relying exclusively on government-led initiatives or commercial solutions is a sub-optimal approach to addressing climate change and the underlying biodiversity crisis being faced by the world. This paper demonstrates that community-led nature-based initiatives can have broad appeal to government and financial entities if they are brought to scale with appropriate financial instruments to provide seed capital, enabling legislative environments to encourage innovation and relevant research and development as well as advisory and educational services to enable a more rapid and sustainable scaling.

Cross-sectoral cooperation is an indispensable requirement in this endeavor. Citizens, Civil Society, Education, Science, Businesses, Industry, Banks and Finance as well as governments at all levels, need to be compelled to work together to accelerate wide-spread implementation of CLNIs. It is essential that these societal groups implement actions in support of CLNIs in key areas such as food, water, energy, housing, transport and education. EU legislative directives, programming instruments and the hereby supported research need to be targeted at reflecting this ambition. Finally the success stories of CLNIs in working with nature need to be effectively communicated across the mainstream of society. In this way there is an opportunity to both grow the CLNI movement and bring about real and urgent transformational change.

The following steps - **(in draft)** - are urgently required to harness and leverage the demonstrable power of CLIs to help achieve real change in attitudes and behavior at a policy, societal and individual level.

- Creation of a rolling financial instrument to facilitate the expansion of CLIs based on core principles of working with nature
- Adaptation of existing policies and programming in support of cross-sectoral cooperation for bottom-up action, such as CLLD,[20] to enable the spread of CLI action aligned with the goals of the Agenda2030, Paris Agreement and EGD
- Fund and launch an EU Blitzscale Challenge for Nature Based Solutions focussed on universities
- Inclusion of CLIs in the Horizon Europe Strategic Plan:
    A. ecosystems and biodiversity: managing sustainably natural resources for food security, clean and healthy environment
    B: creating a circular, climate-neutral and sustainable economy through the transformation of its mobility, energy, construction and production systems.
- Institutional support for applied research and development for CLIs
- Major EU-wide communications initiative to promulate alternative models of urban development that are aligned with CLI and circular economy/nature centered initiatives.
- Financial support for a multi-disciplinary think tank to produce scientific and policy papers based on CLI Research and Development (R&D) into nature based initiatives, to conduct deeper research into these proposed solutions and to curate a Wiki of applied innovation linked to nature-based solutions

[20] Link to the Policy Paper on Bioregional/Territorial Partnerships

- Grant aid support to enable communities to rapidly scale within CLI guidelines
- Consequent implementation of existing and creation of new of EU policies aimed at facilitating a cross-sectoral approach towards mainstreaming CLI action in key areas
- Massively scale up Community Led Nature-based solutions based on the Biodiversity Strategy
- Giving Nature legal and enforceable rights[21]

Conclusions

Global challenges demand that we act quickly to mitigate climate change and reverse the loss of biodiversity. It is essential that public awareness and consequent action now increase at a rapid speed - blitzscaling in the current terminology .

The Communities for Future (CfF) programme aims at exactly that.

We aim to achieve the following principles across our dynamic network of Communities for Future:

- Implement circular economy principles and systems, whereby materials utilized are capable of being cascaded, upcycled or recycled in future while maintaining high ethical, design and quality standards.
- Provide replicable models for living and working with nature that are innovative and appealing to citizens and those planning for the future.
- Demonstrate through scientific method and observation the impact of diverse ecosystem services implemented by Community-led initiatives.
- Collaborate with open-source research and development networks and organizations and for profit companies to develop strategies for carbon sequestration and cycling through nature-based methods.[22]
- Cooperate with diverse stakeholders across different sectors of society to obtain the broad financial, social, and political support needed to mainstream CLIs.
- Mobilize large numbers of people to take responsibility for their actions.

[21] See CfF Policy Paper Regenerative Cultures for more information.

[22] The only climate technology sufficiently developed and tested yet to achieve climate-relevant effects without adverse environmental impacts is the massive expansion of the planet's biomass capacity. One approach currently advocated is to scale up biochar production on a widely dispersed model, an initiative well aligned to CLIs.; see Biochar in Agriculture, Wiley Sept 2021 https://onlinelibrary.wiley.com/doi/10.1111/gcbb.12889

- Raise awareness about the impact of CLI approaches towards working with nature.
- Offer education and training for people to learn how to set up their own CLI and/or develop existing ones further.

We call on EU leaders, policy makers, public representatives to acknowledge the potential of CLNI approaches in working with nature on a grand scale.

We call on you to ally with this vision to finally overcome some of the heretofore seemingly intractable biodiversity and climate change problems we are facing.

ANNEX

Draft Table outlining some of the suggested pathways & policy recommendations for an integrated approach towards the mainstreaming of Community-led Action *further development required

Area of Work	Impact	Pathways	Policy Recommendations
Food	Carbon sequestration, biodiversity restoration,	Citizens: • Vegan / vegetarian, local and organic diet	Municipalities: • Land access • Social inclusion work

	soil fertility, food sovereignty and food security, resilience, energy efficiency, health, preservation & restoration of seeds	Civil society: • Food forests • Permaculture gardens • Rewilding initiatives[23] • Community-supported agriculture • Urban gardening • Seed bank/saving initiatives banks Education & Science: • Inspire Youth to be interested in local, healthy diet & regenerative farming, sustainable food systems • Reeducation, retraining people to work with food production • Study visits to farms • Local & organic sourcing of food served in schools and universities • Preserving, local genetic seeds • Agricultural Sciences: Shift from industrialization to localization and agroecology principles Businesses & Industry: • Production cooperative	• Buying food to provide public institutions with local food • Promote food and farming in parks Regions: • Food policy councils • Food storage solutions • Equipment circles Nation States: • CAP National Strategic Plans: - Financing of CLIs and supportive initiatives through the LAGs - Promote farm diversification instead of specialization, local production for local consumption and decentralization of food processing EU: • Paradigm shift from export oriented-market to local production and consumption • Resources / subsidies finance change • Feedback loops, revising policy changes

[23] https://wildseedproject.net/

		• Local food processing • Regional whole-scale markets Bank & Finance: • Local investment funds • Land trusts • Local currencies / timebanks	
Water	Water saving & replenishment	▪ Plant-based diet ▪ Re-using and recycling ▪ grey water recycling ▪ Natural swimming ponds	
Built Environment	Innovative, nature-based & waste materials for healthy, environmentally friendly, carbon sequestering, affordable and resilient housing	▪ High U value natural insulation: -straw, hemp, raw wool, cellulose, hempcrete ▪ Retrofit homes/apartments with locally sourced materials ▪ Geoship / Earthship Design ▪ green roofs ▪ natural soakage ▪ Recreational van conversions & Tiny Houses ▪ Hempcrete	
Waste	Waste as valuable resource, re-using, recycling, upcycling, creation of jobs	▪ Food Saving ▪ Non-packaging food stores ▪ Upcycling of plastic waste, e.g. into raincoats, bags, laptop bags etc. ▪ Mushroom production on coffee grounds ▪ Thrift shops/Second-hand Shops	

		▪ Swap Markets ▪ Biogas systems	
Renewable Energy	Reduction of GHG emissions, small-scale, local, solutions, open-source technology for independence of industrial manufacturers;	▪ Domestic biogas systems[24] ▪ Self-built Wind Turbines ▪ EU certified Rocket stoves (efficient, CO2 burning) [25] Biomeiler/Jean Pain compost heaters[26]	
Mobility	Fossil-fuel free; renewable energy-based	▪ Bicycling, walking ▪ (Electric) car pooling ▪ traveling by train	
Jobs	Green Jobs; Socially conscious entrepreneurship	▪ Solar energy installers ▪ Biobased building ▪ Education ▪ Biochar production ▪ Beekeeping	
Biochar	Perhaps the only reliable way to sequester the CO2; over 50 commercial uses	▪ Fertilizer: storage for volatile nutrients ▪ Adsorber in functional clothing ▪ Insulation in the building industry, ▪ Energy storage in batteries ▪ filter in a sewage plant ▪ 3D-printer ink ▪ Silage agent ▪ Feed supplement,	
Education & Awareness Raising	Understanding the functioning, impact, potential and	▪ Seminars for visitors in communities ▪ Permaculture Design Course	

[24] How to build a Solar C³ITIES IBC biodigester http://www.solarcities.eu/education/388

[25] Gamera EU certified https://rocketheatergamera.wordpress.com/principle/

[26] wood chip domestic water heaters https://native-power.de/biomeiler-holzige-biomasse/

	barriers of CLIs; Inspiring & Enabling people to replicate those	▪ Ecovillage Design Education ▪ CLIPS ▪ Ecovillage Solutions Library ▪ Documentaries ▪ Conferences ▪ Research	