Pathways to a more just & sustainable Europe

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101036640.

What came out of the SHARED GREEN DEAL Transition Arena

SHARED GREEN DEAL

Amanda Krijgsman
PJ Beers
Maria Fraaije
Aniek Hebinck
Wouter Mulders
Rosie Robison
Giorgia Silvestri

January 2023

Pathways to a more just & sustainable Europe

What came out of the SHARED GREEN DEAL Transition Arena

January 2023

Amanda Krijgsman*

Dutch Research Institute for Transitions, The Netherlands

PJ Beers**

Dutch Research Institute for Transitions, The Netherlands

Maria Fraaije

Dutch Research Institute for Transitions, The Netherlands

Aniek Hebinck

Dutch Research Institute for Transitions, The Netherlands

Wouter Mulders

Dutch Research Institute for Transitions, The Netherlands

Rosie Robison

Anglia Ruskin University, UK

Giorgia Silvestri

Dutch Research Institute for Transitions, The Netherlands

*krijgsman@drift.eur.nl
**beers@drift.eur.nl

Suggested citation

Krijgsman, A., Beers, PJ., Fraaije, M., Hebinck, A., Mulders, W., Robison, R. and Silvestri, G., 2022. *SHARED GREEN DEAL. Pathways to a more just & sustainable Europe – What came out of the SHARED GREEN DEAL Transition Arena*. Cambridge: SHARED GREEN DEAL.

Cover design & formatting by María Torres-Senés. Acento Comunicación

Executive summary

Can you use the same breath to speak both hope and caution? Be deeply critical and supportive at the same time? However tricky that might be, it seems exactly the right tone for this third decade of the twentieth century – the transition twenties, if we may be so free to call it that.

Europe in 2022, like the rest of the world, has shaken off many exhausting coronavirus restrictions. This year, we've been living with a newfound appreciation of the physical, social and cultural interactions that were previously hard or impossible. So hope was in no short supply: now, we'd build back better societies.

Yet it's also becoming clear that, no matter how disruptive, a global pandemic alone won't permanently change the unsustainable and unjust threads in the fabric of our lives. And with a war on our doorstep pressuring our energy and food systems (among others), it's been a particularly hard year to determine what's best and fairest for EU citizens.

That hopefulness and caution, the wish to be a critical friend, is also characteristic of DRIFT's contribution to the ambitions of the Green Deal, via the SHARED GREEN DEAL project. It's a great source of joy that the EU Green Deal is putting 1+ trillion EUR behind the aim to ensure "*no net emissions of greenhouse gases by 2050, economic growth decoupled from resource use and no person and no place left behind.*"[1] But we are also acutely aware that big behavioural, social, and cultural change is urgently needed across Europe to achieve these ambitious policy priorities.

To bring that daunting challenge down to scale, DRIFT organised a series of three transition Arena events as part of this project, for which we selected 189 changemakers working locally, nationally and at the pan-European level. We gathered these policy workers, government officials, entrepreneurs, researchers and other folks together wishing they'd also be critical friends. And that they did, discussing hopefully and cautiously Europe's ambitions across six policy priority areas: from clean energy to the circular economy, and from biodiversity to mobility and from food to renovations.

In this report, you can find the results of their co-creative efforts over the second half of 2022. What do our participants already see happening 'out there' contributing to Green Deal objectives in practice? And how can organisations co-create transition pathways for a just and sustainable 2050?

Creating these multiple, and sometimes conflicting pathways highlighted the need for social justice, a strong role of government, substantial renewal of the economic system, and substantial changes in how EU citizens will conduct their everyday lives. In that sense, we hope to contribute to the awareness both of the breadth and intrusiveness of the Green Deal and of its necessity.

And the icing on the cake is that the events offered a glimpse of what those futures could look like: plant-based catering, fun transdisciplinary exchanges, a hybrid set-up limiting travel emissions. Much of this was produced in a venue embodying transitions: an old industrial site in Molenbeek, Brussels reorganised as a community cooperation.

We very much look forward to the next SHARED GREEN DEAL steps for which this scoping analysis lays the foundation: 24 social experiments for a fairer and better in Europe commencing soon!

1 Via https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal_en

SHARED GREEN DEAL

List of contents

List of figures

List of tables

1. Introduction to SHARED GREEN DEAL from a transitions perspective

1.1. SHARED GREEN DEAL streams

Societal transformations are needed to deliver on the European Union (EU) Green Deal policy ambitions. To support the implementation of the EU Green Deal, the SHARED GREEN DEAL project aims to identify mechanisms that stimulate behavioural, social and cultural change. To this end, the project is funding 24 social experiments[2] which will take place across Europe to generate knowledge and produce applied guidance for policy implementation on the local and regional level. Each of these experiments fit into one of six SHARED GREEN DEAL streams: clean energy, circular economy, efficient renovations, sustainable mobility, sustainable food, and preserving biodiversity (*Figure 1*).

Figure 1: *The six SHARED GREEN DEAL streams.*

All EU Green Deal ambitions within the six streams address persistent unsustainabilities in complex and coupled socio-technical and social-ecological systems. These systems are interlinked and mutually reinforcing[3]. To better understand the unsustainabilities and to stimulate the deep transformations of human practices in these systems, diverse societal actors need to be included in the deliberations and actions towards more sustainable futures.

2 See https://sharedgreendeal.eu/news/local-organisations-offered-eu22-000-support-green-deal-six-topics

3 Loorbach, D., et al. (2017). Sustainability Transitions Research: Transforming Science and Practice for Societal Change. *Annual Review of Environment and Resources*, 42(1), 599–626.

Between September to December 2022, the project organised a series of *SHARED GREEN DEAL Arena* events as a starting point to better understand the Green Deal ambitions related to these six streams, as understood by diverse societal actors. These co-creative moments were also intended to build capacity in transition thinking, to collaboratively reflect on and create future images and pathways for the implementation of Green Deal policy ambitions, and to stimulate participants to develop shared actions towards the Green Deal.

1.2. A SHARED GREEN DEAL Arena approach

The SHARED GREEN DEAL Arena approach builds on the literature and research experiences of sustainability transitions and action research. Transition Arenas are a format developed by transition scholars to create more actionable knowledge to accelerate transitions. Key to the 'Arena' format is the involvement of a rich diversity of societal actors in a co-creative process of learning, visioning, experimenting, and reflecting around specific societal transition challenges. This interactive multi-actor process produces transdisciplinary knowledge that helps to better understand how systems function, how actors are differently affected in the system[4], and outlines more clearly what problems need to be addressed[5]. In doing so, transdisciplinary knowledge production is argued to be crucial for the (co-)creation of action-oriented knowledge to stimulate shared, transformative actions across the Green Deal policy areas.

In developing the *SHARED GREEN DEAL Arena*, we leant on six principles that were derived from research on sustainability transitions and action research. These six principles (*Figure* 2) guided the selection of participants, methods used in the Arena, and ways to communicate its objectives. For further details and explanation of these six principles, see our "*SHARED GREEN DEAL Arena* guidelines" which is openly available online[6].

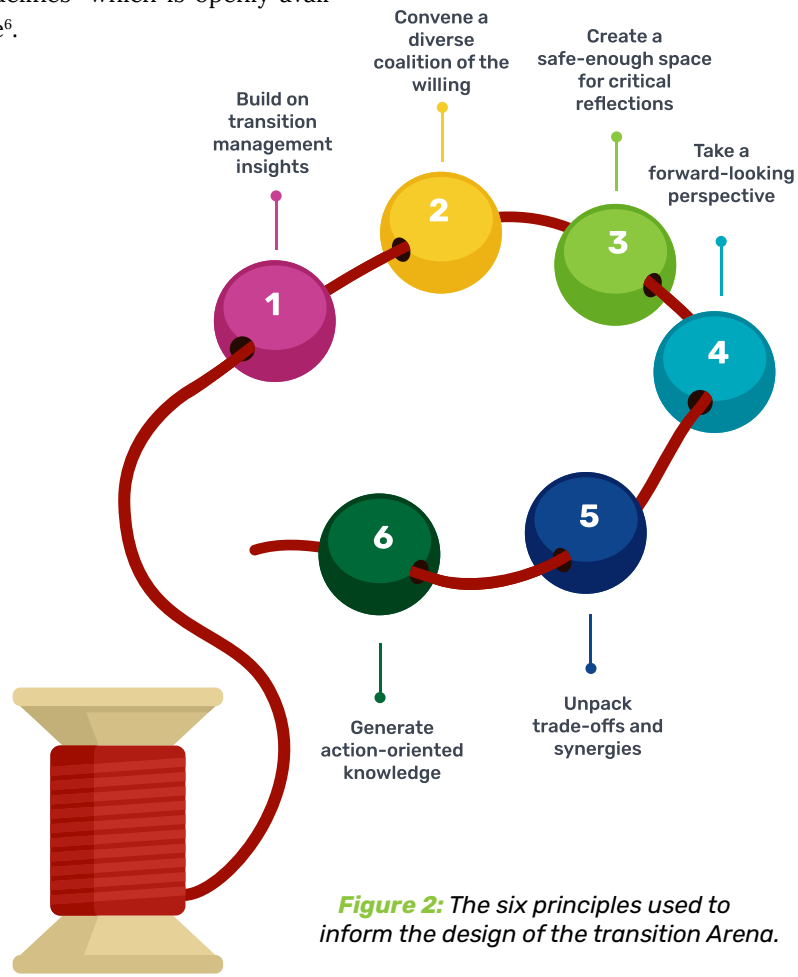


Figure 2: *The six principles used to inform the design of the transition Arena.*

4 Schäpke, N., et al. (2018). Jointly experimenting for transformation?: Shaping real-world laboratories by comparing them. *Gaia*, 27, 85–96.
Fazey, I., et al. (2018). Ten essentials for action-oriented and second order energy transitions, transformations and climate change research. *Energy Research and Social Science*, 40(November 2017), 54–70.

5 Norström, A.et al. (2020). Principles for knowledge co-production in sustainability research. *Nature Sustainability*, 3, 182–190.

6 Silvestri, G., et al. 2022. *SHARED GREEN DEAL Arena* guidelines: designing translocal, inclusive spaces for co-creation to achieve the EU Green Deal. Cambridge: SHARED GREEN DEAL.; Available via https://sharedgreendeal.eu/resources/shared-green-deal-Arena-guidelines

The SHARED GREEN DEAL *Arena* approach was designed according to three objectives: 1) to better understand the current transition dynamics in the streams that are central to the project, by exploring the X-curve framework[7]; 2) to co-creatively define desired future images of the six streams with diverse societal actors; and 3) to co-create transition pathways from those desired futures to the present. Furthermore, in doing so we aimed to build capacity among participants for systems thinking and transition thinking. These transition pathways can be used to inform sustainability action and policy-making, but also serve as a starting point for the 24 social experiments that are core to the project.

1.3. Linking transition pathways to social experiments

Defining actionable knowledge is at the core of the SHARED GREEN DEAL *Arena* approach. As emphasised, the Arena approach serves as a starting point for the social experiments, by having diverse stakeholders identify and co-create possible pathways for action towards the EU Green Deal to unfold. To do so, the Arena approach builds on four main activities (Figure 3), which serve to create an understanding of the problem together with participants and find possible ways to move forward and experiment with both innovation and breakdown of unsustainable systems.

Experimentation is a key dynamic in transition thinking, as it is understood as a way to materialise and 'prefigure' alternative futures, which enable learning about the co-development and implementation of alternative and innovative solutions. It builds on the idea that solving societal challenges cannot be managed or steered by one actor only and thus should involve multiple actors in a complex and dynamic

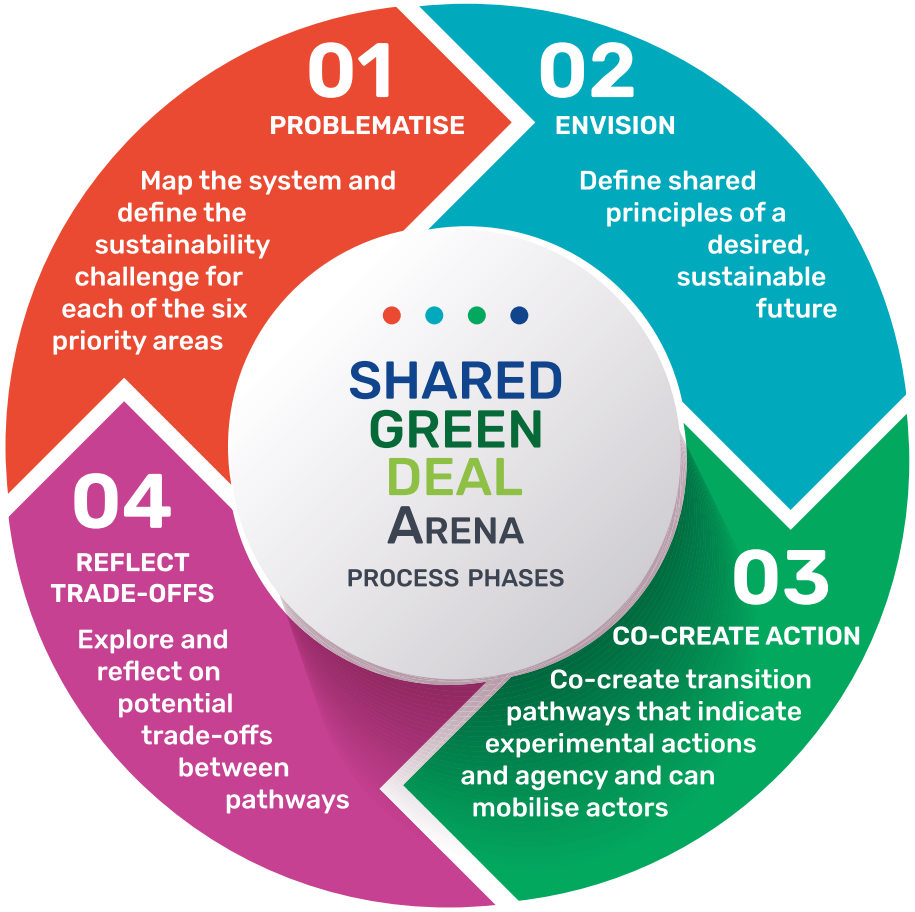


Figure 3: *Four main activities of the SHARED GREEN DEAL Arena approach.*

7 The X-curve is a framework that describes societal transitions as the interaction of transition dynamics of build-up and breakdown. It is designed for use in a co-creative setting. Hebinck, A., et al. (2022). An actionable understanding of societal transitions: the X-curve framework. *Sustainability Science*, 17(3), 1009–1021.

participatory process. Providing space for such experimentation is therefore a key factor for societal transformations[8].

In a similar vein, the 24 social experiments will provide valuable insights on how Green Deal policy could be applied on a local and/or regional scale. Through engagement with actors from across different systems, levels, and sectors, the project will facilitate policy, NGO, business and citizen groups to focus on appropriate solutions, but also link societal actors together for knowledge transfer, and harness their collective experience to feed back to the top 'macro-level'.

This report presents the co-created results from the SHARED GREEN DEAL Arena process. These diverse pathways to achieving the EU Green Deal are the result of engagement with a wide group of stakeholders that participated in the series of Arena events that were designed and facilitated by DRIFT. These results will feed into the design of the social experiments that will take place in the years to follow, aiming to strengthen the societal and policy relevance of these. This report is a stepping stone for a journal article to be published in 2023 that will explore how the European Green Deal is grounded in the imaginaries of the diverse participants acting locally.

The next section explores the SHARED GREEN DEAL Arena approach by detailing the methodological steps and describes the participants of the process. Section 3 presents a summary of the participant presentations and discussions on the six SHARED GREEN DEAL experiment streams. Section 4 identifies co-benefits and tensions between these experiment streams. Section 5 describes how insights from this set of workshops set the scene for the project as a whole but also directly feed into the design of the social experiments taking place in years to follow. The social experiments that are at the core of the SHARED GREEN DEAL project aim to explore and address sustainability challenges and further action to deliver EU Green Deal ambitions.

8 See e.g.: Von Wirth, (2019). Impacts of urban living labs on sustainability transitions: mechanisms and strategies for systemic change through experimentation. *European Planning Studies*, 27(2), 229–257.

2. The Arena approach: steps

To co-create transformative pathways to achieve the EU Green Deal, DRIFT organised a sequence of Transition Arena events, both online and hybrid, over the period September to December 2022 (*Figure* 4). The three events explored challenges, innovative interventions, as well as trade-offs and co-benefits across the six different SHARED GREEN DEAL streams with a diverse group of actors. In preparing for these events, DRIFT addressed how to: convene a diverse coalition of the willing; build upon insights from sustainability transitions research; create a safe-enough space for critical reflections; ensure strategic insights through a forward-looking perspective; and, develop concrete steps and generate action-oriented knowledge during the Arena process.

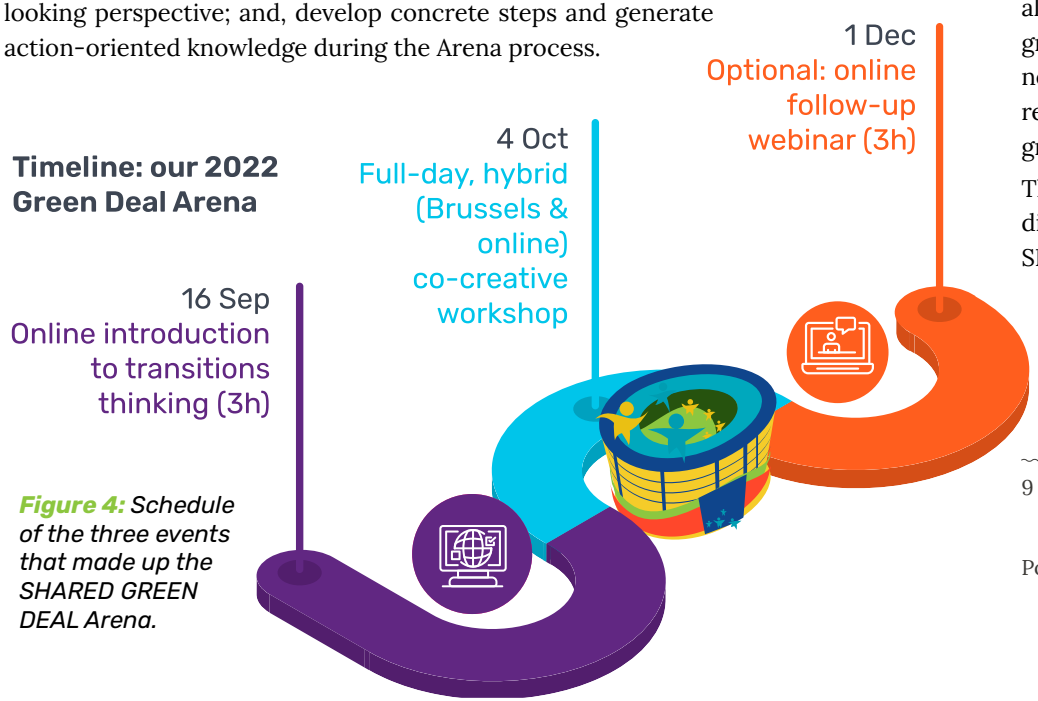


Figure 4: *Schedule of the three events that made up the SHARED GREEN DEAL Arena.*

2.1. Selection of participants

Transformative change affects all layers of society, all sectors, and all systems. That makes co-creating knowledge to address sustainability transitions a truly transdisciplinary affair. Prior to organising the SHARED GREEN DEAL Transition Arena series, we identified what actors are embedded in different systems, domains, and contexts. Bringing in diverse knowledge and experiences allows for the generation of more context-specific and societally relevant knowledge and geographies[9]. Ultimately, inclusive participation of diverse societal actors will stimulate shared, transformative actions across the Green Deal policy streams (see also Figure 2, Principle 3 on safe space and paragraph 3.2.3 in D1.12).

We organised an open call, which was disseminated extensively (e.g. via websites, socials and newsletters of SHARED GREEN DEAL our network consortium partners such as ICLEI, WECF, MIO, and SFYN; as well as through liaising with key EC initiatives, such as the Green Deal Support Office), as we believed it important to ensure as many voices were involved as possible. Throughout the selection process, we also took more targeted action via dedicated invitations sent out to individuals from groups that lacked presentation at that stage, such as local and regional entrepreneurs and governments. Together, this produced a set of 150+ diverse participants representing the SHARED GREEN DEAL streams, covering various stakeholder groups, and hailing from across Europe.

This strategy enabled us to engage with a wide variety of stakeholders from many different locations. However, it does include a bias towards those interested in the SHARED GREEN DEAL project and its partners, and can therefore be expected to represent an audience with a relatively high sense of urgency for sustainability transitions.

Only a limited amount of participant selection had to take place, related to the maximum number of seats for online and in-person participants, specifically in

9 Hebinck, A., & Page, D. (2017). Processes of participation in the development of urban food strategies: A comparative assessment of Exeter and Eindhoven. *Sustainability (Switzerland)*, 9(6), 931.
Polk, M., & Knutsson, P. (2008). Participation, value rationality and mutual learning in transdisciplinary knowledge production for sustainable development. *Environmental Education Research*, 14(6), 643–653. https://doi.org/10.1080/13504620802464841

Artist impression of the second Arena event in Brussels and online, by Mara Callaert, Visuality

regard to the second Transition Arena event, which was hybrid. As travel expenses were not funded, this resulted in a bias among in-person participants towards Brussels-based or -adjacent stakeholders. Those who could not attend in person for this reason were offered an online seat.

We received 100+ participants online for the first online event, 120+ participants on-site and online in Brussels and 30+ at the third (optional) online event (see Appendix IV), representing the following groups and selected for diversity in gender, background, experience, and geography (North, East, South, West):

- Local-level leads of bottom-up initiatives and grassroots movements;
- Representatives from other H2020 Green Deal projects[10];
- Policy makers (from EU, national, region, or local level);
- Consortium partners.

2.2. A breakdown of the Arena events

The *SHARED GREEN DEAL Arena* consisted of three events, the set-up of which enabled both in-person and online participation through blended facilitation:

- First, it kicked-off with an online introduction to transition thinking on 16 September 2022, which included a co-creative exercise to outline current transition dynamics in each of the streams.
- This was followed by, second, a co-creative hybrid workshop that took place on 4 October 2022, in Brussels and online. The objective of this full-day workshop was to co-create desired sustainable and just visions for each Green Deal stream, and to define actionable, strategic steps to achieving those visions.
- Finally, the third and final event on 1 December 2022 set out to explore how the co-created transition pathways would interact and where they could result in co-benefits and possibly even trade-offs. Participants then co-created ways to either harness the co-benefits or to manage the trade-offs that might emerge.

Table 1 presents a more detailed description of the aims and the process that was taken for each of the three events.

10 Such as ZeroW; Real Deal; Accting; Phoenix; RethinkAction; Frontship; SuperB; Schoolfood4change; Pioneers; Panoramix; Agro2Circular; SophiA; I-cisk; NeoGiant; WaterLANDS; Promisces; Merlin; ZeroPM; Storier; and Selina.

Group photo for the first, online Arena event, "do the X-curve" (excludes participants that did not want to be in the picture)

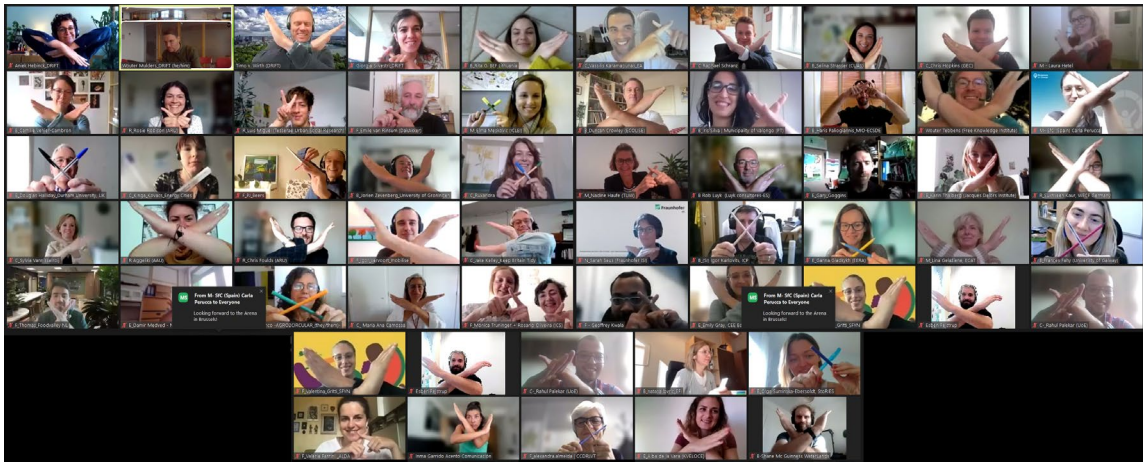


Table 1: *The aims and process of each SHARED GREEN DEAL Transition Arena event*

Arena event #1: Transitions thinking and outlining current transition dynamics **Location: online / Date: 16 September 2022**	
Aims • Introduction to the SHARED GREEN DEAL project and the 6 experiment streams; • To build capacity on transition thinking and use of the X-curve framework; • Sharing insights and perspectives as to what transition dynamics are currently visible in each of the stream's systems; • Co-creation of an X-curve for the SHARED GREEN DEAL stream to highlight the 'state of transition' according to the participants.	**Description of the process** The workshop was designed as a 3-hour session, including plenary and break-out group sessions. The plenary sessions served to introduce the overall project (its future ambitions and the use of the Arena as a starting point) and provided an introduction to transition thinking in a broad sense, while focussing on the X-curve framework as a useful tool to explore current transition dynamics. Breakout groups were formed so participants could discuss current dynamics in a particular SHARED GREEN DEAL stream and then capture those discussions by co-creating an X-curve. Rather than solely focussing on 'innovation', the co-creative exercises sought to place specific focus on the relation between building up a 'new and desired' system and the breakdown of the old, unsustainable system. Outcomes of the breakout group sessions included: • Current state of the six streams' systems; • Detailed analyses of transition dynamics according to the X-curve framework, focussing on the build-up of new, desirable systems, the stabilisation of desired system dynamics, the dynamics pushing the system to transform, and the visible breakdown or phase-out of old, unsustainable system properties. Video summaries of how participants saw the state of transition in each SHARED GREEN DEAL stream can be found in the Multimedia library on www.sharedgreendeal.eu.

Arena event #2: Co-creation of transition pathways to desired EU Green Deal futures Location: Brussels and online / Date: 4 October 2022	
Aims • Create a better understanding of what desired practices are already 'out there' in Europe contributing to the application of the Green Deal objectives into practice; • Build on the X-curve analysis of the first Arena session; • Co-creation of transition pathways towards more just and sustainable change; • Increased knowledge across different and diverse actors in just sustainability transitions.	**Description of the process** This single-day workshop was organised as a hybrid event, both online and in Brussels, including plenary and breakout group sessions. Comprehensive introductory material, including the video summaries of the previous Arena, was provided to participants prior to the workshop. The agenda of the workshop is set out in Appendix I. The plenary sessions focussed on the orientation of the project and reflection on the breakout sessions. Breakout sessions were structured around the six SHARED GREEN DEAL priority streams in which participants engaged in a collective process of learning, visioning, experimenting, and reflecting vis-à-vis specific societal transition challenges in Europe. To subsequently co-create transformative pathways to achieve a responsible, equitable, and desirable EU Green Deal. This was done by three steps that are set out below. The transformative pathways that came out of the workshop feed into the final Arena webinar, to analyse co-benefits and trade-offs between SHARED GREEN DEAL stream transition pathways.
	Step 1. Mapping diversity of future images • Reflection on the transition challenge in each SHARED GREEN DEAL stream; • Participants were asked to imagine what a sustainable and just future would look like in relation to their SHARED GREEN DEAL priority stream. In doing so, they explored plausible and desired future images; • Reflections and keywords for the future image were captured on a flipchart.
	Step 2. Fleshing out future images • Participants were asked to focus on one future image and make it more concrete. For example by asking the questions: what has become normal? What are the dominant means of production and consumption? What do you have on your plate? How do you feel? How do people behave around you? • Time horizon: 2050
	Step 3. Co-creating transition pathways • Every SHARED GREEN DEAL priority stream identified a number of future images and elaborated on one or two of these future images. • Participants were asked to construct transition pathways using the guiding questions: How did we get there? What happened in between? And who did what? • They did so by illustrating as clearly as possible the most important prerequisites plotted on a timeline starting with the future image and incrementally moving back to the present (2040, 2030 and 2025). Participants in Brussels worked on a flipchart and online participants on a Miro board. The written transition narratives for each SHARED GREEN DEAL priority stream that came out of this and the first Arena are presented in section 3.

Group photo for the third, online Arena event, "shaking hands" (excludes participants that did not want to be in the picture)

Arena event #3: Exploring trade-offs and co-benefits between the Green Deal topics

Location: online / Date: 1 December 2022

Aims

- Create an understanding of co-benefits and trade-offs in and between transition pathways
- Explore co-benefits and trade-offs between 3 streams and how they will impact each other
- Co-create ways to address the trade-offs or harness the co-benefits that are identified.
- Increased knowledge on how complexity influences future ambitions and can possibly lead to unintended consequences.

Description of the process

The third optional Transition Arena event was organised online, consisting of a three-hour session, including plenary and break-out group sessions. In the first and second Arena events, participants had co-creatively explored what the current state of each SHARED GREEN DEAL stream system is, defined future images, and constructed transition pathways. Prior to this final event, stream-specific results from the first and second Arena sessions (see section 3) were provided to the participants to prepare.

During the online follow-up webinar, participants explored in breakout groups how the six transition pathways interact with each other by focusing on whether they might **work together** (co-benefits) or **against one another** (trade-offs), and for **whom** there will be benefits or trade-offs across the pathways, how and why.

Each breakout group worked on a prepared Miro board and was presented with guiding questions to help structure the discussion. The agenda of the session is set out in Appendix II. The outcomes of the webinar are presented in section 4.

3. Looking back at EU Green Deal successes in 2050

In this section, we describe the outcomes of the first two events in the Arena process. The goals of this section are to discuss the current transition dynamics within the EU Green Deal and describe its potential futures. We structure these discussions according to the six priority streams of the SHARED GREEN DEAL project: clean energy (3.1), circular economy (3.2), efficient renovations (3.3), sustainable mobility (3.4), sustainable food (3.5) and preserving biodiversity (3.6).

During the first Arena event, participants co-created an X-curve framework, while divided in two to four groups per stream. The X-curve is a framework that presents societal transitions as made up of transition dynamics of build-up and breakdown. It can be used in a co-creative setting to discuss the state of transition in a particular system or sector[11]. Looking across these detailed analyses of transition dynamics, we have highlighted the dynamics that surfaced as key in all groups per stream and summarised the work of the various groups into one summarising X-curve visual per stream.

Building on the X-curve analysis, which outlines the current transition dynamics in the stream, the next Arena event explored one or more plausible and desired future images per stream and what transition pathways to those futures might look like, working backwards from 2050 to 2022. Up to four main future images were identified per stream, based on current dynamics. The results of this second meeting are reported in terms of imagined future visions and transition pathways. In our reporting, we remain true to the future images and pathways as developed by our participants, but in some cases we did edit and elaborate on the workshop proceedings for internal consistency. Also, where two future visions and transition pathways both strongly overlapped and complemented each other, we combined them. The outcomes of the third event on co-benefits and trade-offs are discussed in section 4.

11 Hebinck, A., et al. (2022). An actionable understanding of societal transitions: the X-curve framework. *Sustainability Science*, 17(3), 1009–1021.

3.1. Clean energy

3.1.1. Current transition dynamics

As part of the webinar focusing on current transition dynamics in EU energy sectors, participants captured multiple innovations such as citizen assemblies, energy cooperatives, incentives and policies for fostering renewable energy use. The groups also shared how the mindset of people is changing towards energy sufficiency and energy saving, decentralised energy production and consumption. The goal here is to compensate for energy poverty and support social justice.

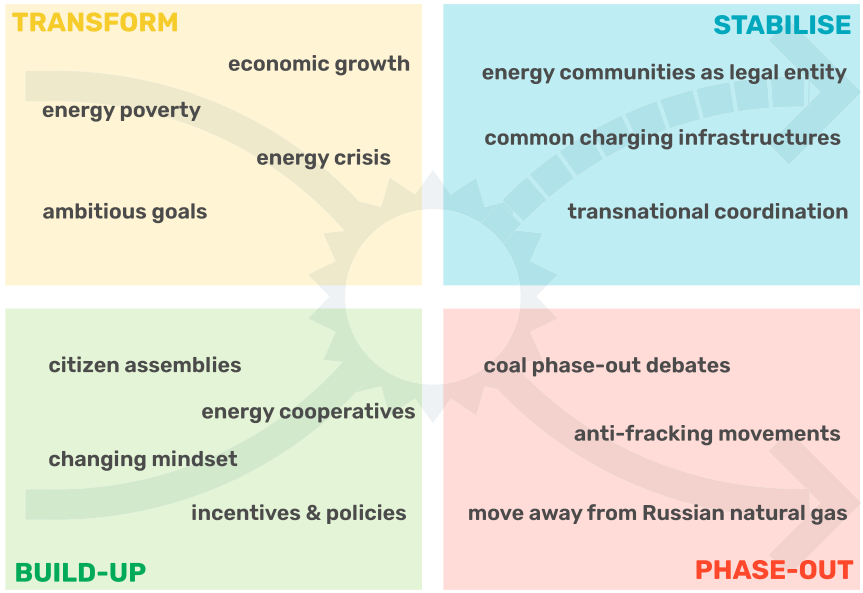


Figure 5: *Arena participants' impression of the state in transition in clean energy.*

In the top-left corner of the x-curve (see *Figure* 5), we see the incumbent energy regime. Energy poverty and social injustice pose major challenges worldwide[12]. For many, energy has always been poorly affordable, but this is getting more challenging due to the energy crisis. Power imbalances between large energy producers and local and regional agents still exist. Cities, governments and companies have ambitious goals towards carbon neutrality but lack strong implementation plans to achieve them. Overall, the status quo according to webinar participants is that we are still living an unsustainable lifestyle and that the current economy is still focusing on economic growth rather than wellbeing.

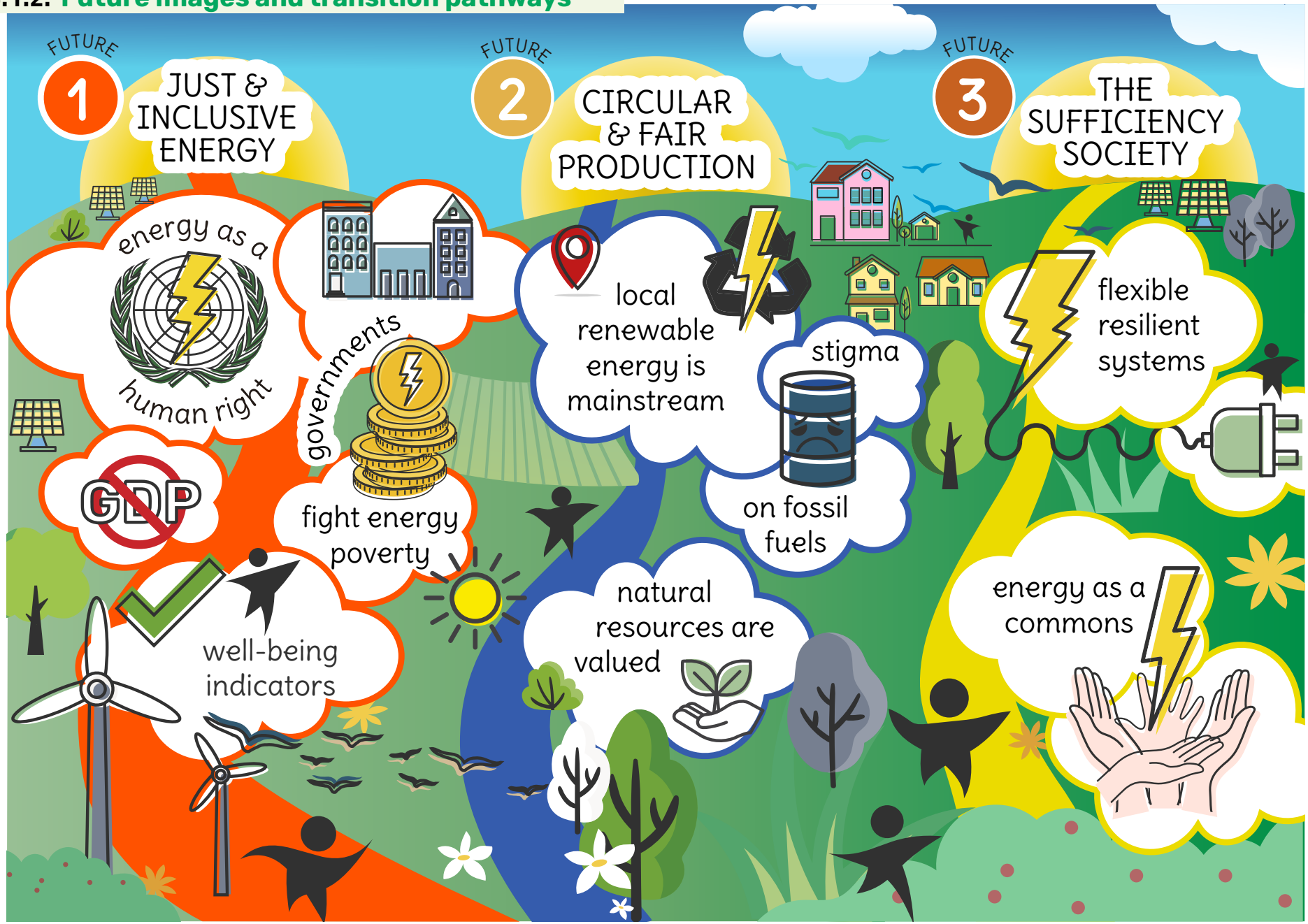
The better and more fair futures for Europe in 2050 reside in the top right corner of the X-curve. Participants envision a just, accessible and democratised energy system. Examples of this future that we can already see today are initiatives that provide energy access to low-income families by participating in energy communities without initial investment; the development of common charging infrastructures across Europe; transnational coordination of electricity; and the uptake of energy communities as a legal entity in European policy.

For this to happen, we need to move away from a purely growth paradigm and start focusing on the well-being of people and the planet. We need to get rid of fossil fuel-based systems, energy poverty, stop the import of energy from politically unstable and dictatorship regions and so on. Signs of breakdown and phase-out are visible, such as the debate around the phase out of coal, national bans on the installation of new boilers, fossil fuel divestment, European anti-fracking movements, and more recently a move away from Russian gas.

To summarise, the state of EU energy transitions shares a perspective that increasingly integrates social justice and goes beyond the focus of technological innovation only. There are already many initiatives and innovations focusing on energy decentralisation and citizen participation but these need to be better empowered and supported. However, for this to become a reality, more attention needs to go to the breakdown and phase-out of unsustainable energy practices.

12 The group focusing on this pathway decided to consider the global level instead of Europe as the geographical boundary. This decision was taken because there are many elements in the pathway that affect countries and populations outside of Europe, especially when looking at global patterns of injustice and inequality.

3.1.2. Future images and transition pathways



Just and inclusive energy

Summary

- **Human rights are at the centre of energy production** which allows for affordable energy for everyone in the whole world and the end of energy colonialism;
- **Governments** bring forward regulations to fight energy poverty such as energy affordability indicators and energy efficiency measures, guided by citizen assemblies.

In 2050, energy is affordable for everyone in the whole world. This means that there is a sufficient amount of energy services for everyone everywhere: enough energy for basic capabilities for all. In this future, energy in Europe is 100% produced by renewable sources. Just access to energy production and consumption has led to the end of energy colonialism and Global South exploitation. Human rights are therefore at the centre of energy production. There is a strong attention to social justice. Legally, energy is now considered a fundamental human right by the UN and this represents an important legal basis. Everyone, whatever their gender, race, class or refugee status, has access to energy and other services. In this future, there are many crises but there is 'cosmopolitan justice': refugees are integrated into society.

The European clean energy transition (CET) is done putting at its core the decrease of global injustice. Overall, rich countries in the world are taking more responsibility in the energy and sustainability transition.

Democratic values and participatory governance are at the centre of the society. In order to get closer to where we are now, after 2022 it was crucial to support co-creation of knowledge between government and other actors and to transfer the scientific knowledge to policy makers and other stakeholders. Additionally, energy prices had to be regulated depending on wealth and income and governments brought forward regulations to fight energy poverty as well as energy affordability indicators. There is a full ban on fossil fuel subsidies everywhere. Energy efficiency measures were implemented in different contexts, and especially in adverse social contexts, such as vulnerable neighbourhoods in cities, informal settlements and remote rural areas.

In the beginning of this just and inclusive energy evolution, it was also important that communities were mobilised and networks of different energy innovations (e.g. energy co-operatives) were strengthened. This was done by providing incentives to the development and maintenance of energy cooperatives and other prosumer initiatives. Actions developed at the European level led to the stabilisation of energy prices and made sure that energy provision was secured. Additionally, the European Commission implemented a comprehensive CO_2 tax that also included the aviation sector. At the same time, there is a low taxation or even no taxation for renewable and sustainable energy systems.

Local governments receive more authority and resources for implementing their own energy actions. Citizen assemblies in many countries provide legitimacy for more ambitious energy transition policies. Public discourse focuses on the role of energy for basic capabilities instead of contributions to the GDP. This led to well-being economy indicators adopted globally instead of the GDP. At the local level, citizen assemblies provide legitimacy for more ambitious energy transition policies.

Circular and fair energy production

Summary

- **Local renewable energy production and consumption is mainstream while fossil fuel use is banned;**
- **Governments implement regulations incentivising renewable energy use** while municipalities actively involve their citizens in contributing to climate-neutral city plans.

Imagine a 2050 with a huge mix of renewable energy generation methods and fossil-free production cycles (e.g. wind power, solar power, bioenergy and hydroelectric). People are now managing to live using a lower amount of energy by changing their

daily behaviours and practices (e.g. using sustainable public transport, choosing locally produced food, reducing energy consumption at home, living in co-housings and working in coworking spaces or remotely). The experience of various climate disasters has contributed to a changing mindset and created awareness of the need to change and reduce energy production and consumption. Renewable energy generation creates profits and everyone has started to see its benefits, so overwhelmingly people choose to use local renewable energies. The overall energy production is almost fossil-free and there is a ban on fossil-fuel exploration in Europe. At the same time, we see fossil-fuel stigma, so reliance on fossil fuels is considered taboo. A high number of citizens are energy-sufficient and act as energy prosumers (both producers and consumers). We're also seeing a willingness to move to regions with better energy systems and/or lower energy prices.

Almost every government has established effective regulations on circularity and decarbonisation and there are taxes contributing to local energy generation. Government incentives to replace fossil fuel uses with renewable energy consumption are mainstream. After 2022, we saw many disincentives to use fossil fuels domestically and a ban on domestic fuel use was established in 2030. At the local level, almost all local authorities proactively engage citizens in developing actions and applying ambitious city plans towards climate neutrality. Additionally, people are supported and encouraged to invest their savings in local energy generation.

There are also well-funded regional energy centres involving local representatives that are able to continuously report on environmental and social justice issues.

Natural resources have a high market value and are consolidated and implemented in Europe. This has a positive impact on local communities and on biodiversity conservation. There are more large industries operating around recycling (e.g. batteries and metal recycling) and the circular economy.

'The Sufficiency Society' - Clean, sustainable, resilient energy systems

Summary

- We are living in a future of **energy independence, dematerialisation, sharing economy and community-based energy prosumerism**;
- **Energy is used as a 'commons' and energy accessibility is a right and responsibility.** There is an inclusive and participatory energy production and consumption

We are living in a future with zero emissions, using only renewables and decentralised energy systems. New energy technologies have been developed and are affordable for everyone (e.g. energy storage, artificial intelligence and blockchain). This renewable energy system has become flexible and resilient so that it is easier to implement and use. Additionally, residents can take advantage of private energy storage and benefit from tax reductions when using renewable energy. There is a radical behavioural change towards sufficiency. Energy is produced closer to the place where we live, also for those living in rural areas or far from densely populated places. At a cultural level, people feel that being prosumers (both producers and consumers of energy) is part of their identity: they are self-sufficient and they consume less.

The right to affordable energy is part of the European legislation and the Doughnut Economics model is also recognised at the EU level. There is a complete ban on fossil fuel extraction. In this society, people work less, after incentives by their governments and employers. This means that they are able to use their free time to dedicate to local food production, volunteering and other activities that would contribute to decreasing energy consumption. At the same time, work protocols and contracts are more aligned with rewarding capacity of saving energy by individuals. Businesses and public authorities contribute to energy-saving of employees working in 'smart working' by partially paying their energy bills. Co-working and other shared services have gone mainstream.

Economically, local currencies are used to reward those who save energy. Governments have established taxes on the production and consumption of resource-intensive and luxury goods. Private planes are banned and we see sanctions and controls on individuals and organisations that continue to pollute increase every year. Additionally, there are several incentives towards energy sufficiency in housing through, for example, energy renovation programmes and collective housing solutions. Local authorities provide incentives to reuse abandoned buildings and lands. Market models are based on people's needs rather than profit. There is also a reduced emphasis on individual responsibility and a lot of attention given to corporate responsibility.

Citizens are actively engaged in participatory processes on energy issues. For example, they can get involved in informed debates and access information on policies and other issues in a transparent way. They are also able to use technologies to map energy consumption patterns and are encouraged to consume less. Advertisements and social campaigns also play a very important role in increasing sufficiency.

Education plays a key role in this future: energy and sustainability issues as well as community values are fully integrated in school and university curriculums. Residents are encouraged to develop skills useful for a holistic energy and sustainable transition.

3.2. Circular economy

3.2.1. Current transition dynamics

The X-curve created by Arena participants interested in the circular economy stream shows that circularity clearly goes beyond recycling. It addresses underlying fundamental questions of how to move beyond fossil-based products and materials as well as how to transform a growth-dependent economic system.

In the upward line of the X-curve, participants have placed niche innovations and alternative practices of the circular economy in the bottom-left quadrant (see Figure 6). Participants highlighted both general innovative niche trends as well as concrete alternatives emerging in the circular economy in Europe. Some of the general trends included the rise of new circular business models, the emerging bioeconomy as well as opportunities related to linking circular innovations with digitalisation trends such as artificial intelligence and blockchain technology, for example regarding a digital product ID. Among the concrete innovations, participants pointed to the rising usage of new secondary markets, re-use and repair hubs, lifecycle costing and circular impact investments.

Above that niche line, in the top-left corner, we see the current, still mostly linear economy regime in Europe. Here participants signalled the dominance of the take-make-waste linear logic. This regime is characterised by fossil-fuel dependence in a paradigm of overconsumption while at the same time facing resource shortages, increasing raw material and energy prices, as well as diverse undesired effects such as greenhouse gas emissions and plastic pollution.

The top right corner of the circular economy X-curve shows what more sustainable and just futures for a circular Europe in 2050 can look like: a society in which waste is seen as a design failure and is based on sharing rather than owning. Again, participants across the working groups within the circular economy stream came up with relevant aspects of a future circular Europe that are visible today. A concrete set of policies being in place was mentioned also as part of this future vision. For example, participants emphasised schemes such as the EU Ecodesign directive, the EU plastic directive, the EU Climate law and the CEA plan being implemented and fully institutionalised. Interestingly, participants also mentioned particular actions that manifested such as having the circular economy embedded in school curriculums or seeing a full standardisation of the definition of circular.

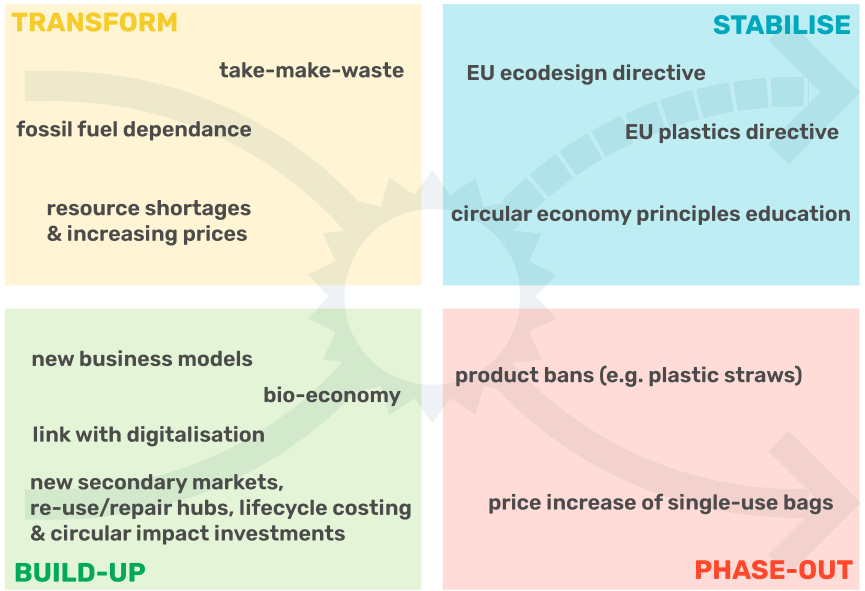
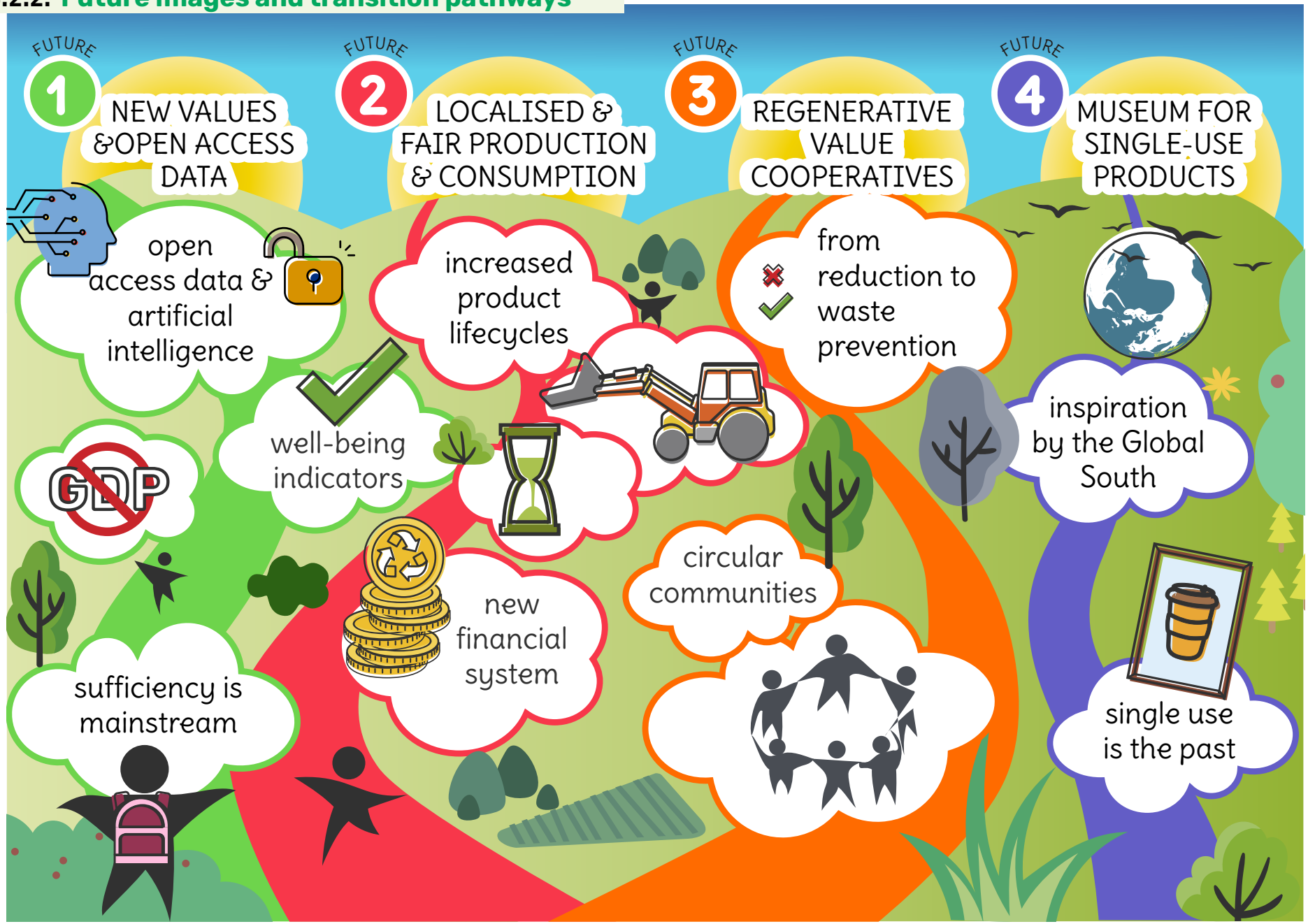


Figure 6: *Arena participants' impression of the state in transition in the circular economy.*

But before that can happen, the regime line needs to move down in the x-curve, as visualised in the bottom right quadrant. Breakdown is needed, including the decline of existing practices and structures of the following regime elements, such as incinerators, landfills, fast fashion as well as non-recyclable and single-use materials. Few signs of breakdown and phase-out are visible today, but we do see such a move away from particular single-use products such as straws and regulations to price single-use plastic bags.

To summarise, despite the short time for the group work with the X-curve model during our webinar, participants still painted a fascinating and vivid picture of the state of transition towards a circular economy in Europe.

3.2.2. Future images and transition pathways



Valuing sufficiency and open access for a degrowth circular economy

Summary

- **Sufficient consumption of local, fair and sustainable products is the mainstream.** There is a high awareness of negative externalities of products. Growth measures have been replaced by new criteria like well-being indicators and living within the planetary boundaries;
- **Open access data and artificial intelligence** play a key role in raising awareness on the importance of sustainable, just and circular economies.

Sufficiency is the new normal: citizens are aware of the real costs of products and their externalities. This happens as a response to different crises, such as pandemics, wars and climate disasters. Choosing food and other goods that are produced in a circular and just way (e.g. vegetables are grown using reused water and organic fertilisers) has become mainstream. Almost everyone is aware of the negative impacts and externalities of non-circular and unfair products and can afford sustainable and circular choices. This means it's easy to choose to buy products made in a circular way: they can be found close to home and are affordable (even when externalities are included). This increased awareness came through experiencing multiple societal crises and by continuous public awareness campaigns and educational activities. Nature is also highly appreciated by both citizens, policy makers and other societal actors.

Artificial intelligence helps in generating collective qualitative and quantitative data. Data is used to provide new insights into complex systems and is key for collective learning. Circular economy data is open-source, easily accessible to all and managed transparently. Data sharing contributes to raising awareness of the negative impacts of human activities on the environment and contributes to mindset change. For all these reasons, data is considered to be of great value in society. Civil movements have played a key role in achieving this by fighting for the right to get open access to data and freely manage it. Public authorities have established several procedures to collect and to manage open data in less extractive ways and this contributes to improve governance at different territorial levels (e.g. local, regional, national, international).

Regulations and policies are designed for people and not for companies. Key Performance Indicators are redefined collectively in all societal sectors and ecolabels are standardised following the same criteria.

Looking at the economy, there is an increase in local enterprises and organisations contributing to shortened value chains. This is pushed by the demand to become more locally sufficient and the fact that we are not able anymore to extract from countries located far away.

There is a shift from globalisation and an individualised attitude towards a more connected world. Degrowth is not considered a taboo anymore. Growth measures have been substituted by new metrics such as well-being, being in equilibrium with nature and living within planetary boundaries.

Localised and fair production and consumption

Summary

- Fair access to market information and open-source protocols empower the commons to build **localised production and consumption systems**;
- **A new financial system** based on blockchain has disrupted the status quo of businesses and of governments. This has fostered a mass reinvention of business models, guaranteeing more equity and fairness for its users;
- The **transition towards a circular economy** is facilitated by the increase of product life cycles, and through the establishment of repair shops and networks;
- **The understanding of growth has been redefined** by social and environmental quality that puts wellbeing of people and nature first.

Midway through the 21st century, we live in a world where humans are in balance with nature and where people's creativity is thriving. A main step towards this was

a shift towards more localised/decentralised systems of production and consumption, empowered by the commons, through fair access to market information and open source protocols. Internationally standardised regulations were set by, among others, the World Wide Web Consortium (W3C), the UN, the WEF and various governments. These regulations supported data verification to make informed circular decisions. Carbon taxes were enforced in 2030, making the implementation of circular principles the "new normal".

To get to where we are now in 2050, a shift in mindset was needed. With the late 20th- and early 21st century overshoot of planetary boundaries, the need arose to tackle various crises: currency inflation, mass bankruptcy, increasing disparities between rich and poor as well as the identification and acceptance of global existential challenges (e.g. loss of biodiversity, social inequality, water-stress, and extreme weather events). Funding activities had to be reconsidered. This led to the development of a new financial system in 2025 that based on blockchain, that not only disrupted the status quo of businesses but also that of governments. This fostered a mass reinvention of business models, including a safe and just operating space for humanity, guaranteeing more equity and fairness for its users. Work was redefined with a stronger focus on caring for the planet and people. Monopolies were abolished. The transformation away from a linear model towards full circularity is in full swing, with product life cycles significantly increased, which is slowing down the flow and need for resources. New design processes have put a stop to planned obsolescence and factor in the possibility to fix goods. To aid this process, repair shops and networks have been established. This hands-on society is responsible for the addition of numerous jobs which are highly valued. People are thriving – as they also receive a universal basic income.

Education was a key pillar in all of the above. As of 2040, the education system adopted a natural systems approach. Young people started cultivating an altruistic attitude towards the world. Due to the accessibility of life-long learning via the (constant) creation of opportunities through training and coaching for all ages, people started developing an analytical culture which helped in developing new technologies and researching new materials. The internet and social media we now know provides reliable, fact-based information for which governments have set internationally recognised regulations on data verification to allow for a common language to make informed (circular) decisions. How things have changed.

In 2050, the understanding of growth has been redefined en masse. Higher quality is much more important than growth in numbers. The 'new' growth paradigm is socially and environmentally driven putting the wellbeing of people and nature first over personal profit. Restoration of nature and the regeneration of systems were crucial building blocks in this process to simultaneously improve food security, water supply, mental and physical health, among other aspects of our existence.

Regenerative value co-operatives

Summary

- **The new circular economy requires circular communities** that produce their own food and energy and monitor their own circular efforts;
- **Governments** phase out fossil fuels and shift from reduction targets to waste-prevention targets.

So, your local urban community, among other things, has its own rock garden to produce your own food. Sounds strange? Perhaps if you're from 2022. But here and now, in 2050, it is overwhelmingly self-evident that a circular economy requires circular communities. The resource flows of the circular economy are closed at ever-smaller spatial scales: the more local, the more circular.

We see it in our houses. Our home appliances run on clean energy, produced by our own community, on our rooftops and facades. Energy storage and usage are combined in houses and neighbourhoods. The built environment has seen a material revolution. Buildings are adaptable to heat and cold and provide opportunities for symbiosis with nature. Materials themselves are usually refurbished and/or repurposed, both in homes and public places.

A large part of our food we grow with the community. Yes, there still are supermarkets and restaurants, but they operate under circular principles, ensuring food security while eliminating waste. Restaurants first prioritise food that is about to go bad, then what is grown local. They don't produce waste. Didn't finish your

plate? Take it home. A few meals too many? Donate them locally. Any other "waste" becomes compost.

These circular communities started on a rather small scale. But nowadays, our cities function as circularity hubs. Cities have become industrial upcycling zones for second-hand and other used goods. New jobs have been created demanding circular production skills for buildings, appliances, toys, and fashion. Some people really have a knack for identifying raw materials in what used to be seen as waste, whether it be organic (manure! compost!) or other. In terms of transport, pedestrians and cyclists are the dominant traffic stream, with public modes of transport in second place. Exceedingly fine-grained networks make the city seem smaller than it really is.

How did we get here? In the early 2020ies, circularity was all the rage. But in reality the concept saw rather limited application, with a couple of important exceptions. A small number of circular champions began setting a high bar for circularity, with entirely circular products and services. Examples include a waste company that worked against the existence of waste. And nature-based solutions for circular construction. Policy goals for the circular economy were everywhere, but actual results were not so impressive.

Something had to give. Three developments followed. First, circular initiatives more and more sought each others' company on local platforms, often with public support and subsidies. Second, strong activist groups started raising awareness on both the need for a circular economy and the lack of actual results. And in the late 2020ies, when Earth overshoot day had come earlier again, it became clear that hard interventions were unavoidable. Politics moved from reduction targets to circular targets: EU food sufficiency and EU energy sufficiency required hard phase-out of fossil fuels and balanced food imports and exports.

Starting around 2030, these developments were enshrined in national laws, with strict monitoring. Nice! Various local initiatives had already begun tracking their own circular efforts. Strengthened by a governmental push for monitoring and regulation, more and more communities shared their own monitoring solutions, resulting in a rather fast-paced build-up of both open-source data on resource use as well as circular knowledge hubs. The circular economy had become an open knowledge economy.

And finally, big industry players followed suit. This was stimulated by government incentives (subsidies for recuperation, a market for CO_2 sequestration credits, among others), but also motivated by sheer economic necessity: resource prices had gone through the roof after setting clear fossil phase-out paths. More and more businesses began preventing waste. Most day-to-day single-use products disappeared. And a new industry emerged out of waste management, focussing on technologies and sources for industrial recuperation and regeneration of resources.

By 2040, more and more rural communities had achieved energy and food self-sufficiency (net neutral). Many were now living in fully circular communities. What had seemed an investment at first now turned out to be a luxury. City-dwellers looked at these with jealousy, and began better organising themselves, with the help of municipal and neighbourhood governments. Thankfully, all the circular building blocks were already there. And given the great examples of the first communities, the final stretch to urban circularity was seen as a challenge rather than a problem. Hand in hand with industry, urban communities achieved full circularity!

Museum for single-use products

Summary

- **Circular economy is mainstream.** Mindsets regarding the use of products have changed dramatically, single-use products are a thing of the past, and the young generation can only catch a glimpse of these relics in museums;
- **Governments** have implemented clever rules and regulations which combine both taxes to enforce and subsidies to promote good practices inspired by successful transition movements in the Global South.

This radical future was facilitated by a multitude of crises, which pushed public actors to take decisive action and make radical transition policies towards a just circular economy: The Russian-Ukrainian war and the socio-economic effects of the COVID-19 pandemic put the once-dominant resource-extractive system under a lot of pressure and it started showing signs of destabilisation. But the year 2023 was a

key moment, when Europe saw the devastating impacts of climate change (massive floods, droughts and harvest failures), truly revealing that current socio-economic and political systems were impossible to maintain. In the wake of these crises, new social movements that sought to build on circular principles united on a trans-local scale, allowing for collective change dynamics to emerge. Public actors from the EU-level witnessed the impacts made by these collectives. Seeking to harness these, the EU released a new framework to standardise the circular economy. These early visible impacts of collective change formed a tipping point. Europe saw a clear increase in opportunities for circular economy practices and initiatives, as well as increased demand for education and capacity-building for the circular economy. The now very popular Circular Transnational Master Business Administration (MBA) received prestigious award after award globally.

Meanwhile, global crises demanded policy action, resulting in the previously dominant, polarising ideologies left- versus right-wing becoming obsolete. The emergence of various successful transition movements in the Global South inspired Europe and its politicians to become more transition-minded. In 2030, the UN re-evaluated the Sustainable Development Goals to include more radical circular development goals; and the effects of the New Bauhaus program were finally becoming visible, leading to a generation of architects and citymakers fully embracing and practising circular approaches.

Actors from the Global South continued to light the way towards a socially just and circular economy. In 2035, this was finally acknowledged with the Nobel prize for economy being awarded to a Zambian scholar who paved the way for research on the acceleration of circular transitions. Meanwhile, transition parties continued to dominate the political landscape: elections across Europe saw transition-minded political parties voted into power. United in their conviction to strengthen the circular economy, the EU released the 'Circular Europe 2050' act alongside a circularity index in line with ISO standards. There was also an overhaul of the Directorate-General (DG) structure, combining DG Climate and DG Economy and founding DG Circular.

In light of these global political and societal trends, the business world followed suit: Apple announced the release of the first-ever phone made from 100% fully-recycled materials in 2030, creating a ripple effect across supply chains. In years to follow, the museum of single-use products opened in multiple countries and legislation for a personalised monthly CO_2 allowance was drawn up to enable a just transition, as well as new housing regulations founded on prosumer principles, and a complete ban of multilayer plastics. Ultimately, the circular economy became mainstream. Key to this future is the implementation of clever rules and regulations which combine both taxes to enforce and subsidies to promote good practices, which are the bedrock for the socially just, circular public procurement.

3.3. Efficient renovations

3.3.1. Current transition dynamics

Participants of the webinar saw various dynamics in the build-up phase of the X-curve: green facades, community energy projects, biobased and circular insulation materials, subsidies for heat pumps, and more communal approaches through community heat networks. In terms of the 'transform' part of the X-curve (see Figure 7), participants mentioned a ban on gas boilers in new houses in the UK, which is rumoured to be installed in the Netherlands soon as well.

In the stabilisation phase, participants saw several institutionalised practices: municipalities offering structured coaching/advisory on sustainable renovations through energy advisory departments for citizens, new stakeholder collaborations through a formal climate agreement, the roll-out of smart meters, more people being aware of or knowing someone about heat pumps, an increase in subsidies and support for passive houses, and a change in the overall national discourse regarding a more collective approach towards renovation.

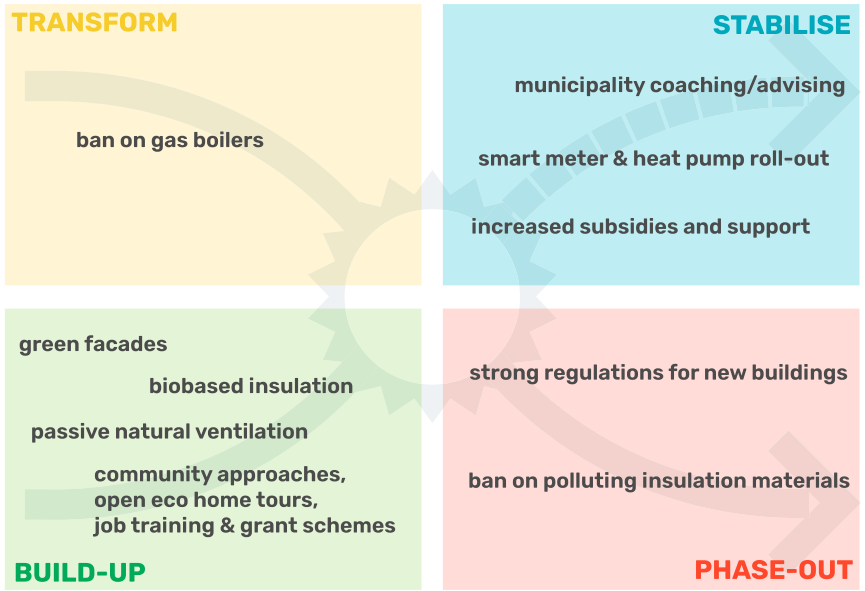
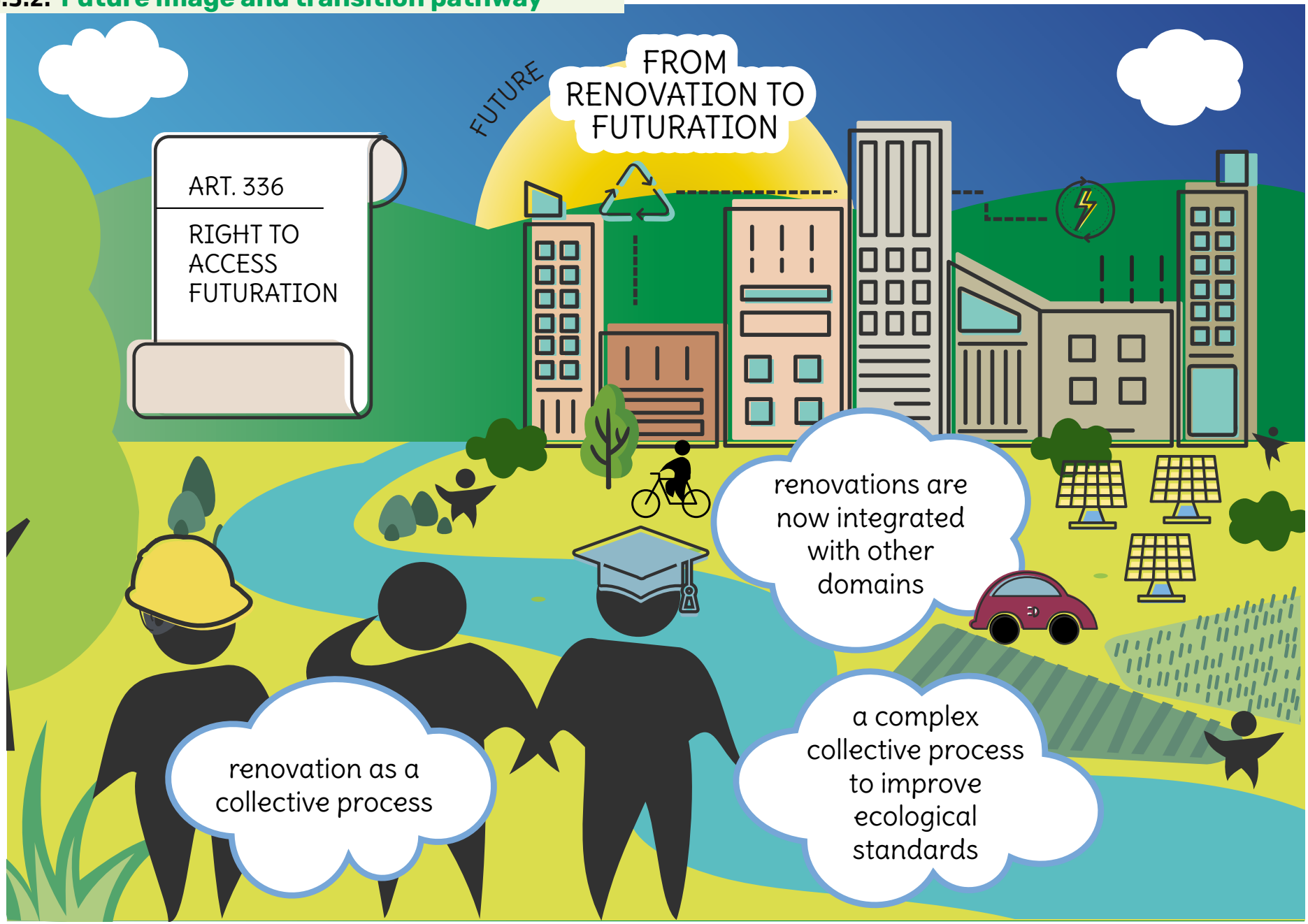


Figure 7: Arena participants' impression of the state in transition in efficient renovations.

Participants flagged a few dynamics as part of the phase-out part of transitions. They mostly saw much stronger regulations on new builds that have no connection to the gas grid, a ban on polluting insulation materials in the Netherlands, and some requirements for landlords to upgrade properties.

3.3.2. Future image and transition pathway



From renovation to futuration

Summary

- In 2050, we are no longer renovating, but rather 'futurating': **futuration approaches renovation as a systemic, complex and collective process** to improve ecological standards and make the built-environment more future-proof;
- **From an individual to a collective mindset:** individual renovation choices are heavily frowned upon by peers;
- **Right to access futuration:** Futuration is Institutionalised in EU law, stating the 'right to access to futuration' for all EU citizens; this law will lead to new standards felt everywhere in daily life.

In 2050, the term 'renovation'[13] has become old-fashioned. Instead, the dominant terminology is 'futuration'. The crucial difference is that futuration does not see renovation as a linear problem-solving process to improve quality of life, but rather as a **complex collective process to improve ecological standards**. The first step in futuration is: how can I contribute to society? As such, in 2050, a dinner party conversation can take a bad turn when bringing up a personal kitchen updo. "Is this truly necessary?" your friends might ask. The truth is, climate change and its consequences are now undeniably placing an ecological and economic strain on Western Europe. As such, the individual choice to redo a kitchen with new materials, without legitimising this choice in terms of sustainability, raises eyebrows.

These ecological and economic disasters led to a radical shift in mindset around the 2030s-2040s mark. The collective efforts required to solve and cope with these disasters have brought about a more collective mindset in society. As such, collective housing, eco-communities, sharing materials and material banks that were already at play in 2022, have become mainstream and status quo in 2050. For example, communal living is the dominant housing model, with communities sharing norms over reusing materials and energy efficiency. Any renovations, or futurations, are discussed collectively.

The concept of futuration was formally **institutionalised in EU innovation policy in 2030**, focussing mainly on social innovation. This policy paradigm led to a wave of scientific research and educational programmes on futuration in the 2030s. This paradigm shift was further institutionalised in 2040 legislature, giving everyone **'the right to access' futuration**.

These laws led to radical changes in the way citizens approach ecological housing and the way they do renovations. Not only did this further promote the now dominant 'futuration' mindset, it also led to **new standards, rules and structures within daily life**. For example, landlords are now required to upgrade their property based on a top-ranked energy standards. While the law still proves difficult to enforce and Western society still has a long way to go on the road to climate-neutrality, one thing is certain: in 2050, you will think twice about renovating your kitchen.

13 During the Arena, the participants defined renovation as the process of improving the current building stock to 1) improve energy efficiency, 2) improve lifestyle needs (i.e. turning offices into housing), and 3) improve quality of life (i.e. adding/changing housing to meet the needs of the owners and increase overall happiness - like renovating a kitchen for aesthetic reasons).

3.4. Sustainable mobility

3.4.1. Current transition dynamics

Participants analysed current transition dynamics relevant to sustainable mobility along the X-curve framework that describes the processes of patterns of build-up and breakdown. Patterns of build-up were detailed with desired practices in Europe (also described as niche innovations) that contribute to the EU Green Deal objectives in practice. Examples include transforming streets by taking place away from cars, focusing on shared mobility such as public transport or car sharing, but also the idea of combining focus on mobility with urban planning. A good example of that is the 15-minute city: a place where essentially you only ever need 15 minutes to get anywhere you need to be.

Keywords that the participants used to describe the current state of mobility in Europe are: “individual” and “micro mobility”. Mobility takes up valuable space in urban areas, and causes congestion. But it’s also about a culture in which micro-mobility is connected to status. Why are big, expensive and wasteful cars still considered cool? In addition, in the current system (also called ‘regime’), people with fewer means also frequently have less access to mobility options.

For the stabilisation phase, participants discussed what connected to better and fairer futures for Europe in 2050. This would mean that cities are designed for people, instead of for cars, making public transport options more accessible and affordable. Elements of that future visible today are the improvements of international rail infrastructures, the increase in night trains, but also the common car-charging infrastructures across Europe.

But before we get to such a future, the regime line needs to move to the bottom right of the x-curve. We need breakdown and phase-out of fossil-fuel based systems, subsidies, the political lobby for car mobility and so on. Dynamics of breakdown and phase-out visible in 2022 are increased air passenger taxes, the inclusion of shipping in the European emission taxation agreements, but also the breakdown of the train operator monopolies across Europe, allowing for more innovation.

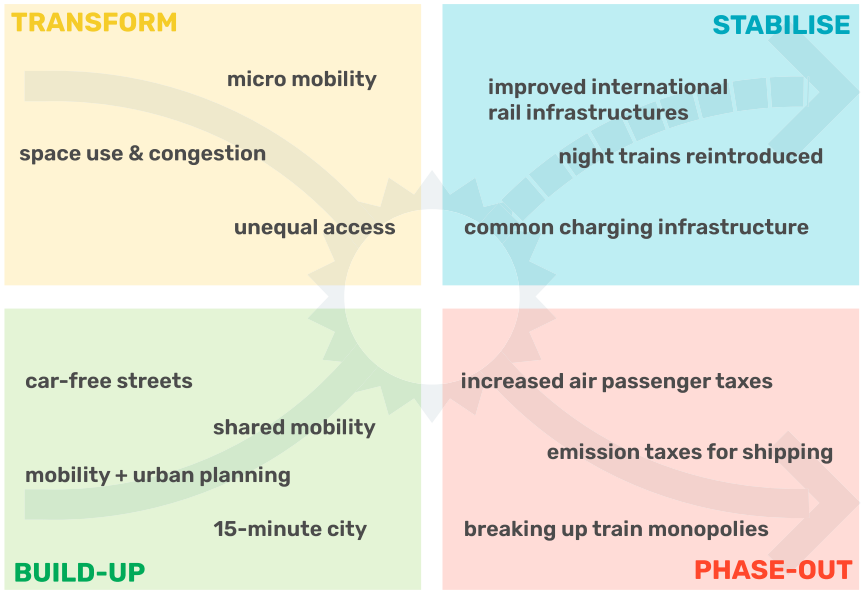
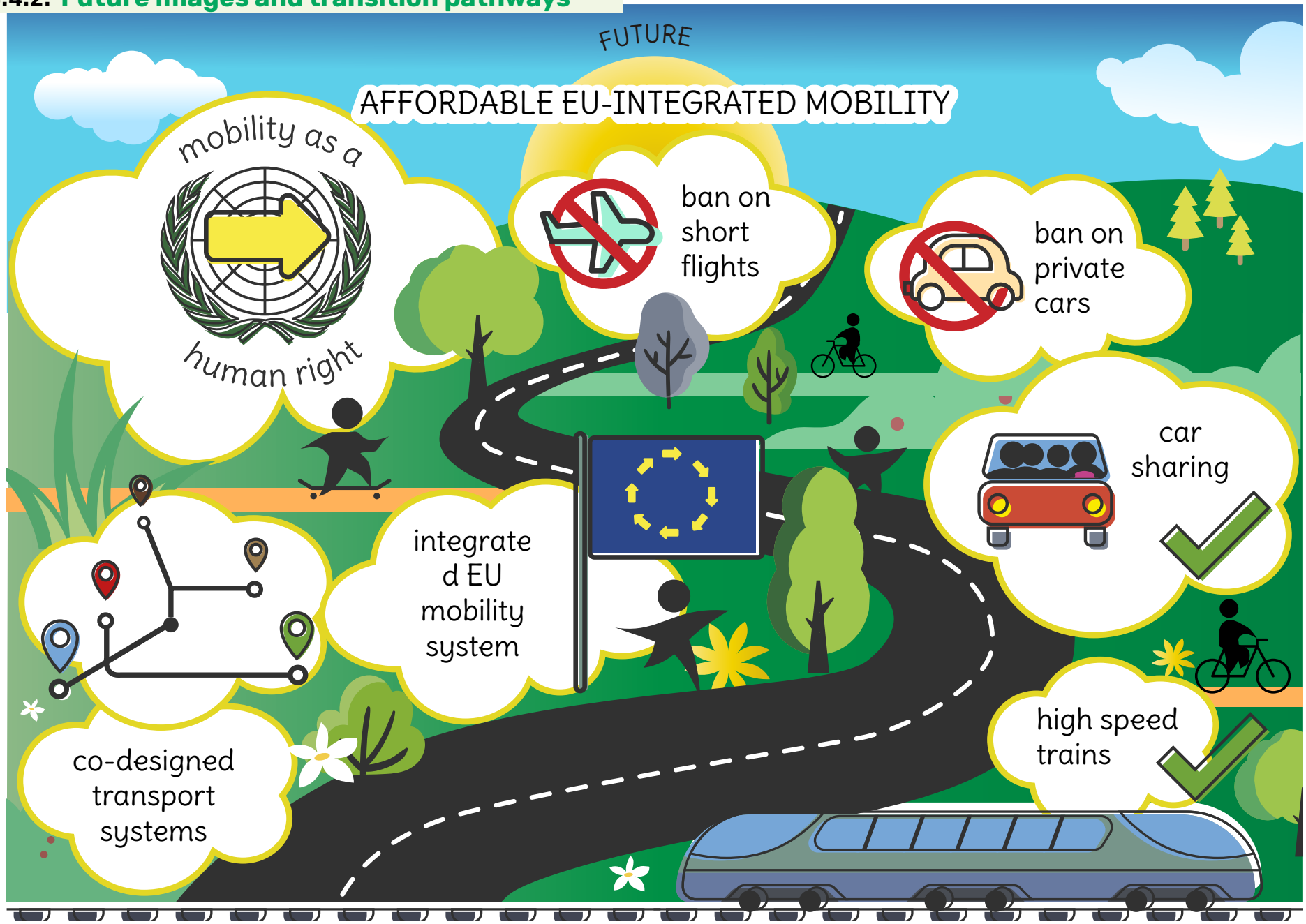


Figure 8: Arena participants’ impression of the state in transition in sustainable mobility.

Future images on mobility highlighted the desire to make cities for people again, instead of for cars. A mobility system with more car-light areas also includes accessible and affordable public transport options. Rather than travelling solo, shared mobility is identified as a key dimension for a better and more fair mobility future in Europe.

3.4.2. Future images and transition pathways



An affordable EU-integrated mobility system

Summary

- In 2050, mobility has become a **human right** and is affordable for everyone;
- An **integrated EU mobility system** has established a universal ticket system and integrated time tables. Municipal and metropolitan transport systems are co-designed through participatory decision-making Arenas.

In 2050, mobility has become **affordable** for everyone. Moreover, **mobility has become a human right**, enshrined in law. A **high-speed (night) train network** allows easy commuting between metropolitan areas across the EU. The adoption of new international legislature on mobility, ensures cooperation between countries and transparent multi-level governance of nationalised mobility systems to facilitate an EU integrated mobility system.

These new laws have also led to the founding of a European-wide mobility governance body, which was able to establish **a universal ticket system** and **integrated timetables** through sharing data between countries. In certain locales, this system is freely accessible, and costs are borne out of mobility taxes instead. Visiting tourists pay directly for the free available transport through tourism taxes. Not only is international public mobility integrated seamlessly, rural and urban connections also function coherently. It was a mobile app that paved the way for this integrated transport system. The app collected and shared data to develop and support a universal multi-modal transport, planning and ticketing system. This app was the first milestone by the European governance body on mobility, and became a reality in 2040. At this point in time, transport was already free for children, the elderly, students, people with disabilities as well as low-income citizens. The app was popularised through social media and influencers.

This EU-integrated system of affordable public transport reduced the need for mobility through private cars and short-distance flights. However, to make a substantial move from the mobility system of the 2020s towards the fair and affordable system of 2050, the regime elements that favoured private company ownership of transport needed to be broken down. In 2030, national governments showed leadership by **eliminating subsidies for private car use and instating a ban on private jets**. Now, funding from the European to the local level has been reallocated, aiming to reduce environmental and social externalities and increase health, energy and social benefits with subsidiarity. Resulting in a ban on the sale of private cars in 2040. Five years before that, commercial flights were restricted to distances over 800 km. Simultaneously, tax systems supporting municipal mobility were established. E-mobility became the norm, fuelled only by renewable energy.

A **change in culture** was needed around the image of cars to encourage a more shared future. It all started with participatory decision-making Arenas that co-designed municipal and metropolitan transport systems in 2025. Through such co-design, the local environmental footprint was taken into account as a formative principle within the harmonised multi-level transport governance system. In addition, urban planners took walkable cities as their leading design principle and therefore focussed on creating space for pedestrian and cycling infrastructure, and car-light peripheral areas.

3.5. Towards a sustainable food system

3.5.1. Current transition dynamics

Arena participants characterised the food regime as engaged with optimisation, cost-efficiency, cheap food, and intensive monocultures, with a strong reliance on inputs such as fertilisers and cheap labour. With that, the food regime has major impacts on the environment and climate, and also social equality. Furthermore, the food we eat is predominantly meat-centred and highly processed. Our dominant diets go hand in hand with a record-high prevalence of diet-related diseases, such as obesity and diabetes. Participants did identify several signs of regime destabilisation, such as the Farm2Fork strategy which already has led to fierce debate and protests across Europe.

With regard to build-up dynamics (see Figure 9), participants identified a rich flurry of innovative practices in the EU food stream. For example, the many alternative production practices that lean on regenerative or technological innovations, such as permaculture or aquaponics. And also the city as a place of production through urban and rooftop farming. Citizen-led initiatives and networks such as slow food gain more and more political traction. Moreover, food chains become shorter and more localised, diets are increasingly more plant-based and personalised.

Participants identified stabilisation dynamics (top right corner of the X-curve) with a mix of existing and necessary policies and instruments. Participants saw the EAT Lancet Diet as the institutionalisation of a more sustainable future-proof diet, which entails more veggie and vegan consumption. On the whole, however, implementation in terms of rules and regulation were seen as mostly lacking, despite promising policy developments such as F2F. For a more sustainable future, we will need a stronger emphasis on circularity and a One Health perspective.

Finally, participants recognised some break-down dynamics, but these seem to be focussed mostly on banning the use of certain pesticides and addressing non-sustainable food packaging. In that regard, phase-out has not received the attention it should: For example, subsidies that support unsustainable agricultural practices, or subsidies that promote unnecessary food miles need to be phased out.

To summarise, a lot of experiments are gaining traction in an increasingly destabilised food system. We might be on the cusp of transition take-off, especially with more active attention to institutionalising the sustainable, think fully aligning the EU Common Agricultural Policy with the Farm to Fork strategy.

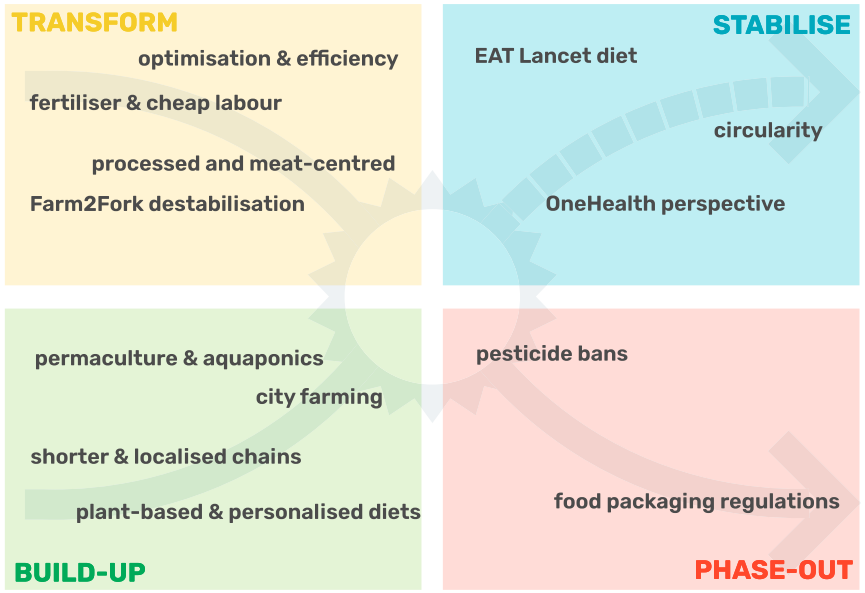
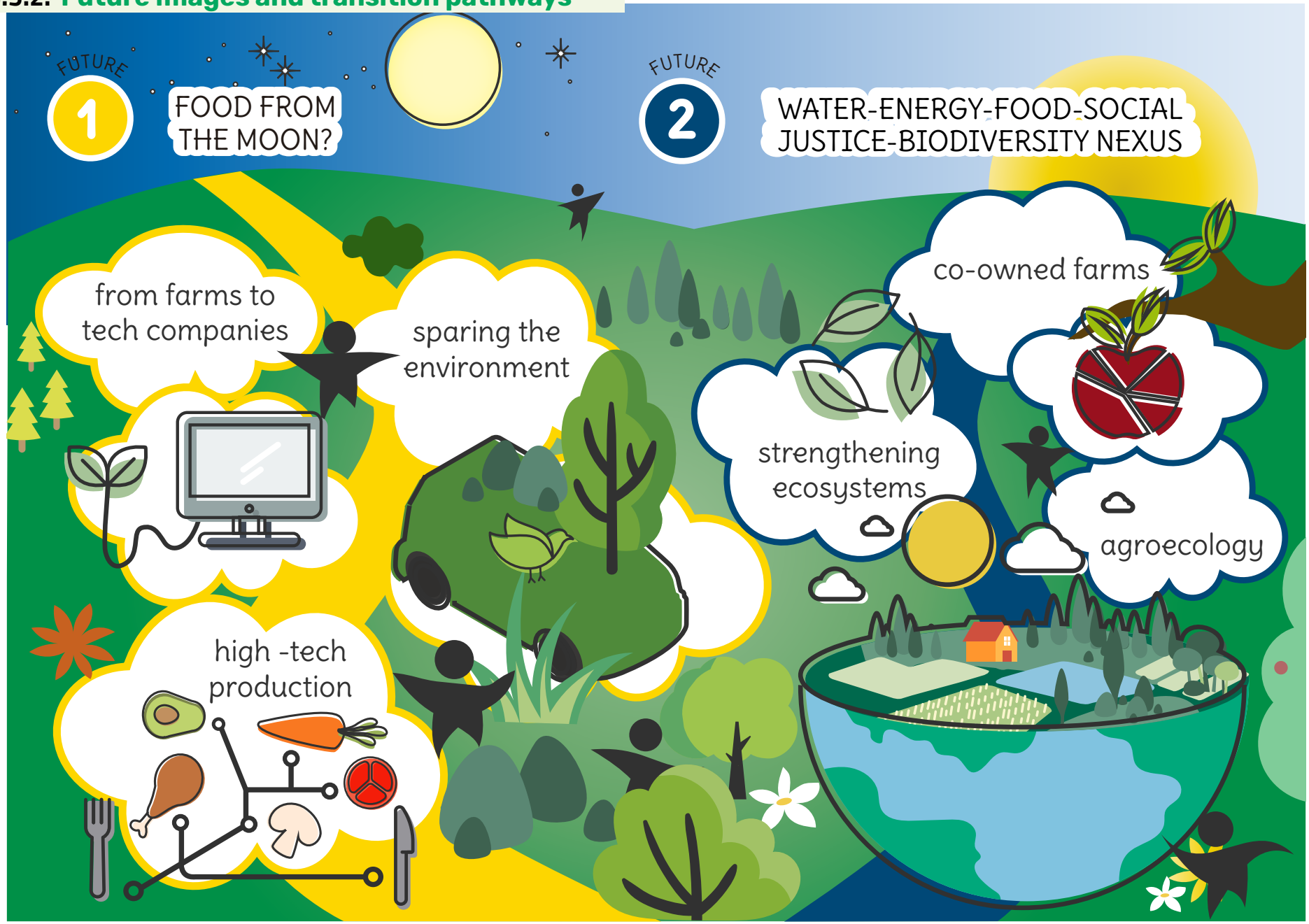


Figure 9: *Arena participants' impression of the state in transition in sustainable food systems.*

3.5.2. Future images and transition pathways



Food from the moon?!

Summary

- Producing food on the moon has inspired the **high-tech food production** systems of 2050. Innovative mixtures of protein, carbs, micronutrients and spices made food nutritious and tasty again.
- Food production, which is now produced almost independently from the environment, has shifted from traditional farms to tech companies.

What if… Hardly any place we know might be worse fit for food production than the moon. But with global climate change and biodiversity loss, we might actually take our inspiration from there. Because whatever we can grow in space, we can surely grow on earth, in order to safeguard our future food security.

What inspiration do we take exactly? Food production in space was already possible in 2022. It needs to conform to very stringent conditions: it needs to be safe, nutritious and diverse. It needs a "no waste" circularity, it shouldn't even necessitate soil. These are the values today that inspire our vision for the food future on earth.

It's 2050. Food production has gone high-tech. The promises of production technologies like vertical farming and hydroponics have really been delivered! A lot of the intellectual property rights of production technology are still owned by multinational companies spun off from the likes of NASA, but production facilities are in the hands of a diverse set of smaller companies, with specialised domains such as vertical production systems, plant technology and nutrient refinery (including waste treatment).

Food companies have followed suit. While processed foods were still associated with obesity and cardiac diseases in the 2020-ies, nowadays nutrition, health and taste go hand in hand. Chefs have managed to conquer the consumer's palate with innovative mixtures of protein, carbs, micronutrients and spices. Yes, it took some time to overcome hesitations about "abnormal space food," and of course, some pockets of resistance still exist among those hesitant for change, but consumption really took off after urban elites rebranded it "Food for the Earth."

How did we get there? The 2020s already heralded important advances in both food production and food processing. On the production side, multiple experiments were already ongoing with large-scale indoor plant cultivation, sometimes without water. The food systems involved required very little water and soil. Similarly, the first tests with aquaponics were already out in the fields. And on the food side, plant-based proteins, both in terms of legumes and meat replacements, already took important swathes of market share.

More generally, methods like smart farming and precision-farming greatly enhanced our knowledge of the minimum requirements for successful plant production and low input use (chemical pesticides, artificial fertiliser). But it was the dreams of the early 21st century tech billionaires that really spurred the development of food production almost independent from the environment. Indeed, how otherwise would one live on the moon? Let alone Mars?

In the 2030s, things sped up. Vertical farming and aquaponics systems became fully integrated. No minerals were lost due to innovations in sewage refinery. From a technological perspective, more and more systems became fully circular, reducing inputs to net zero. At the same time, both production and processing became more complex. Traditional farmers gave way to specialised companies that took responsibility for a specific part of the production process, its facilities, and the associated data. Intellectual property debates were finally settled as licences for production started to govern production and processing markets, while at the same time funding further development of "space food."

Perhaps it shouldn't have been a surprise that consumers were the last group to embrace the new food. But when the marketing departments finally got the point of 'Food for the Earth' across, there was no turning back!

The Water-Energy-Food-Social Justice-Biodiversity Nexus

Summary

- **Around 2037, a fundamental shift in the food system occurred** driven by increased citizen awareness of the (un)sustainability of food systems and the allocation of subsidies linked to environmental requirements in support of organic and agro-ecological production;
- **Agriculture strengthens ecosystems** by improving soil quality and biodiversity, and CO2 sequestration;
- **Farms are co-owned** and governed by citizens and farmers together. As a consequence, supply chains have become much more fine grained, diets have become more seasonal, and more plant-based.

Looking back to the 2020s, it's hard to imagine how fragmented our societies were organised. As if the connections between food, energy, water and biodiversity didn't exist. And, perhaps even more importantly, as if citizens were only relevant in their economic capacities of producers and consumers.

Past agriculture practices have degraded soils and biodiversity and contributed greatly to climate change. In 2050, food production follows a set of leading principles inherited from agroecology. Agriculture contributes to soil quality and biodiversity. It has found its own niche strengthening ecosystems. And with CO_2 sequestration, agriculture has joined the battle against climate change. Food is now widely seen as part of a bigger nexus that connects it to water, energy, social justice and biodiversity.

Perhaps the most important difference, however, is the human scale. The current food system grew from a growing awareness that sustainability problems often are region-specific, and that the same holds for their solutions. Farming practices have become community matters. Whereas around 2020, community-supported agriculture was only a fringe development, nowadays farms are co-owned and governed by citizens and farmers together. Which is not to say that the government doesn't need to set any rules anymore. Taxation systems have been adapted to account for environmental impacts and social justice.

As a consequence, supply chains have become much more granular and diets have become more seasonal and plant-based. Simply put, the local scale doesn't offer sufficient animal feed for a large animal husbandry sector. And freshness has become more important. Local connections and local production have really put the primary product centre stage again. Logistical services that aren't fully fossil-free have scaled down as well.

The social effects of this food system, i.e. large-scale community involvement in food production, have created great societal value. Citizens and farmers together are responsible for decision-making about production. For most practical intents and purposes, food is a public good. Nutritious and tasty.

As to how this happened, the writing was already on the wall in 2022. The Covid crisis and the war in Ukraine were two highly illustrative examples of the vulnerability of international food chains, and its risk to local food security. They also spawned a near-immediate consumer reaction: local produce, organic food and plant-based protein saw an important market increase. This came with an increase in citizen awareness of the (un) sustainability of food systems, and government action didn't wait too long.

In the years that followed, subsidies were increasingly linked to environmental requirements. Existing subsidies were repurposed to support organic and agro-ecological production. EU-programmes such as LEADER were used to facilitate governance and funding of bio-regional food systems. A more unfortunate development followed in the early 2030s, when rising food prices forced more and more families into poverty. More policy reforms were needed to repair the food system. Food vouchers were given out for households to buy organic and sustainable food. Next, policy made it mandatory to donate surplus food, in a move to single-handedly end both food waste and food poverty.

But around 2037, a fundamental shift occurred. It became abundantly clear that those in regional food communities have access to affordable food, while others remain at risk of food poverty. In an unprecedented move, governments made sure that every EU citizen is a member of one bio-regional community. Big financial service providers (e.g. pension funds) join in by securing agricultural land for those communities, in the form of a semi-public de-privatisation. With food governance now fully localised, the EU remains in charge of setting environmental boundaries to food production.

3.6. Preserving biodiversity

3.6.1. Current transition dynamics

During the first Arena session, participants interested in biodiversity identified a number of niche innovations that are relevant to biodiversity emerging across Europe. On the build-up line, experts mentioned seeing diverse regenerative agricultural practices on the rise, such as agroforestry and permaculture, but also community-supported agriculture and hydroponics. Spatial planning that could result in win-win solutions were also seen, such as the greening of cities to increase liveability for human and nature; or off-shore wind farms that provide no-fishing zones. Novel financial incentives to promote growth through biodiversity-friendly practices, were also seen as emergent. Lastly, the participants noted a trend where indigenous practices and knowledge about ecological systems are increasingly recognised and valued.

When discussing what dynamics are the norm today but still need a lot of transformative attention, participants noted that policies and governance remain highly siloed in subsystems, not seeing the interlinkages between them, often to the detriment of biodiversity. Examples here were agricultural production and urban sprawl. A more general disconnect between people and nature was noted as a key characteristic of the biodiversity regime. Not grasping the benefits that nature and biodiversity bring to our society, this disconnect continues to deprioritise nature over the economy or other systems. While various types of eco-labels surface to address these, a lack of oversight means there is a real risk of greenwashing.

In identifying what desired practices are already visible today, the participants saw some signs of a common language (e.g. IPBES, CBD, EU Biodiversity Strategy) that is testament to the break-down of siloed thinking in relation to biodiversity. This was considered crucial to better understanding the value of biodiversity and thinking in terms of human-nature coupled systems. In addition, landscape restoration projects are increasingly seen: projects that rewild areas or restore wetlands will be crucial to restore biodiversity to a more sustainable state.

In order for this desired system to take hold, undesired practices need to be broken down and phased out. Break-down dynamics are seen in the rules and regulations

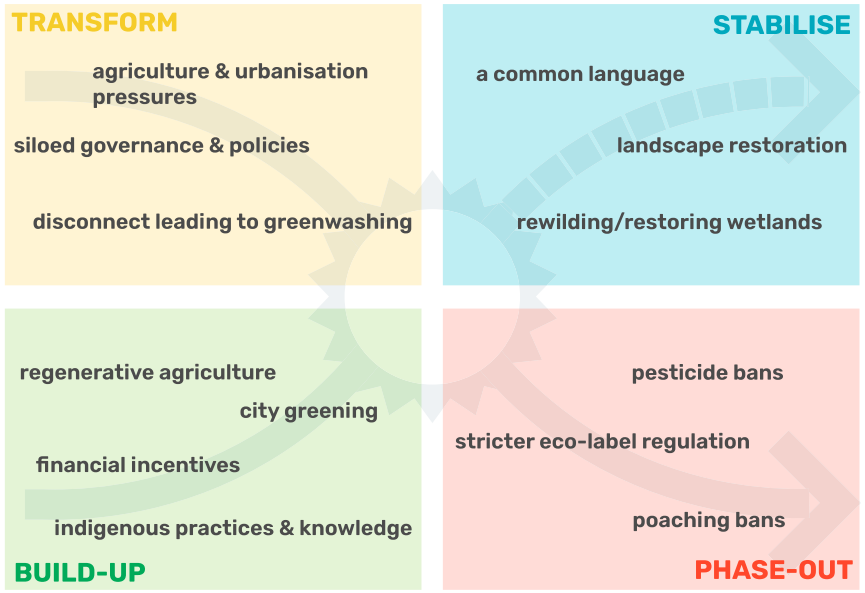
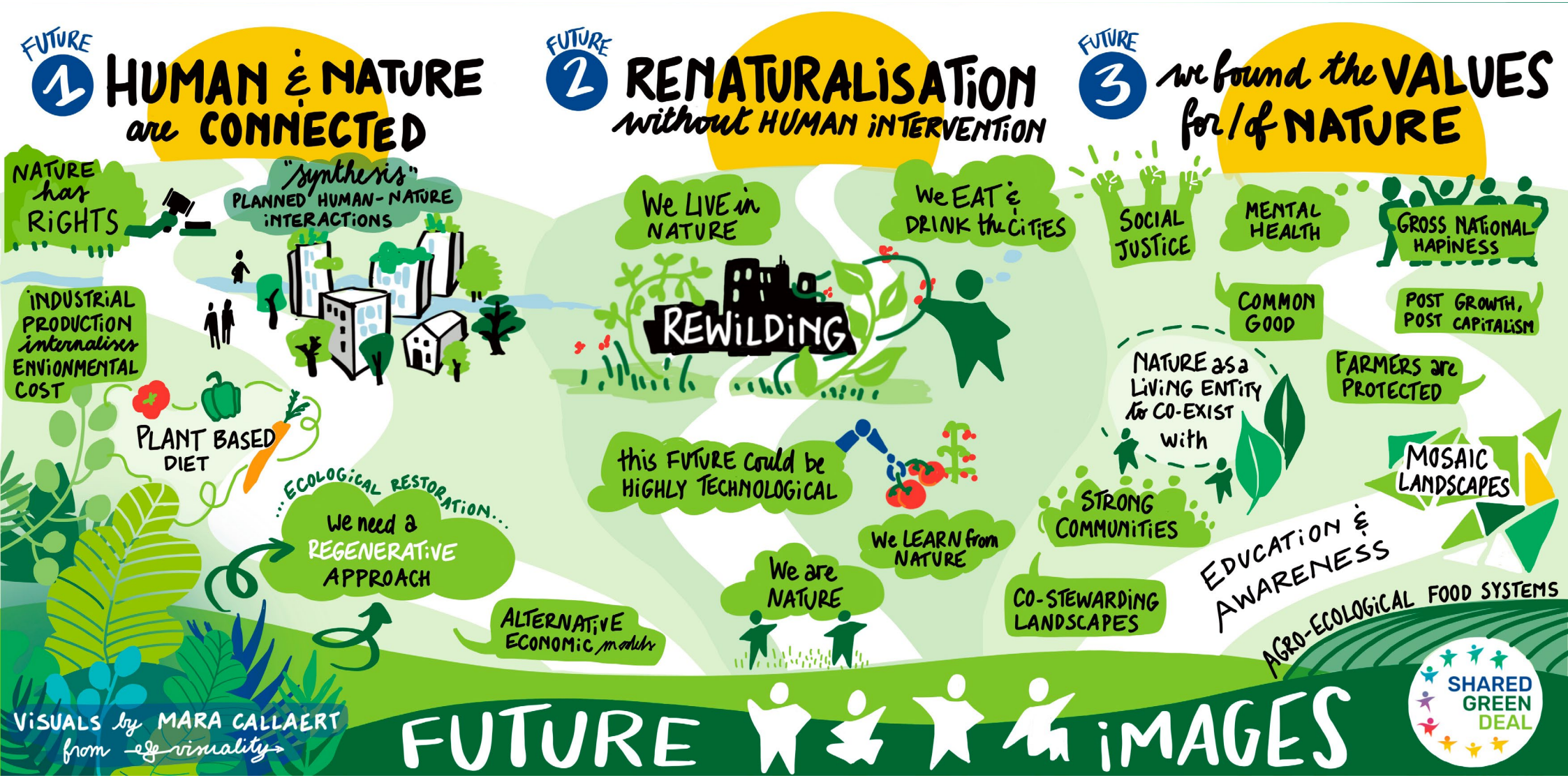


Figure 10: Arena participants' impression of the state in transition in sustainable biodiversity.

that combat the use of particular pesticides. Stricter regulation of eco-labels and banning illegal practices harming biodiversity (e.g. poaching) are also observed break-down dynamics.

In summary, biodiversity links to many other subsystems. Notable was that the work from groups working on other streams showed that biodiversity as a system intersects with many other subsystems such as energy, food production, and finance. As the values of nature and biodiversity are not well understood in both society and policy, there are still ample siloed approaches and practices that do not take into account biodiversity and nature. Nevertheless, promising innovations and shared knowledges are emerging throughout Europe, showing a glimpse of a future that is more regenerative and in tune with nature's contribution to people.

3.6.2. Future images and transition pathways



This visual was created on the day of the event, so at some points it deviates from the synthesis on the following pages.

A New Eco-Social contract for 'biodiversity net gain'.

Summary

- **Governments** have implemented the 'New Eco-Social Contract', which features biodiversity net gain policies for ecological restoration and have moved away from the neo-liberal logic that was previously pervasive across Europe.
- **Pilot projects** make nature's contribution visible, tangible and actionable to European citizens.

After years of biodiversity decline and degradation of our ecosystems, irrefutable scientific proof that humans are the major driver of the ecological crisis led Europeans to politically unite behind a much-need course correction to revalue nature. **Having declared an ecological emergency**, awareness campaigns and education interventions were given priority throughout Europe, changing curricula to educate people on the sustainable development goals and more generally about the connection between human and nature.

The resulting deeper awareness of 'nature's contribution to people' across society paved the way for the implementation of ambitious **biodiversity net gain policies** for development and land management, but also to move away from neo-liberal logics that were previously abound in Europe. Instead, Europe now leans on principles of circularity and post-growth to structure its economy. This is captured at the EU level as 'the New Eco-Social Contract', which features biodiversity net gain policies and the generation of jobs and employment related to nature restoration across various sectors. A major objective for this new, fractal governance structure is **the planning and implementation of ecological restoration of water, soil, and supporting ecological services to provide public goods in a sustainable manner**. To enable the implementation of this 'new co-social contact', governance is organised more like a fractal: while the **EU oversees the larger dynamics and direction of movement towards sustainability, local governments** are given a more prominent position to **ensure implementation in a context-relevant manner, also connected to the ecological realities of citizens**. Being the largest and most disruptive policy framework since the European Green Deal, it has resulted in some unrest as some groups doubted how it would benefit them. But as the EU and local governments prioritised and heavily invested in promising pilots that made nature's contribution to people visible, tangible and actionable for people, that discontent died down. Building on the success of these pilots, similar practices are now unfolding in other regions. Ultimately, this is having a major effect on how our urban areas are shaped, as many regions have opted to implement the concept of the fifteen-minute town. Having smaller communities connected to vital services and more local systems results in increased resilience and local level sufficiency. Community-supported agriculture leads to 'true pricing' of food and a reconnection between producer and consumer.

Young kids that once benefited from new and sustainability-oriented curricula **have now become leaders for nature** and are elected into office. With this new generation stepping forward, new lifestyles have become the norm. Diets have become more seasonal and predominantly plant-based. While some pesticides are still in use, they are strictly monitored. The same goes for livestock, which is now considered a vital part of a circular system – but no animal protein is still regarded a 'staple' as it was 25+ years ago, back in 2022. After nearly two decades of 'biodiversity net gain' policies, circularity principles have become part and parcel of our modes of production and consumption. Now, human (inter)actions increase biodiversity, rather than degrade it. So much so, that human-made structures in nature, such as dams, are now torn down to let rivers flow freely once again.

Re-naturalisation while letting nature do its part

Summary

- **Governments** stop habitat change and invest in rewilding areas. New urban planning laws sparked a pledge to give nature more space. Two decades of next to no human interventions have given nature the time and space needed to stabilise and recreate resilient ecosystems;
- **Society** is happier, healthier and more in touch with nature, living a biophilic and nature-based circular economy in which commons allow everyone to thrive.

The roaring twenties at the start of the 21st century were the spark that ignited major changes in how we manage human-nature coupled systems. The COVID-19 pandemic that lingered on for another several years turned out to be a massive game-changer for Europe as it shone a light on our work-life balance, forcing employers and employees to invest in remote working. Not only did this quickly make remote-working the norm, drastically reducing travel over the next year; the years of isolation and mandated lock-down incited a cultural shift towards prioritising happiness and wellbeing over economic growth. Thanks to public subsidies, innovations in communication technologies quickly emerged, allowing people all over the world to stay virtually connected globally, while their offline life became more locally rooted. Meanwhile the impacts of climate change were strongly felt, also in Europe, inciting on- and offline protests throughout the continent, the severity of which prompted action. It drove the European Commission and its member states to take the radical decision to stop habitat change and to invest in rewilding areas. As physical mobility had significantly reduced, meaning humans now needed much less space, this provided a crucial opportunity for giving space back to nature. After these turbulent years, European citizens started to realise that the wellbeing of nature and humanity are very much connected, leading them to revalue nature in society - made visible in large-scale dietary changes towards a more local, plant-based diet.

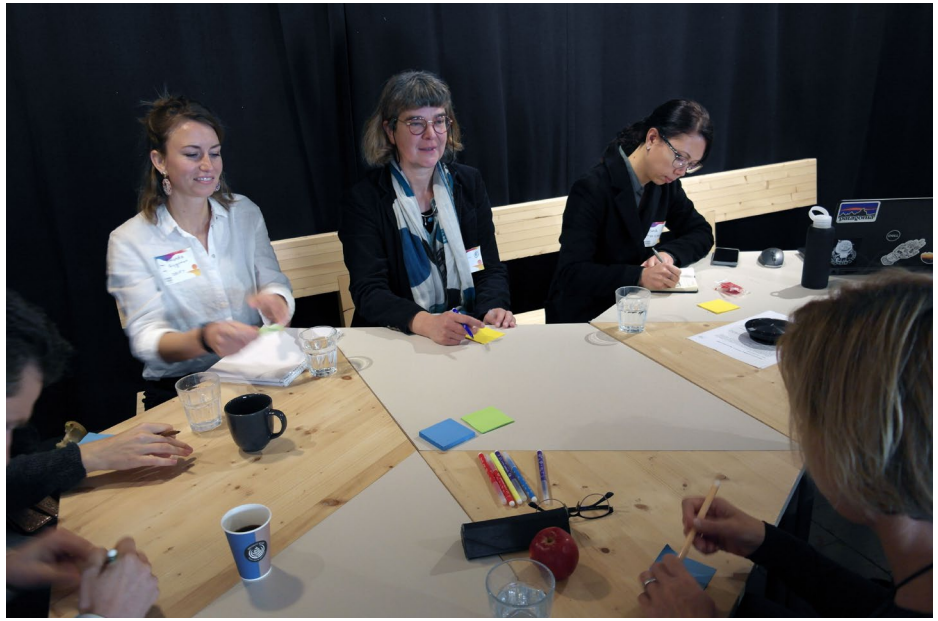
In the years to follow, the new ways of living and the pledge to give nature more space led to new urban planning laws. Now cities have become places for nature to thrive and where people can grow food in their own backyard. This led to a strong sense of community in areas and strengthened a sense of 'commoning' among citizens, who no longer think in terms of 'ownership', but in terms of sharing a 'library of services'. Meanwhile, at a European level, strict laws to prevent damage to nature and the newly established commons were drawn up, which had a major impact on corporations and businesses giving them a new standard to adhere to. While it took some time for nature and biodiversity to bounce back, nearly two decades of next to no human interventions has given the natural world the time and space it needed to stabilise and create resilient ecosystems again. Forests across Europe have grown more diverse and dense, providing ample corridors for wildlife to thrive, while water bodies have recovered from the years of pollution and contamination prior to the turbulent twenties.

Ultimately these massive changes have resulted in a society that is happier, healthier and more in touch with nature. The biophilic and nature-based circular economy has provided a basis for a society in which commons allow for everyone to thrive, without putting pressure on the biosphere. Where once money was the ultimate value in life, connection to nature now is what people strive for.

The values of nature are central to society

Summary

- This future is characterised by its **strong link between society and ecology**, favouring small-scale farmers with eco-friendly practices.
- **Governance** is guided by a strong science-policy-citizen interface that enables effective decision-making and collaboration towards harnessing biodiversity.
- Education and cultural change towards greater value of nature have fostered a stronger community sense.



It was the climate crisis that eventually exacerbated other persistent issues of the 21st century. Food security, biodiversity degradation, rising seas, increase of zoonotic diseases and so on led to severe social unrest as life as we knew it was under threat. Not only did the EU and its member states feel the threat of collapse, they also realised it meant the end of the dominant mode of governance and the market. After decades of sounding the alarm, the scientific community was finally embraced as a legitimate actor by the public domain, initiating the start of an era where **a strong science-policy-citizen interface leads the way in decision-making**. This brought a renewed appreciation of the power of citizens and their ability to **work together towards harnessing biodiversity**. Small-scale innovations created a cultural change: the general public now viewed nature to be crucial, and preserving it with care had become normal.

Major policy changes followed, initiating a cap on wealth through taxes, stronger social infrastructures, and support for healthy, local economies. In addition, **deep awareness and education about the role and value of nature was made a priority to educate future generations** about living in unison with nature. This deeper understanding of the value of nature **fostered a stronger community sense** and overall 'sense of place', leading citizens to increasingly green urban areas and design spaces for commons. Eu policy followed suit, by designing policies for the diversification of agriculture and fair supply chains. Farming subsidies have now been drastically redesigned, favouring small-scale farmers with eco-friendly practices. Ultimately all these policy changes and the changes in consumer behaviour leave little space for the once dominant transnational corporations.

In sum, this future is characterised by its strong link between society and ecology. This has translated into EU policy (favouring small-scale farmers with eco-friendly practices), economy (prioritising wellbeing rather than economic growth), and, most prominently, into the minds of European citizens (to preserve nature is a given).

4. Co-benefits and trade-offs

After the stream-specific exercises, the final Arena event focussed on exploring combinations between the streams and the future pathways that participants had co-created. Here we present the key findings of the groups that worked together in this final Arena event.

Given the rather large number of possible combinations between streams, let alone associated pathways, we strove for a large diversity of a selection of pathways per stream, and a limited number of stream combinations. The third Arena event featured two rounds of discussion in small groups, in which different combinations of streams were assessed for co-benefit and trade-offs.

Group I. Energy & Mobility / Circular

Energy & Mobility	Energy, Mobility & Circular economy
Potential co-benefits between the pathways	
There are co-benefits in **powering sustainable, shared mobility** with renewable energy. Mobility regulations include personal emission budgets, which may lead to a **lower demand for energy**. The ban on fossil fuels and increasing shared mobility will lead to **major health benefits**, especially in urban areas, now that there is **less pollution** and emissions.	The circular economy pathway places great emphasis on education and deep awareness of circular principles. These drastically **changed values as to using resources in a sustainable manner** may benefit the mobility and energy pathways. The move to a circular economy may **create many new jobs** for people who previously had fossil fuel related jobs in the energy and mobility sector that were phased out (think of petrol and car industries). The circular use of **batteries and precious metals** may be vital for both the energy and mobility pathways.
Potential trade-offs between the pathways	
The mobility ban **could constrain people to specific geographic areas**, especially those with fewer resources. Top-down regulation of the energy sector and the bottom-up organisation of shared mobility **could lead to inconsistencies in policy** if not properly addressed. The infrastructures needed for both the energy and the mobility transition will **require massive investments and resources**.	**A lot depends on the ability to recycle batteries and other (precious) metals** needed for electric mobility. The needed infrastructures for the energy and mobility pathways require a lot of energy and resources. This **risks exceeding the Earth's production rate of sustainable energy**. Providing a range of mobility options to people in areas that are sparsely populated **could contradict the circular economy principles** in terms of needed resources and energy.

Group II. Energy & Food / Circular Economy

Energy & Food	Energy, Food & Circular economy
Potential co-benefits between the pathways	
Local and sustainable food production and consumption **contribute to decreasing energy production and to increasing food system resilience**. This also means decreasing dependence on raw materials from other geographical areas. Sustainable food and energy systems **support access to human rights** (e.g. accessibility and affordability of food and energy services) and improve social justice. They empower citizen prosumers of energy and food. Food and energy sufficiency **enables well-being** despite decreased material wealth. **Reductions in energy** indirectly benefit **agricultural productivity** through decreasing negative impacts on biodiversity and climate change.	Localised food and energy production may benefit the circular economy **through potential reductions in waste production**. Circularity reduces enables **higher efficiency, resilience and stability in food and energy systems**. Additionally, this leads to more **empowered societal actors** and to participatory governance.
Potential trade-offs between the pathways	
The energy and food pathways could create **land use conflicts**: fields could be used for food production or for energy production (e.g. installation of solar panels). These pathways also lead to **conflicts over arable land use**. This means competition for land that can be used for biofuel crops and the production of human food crops.	**Food and energy systems compete for storage facilities**. For example certain types of food are seasonally produced (e.g. oils) but they are used the entire year so they need to be stored.

Group III. Energy & Biodiversity / Renovation

Energy & Biodiversity	Energy, biodiversity & Renovations
Potential co-benefits between the pathways	
Clean energy production **mitigates climate change** which represents an advantage to biodiversity.	**By renovating buildings, they can be made more energy efficient**. Renovating buildings instead of demolishing buildings and rebuilding them means less waste and fewer new materials need to be produced. Renovating buildings to become more energy efficient can be **accompanied by the restoration of the natural environment surrounding the building** so that it contributes to improving biodiversity. Renovating buildings with **biobased insulation materials** such as green facades may make them more energy-efficient and nature inclusive. The latter means that buildings may no longer provide shelter only to humans but also become habitats for animals and plants. A **new urban planning law** may minimise new developments and urge municipalities to apply systems thinking connecting energy, biodiversity, and renovation targets when working on an urban development strategy.
Potential trade-offs between the pathways	
The energy transition competes with biodiversity for land, because of its need for space to produce clean energy. A trade-off may arise **between the human right** to affordable clean energy and **ecological rights** when energy production causes damage to natural systems.	**Renovating buildings costs energy and materials**. When materials come from unsustainable sources, this causes damage to the environment.

SHARED GREEN DEAL

Group IV. Food & Biodiversity / Circular economy

Food & Biodiversity	Food, Biodiversity & Circular economy
Potential co-benefits between the pathways	
The food pathway builds on **agro-ecological principles, which would still give space to biodiversity** in the sense that it does not pollute the environment anymore and embraces (agro-) biodiversity. Both pathways see options to **grow food in urban areas** which will make urban spaces more green and liveable, increase biodiversity (especially pollinators), and promote the consumption of local products.	Rebuilding the food system on circular economy principles would be a major benefit to both the environment and biodiversity as it would entail less resource extraction, less synthetic inputs, **less pollution, and less waste**. The local food production that is central to the food and biodiversity stream will also **require less transport, packaging and energy**, all to the benefit of circular economy principles.
Potential trade-offs between the pathways	
These two pathways **risk land-use conflicts**: Protection of biodiversity means committing more land and water to stricter conservation principles to the exclusion of agricultural production, which conflicts with the need for agricultural and fishery activities for food. The **efficiency of food production (in terms of space) will determine how much space is provided for biodiversity**: intensive agriculture can increase yields, however these have a negative impact on biodiversity and soil quality	**Not all geographic areas are suitable** for local production based on circular principles in a manner that they can be self sufficient. This undercuts efforts for circularity. There is **a limit to the extent that the food system can become truly circular and nature-positive** at the same time, as the demand for food is high (and increasing on a global level). **Dependencies in a global circular model** of circularity will perpetuate food crises, such as during the Ukraine war.

SHARED GREEN DEAL

Group V. Mobility & Biodiversity / Renovations

Mobility & Biodiversity	Mobility, Biodiversity & Renovations
Potential co-benefits between the pathways	
Both pathways present ways to move towards **a greener environment**: the mobility pathway describes a decrease in roads and cars, and the biodiversity pathway requires space for nature. Both pathways present mutually reinforcing ideas of **collective and open access**. In the biodiversity pathway, the collective is presented as an open-access right to nature. In the mobility pathway, the right to transport will be accessible to all. The co-benefit is that these ideas will manifest as norms within society, strengthening both pathways. The encouragement within the mobility pathway **towards transport options that are closer to nature** (i.e. 'active travel' such as biking and walking) may lead to a greater personal connection to local biodiversity.	**Community living**, which is present in the renovations pathway, has a strong tie to the mobility pathway. In both pathways, the communal approach is presented as a more efficient and socially cohesive alternative to an individualised society. For example, carpooling, creating interactions and work in the local area, etc.
Potential trade-offs between the pathways	
Changes in mobility might lead to **less equal access to biodiversity**: who can afford to travel to enjoy the rewilded 'nature' outside of their immediate locations? Transport systems may compete with biodiversity. For example, using monoculture to make the most efficient biofuel, or breaking up natural areas to support train-routes.	There might be **resource scarcity** in terms of funding and materials. There might be a dilemma in terms of how to assign funds: futuration, mobility, or biodiversity? There might be a **lack of support infrastructure** (i.e. lack of a solid wood supply chain or the slow transport of materials due to the phase-out of unsustainable biodiversity/mobility practices). This might frustrate futuration, especially for tradespeople, and make it societally less accepted.

5. Looking forward

In this Section, we take stock of the results with an eye on the future. We begin looking forward by casting an eye on what's shared across the Green Deal streams (5.1). Next, we move on to reflect on how the Arena results feed into the coming activities of the SHARED GREEN DEAL project specifically (5.2).

5.1. The breadth of the Green Deal

Looking at the collected streams, pathways and their trade-offs and co-benefits, we can identify a number of cross-cutting themes that appear to hold for most, if not all, of the Green Deal topics we explored that were able to surface thanks to the use of foresight methods[14]. These themes concern similarities in impacts and similarities in conditions. In this subsection, we discuss seven elements that are present in most pathways, in order to raise awareness for the breadth of societal change ahead. We now discuss the following seven themes in turn:

1. Social justice
2. Daily life changes
3. Post-growth economics
4. Communities
5. Role of government
6. Awareness and education
7. Putting the future centre stage

14 Hebinck, A., et al. (2018). Imagining transformative futures: participatory foresight for food systems change. *Ecology & Society*, 23(2), 16.

5.1.1. Social justice is at risk

Most prominent between the pathways is the role of fairness, social equality and social justice. Nearly all pathways mention that they can negatively affect fairness and social justice. The Food stream might exacerbate food poverty. The Energy stream might exacerbate energy poverty. The renovations stream begs the question of who will pay for renovations. Social justice is not a separate stream in the Green Deal, and without further attention, the Green Deal may well result in more poverty and more inequality. In turn, this might increase social unrest, undercut public trust in governments and diminish public support for the goals of the Green Deal.

5.1.2. Substantial changes in daily life, reduced material wealth

In general, many of the pathways feature structural to radical changes in daily life. The Food stream features dietary changes in the form of substantial reductions in consumption of animal protein. The Mobility stream bans private car ownership and almost removes air transport. The Energy stream features local renewable energy production and the Biodiversity stream aims for a nature-inclusive environment. This changes our landscapes, and thus changes our daily experience of the environment. The Circular stream strongly strengthens reusing and repurposing over buying new goods. Many of these changes may be seen as reductions in material wealth and luxury. While many of these changes are necessary from a sustainability perspective, a loss of material wealth can also spur legitimate concerns about future well-being. In that sense, these substantial changes in daily life make it even more important to ensure social justice, in the interest of public support for sustainability.

5.1.3. Post-growth economics of well-being

Many pathways offset the legitimate concerns about social justice with radical changes in (social-) capitalist economic systems. Most agree that we currently focus too much on financial profits, and that current economic systems have a long-term tendency to increase social inequality, to the detriment of social justice. Instead, our economic systems move from a focus on maximising (shareholder) profits to maximising (stakeholder) well-being and sufficiency. Measures need to be in place to prevent overconsumption and overexploitation. Such measures may include high taxation on emissions, taxation on unhealthy foods (sugar, alcohol, highly-processed foods, etc.), meat tax, true pricing, etc. Many of such measures do exist in various forms, but they are as of yet missing the mark when it comes to transitioning our economic system.

5.1.4. A resurgence of community sense

The social dimension is also featured as a resurgence of community sense, whether it be energy communities, food co-operatives and shared mobility, often strengthened by more localised economies. Most pathways problematise the global impersonal economic systems that have evolved from current capitalism and international trade treaties, both in terms of increased food, material and energy sufficiency risks due to increasing geopolitical instability (e.g., war in Ukraine, COVID-19) and their impersonal, untransparent social character. Localisation and community sense together help citizens to give meaning and strengthen local identities.

5.1.5. Role of the government

The above goes to show that economic reforms require substantial government intervention. In a broader sense, most pathways feature stronger governments that take back power from the market by enforcing concrete bans and phase-out. This concerns banning private car ownership, fossil fuels and public investments in public transport etc. as well as obligatory renovations and relocations of businesses in sensitive areas. Other potential measures include much more aggressive taxations, such as progressively higher income taxes and higher taxes on property.

5.1.6. Awareness and education

Most pathways feature awareness-raising and education in one way or another. First, in many cases a lack of awareness may well exist regarding the breadth and depth of the challenges associated with the various Green Deal streams. Maybe more importantly, education about and awareness of options for the future is needed. What can we do, individually and collectively, to battle the challenges of the Green Deal? And finally, several pathways hinge on important technological, social and institutional innovations, think of regenerative agriculture, community structures, and new tax schemes. Such innovations require the development of new knowledge and experimentation, especially from a practice-oriented, applied sciences perspective.

5.1.7. Putting the future centre stage

Overall, one observation stems from the experience of backcasting itself. If we remain looking forward, we will keep focussing on reducing problems, such as reducing greenhouse gas emissions, reducing loss of biodiversity - narratives that entail making problems less bad. But if we step into the future and look back, it suddenly becomes glaringly obvious that reductions are not a goal but a means. The question is not how to reduce greenhouse gas emissions, but how to remove fossil emissions entirely. On the whole, it becomes more and more important to use the future as a benchmark for public and private policies rather than the present.

5.2. How will the Arena findings be built on further?

Building then from the above, we next reflect on how the pathways generated and cross-cutting insights as just described may be taken forward both within and beyond the SHARED GREEN DEAL project.

The Arena events were part of a set of Scoping work undertaken in the first year of the SHARED GREEN DEAL project[15], laying foundations for a further four years of work (with the SHARED GREEN DEAL network extending beyond this right up to 2030). As set out in the previous Green Deal Arena methodology report, a key principle of this Arena work was to "develop concrete steps and generate action-oriented knowledge". In this subsection we therefore discuss how we will in tangible ways use the Arena proceedings within the SHARED GREEN DEAL project's upcoming activities - and in particular our social experiments - as well as the opportunities we see for others to use the outputs.

5.2.1. Social experiment planning

The SHARED GREEN DEAL project centres on conducting six experiment streams for six topic streams of the Green Deal, across 24 locations in Europe. These will be 'live' for about a year, but with significant planning and analysis phases before and afterwards. The implementation of each experiment stream will (necessarily) focus on specific aspects of the wider energy, economy, built environment, mobility, food and biodiversity systems.

The final plans for our social experiments16 will acknowledge the future images and transition pathways (or "imagined pathways") developed through the Arena process, and in particular we identify in Table 2 elements which resonate with each experiment stream's planned aims and methods. The main idea of this table is to exemplify specific local experiments (activities, projects, initiatives) that in some way already exemplify how a future image can be realised today.

Table 2. *Framework for matching Green Deal streams with activities and developments in the SHARED GREEN DEAL experiment streams.*

Stream	Future image and transition pathway	Promising experiments and experiment stream activities
Clean Energy	The sufficiency society - clean sustainable, resilient energy systems	Renewable energy production on a local and communal basis
Circular Economy	Regenerative value co-operatives	Cities as circularity hubs, turning 'waste' into resources for other systems.
Efficient Renovations	From Renovation to futuration	Renovation as a communal undertaking
Sustainable Mobility	An affordable and EU-integrated mobility system	Communal mobility initiatives
Sustainable Food	Food from the moon?!	Experiments with plant breeders' rights
Preserving Biodiversity	A New Eco-Social contract for 'biodiversity net gain'	Business models that are centred on regenerative principles

5.2.2. Social experiment training events

As a project, we will host six training events in April 2023 (one per stream) for our local partners in which we share the SHARED GREEN DEAL perspective and the proceedings of the Arena. With the trainings' design overseen by Arena leads DRIFT, these events are aimed at being participatory and collaborative, very much aligned with

15 This work, led by DRIFT, has also included an online database of initiatives working on Green Deal topics in Europe, as well as establishing direct connections with a number of the other 73 Green Deal projects funded under the H2020 framework programme, several of whom attended the Arena events.

16 To be submitted to the European Commission as a confidential deliverable in January 2023.

the atmosphere created throughout the Arena events. This means that - through partners experiencing the Arenas - they have already helped 'getting partners on board' with particular aspects of inclusive facilitation. The Arenas will furthermore inform the guidelines provided by DRIFT to project partners for running the trainings, in particular using the pathways and future images as a key reference point for the experiments' orientations.

5.2.3. Lighthouse tours

We will host another six events - Lighthouse Tours - in late 2023 or early 2024, for around 10 participants each. At these tours, we expect local partners to visit one or more local activities, projects and/or initiatives related to the implementation of the experiment at that location, and with important meaning for the experiment stream it belongs to. We expect that the Arena proceedings and experience will help partners to support identification of the types of local activities, projects and/or initiatives that could be visited during the tour, as well as open up questions on upscaling results from the experiments.

5.2.4. Analysis of experiment results

Data from the 24 experiments will undergo two sets of analysis, and in particular the outcomes from this Arena report will be revisited when experiment teams set out the context for their primary analyses (those which take place within each stream). Since the Arenas have been a the key process by which the project has engaged external perspectives at the foundation stage of the project, they can also serve as a benchmark to assess, for instance, whether that breadth of external perspectives is addressed when selecting the local experiments per experiment stream, and the level of social inclusion (as part of our approach to Responsible Research and Innovation) that we are able to establish.

5.2.5. Lessons for upscaling of experiment results

During the Arena events, participants from across the project partners generated a range of insights across different working groups and discussion sessions that were captured to inform later deliverables, specifically our "Scaling Exercise on EU Rollout" and others. As a first stage in the design of the scaling exercise, task lead IIED plans to review and annotate the recordings and notes from the Arenas and produce a summary document to guide partner discussion and decision-making during implementation.

6. Conclusions

In this report, we introduced the SHARED GREEN DEAL Arena approach and shared its main results. Our results underscore the necessity of future imaginaries as a benchmark for transition-oriented experimentation and policy.

In the SHARED GREEN DEAL project, the approach and results are intended to serve as an inspiration for further experimentation towards the realisation of the various Green Deal streams.

In general, our results highlight the need for social justice, a strong role of government, substantial renewal of the economic system, and substantial changes in how EU citizens will conduct their everyday lives. In that sense, we hope to contribute to the awareness both of the breadth and intrusiveness of the Green Deal and of its necessity.

On a meta level, our results underscore the effectiveness of the Arena approach itself. Through using backcasting of future imaginaries, we have been able to yield insights about the Green Deal that may have been hard to establish from a more traditional forecasting approach. In doing so across six streams, we have been able to add an exploration of generic elements as well as trade-offs and co-benefits between streams. For future work, we expect such an approach to be increasingly necessary: sustainability transitions can no longer be studied and fostered in isolation. Rather, they require an integrated approach that caters for social justice and post-growth economics.

7. Acknowledgements

First and foremost, we want to thank all the participants of the *SHARED GREEN DEAL Arena* for their contributions, including our European Commission project and policy officers for their support with inviting participation.

We would like to thank the people at La Vallée in Brussels, where we hosted the hybrid Arena workshop on 4 October 2022, and the people from Larégie for their technological assistance making our hybrid workshop as hybrid as possible.

We would like to thank our DRIFT colleagues - Timo Von Wirth, Neha Mungekar and Annelli Janssen - for supporting the SHARED GREEN DEAL team during the Brussels workshop, and Alexandra de la Vega Guzman for helping us out with all kinds of small odds and ends (support with the invitations and registration, taking pictures, preparing Miro boards, technical facilitation, and so on!) that still totalled a major contribution. Finally, we thank Chris Foulds for reviewing this deliverable.

8. Appendices

8.1. Appendix I

Agenda overview of the first *SHARED GREEN DEAL Arena* event, which was organised as an online co-creative workshop, on the 16th of September 2022.

Table I: *Agenda Green Deal Arena online 16-09-2022*

Agenda	
10:00	Welcome and introduction
10:25	Getting to know each other
10:35	Introduction to transitions thinking and SGD streams
10:50	Break
11:00	X-curve analyses in six different SGD streams
12:15	Plenary discussion and questions
12:45	Next steps and closing

8.2. Appendix II

Agenda overview of the second *SHARED GREEN DEAL Arena*, which was organised as a co-creative workshop held both in Brussels and online, on the 4th of October 2022.

Table II: *Agenda Green Deal Arena Brussels & online 4-10-2022*

Agenda	
09.30	Welcome & getting to know each other
10.00	An introduction to todays co-creative exercises
10.30	Coffee break
11.15	Step 1. Mapping diversity of future images
11.30	Coffee break
11.30	Step 2. Fleshing out future images
12.30	Lunch break
13.30	Step 3. Co-creating transition pathways
15.00	Coffee break
15.15	Reporting back per SHARED GREEN DEAL stream
16.00	Recap of the day
16.30	Plenary discussion
17.00	Drinks & further networking

8.3. Appendix III

Agenda overview of the third optional SHARED GREEN DEAL *Arena*, which was organised as a co-creative workshop held online, on the 1st of December 2022.

Table III: *Agenda Green Deal Arena Online 1-12-2022*

Agenda	
14:00	Welcome, recap of the process, and introduction to today
14.25	Coffee break
14.30	Round 1. Trade-offs and co-benefits in 2 streams
15.30	Coffee break
15.40	Short energiser and explanation of the 2nd exercise
15.45	Round 2. Trade-offs and co-benefits in 3 streams
16.25	Reporting back popcorn style
16.45	Next steps and how to stay involved!

8.4. Appendix IV

The 189 people who were invited to participate in the Arena series. With online and in-person no-shows, we arrive at the following attendance numbers: 100+ participants online for the first online event, 120+ participants on-site and online in Brussels and 30+ at the third (optional) online event. We sought attendants' consent to be named here.

Name	Surname	Organisation	4 October participation
Abraham	Aguriba	Gloplast Innovations Ltd	Online
Aggeliki	Aggeli	AAU	In person
Agnes	Schönfelder	City of Mannheim	In person
Aida	Szilagyi	CNPCD	Online
Alba	De la Vara	KVELOCE I+D+i	Online
Aleksandra	Kulic Mandic	Faculty of Sciences, University of Novi Sad	Online
Alessandra	Scotese	CirculOil	online
Alexandra	Almeida	CCDRLVT-Commission Regional Development of Lisbon and Tagus Valley	Online
Alice	Guiittard	ATHENA RC	Online
Amelie	Krug	ECOLISE	In person
Ami	Crowther	ARU	In person
Anastasia	Roniotes	MIO	Online
Anastasia	Vayona	CERC	Online
Anca Elena	Anastasiu	INCDTP Bucharest	online
Andres	Zabala	IN2Sustainability	In person
Andrii	Hnap	Waste Ukraine Analytics	Online
Angela	Lomba	CIBIO/InBIO - BIOPOLIS University of Porto	Online
Angele	Tasse	ICLEI	In person

Name	Surname	Organisation	4 October participation
Aniek	Hebinck	DRIFT	In person
Anke	Stock	Women Engage for a Common Future	Online
Anne Marie	Vinggaard	Technical University of Denmark	Online
Annelli	Janssen	DRIFT	Online
Amanda	Krijgsman	DRIFT	In person
Aran	Blanco	KVELOCE I+D+I	Online
Ben	Heinemann	Mai Minds, www.maiminds.com	Online
Ben	Martin	IIED (GEC)	Online
Benjamin	Schmid	NUIG	Online
Bernardo	Campos Pereira	Lisboa E-Nova - Agência de Energia e Ambiente de Lisboa	Online
Camille	Venier-Cambron	VU Amsterdam	In person
Carla	Perucca Iannitelli	Science for Change	In person
Carle	Bonafous-Murat	France Universités	In person
Chris	Hopkins	IIED (GEC)	Online
Chris	Foulds	ARU	In person
Christiaan	Claessens	Van oord	In person
Christian	Norden	BALance Technology Consulting GmbH	Online
Christophe	Jost	BWN	In person
Claudia	Mauser	City of Mannheim	In person
Cornelia	Dinca	Amsterdam Smart City	online
Cristian	Buruiana	University of Groningen	Online
Damir	Medved	NGO Without Borders	Online
Dan - Ioan	Dobre	Bankwatch Romania	Online
Daniela	Ribeiro	ZRC	In person
Dora	Kallipolitou	ZELUS	In person
Douglas	Halliday	Durham University - Durham Energy Institute	Online

Name	Surname	Organisation	4 October participation
Duncan	Crowley	ECOLISE + UrbanA + Doughnut Portugal + Regenerative Development	Online
Elena	Dufour	European Commission DG/RTD	in person
Elene	Samukashvili	GIZ	online
Elisa	Grafulla	EU commision	In person
Elma	Meskovic	ICLEI	Online
Emile	Van Rinsum	DakAkker rooftopfarm foundation	Online
Emily	Gray	BWN	In person
Emma	Milroy	ARU	In person
Eni	Elezi	Albanian Railways	Online
Erik	Aarden	Alpen-Adria Universität Klagenfurt	Online
Esben	Pejstrup	ICLEI	In person
Fabiola	De Toffol	Link3c soc.coop.	Online
Filipe	Ferreira	Lisbon Metropolitan Area	Online
Florian	Cornu	MerTerre	Online
Frances	Fahy	NUIG	In person
Francois	Busquet	Altertox	Online
Ganna	Gladkykh	EERA	Online
Gary	Goggins	LIFE IP Wild Atlantic Nature	Online
Georgia	Solomou	C.E.A. CIRCULAR ECONOMY ALLIANCE LTD	In person
Giacomo	Frisanco	EURADA - The European Association of Development Agencies	In person
Giada	Materazzo	Unione Nazionale Consumatori Umbria	Online
Giorgia	Silvestri	DRIFT	In person
Giorgos	Demetriou	CERC	In person
Giovanni	Allegretti	Centre for Social Studies (at Coimbra University)	In person

Name	Surname	Organisation	4 October participation
Gisela	Martins	Valongo Municipality	online
Gitanjali	Thakur	Karlsruhe Institute of Technology	In person
Giuseppe	Pellegrini Masini	Norwegian University of Science and Technology NTNU	Online
Gloria	Bottaro	Carinthia University of Applied Sciences (CUAS)	Online
Haris	Paliogiannis	MIO	Online
Hernan	Ruiz	CERC	In person
Igor	Karlovits	Pulp and Paper Institute	Online
Igor	Vervoort	Vrije Universiteit Brussel (VUB) / House of Sustainable Transitions	In person
Ilaha	Abasli	ISS	Online
Ilyas	Masih	IHE Delft Institute for Water Education, Delft the Netherlands	in person
Inês	Costa	I am currently freelancing	Online
Inge	De Wolf	Port of Antwerp Bruges	Online
Inma	Garrido	ACC	In person
Irene	Robles Garcia	Steinbeis Europa Zentrum	Online
Iris	Silva	Valongo Municipality	Online
Isa	Laurent	Ecorys	online
Isadora	Jimenez	Science for change	Online
Ivan	Tosics	MRI	In person
Jake	Kelley	Keep Britain Tidy	Online
Jean	McLean	IIED (GEC)	Online
Jerome	Friedrichs	European Association of Development Agencies	In person
Jesus	Urios	IEEP	In person
Jim	Oduor	Climate Care Africa	Online
João	Mourato	ICS	In person

Name	Surname	Organisation	4 October participation
Jorien	Zevenberg	University of Groningen	In person
Jorrit	Kiewik	SFYN	
Josephine	Mwasaru	Hudara	Online
Juan Carlos	Benito Sanchez	Fédération des services sociaux	In person
Julie	Lions	BRGM	online
Justine	Moonens	ECOLISE	In person
Karin	Thalberg	Jacques Delors Institute	In person
Katalin	dr. Döbrönte	GreenAndMore Kft.	In person
Katharina	Habersbrunner	WECF	Online
Kinga	Kovacs	ECIT	In person
Laura	Costadone	Finnish Environment Institute	Online
Laura	Hetel	European Commission	Online
Lina	Gelažienė	Environmental Center for Administration and Technology (ECAT)	Online
Linda	Zuze	Green Liberty (Zaļā brīvība)	Online
Lucas	Barning	TUW	In person
Luis Miguel	Benavides Cabrejo	Tesserae Urban Social Research	Online
Manuela	Flachi	MagellanCircle	In person
Manuela	Flachi	MagellanCircle	online
Marcela	Mai	Independant	Online
Marcela	Noreña	WECF	In person
Marguerite	Culot	EEB	In person
Maria	Celeiro	University of Santiago de Compostela	Online
Maria	Fraaije	DRIFT	In person
Mariachiara	Esposito	European Commission - EAC	In person
Marija	Suzic	Institute for Development and Innovation - IDI	In person

Name	Surname	Organisation	4 October participation
Mark	Rupa	CNVP - Connecting Natural Values & People	Online
Marta	Lores	University of Santiago de Compostela	in person
Mateja	Smid Hribar	ZRC	In person
Mel	Rohse	ARU	In person
Milena	Antonowicz	BWN	Online
Monica	Truninger	ICS	In person
Monika	Vejseli	GIZ Albania	Online
Myriam Elisa	Gil Bardaji	Karlsruhe Institute of Technology	Online
Nadia	Di Iulio	ALDA	Online
Nadine	Haufe	TUW	In person
Namita	Kambli	E3G	In person
Nancy	Pyrini	University of the Aegean	Online
Natalia	Sovkopljas	ZZMO CITENRGO	online
Natasa	Lovric	European Forest Institute	Online
Neha	Mungekar	DRIFT	In person
Nina	Klein	ECOLISE -	In person
Nof	Afghani	ISI	In person
Nora	Ibáñez	INKOA SISTEMAS S.L.	Online
Nora	Allavoine	European Commission	In person
Olga	Suminska-Ebersoldt	KIT - HIU	in person
Patrizia	Marani	City of Parma	Online
Pietro	De Martino	FILSE SPA	In person
PJ	Beers	DRIFT	In person
Rahul	Palekar	The Exeter MBA	Online
Ralf	Lindner	ISI	Online
Raphael	Schranz	CE Consultant	Online
Reggie	Tricker	ICLEI	Online

Name	Surname	Organisation	4 October participation
Rickard	Bucksch	European Commission	In person
Rita	Griniene	Baltic Environmental Forum Lithuania	Online
Rob	Luyk	Luyk consultores	Online
Robert	Oakes	UN University Institute for Environment and Human Security (UNU-EHS)	Online
Rosario	Oliveira	ICS	Online
Rosie	Robison	ARU	In person
Ruxandra	Boscaneanu	Interested on personal level	Online
Sandra	Tzvetkova	E3G	In person
Sarah	Hale	Norwegian Geotechnical Institute	Online
Sarah	Seus	ISI	In person
Sarah	Royston	ARU	Online
Sebastian	Birk	University of Duisburg-Essen	Online
Sebastien	Cayol	HORIZONT3000	Online
Selina	Strasser	CUAS	In person
Sergiu-Matei	Lucaci	European University Association	In person
Shane	Mc Guinness	University College Dublin	Online
Sharon	Myburgh	private	Online
Sıla	Kartal	Roof Coliving	Online
Sjaak	de Beer	Common Gold	Online
Stephane	Dupas	ECIT	In person
Stephen	Lorimer	Centre for Net Zero, powered by Octopus Energy	Online
Stuart	Worsley	IIED (GEC)	Online
Sukhveen	Kaur	WECF	Online
Sunny	Ubale	Student : Oxford's Saïd business school, UK	Online

Name	Surname	Organisation	4 October participation
Susana	Viegas	Institute of Social Sciences, University of Lisbon	Online
Sylvia	Vannisselroij	Expeditie 02050	Online
Thomais	Vlachogianni	MIO	Online
Thomas	van der Lee	Foodvalley NL	Online
Thorfinn	Stainforth	IEEP	In person
Tiago	Koch	Câmara Municipal de Valongo	Online
Timo	von Wirth	DRIFT	In person
Tom	Marshall	Tom Marshall	Online
Valentina	Gritti	SFYN	In person
Valeria	Fantini	ALDA	In person
Vassilis	Karamaounas	Ellinogermaniki Agogi	online
Victor	Vieira	Lisboa e-nova	Online
Viorica	Bulat	ALDA	online
Vjeran	Pirsic	NGO Eko Kvarner	Online
Vladan	Šćekić (Scekic)	Environment Improvement Centre	Online
Vlatka	Katusic	CEA	In person
Wouter	Mulders	DRIFT	In person
Zareen	Bharucha	ARU	Online
Zohar	Ianovici	World Bank Group	Online

sharedgreendeal.eu

info@sharedgreendeal.eu

SHARED GREEN DEAL

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101036640.