THE GRASSROOTS CLIMATE ACTION PLAN

gerechte1komma5

first edition: 2020-03-03

This book is available online under `https://klimaplanvonunten.de/en`

Interim result and invitation to continue writing

The present first edition of the *grassroots climate plan* was published on the 3rd of March 2020 by the campaign *just1point5* ("gerechte1komma5"). All the measures published here were compiled by numerous authors* on an open digital writing platform ("Wiki") and in writing workshops. This edition merely represents a work status of the project. The catalogue of measures contains measures that have already been discussed and worked on in detail as well as points that still need a lot of attention.

The presentation of the current project status with its numerous gaps in content is a call to participate in the further development of the climate plan. The wiki as a basis for the open, collaborative writing process will continue to exist. We expressly invite you to use this platform to discuss and comment on the measures already in place and to add new ideas and measures. The *grassroots climate plan* lives from the participation of people in the writing platform, from the exchange taking place there and from the introduction of new measures. It is also planned to publish further editions of the climate plan.

The core idea of the campaign is to collect measures in a collective, grassroots democratic writing process that lead to more climate justice and - as a necessary prerequisite for this - to compliance with the 1.5 degree target. The texts of measures concentrate on ideas that can be implemented within the Federal Republic of Germany (but not primarily by the Federal Government). In addition to this publications' aspect of content, it is also a concern of the edition, to make transparent both the procedure and motivation behind the climate plan and the problems the campaign has encountered in its development to date. The epilogue of this edition therefore contains a reflection on the development process of the *grassroots climate plan*. Before publication, the campaign aims to check the effectiveness of all proposals on the basis of scientific aspects. Furthermore, it is an important concern to include especially the perspective of severely affected people with regard to (global) justice. In order to create as few barriers to understanding as possible, a simple language is chosen - as far as this is feasible without shortening the content.

Principles

During the work for he first edition, the measures collected in the *grassroots climate plan*, the writing process and every cooperation was based on the following principles:

- Global warming must be kept below 1.5°C.
- We want and need to consider social and global justice. This means finding a just way of dealing with the causes and consequences of climate change.
- There is no stage for fictitious solutions and greenwashing.
- Perspectives of those particularly affected are of particular importance.
- We organize ourselves emancipatively and in solidarity. We want to reflect on and dismantle hierarchies, overcome discrimination and at the same time be empathetic, fault-tolerant and willing to learn.
- We work transparently.
- We do not want to be absorbed by political parties and we do not want to offer them a stage.

Marking of measures

Since the first edition is intended to reflect a state of work, all text contributions are published regardless of their state of work. There are several markings for better clarity:

- Headings written in gray indicate drafts that have not yet been completed, possibly only suggestions for headings of measures. These have not undergone any editorial revision.
- Headings written in black indicate measures that appeared to be complete enough in terms of content to allow them to be fine-tuned. This means that at least mistakes in spelling and sentence structure have been corrected and an attempt has been made to make the wording as non-discriminatory as possible.

Further markings are intended to highlight other deficits, such as missing translations or missing (scientific) reviews.

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Preamble

We are facing one of the biggest decisions of humankind - a decision on how to face the climate crisis.

This is a huge responsibility and at the same time an opportunity. Our chance to work together to initiate a comprehensive change towards a more just society.

We live in a crucial time in which the changes caused by global warming are already being experienced: Forest fires, droughts and heavy rains are taking turns. Especially for people who have less privileges in the global society and for marginalized groups the consequences are already devastating. If we do not act quickly, comprehensively and radically, we will reach climatic tipping points with irrevocable consequences and further intensify (global) social injustice.

We have made demands on governments long enough and have too often been unsuccessful in doing so. Shaping the world we want to leave to future generations is therefore in our hands: we cannot hand over the responsibility for it to any government in the world.

In a first step we have to deal with what life in a (climate) just society could look like. In a next step, we have to work together to find the paths that will lead us there. The half-baked compromises and pretend solutions that are currently presented to us as viable paths do not do this.

We need solutions that not only save greenhouse gases, but also address the causes of the climate crisis and make society more liveable, just and ecological - for everyone. Justice, democracy and climate protection are not contradictions - thus one cannot be achieved without the other.

Solutions can only be taken seriously if they do not shift the problems at the expense of others. Solutions only work if they are supported by as many people as possible. To do this, these solutions must come from below. From us. For us and all future generations.

What role does the *grassroots climate plan* play in it?

The *grassroots climate plan* collects exactly these solutions. People with different life realities contributed their ideas and knowledge. The measures collected already show that extensive knowledge is available to tackle the climate crisis in a just and effective way.

The jointly developed collective knowledge in the "grassroots climate plan" should be made available to all people as far as possible. This climate plan serves as an encouragement and call to all of us to join in the discussion. In addition, it offers the opportunity to experience that every single one of us can and may be able to help shape a more equitable future. It should let us experience that we ourselves can formulate effective visions of a more just society and encourage us not only to have ideas but also to implement them and become active. The *grassroots climate plan* will never be "finished", because it lives from the participation of many, but will always be a 'living manifesto' that includes the perspectives that change with the world. The gerechte1komma5 campaign will continue to work towards ensuring that it can be used and implemented by people and groups in a variety of ways.

Read the *grassroots climate plan* with family and friends*, discuss and comment on it, bring in your knowledge and ideas, look for groups in your area that are already actively working for climate justice, become active yourself, organize and network. At this point we would like to thank all the people who have already contributed and continue to contribute to bringing the grassroots climate plan to life with their knowledge and their

visions. It is our all plan, which we worked out together for ourselves. Now it is our responsibility to make it become reality!

2

Just Reproduction, Production and Consumption

2.1 Preamble

While the question of how it can be possible to save as much → greenhouse gas as possible in a socially just manner is the center of attention in the other sections of the *grassroots climate plan*, the question for this section on just reproduction, production and consumption is somewhat different: it is not about explicit, specifically commensurable measures to save greenhouse gas, but to create economic framework conditions that make these savings possible in a socially just way.

Economics includes not only the productive sector, which is the most CO_2-intensive, but also paid and unpaid care or reproduction activities and consumption - and at the same time takes into account the just distribution of social wealth.

The measures collected here are facing the challenge of an relationship between economic growth and emissions or nature consumption. So far, sensible climate protection measures have mostly been sacrificed on the altar of economic growth. Since there is no chance to uncouple economic growth and resource consumption (as studies have shown several times), the whole German economy must at least stop being growth-dependent, if it is not shrinking. Since, under the current economic framework, a decline in growth or a shrinking of the economy would lead to a crisis spiral, changes in the framework conditions are proposed here that enable a post-growth economy, while at the same time enable human needs. Economic sectors such as renewable energies, ecological agriculture and also care activities can still grow: since they have lower growth rates than climate-damaging production areas, such a shift in the gross domestic product (GDP) is reflected in shrinking - while the common good grows.

2.2 Unconditional Welfare

2.2.1 Unconditional Basic Income

What's the problem?

Our social security systems are currently dependent on economic growth. If this fails due to climate protection measures or the saturation of early industrialised economies, people lose their jobs and income and thus fall through the social safety net. To counteract this in the short term and promote the democratic shaping of an ecologically sustainable society, new forms of social security are requiered, which do not depend on growth, but are based on solidarity, as well as protection against poverty.

What's the measure?

- Introduction of an unconditional basic income (UBI) for all residents. In connction with further tax, social and labour market reforms, this should lead to higher incomes for the poorer 50% of the population and lower incomes for the top 10%.
- The UBI must secure the existence. It can develop into a basic livelihood by expanding the social infrastructure to provide services of general interest and establishing commons-creating peer production (see → commons).
- Guarantee of a sufficient income even in the case of part-time work through poverty-preventing social security schemes such as the UBI

How can the implementation look like?

- Gradual introduction of an unconditional basic income for all, e.g. through "basic incomes" specific to each phase of life, such as basic income for children, basic pension, basic income during sabbaticals and studies
- Research programmes on the economic, cultural and social impact
- Trying out the principle of individual, unconditional legal entitlement through an eco-bonus. This means that every citizen is paid

a bonus that is generated from the income of ecological control instruments. These may not be credited to existing social benefits.
- Development of UBI concepts and payment variants (e.g. negative income tax or social dividend) and their experimental and/or gradual introduction.

How can climate change be counteracted and how can economic conditions be created that support effective climate protection measures?

The existence of all people is secured by this, so that no one has to be afraid of losing the → basis of existence through climate protection measures. At the same time, the measure contributes to a socially just redistribution of income and wealth, which is necessary to guarantee or establish social justice in an economy that is no longer dependent on growth. In addition, a basic income provides everyone with the time and material resources needed for the democratic shaping of an ecological society that produces with significantly lower consumption of natural resources, and for the development of solidary economies of public welfare.

How quickly can the measure be implemented?

The measure can be implemented immediately by redistributing income and assets from top to bottom. First steps can be taken immediately, as many different political and social actors are already arguing for basic income and maximum income, as well as for first steps towards it.

References to other measures

The basic income is related to the **radical democratization** of society, to the **radical redistribution** from top to bottom and to **solidarity-based economies** - because it promotes them. The basic income follows the same universal, inclusive principle as the transformation of social insurance into **citizens' insurance** and the democratically designed expansion and free use of social infrastructure. The basic and maximum income should - combined with further taxes (see ecological tax reform) and labour market reforms - lead to higher incomes for the poorer 50 percent

of the population and low incomes for the top 10 percent. The unconditional basic income is closely related to the **reduction of working hours** and the **gender-equal distribution of unpaid → care work**, because it promotes both. Flanking **ecological upper limits** make it more difficult to use the time freed up for material consumption. The expansion of the social infrastructure, together with the basic income, promotes the use of the time freed up for various forms of participation in social life instead of excessive individual consumption.

Problems of social, global and generational justice

A basic income that is unconditionally available to all people, combined with citizens' insurance and free access to social infrastructure, prevents the social division of society, social injustice and social exclusion of certain groups of people - also for future generations.

2.2.2 Socially just redistribution and services of general interest

What's the problem?

A common assumption is that everyone benefits from a growing economy. Because if the existing economic structures, that increase inequality, are not changed, the wealthy would become even more prosperous in an economy that is no longer growing. At the same time, this would make absolute losses inevitable for the lower income groups. In order to shape the socio-ecological transformation in a just manner, a just redistribution of income and wealth as well as access to public services of general interest is required.

What's the measure?

Strengthening the social security and participation in society.

How can the implementation look like?

- Increase in property- , capital gains- and inheritance taxes at national and European level, including a financial transaction tax
- Reform of corporate taxation at international or European level to avoid tax competition and increase tax revenue
- Increase in governmental spendings on education, health and pensions for lower income groups
- Development of a social security system based on solidarity, into which all citizens* pay according to their total income (earned income and capital income) (citizens' insurance).
- Development and democratic design of the public social infrastructure and services that can be used free of charge
- Establishment and promotion of common-creating security.

How can climate change be counteracted and how can economic conditions be created that support effective climate protection measures?

The measure ensures that, in the course of structural change, which is indispensable for adequate climate protection measures, all people are protected and can participate in the democratic shaping of the economy and society and in public life.

How quickly can the measure be implemented?

Step by step from now on.

How long does it take the measure to become effective?

If imposed, these measures would have an immediate effect.

References to other measures

The measure can go hand in hand with an ecological tax reform (), a basic and maximum income (), a restructuring of the social security system into a citizens' insurance (), the extension and democratic design of public social infrastructure and the reduction of woriking hours (). Absolute ecological upper limits make it more difficult to use the time freed up for material consumption, and the time freed up can be used for various forms of participation in social life.

Problems of social, global and intergenerational justice

Social security and access to public services are only just and prevent social division and exclusion of groups of people if they are open to all people in the same way, regardless of age, nationality, etc.

2.2.3 Encourage Care Activities

What's the problem?

- Activities aimed at the health and well-being of people, which promote and educate people and serve the everyday reproduction of life and work ability and which thus keep a society alive and make a good life possible for everyone, receive too little recognition (child care/education, care of the elderly and sick, taking care of oneself, cleaning…)
- paid → care work is subject to competitive pressure. For this reason, their financing is under high cost pressure (e.g. health insurance) or is often not covered by the state (e.g. nursing care insurance). As a result, it is often poorly paid and takes place under high work pressure. In addition, many care areas are becoming a field of private investment; care is thus increasingly the object of return on investments.
- the conditions of wage/gainful employment (extent of gainful employment, forced flexibility in the sense of the company, psychological and physical burden) often prevent people from being able to devote themselves sufficiently to care activities in the family and social environment
- unpaid care work rests mainly on the shoulders of women.
- Care employees and in particular unpaid care work performers and those dependend on care services have hardly any influence on the general conditions and the processes of care work.
- Overall, there is a complete imbalance in the evaluation of activities relevant to the community, the purely economic profit-oriented view on the value of individuals, leads to degradation, deprivation and segregation of many groups of people (the elderly, people with disabilities)
- There is a tendency (or economic pressure) for women in the global North to spend more hours in paid work and less to take on care work in their own families, which leads to global 'care chains' instead of an equal distribution of activities among all members

(genders) of society: non-German, often non-white women take on care work (often not insured etc, extremely poorly paid) and hand over responsibility for their own families to other female members of the family/neighbourhood
- The imminent technisation in the care activities' area (e.g. use of robots in care) is highly problematic: it leads to a progressive (social) devaluation of the activities and to further precarisation (wage dumping by machine competition, increasing threat to the jobs themselves); in addition, it signals that care and nursing would have to be detached from emotional care and empathy, i.e. it was literally a purely mechanical process: Increasing isolation and loneliness from people in need of care and → exclusion of vulnerable groups from the community and from contact with fellow human beings

What's the measure?

Care activities, both paid and unpaid, must be recognised in their importance. They must be financially and infrastructurally secured and supported. Their commodification is to be suppressed; instead, self-administration of the facilities in the care sector by the people in care relationships is to be striven for.

How can the implementation look like?

- Profit-oriented companies should be excluded from the areas of care work.
- In all facilities, including those run by "free non-profit" institutions (e.g. Caritas, ASB, DRK), extensive co-determination of all persons involved in the care relationship (employees, patients, relatives,...) must be implemented.
- In the overall care sector, which is to be expanded in line with needs and requirements, the focus should be on democratically organised municipal enterprises and → commons (polyclinic, daycare, neighbourhood shop, ...).

- This also means the expansion of a public social infrastructure that, together with its providing services, can be used free of charge.
- Furthermore, it is important to reduce the workload and increase the hourly wages of those working in these facilities, also to make these jobs more attractive.
- This in turn is a precondition to cover the additional demand for labour without falling back on the global wage gap and global care chains. In terms of financing, the introduction of a citizens' insurance scheme that eliminates the division between private and statutory health insurance is an obvious option. To finance it, all types of income should be taken into account without capping the contributions upwards. The purpose of this citizens' insurance is to ensure the health and care of all people.
- Ensuring extensive opportunities to participate for all people with disabilities should be a matter of course.
- Of course, it is not a matter of covering all care needs within institutions by care workers. Need-based care relationships also require the involvement of friendship and neighbourly networks. However, the people who care for each other in these networks need time and resources themselves. For this reason, the introduction of a basic and maximum income and a radical reduction in working hours are decisive preconditions for enabling the necessary care activities and ensuring their gender-equitable distribution and the adequate satisfaction of care needs.

How can climate change be counteracted and how can economic conditions be created that support effective climate protection measures?

CO_2 emissions are much lower in the service sector, especially in care services, than in the production of goods. The more the satisfaction of needs is focused on caring for each other, the more the production of goods can be limited. This is because at least many consumer goods serve to confirm one's own status and are needed as a consequence of an individualised lifestyle. By caring for one another, these are goals can

be achieved more directly and in a more climate-friendly way. To this extent, the expansion of the care sector is a central element of a globally generalizable lifestyle.

How quickly can the measure be implemented?

It can be started at any time. The prerequisites for a lifestyle, oriented towards the needs of care workers* and those in need of care, can partly already be created within the frameworks of the capitalist society and serve as entry projects into a solidary society, whose economic actions are directly oriented towards the satisfaction of human needs (→ capitalism).

How long does it take for the measure to take effect?

If provided, that the expansion of the care sectors and their democratisation leads to reduced production and transportation of goods, as expected, this measure will have an immediate positive effect. Since care work is organized on a smaller scale, in the district or in the neighborhood, to a greater extent than the production of things, traffic will also decrease due to the physical separation of residence and business premises. Every significant step, taken to improve the conditions for good care work, paid and unpaid, will have an immediate effect.

References to other measures

A good care work, whether paid or unpaid, has many prerequisites and connections to other measures: The expansion and democratisation of public social infrastructure requires an extension of democratic processes towards self-administration: notions of representative democracy are practically questioned. Individual security is provided to a greater extent by collective provision and by incomes independent of gainful employment; the gap between rich and poor is narrowing. Examples are the rising employment income of those working in care institutions, the introduction of a citizens' insurance, in order to protect the health and care needs of all people, the introduction of a basic and maximum income and a radical reduction of working hours.

2.2.4 Equalize urban-rural gap

What's the problem?

- The fundamental question is how landscapes should be used in the future. The approach of integration ("land sharing") and separation ("land sparing") of managed and protected landscape areas are opposed to each other. The same can also be asked for social life - the current rural migration carries the danger that vital social tasks such as food production and energy generation will be left to international corporations.
- The concentration of vital infrastructure relevant for social participation (medical care, jobs, educational facilities, child care, nursing facilities, data infrastructure, cultural offerings) is less available in rural areas than in urban areas. Rural communities and rural jobs, including in agriculture, are therefore less attractive. A progressing decline of the population in rural regions is the consequence.
- Clammy communities are either expanding their industrial areas or - depending on the region - allocating building land and thus encouraging urban sprawl. High land consumption and sealing levels inhibit important soil functions and urban sprawl leads to a weaker utilization of infrastructure.
- Especially regions dominated by a certain industry or company are paralyzed by the limited possibilities of jobs in the sustainable development.
- lack of opportunities for public mobility in rural regions is often compensated by individual transport (and incentives for this such as the commuter allowance) or leads to further migration from poorly connected regions
- Decline of retail trade and local family businesses in rural areas due to competition; instead: often the only supply possibilities are chains such as Lidl etc., which represent dreary and hostile village centres

- especially (well educated) younger people leave rural areas, demographic effects increase the pressure on rural communities
- Changes in the social structure, such as the decline in opportunities for care and encounters in rural areas offer a breeding ground for political mobilisation of right-wing forces, particularly in eastern Germany
- The Federal Statistical Office expects the whole German population to decline by twelve million people by 2050 - with rural regions particularly affected. Overall, the question is whether cities will lose their attractiveness, due to the amount of people moving there. An expansion of the rural infrastructure could also have a positive impact on urban housing problems and the congestion of public transport and care systems.
- Increased migration to cities increases competition in the labour and housing markets, displacing population groups with lower incomes / that are declared unproductive
- the centralisation of people and processes in cities leads to an increasing dependence on industrial mass production and unecological/unjust global supply chains
- As a result of rural migration and land grabbing by large corporations, food is being produced industrially on ever larger areas. Soil erosion and agro-ecological desertification as well as groundwater pollution through nitrate leaching with simultaneous withdrawal of nutrients are the result.
- Segregation (Exclusion of minority groups) both within cities and between city and countryside is the result

What's the measure?

- Decentralisation and municipalisation of production and consumption
- Closing regional cycles
- counteract urban-rural disparities

- Universities in rural areas can act as mediators for the solution of regional and local problems (e.g. education, urban planning, transport, health, sustainable development, economy).

How can the implementation look like?

- Development of free public climate-friendly transport networks (e.g. promotion of municipal e-car sharing projects) within and between rural communities, as well as connections to cities
- low-cost housing through the renovation of vacant buildings (subsidised letting of vacancies by municipalities), promotion of multi-generation projects and innovative housing solutions
- promote the use of renewable resources from the region (e.g. use of wood in construction projects)
- With regard to the constant sealing[1], a closed-loop economy for areas is a good option, which includes conversion and recycling. Regarding the tight public finances, cost-benefit analyses must become matters of course, taking into account the foreseeable population development. New or modified economic instruments are required (for example, in municipal financial equalisation, in real estate tax law and building land tax law, through tradable land certificates), unsealing concepts and renaturation concepts, management of brownfields, traffic calming and much more. Instruments that are contrary to land protection must be abolished.
- Establishment/expansion of supply/encounter structures in rural areas
- Promotion of retail trade and small organic farms (in Austria, for example, they are currently discussing a local supply premium to support the development of the town centre)
- Expansion of "green care" services
- Strengthening innovative marketing structures and solidarity-based agricultural concepts

[1] Bundesministerium für Umwelt, Naturschutz und nukleare Sicherheit: Flächenverbrauch – Worum geht es? (2019, abgerufen am 2.3.2020) https://www.bmu.de/themen/nachhaltigkeit-internationales/nachhaltige-entwicklung/strategie-und-umsetzung/reduzierung-des-flaechenverbrauchs/

- financial support of regional production/consumption
- Incentives for local business creation: cycle-based, cooperative, public interest
- Establishment of local grassroots democratic bodies/councils that (co)decide on local production/composition/structure building

How will this counteract climate change?

- Decentralization and localization counteracts numerous climate-damaging processes
- Mass production of food and consumer goods will be dammed up, transport routes will be shortened, democratisation and localisation of production will probably reduce the use of climate-damaging and health-endangering substances and agents
- Expansion of public transport facilities and the creation of jobs, structures, etc. locally, reduce pollutant emissions: distances become shorter, less individual traffic, etc.

What other effects does the measure have?

- counteracts segregation of population groups
- promotes the development of local communities, instead of increasing urban anonymity or rural isolation
- Connection, social participation and involvement in local decision-making processes promote a democratic awareness of solidarity
- ecologically sensible reuse of materials

2.3 Focus Market on the Common Good

2.3.1 Regulation of the financial market

What's the problem?

The financial market, as part of the growth-driving economic structures, is also part of the problem. Even more than other areas, it evades democratic control. Without regulations, its mechanisms contribute unmitigated to destabilisation on the one hand and economic growth and climate change on the other.

What's the measure?

A drastic reduction, unbundling and stabilisation of the entire financial sector. In particular, purely speculative purposes and the accumulation of claims on assets to be generated only in the future must be curbed by strict regulations. As a matter of principle, the surplus private capital-seeking investment offers should be reduced by a redistribution policy based on solidarity.

How can the implementation look like?

- Prohibition of credit default swaps, derivatives, securitisations, all off-balance sheet transactions and off-exchange trading, hedge funds, private equity funds and pure investment banking
- Closure of tax havens and shadow financial centres
- Separation of commercial and investment banks (separate banking system)
- Unbundling and downsizing of "too big to fail" banks
- Introduction of a Financial Transaction Tax
- Establishment of a democratically controlled supervisory authority that examines all financial products to determine whether they are socially and environmentally sound or dangerous
- Democratically controlled rating agencies that include social and environmental risks in their assessments
- Setting a higher capital ratio for banks

- Introduction of a minimum holding period for shares and other financial products
- Increasing the transparency and accountability of the European Central Bank (ECB) to parliaments
- Democratically controlled, federal, public banking institutions operating locally, regionally or nationally
- Special funds that co-organise socio-ecological restructuring in specific sectors
- Tax-funded investment programmes that channel revenue in a socio-ecological way
- Economic democratic procedures such as regional investment councils, which control the needs-based distribution of the surpluses to be invested

How can climate change be counteracted and how can economic conditions be created that support effective climate protection measures?

This measure disarms the growth driver "financial market" and thus provides the overarching economic framework, that no longer stands in the way of an effective climate policy.

2.3.2 Ending environmentally harmful subsidies and investments

What's the problem?

According to the Federal Environment Agency, in 2012, Germany allowed environmentally harmful → subsidies of at least 57 billion euros at Federal level, especially in the energy industry, transport sector and agriculture (Federal Environment Agency 2016). This thwarts climate-protection policy measures and undermines international agreements.

What's the measure?

- Stopping all public → investment in and subsidies for motorised individual and air transport, military technology and fossil fuels
- Stopping of all environmentally harmful investments in and subsidies for industrial agriculture, animal products, mining, …

How can the implementation look like?

- All environmentally harmful subsidies are to be dismantled within the framework of an ambitious timetable and redirected into measures for socio-ecological transformation. In doing so, attention must be paid to ensuring that the transformation is socially equitable .
- Shifting the freed-up public funds to clean production methods. Use of the money thus saved for the improvement of rural and urban public space, the expansion of public transport and the development of small decentralised renewable energies under local democratic control.

How can climate change be counteracted and how can economic conditions be created that support effective climate protection measures?

This measure ensures that climate-damaging business models and production methods are made more difficult and enables investments in climate-friendly production methods

2.3.3 Corporate governance and promotion

What's the problem?

The legal and tax framework conditions of our economy are currently geared towards so-called shareholder-oriented companies (especially listed corporations). These companies use profits primarily for sales-increasing →investments and dividend payments. Thus they contribute both to economic growth (due to the high level of investment) and the increasing inequality (as corporate ownership is very unevenly distributed). In contrast, the current framework conditions make the work of socially and ecologically active enterprises harder, since they are confronted with multiple legal and financial disadvantages.

What's the measure?

The economy-politics should be aimed at improving the position of public service enterprises and providing incentives for all enterprises to operate in the public interest, for example by:

How can the implementation look like?

- Reform of the Stock Corporation Act, which abolishes the obligation to maximise profits and instead enshrines the welfare of those affected and the preservation of common goods
- Prohibition of Stock cooperations
- A separate or extended legal form for democratic, participatory, not primarily profit-oriented companies, which incorporates the internal logic of these forms of enterprise and at the same time limits the bureaucratic burden
- Obligatory orientation towards social, ecological and regional criteria and preferences for democratic and participatory companies when awarding public contracts, real estate and land (selection, for example, using a uniform reporting system for the criteria above)
- Democratic control of companies above a certain size

How can climate change be counteracted and how can economic conditions be created that support effective climate protection measures?

This measure ensures that climate-friendly companies and business models are promoted and climate-damaging ventures are made more difficult. Reduction of the competitive principle and other aspects of the constraint to grow.

How quickly can the measure be implemented?

Step by step from now on.

References to other measures

The measure can go hand in hand with all measures but above all with the promotion of commons and a solidary society () and an alternative solidary society.

2.3.4 Public interest balance as a duty for companies

What's the problem?

The current measurement of prosperity is the gross domestic product (GDP). The current balance sheet system does not reflect the true wealth of a society, but only measures the material values generated without including the ecological and social consequences and the associated costs, even if these can be calculated. This means that the consequential costs are imposed on all of us, but especially on the → global South and future generations. The goal must be a sustainable economy, that suits the public interest, which particularly secures the right to an intact basis of life for future generations. On the way to a social, ethical and ecological way of life, we need a new system that measures the economic activity of a company in the public interest.

What's the measure?

Companies are obliged to draw up a public service balance sheet. This could be combined with state-regulated advantages for companies that perform better. The balance sheet should take into account, which ecological and social consequences and their costs are avoided by appropriate economic action and should include these as a measured value.

How can the implementation look like?

The benefits and motives of this measure will be communicated to the public. A draft law on the obligation for a public interest balance sheet is voted on. The law comes into operation. A democratic control body for companies is established, which takes a closer look at the public interest balance sheet. Assistance is made available to companies, e.g. in the very specific search for sustainable production techniques, packaging and transport options. This is done by neutral, non-market-oriented advice centres.

How does this counteract climate change (or how does it create economic framework conditions that support effective climate protection measures)?

Acting for the public interest brings along significant advantages for the environment and an ethical rethinking.

How long does it take for the measure to take effect?

If the accounting procedure is both mandatory and established as an motivational incentive, it can take effect relatively quickly.

References to other measures

Abolition of gross domestic product as an indicator of economic progress, Regulation of the financial market, Strengthening democracy and social participation

Problems of social, global and intergenerational justice

It should always be borne in mind here, that the public interest is meant to be globally and generationally just.

2.3.5 Maximum Income

What is the measure?

Introduction of a maximum income, which - whether from work or from investment income - must not be more than 30 times as high as the basic provision or the basic income (BGE) that is still to be introduced.

Bezüge zu anderen Maßnahmen

Das Maximaleinkommen steht im Bezug zum {TranslationOf(orig_page="Bedingungslose Grundeinkommen" translation_lang="en" translation_page="") /}, zur radikalen Demokratisierung der Gesellschaft und zur {TranslationOf(orig_page="Sozial gerechte Umverteilung und Daseinsvorsorge" translation_lang="en" translation_page="") /}. Das Grundeinkommen folgt demselben universellen, inklusiven Prinzip wie die Umwandlung der Sozialversicherungen zu Bürgerversicherung und dem demokratisch gestalteten Ausbau und die kostenfreie Nutzung sozialer Infrastruktur. Das Maximal(wie das Grund-)einkommen soll in Verbindung mit weiteren Steuern (siehe {TranslationOf(orig_page="Ökologische Steuerreform" translation_lang="en" translation_page="") /}) und Arbeitsmarktreformen zu höheren Einkommen für die ärmeren 50 Prozent der Bevölkerung und zu geringen Einkommen bei den obersten 10 Prozent führen.

2.3.6 Reduction of working hours

What's the problem?

On the one hand, increasing digitalisation and automation is predicted in many areas in the upcoming years. This would mean a sharp rise in unemployment if economic growth did not occur and working hours remained the same.

At the same time, unemployment is only a problem if it is accompanied by insufficient security and a lack of opportunities to participate in society or to work according to needs. The establishment of commons-based peer production (see → Commons) and new forms of having, which break the ecologically incompatible compulsion to grow, represents a living alternative to this. However, this also means that working hours are being reduced. Although an ecologically oriented structural change with more social services instead of the production of goods will lead to more working time again in the short term, it is precisely in these areas that a departure from the logic of competition is particularly urgent.

What's the measure?

If the volume of gainful employment of a company beyond growth decreases or stagnates, individual working hours could be shortened in order to give everyone the option of acquisition on the one hand and a work-life balance and time sovereignty on the other.

How can the implementation look like?

- Reduction of the working week to at least 32 hours. Development of programs that support companies and organizations in implementing job sharing. The resulting loss of income may only affect the 10% of the highest income.
- Relieving the burden of labour in non-wage labour costs, especially for low and medium incomes, primarily by financing the social security systems in other ways (e.g. through higher taxation of nature consumption and redistribution) and through lower taxes on low incomes.

- Financial incentives for the introduction of short full-time work with wage compensation for low and medium incomes
- Stronger legal entitlements to part-time work or sabbaticals with guaranteed return possibilities and job sharing.

How can climate change be counteracted and how can economic conditions be created that support effective climate protection measures?

Since economic growth always goes hand in hand with rising emissions and increasing consumption of resources, but is necessary in the existing system in order to compensate for the loss of jobs through rationalisation and digitisation, among other things, this measure helps to maintain jobs in a socially just manner even in an economy that is no longer growing or shrinking.

How quickly can the measure be implemented?

Step by step from now on.

References to other measures

Redistribution from top to bottom, basic and maximum income promote the reduction of working hours and time sovereignty. Flanking **ecological upper limits** and an **ecological tax reform** make it more difficult to use the time freed up for material consumption. **Financial and infrastructural safeguards** promote time sovereignty and the democratic shaping of society.

Problems of social, global and intergenerational justice

As long as there is no fundamental change in the world of work, unintended distributional effects between rich and poor and between national competing states will continue to arise in the work process. At the same time, the compulsion to grow remains, which is why intergenerational justice is not possible. Not least for reasons of justice, parallel to the reduction of gainful employment time, the parallel development of → common-creating peer production is needed.

2.4 Ecologize the Market

2.4.1 Product and advertising regulation

What's the problem?

Companies in growth-economies have to survive on a competitive market and therefore primarily focus their activities on generating profit, which often means that the usefulness or quality of their products falls behind. This results in corporate strategies to increase the demand for their products. Growth-oriented companies increase demand through a combination of several approaches, such as a high frequency in the market introduction of new products, the limited availability of individual and spare parts or the limitation of the products life span (planned obsolescence). On the other hand, sales of products and especially of newly introduced offers are promoted by intensive advertising. This also promotes the ecologically harmful culture of consumption and disposable products and complicates the development of sufficient consumption patterns (→ Sufficiency).

What's the measure?

Instead of maximizing product sales, the focus of companies with post-growth approaches is shifting to the production of ecologically and functionally high-quality products with a long lifespan. Business practices, such as the extensive avoidance of advertising, the creation of repair facilities and individual advisory services, enable and support the social establishment of a sufficient lifestyle.

How can the implementation look like?

In order to promote sufficiency-oriented approaches of companies, political decisions can be made in particular with the following levers:

- Limiting incentives and possibilities for the advertising placements by abolishing the direct tax deductibility of advertising expenditure

- Prohibition of outdoor advertising in the public area (as it is existing in São Paulo, Brazil, since 2007) and stronger regulation of advertising in media, especially television and social media
- Reduced VAT rate for repair services (as already exists in Scandinavia, for example)
- Supporting the production of durable and repairable products by significantly extending statutory warranty and private warranty periods
- Strengthening of repair possibilities by obliging companies to offer spare parts and enabling their replication through open source models
- Prohibition of the deliberate installation of inferior spare parts (planned obsolescence. using the example of France).
- Prohibition of food destruction
- Ban on free returns in online trading
- Promotion of repair cafés and open workshops
- Using advertising space/capacities/abilities/… for (anti-capitalist) enlightenment/interaction between people/art and culture/…
- Extend manufacturer product warranty to 5 years
- Prohibition of food advertising on all advertising media distributed outside the shop/market - leaflets, online shops, posters, brochures etc.)
- ban on advertising CO_2-intensive (long-distance) travel by air or cruise ship
- Sanction unnecessary deviation from interface standards (e.g. proprietary screws to prevent conventional tools from working)
- Mandatory guarantee of software updates for hardware products (updates for security and functional maintenance) as well as open source software at the end of the updates (promotes continued use by community projects) -> precondition for long-term use of IT hardware
- Abolish patents or significantly shorten their terms in order to avoid unnecessary additional development

Problems of social, global and intergenerational justice

- These regulations (see implementation) must not be thought only on national terms. Otherwise, there is a danger that companies will go abroad with their profit logic, where the regulations do not apply. Then exploitation, advertising and the sale of their products will continue.
- High-quality, durable and sustainably produced products are expensive and not everyone can afford them. Subsidies, which for example are no longer available for advertising and other things, could possibly be used to make products more affordable.

References to other measures

Reduction of gainful employment: If there were fewer or no more jobs in the advertising industry, this labour could be used for other "more useful" work or people could generally work less.

2.4.2 Ecological tax reform

What's the problem?

A central cause of the excessively cheap availability of natural resources and the associated emissions is their low level of taxation and the heavy tax burden on labour income. A remedy can therefore be found in shifting the tax burden from labour to resource consumption.

What's the measure?

- Introduce a budgetary system, which, in the long term, transforms the current tax system based mainly on labour into a system based on energy and resource consumption.
- Increasing annual taxation of emissions and all natural resources, including annually decreasing resource caps.
- Gradual reduction of the tax on labour income down to zero, while at the same time ensuring just graduation in the transition process
- Reduction of taxation for lower income groups and compensation through a CO_2 tax
- A tax rate of 90 percent for top incomes, as was customary in the USA in the 1950s. (+increase in non-taxable income)
- A gradually increasing capital gains and inheritance tax. Tax revenues are used for social welfare and → investments in the areas of just mobility, energy democracy, just agriculture, just housing and spatial planning as well as a fund for supporting measures of global climate justice.

How can the implementation look like?

First steps can be taken at different political levels depending on the context. The level of resource taxation must be gradually increased to ensure that resource consumption is reduced to a sustainable level. Resource taxes can either relate directly to the use of resources (fossil fuels, raw materials, land, …) or indirectly to the burden of → sinks (emissions, water pollution, …). The revenues generated by ecological taxes should

be used to finance the socio-ecological transformation. Initial steps can be taken at various political levels, depending on the context.

- progressive taxes on environmental harmful consumption
- Increase in import taxes
- Increase of waste charges

How can climate change be counteracted and how can economic conditions be created that support effective climate protection measures?

This measure should lead to a reduction in resource consumption and at the same time promote jobs in the care sector (see → care work), agriculture, regional crafts, maintenance and repair of products. At the local level, this would make it easier to establish regional and more labour-intensive food production, because agriculture that does not use fossil fuels and promotes biodiversity is inevitably labour-intensive. Regional organic products would become cheaper and products produced in industrial global agriculture would become more expensive. The same applies to the production of e.g. furniture, clothing, and everyday consumer goods.

References to other measures

Tax revenue becomes a social service of general interest (cf. basic and maximum income), investitions in the following areas mobility justice ( ), energy democracy (), just agriculture (gerechte Landwirtschaft), just housing and spatial planning (gerechte Wohn- und Raumplanung), and can be used for global justice and intersectionality ().

Problems of social, global and intergenerational justice

Many natural resources for the production of e.g. also renewable energy sources come from the → global south. The resource tax must not lead to the externalization of costs at the expense of people from the global South. The right to self-determination of the people there, not at least of the indigenous communities, must be respected.

2.4.3 Deconstruction and conversion of environmentally harmful production and consumption

What's the problem?

The problem exists on 4 levels:

1. The continued extraction of fossil fuels
2. The continued expansion of climate-damaging infrastructure such as airports and roads
3. Continued existence and even growth of climate-damaging industries such as the armaments-, automotive- and aircraft-industries
4. The short lifespan of many products and the planned obsolescence due to competition and the pressure to innovate in a capitalist growth-economy

What's the measure?

- Immediate end to the extraction of fossil fuels
- Stop of constructing fossil- and extractivist infrastructure (airports, roads etc.)
- Dismantling and conversion of harmful industries such as armaments-, car- and aircraft-industries etc., e.g. for the production of trains, bicycles, etc.
- Retraining for sustainable activities
- Product regulations for durability, reparability and recyclability

How can climate change be counteracted and how can economic conditions be created that support effective climate protection measures?

By stopping the extraction of fossil fuels, emissions are prevented directly at the source. The construction stop of climate-damaging infrastructure prevents an expansion of climate-damaging mobility patterns. The deconstruction and conversion of climate-damaging industries reduces the production of climate-damaging products and diverts them to climate-friendly products.

How quickly can the measure be implemented?

Step by step, starting immediatly.

References to other measures

The measure supports all other measures of this climate plan.

2.4.4 Establishment of ecological upper limits

What's the problem?

If other climate-relevant factors such as nutrient cycles in the soil, the preservation of biodiversity and the oceans are taken into account, then the consumption of all natural resources must decrease, especially the consumption of non-renewable resources. It is already becoming apparent, however, that other resources are being overexploited in favour of reducing CO_2 emissions. In order to prevent this, upper limits are needed for various ecological resources that have yet to be defined.

What's the measure?

- Establishing binding emission upper-limits for CO_2 and other natural resources (municipal, national, international) and effective sanctions for non-compliance. The upper-limits should include emissions and raw materials consumed in the manufacture of imported products.
- If possible, leaving environmentally harmful and scarce raw materials in the soil (in Germany and worldwide) and completely recycle raw materials already extracted.

How can climate change be counteracted and how can economic conditions be created that support effective climate protection measures?

The measure ensures that CO_2 emissions and the overuse of natural resources remain within an ecologically acceptable range.

How quickly can the measure be implemented?

Step by step from now on.

References to other measures

The measure can go hand in hand with an ecological tax reform (), a basic and maximum income ( ), apart from this a social just service of general

interest, reduction in working hours (), fostering of commons () and a supportive community as well as a traffic and agriculture transition ().

Problems of social, global and generational justice

The narrower the borders in the Global North are drawn, the more global justice; the narrower the borders are drawn today, the more generational justice. This must be flanked by measures that avoid social injustice.

2.4.5 Abolishing gross domestic product as an indicator of economic progress

What's the problem?

Gross Domestic Product (GDP), although not originally intended as such, has established itself as the primary indicator of a state's wealth. Despite its long-known weaknesses, such as the positive accounting of ecological damage, the lack of consideration of externalised costs and damage and unpaid → care work and forms of production outside the market, it is still the most important benchmark for political success.

What's the measure?

Economic growth as a state goal is to be replaced by sustainability goals oriented towards the concept of environmental justice. Alternative indicators of wealth should replace GDP as a guideline for politics. These alternative indicators (e.g. National Welfare Index -NWI) are to be calculated regularly at regional and national level and to be considered in the planning and implementation of laws. However, new indicators alone do not automatically change political priorities, as they are influenced by interest groups and power relations. It should also be borne in mind that an economic valorization of nature in the form of "natural capital" does not necessarily lead to greater appreciation and protection of → ecosystems. It is therefore recommended that methods of valuing and capturing wealth beyond monetary values become developed and introduced. A debate on the form of wealth and quality of life must be initiated, in which the focus should be on what should be measured rather than on how.

How can climate change be counteracted and how can economic conditions be created that support effective climate protection measures?

The measure also ensures that the production sector is freed from the compulsion of growth, thereby facilitating emission reductions.

How quickly can the measure be implemented?

Step by step from now on.

References to other measures

It can go hand in hand with every other measure.

2.5 Development of Commoning Structures

2.5.1 Promotion of commons and a solidary community

What's the problem?

Profit-oriented management means that production is not in relation to the needs of society but to profit interests. Social and ecological damage is externalised and not included.

What's the measure?

Supporting the non-profit and cooperative sector of economy through legislations, → subsidies and tax exemptions. This sector, which is becoming increasingly important everywhere, currently includes alternative consumer and production cooperatives and Commons-oriented-networks for supply in areas such as health, housing, education or artistic activities. → commons. Introduce "law for the commons" at various levels.

How can the implementation look like?

- Promotion of collective administrative structures and forms of production based on solidarity, such as solidarity-based agriculture. This can be done through Commons Public Partnerships, among others: Agreements on long-term cooperation between commoners and state institutions to solve specific problems, e.g. community-based telecommunications systems or health care
- Reforms on Cooperative Laws, which facilitates and supports start-ups
- The right to take over production facilities by the workers* in the event of threatened closure

2.5.2 Decommodification through free social infrastructure

What's the problem?

In a growth-economy, more and more areas of life are being commodified, i.e. conducted via the market, in order to maintain economic growth and open up new markets. This is accompanied by an increase in resource-overexploitation and emissions. In addition, especcially poorer people are excluded from using infrastructure and services.

What's the measure?

The increasing economization of all areas of life is to be questioned. Steps are to be taken that lead to an increased de-commodification (decommercialisation) through the state, municipal and/or cooperative provision of social infrastructure that can be used free of charge and is democratically designed for all those involved.

How can the implementation look like?

Take public transport, for example: the free use of public transport would currently com to 13 billion euros, with an estimated additional 14 billion euros spent on the nationwide expansion. The expansion and organisation of public transport should be carried out with the participation of citizens' transport councils (nationwide, regional, local).

How can climate change be counteracted and how can economic conditions be created that support effective climate protection measures?

Firstly, with the development and democratic design of the public social infrastructure, needs for social security, health and care, housing, mobility, education, culture, etc. are channelled into democratically and ecologically designable forms of satisfaction. In addition, a social division of society as an essential motor of economic growth and the overuse of natural resources is counteracted.

How quickly can the measure be implemented?

Step by step according to a redistribution from top to bottom.

How long does it take for the measure to take effect?

Effects can be expected immediately after introducing the measure.

References to other measures

This measure is mainly related to the promotion of , → commons (Commons) and a society based on solidarity, as well as the introduction of a basic and maximum income and the development of social security systems into citizens' insurance schemes.

Problems of social, global and generational justice?

Only an unconditional, i.e. also free access for all people and the possibility for all people to democratically shape the social infrastructure is just. Access for use and participation must therefore be ensured irrespective of social status, age, citizenship and nationality, and must be barrier-free.

2.5.3 Change in property structure

What´s the problem?

A legal distinction is made between possession and ownership. The main difference between possession and ownership is that possession is requiring physical custody or control of an object while ownership is the right through which something goes to someone. Property rights thus restrict access to things such as resources and housing and create an artificial scarcity that stands in the way of solidary access. This applies both to the means of providing for existence and to the means of acting as a basic need of life. This problem becomes very clear with the phenomenon of land grabbing (appropriation of land in a usually unjust way).

What´s the measure?

Stronger reference to Article 15 of the Basic Law: "Land, natural resources and means of production may be transferred to common property or other forms of public service for the purpose of socialization by a law regulating the nature and extent of compensation."

Severe restriction of income from the ownership of production factors such as land, buildings or intellectual property rights.

Legislation to allow new legal forms that are oriented towards the "common good" as well as "tax and other privileges for common good-oriented economic activities".

The "freedom to shape the law derived from the fundamental right to general freedom of action (so-called "private autonomy") can be used to combine legal figures from contract and company law (organisational constitutional law) in such a way ….] that the saleability of land is permanently excluded and that more open forms of disposal over management and use are made possible."

How can the implementation look like?

- Restriction of income from property (e.g. rent caps)
- Criteria for land sales to prevent land grabbing

- Establishment of criteria for expropriation for the common good, including
  - in case of vacancy or non-use
  - in case of ecological damage
  - in case of disproportionality between profit and social damage
  - in case of speculation
- legal and financial promotion of → commons

How can climate change be counteracted and how can economic conditions be created that support effective climate protection measures?

The measures ensure careful and sufficient use of resources and provide social security for people in the transformation processes.

References to other measures

Socially just redistribution and services of general interests Promotion of commons and a solidary community Decommodification through free social infrastructure

Problems of social, global and intergenerational justice

- Application of the above measures to German legal entities abroad.
- Respect of common rights, e.g. of indigenous peoples or in case of small-scale farming of land, forests, lakes, rivers, etc. by German legal entities abroad, even in case of insufficient legal recognition in the respective national framework.
- Assumption of responsibility for measures within the framework of compensation for historical expropriations of commons in former colonies.
- The Federal Government should work for an expansion of the UN Treaties on economy and human rights in the above-mentioned sense.
- Promotion of commonwealths beyond the national level.

2.5.4 Strengthening democracy and social participation

What´s the problem?

The existing political system is strongly characterized by the non-participation and exclusion of many people in negotiation and decision-making processes, inherited decision-making structures, short-term thinking and the extensive externalization of social and ecological costs. The enshrinement of "sustainability" as a state goal in Article 20a of the Basic Law, which states that the state is responsible for protecting the natural foundations of life for future generations, has not sufficiently led to the preservation of the environment and global justice.

What´s the measure?

- Strengthening grassroots democratic negotiation and decision-making structures.
- Sufficient time and material security for participation in democratic negotiation and decision-making processes.

What can the implementation look like?

- Strengthening grassroots democratic negotiation and decision-making structures (e.g. by establishing networked commoning structures, including decentralized climate, care, food (etc.) councils)
- Promotion of Article 20a of the Basic Law from a state goal to a basic right to sustainability, establishment of a "council for the future" with grassroots democratic legitimacy, which has a right of veto for unsustainable projects, establishment of an "ombudsperson" (person with impartial arbitration function) for the representation of interests of future generations, obligatory lobby register, three-year waiting period, in which a change of politicians* to lobbying activities is generally prohibited, more transparent and controlled regulation of party financing, no employment of external employees* from industry in the ministries (Lobbycontrol

2016), expansion of the right of non-profit non-governmental organisations (NGOs) to take legal action at federal level, more legal security for political decision-making: The German Fiscal Code must be amended in such a way that political decision-making by civil society organisations is given the appropriate legal framework and all corresponding objectives are recognised as non-profit (Allianz Rechtssicherheit für politische Willensbildung 2017, Preference for non-profit organisations in the leasing and sale of public buildings) Sufficient time and material security for participation in democratic negotiation and decision-making processes (e.g. by reducing working hours, basic and maximum income, expanding social infrastructure, etc. etc.)

3

Energy Democracy

3.1 Preamble

Current structure of power supply in Germany

In 2017 the German energy sector emitted 308 million tons of CO_2. This amount signifies 39 % of all German CO_2 emissions [1]. The "energy sector" refers to all electric power generation that supplies the public grid. For 2018 there are only estimations so far. According to these the energy sector emitted 299.3 million tons of CO_2 which are 35% of all German emissions [2]. Accordingly, we also don't have clear figures for 2019. First estimations of 'Agora Energiewende' suggest that the CO_2 emissions of the energy sector dropped to 223 million tons (27,5% of Germany's total emissions). Based on these estimations the power consists of ~40% renewable energy, ~22% mineral coal and natural gas, ~19% lignite and ~12% nuclear power. At the same time lignite power creates more than half (116 million tons) of the CO_2 emissions from power generation.

Dencentral grassroots energy transition

We need a fast and fundamental transition to achieve the drastic reductions of greenhouse gas emissions which are especially necessary in the energy sector. The most important step is the exit from fossil-fuel energy, notably lignite. Renewables can partly compensate the loss of power, but there is no way around a reduction of energy consumption. This is not negotiable: On the one hand the growth of renewables is the subject to certain technological and economical limitations (although right now those are far from being reached). On the other hand fossil fuels cannot be a serious option in the face of (depending on the calculation) already surpassed or almost reached CO_2 budgets of germany. Neither is importing power, since Germany's neighbouring countries are even slower

[1] Umweltbundesamt: Kohlendioxid-Emissionen (2019, abgerufen 31.1.2020) https://www.umweltbundesamt.de/daten/klima/treibhausgas-emissionen-in-deutschland/kohlendioxid-emissionen#textpart-3

[2] Umweltbundesamt: Treibhausgase 2018 nach Gas und Kategorie (2019, abgerufen 31.1.2020) https://www.umweltbundesamt.de/sites/default/files/medien/2294/bilder/thg_2018_nach_gas_und_kategorie_0.jpg

when it comes to building up renewable energy production. To ensure that the remaining energy resources are distributed fairly, i.e. that the most solvent (energy) needs are not exclusively satisfied, thus preventing energy poverty, a far-reaching democratization of the energy economy is unavoidable. (More on this in the next section)

What does "energy democracy" mean?

The principles of energy democracy are a collective and decentralised organization, that suplies energy based on renewables. The collectively decided needs are determined by the technical realization, the amount of produced energy, as well as its purpose. Thus, consumer participation in a grassroots way is vital. The citizens will support the decisions made on a local level and with the use of e.g. collectives or participatory discussion formats in municipalities. This allows benefits and costs to be shared fairly. With citizen*energy, the supply can be shaped socially just and ecologically.

3.2 Exit from fossil fuels

3.2.1 Coal exit - scenario "all but Datteln 4"

What's the measure?

Every year one quarter coal-fired output (installed output) is shut down and deactivated, starting in 2020, until all coal-fired power plants are off the grid by 2023 (except Datteln 4). Compensation of the dismantled power generation capacity is ensured through the flexible generation and flexible consumption by large consumers*. Due to its impressive efficiency, Datteln 4 may remain on the grid until 2035 and is renamed "Peter Altmaier Memorial Power Plant" in honour of the Minister of Economics.

Shutdown schedule

- 2020 the dirtiest quarter coal power (lignite, old hard coal)
- 2021 the next dirtiest quarter gets shut down (rest of lignite, hard coal)
- 2022 the next dirtiest quarter gets shut down
- 2023 the last quarter gets shut down - all but the Peter- Altmaier-Memorial-Power-Plant.
- 2035 The Peter-Altmaier-Memorial-Power-Plant (formerly Datteln 4) goes off the grid – three years earlier than originally planned (the setter takes the liberty of to point out that this is a joke! Datteln should never have gone online!).

Compensatory measures:

1. Increasing flexibility in electricity generation by adding gas-fired power plants with an installed capacity of 5 to 10 GW. If possible less or by using storage power plants or renewables instead of natural gas.
2. Increased flexibility on the consumption side: Large consumers* (initially from 10 MWh annual consumption, from 2022 from 1

MWh annual consumption) shut down their production facilities during periods of low electricity generation. They are "encouraged" (financial benefits + legal obligation) to keep their electricity consumption as " disconnectable loads", i.e. to organize their production flexibly around the availability of (cheap) electricity.

Switching off loads has priority over switching on (fossil) natural gas power plants.

Disconnectable loads are also not new, but are already part of the current design of the electricity market and are already common in operating the grids[1]: under the term 'balancing power', the Bunesnetzagentur puts disconnectable loads of currently two times 750 MW out to tender; the participating companies commit themselves to switch off or reduce these loads within a few milliseconds or 15 minutes, controlled by the grid operators.[2] This practice should, therefore, be extended to longer periods of time and made mandatory for more electricity consumers or for large consumers. Bayer, Volkswagen, Opel or Rheinmetall, the chemical industry, steel, and aluminum plants would then reduce their production on 3 or 5 days a year at energy-intensive sites and could carry out maintenance work or leave the workforce at home. Due to the good predictability of the production of renewable electricity from wind and sun, the respective companies would know 72 to 24 hours in advance. This does not represent any unnecessary or unreasonable hardship for the companies or the workforce.

CO_2 saving: estimation

In 2017*, coal alone was responsible for 249 million tons of CO_2 emissions, or around 71% of CO_2 emissions in the electricity sector or 32.5%

[1] Bundesnetzagentur: Abschaltbare Lasten (abgerufen am 16.2.2020) https://www.bundesnetzagentur.de/DE/Sachgebiete/ElektrizitaetundGas/Unternehmen_Institutionen/Versorgungssicherheit/Engpassmanagement/AbLaV/AbschbareLasten_node.html

[2] 50Hertz Transmission GmbH: Abschaltbare Lasten (abgerufen am 16.2.2020) https://www.regelleistung.net/ext/static/abla

of energy-related emissions in Germany (total 766 million tons).[3] Implementation of the shutdown plan would, therefore, lead to a very substantial reduction in CO_2 emissions in the electricity sector in the short term and a reduction of 249 Mt CO_2 in the medium term. As coal would be partially replaced by gas, it would be expected that the full reduction could not yet be achieved by the time the expansion of renewable energy sources increased, as natural gas also causes CO_2e emissions from its production, transport, and combustion. This shutdown plan stipulates that natural gas should only be used as a "gap filler" and in this function should be subordinate to the shutdown of loads (= large electricity consumers). How well the flexible connection and disconnection of large and medium-sized loads depending on the supply of electricity works has not yet been tested, so it is not yet possible to estimate how often and how many gas-fired power plants will have to step in. In theory, however, this measure could even lead to a short- and medium-term reduction in the use of gas as a fossil fuel, since gas is to be subordinated to the shutdown of large consumers. This also depends on how well and how quickly the expansion of renewable energies progresses. (*The reference to 2017 makes sense because in 2018 and 2019 coal-fired power plants were less busy than their normal capacity would allow due to mild winters and low gas prices. Neither of these will necessarily remain so in the future).

How does this work against climate change?

Coal is extremely inefficient; the rapid phase-out of coal is the most important single measure for climate protection. The savings potential in Germany is up to 250 million tons CO_2. Temporary replacement with (natural) gas power plants does not directly reduce emissions to zero. As gas power plants are more flexible, they serve primarily as a backup and are only used on those days and hours when not enough electricity from renewable energy sources is available or when the flexible disconnection

[3] Umweltbundesamt: Daten und Fakten zu Braun- und Steinkohlen, S. 31 ff. (2017, abgerufen am 25.2.2020) https://www.umweltbundesamt.de/sites/default/files/medien/1410/publikationen/171207_uba_hg_braunsteinkohle_bf.pdf

of loads does not sufficiently reduce the demand for electricity. It is to be hoped that the gas can soon be generated by power-to-gas processes with renewable electricity so that in the medium term fossil natural gas could be replaced by largely "CO_2-neutral" gas.

References to other measures

For a transitional period - until the decentralized expansion of renewable energies - Germany would import more electricity than it exports. Necessary energy-saving measures, smart grids and the conversion to a low-energy working and living style in all other sectors should reduce electricity consumption in the medium term. A progressive electricity tariff could, above all as an immediate measure, achieve strong savings effects in a fair manner. In addition to measures, which accompany a structural change in the severely affected regions, a basic income model project to accompany the phase-out of lignite is possible.

3.2.2 Basic income model project to accompany the phase-out of lignite

What's the problem?

The lignite phase-out was and still is an example of how ecological and social concerns are played off against each other. This leads to a split in society and to great resistance to the phase-out of lignite, also from the population. An early exit is therefore counteracted not only by the controversial argument of energy supply security, but especially by socio-political propaganda, thus legitimizing further lignite-based power generation and the resulting CO_2 emissions. The Structural Strengthening Act for Coal Regions, which accompanies the phase-out, also focuses on creating jobs. Thus money is again given into the economy according to the→ Trickle Down Principle , hence people stay dependent and cannot actively participate.

What's the measure?

The phasing out of lignite is to be linked to an initial model project for the → Unconditional Basic Income. Instead of subsidising corporations - currently 40 billion are planned for structural change and 4.35 billion euros are to be paid to corporations as compensation - direct investments are to be made in the population in order to let something grow locally from below, through the population itself.

How can the implementation look like?

An accompanying basic income project can be implemented in different ways. Even a small-scale project can help to deal with current issues relating to job preservation in a different way and promote a change in awareness. It can also be an impetus to expand the measure and thus serve as a catalyst for important changes. Even a village or district with about 1000 inhabitants* in an area affected by the phase-out of lignite, who all receive a basic income of, for example, 1000 euros per month for five years, could be sufficient for a start or small project. This would cost about 60 million euros over the entire period (i.e. just 1.68 percent of the

planned compensation for the corporations). In relation to a small town or several districts (with approx. 50,000 people), the costs - savings and additional income effects are not yet taken into account - would amount to about three billion euros. What is important in implementation is that not only (former) lignite workers* should receive the basic income, but all people in the selected region. This is necessary to do justice to people who have already lost their jobs, but also to counteract a further social divide between supporters* and opponents* of the lignite industry. In addition, quite different social and also economic interactions can be expected from the basic income. For a more detailed description of examples, see the page of the initiative BGE instead of lignite.

How does this work against climate change?

With the financial security of the people, the fear of the lignite phase-out disappears and thus the main argument for continuing to generate electricity from lignite. Depending on the size of the project, it may be possible to reach more people than with measures that create "replacement jobs". Moreover, a basic income can contribute to a general change in awareness of our working culture and can undermine job security as a killer argument for social change. Finally, the lignite industry is just one of many examples of how much money is invested in corporations to preserve jobs and thus continue environmentally damaging practices. For example, the Structural Strengthening Law, which accompanies the lignite phase-out, also formulates the goal of strengthening the automotive sector in the Central German mining area. Such measures, which are controlled by the Federal Government, could be counteracted in the future if the mere preservation of jobs is no longer a decisive criterion. Thus, the project could serve as an example for other economic sectors and accompany socio-political changes that are ecologically necessary, or even serve as a transition for a nationwide → Unconditional Basic Income. With a basic income covering the whole country, jobs and their relevance would in principle be valued according to other criteria. In this way, individual citizens* would be protected and encouraged to stand up independently for their ideals and also for the development in the region.

The EWS Schönau (10) can be used as an example in the energy sector of what ambitious citizens* are capable of. Such idealistic projects, in particular, could be promoted through an Unconditional Basic Income. Furthermore, financial security creates security and takes away people's worries and fears about the future. Fear causes stress. Thus we are permanently on alert and only focussing our acutely upcoming problems and the securing of our own existence. In this way, we ignore consequences that affect other people (for example in the Global South) or that will only become noticeable in the distant future (for example due to climate change).

Therefore, a secure → livelihood enables more foresight and also more commitment and critical examination of difficult issues, where one may have to question oneself. For example, more conscious consumption (more organic and regional products) can be expected from a basic income (11). Thus the potential of the measure also goes beyond the savings effects of an earlier phase-out of lignite.

Which other positive effects does the measure have?

By reducing stress, UBI has a positive effect on people's health and satisfaction. Furthermore, it goes hand in hand with a possible reduction in working hours, which can, among other things, encourage the exercise of voluntary positions or participation in democratic processes. All in all, it can be regarded as an emancipatory opportunity for the population.

How quickly can the measure be implemented and how long does it take before it takes effect?

With political will, the measure could be implemented directly. The financial resources for the lignite phase-out are planned for a structural change anyway. Depending on how firmly these are already fixed for various measures, any remaining funds could still be used for the project. If necessary, subsidies from other sources could also be used for this purpose.

References to other measures?

The measure can be one of several possibilities, to implement a nation-wide Unconditional Basic Income. Through the emancipatory approach the measure can also be seen as a favourable condition for many other measures.

3.3 Expansion of Renewable Energies

3.3.1 Large-scale photovoltaic plants in the hands of citizens*

What's the problem?

Currently far too few renewable energy generation plants are being added in Germany and worldwide. The expansion is too slow. In order to achieve the German government's goal of increasing the share of renewable energies in electricity generation in Germany to 65% in 2030, at least 8 GW of photovoltaic capacity would have to be added each year. At present, about 4 GW are being added per year. In order to achieve the 1.5 degree target, 15 GW of photovoltaics would even have to be added per year.

What is the measure?

It is inevitable that large and many photovoltaic projects will have to be implemented. A core group must be found and existing networks must be used to work as quickly and efficiently as possible. The plants should belong to the citizens as far as possible. The financing model for the plants, in which as many private individuals as possible but also investors and banks can participate, should include a redistribution component. The large investors are to take over a "sponsorship" for the small investors. Large investors can secure large project shares, but receive less percentage returns than small investors, which leads to a kind of redistribution. The smaller the investment, the higher the percentage return; therefore, the large investor receives a higher return in absolute terms, but a smaller one in percentage terms. The large investor thus abstains from percentages so that the small investor can get a higher return. In tender offers for medium-sized projects of less than 10 MW, the award value was mostly between 4.5 and 5.5 euro cents per kilowatt hour. The electricity generation costs are of course lower, because the plant owner wants to earn something. Only a few days ago, the energy giant EnBW cleared the way for the largest solar park in Germany to date with a capacity of 180 MW. As this plant is larger than 10 MW, it will not be subsidised. EnBW will sell the electricity on the electricity exchange. The think tank

"Agora Energiewende" expects an average stock electricity price of 5 Euro cents per kilowatt hour for 2020. However, since this price fluctuates daily on the stock exchange and is currently often less than 3 cents per kilowatt hour, one can guess how cheap photovoltaic electricity has now become in Germany too.

How can the implementation look like?

An important point is how to reach a broad citizenship and motivate them to participate in such projects. Simple ways are crowd-funding platforms, but a gradually broader citizen participation would be desirable. In due time, appropriate PR and marketing measures will have to be defined. For the first pilot projects, interested small investors can be sought via crowd-funding platforms and in the surroundings of environmental movements. Through pilot projects, trust can be built up for a wider audience for follow-up projects. Through physical assistance in project development, land acquisition, construction, etc., committed individuals can acquire project shares (x € equivalents/hour of work). Other citizens participate financially. The willingness to participate in PV projects in a certain way is certainly different from person to person. Accordingly, there must be several models - from cooperatives to classic investment projects (with a redistribution component).

How does this work against climate change?

The more and larger the projects, the greater the CO_2 savings. The aim is to replace fossil power plants. We have to think in GW and mobilise a large mass of people to do so. The CO_2 savings per kWh of PV electricity compared to the German electricity mix is 550g (1000g compared to lignite). At roughly 1000kWh/kW/year this is 550kg CO_2 savings per kW per year. So 550,000 tons per GW per year (7). Every additional GW of photovoltaic increases the pressure on fossil fuels and takes away their legitimacy. PV projects can also be implemented relatively quickly compared to other power plants (less resistance than e.g. wind, relatively little planning effort). Efficient and hard-working 10-person companies can implement 50 MW/year. Germany has a large backpack of CO_2

emissions and is therefore committed to global equity with regard to emissions. First and foremost, emissions in Germany must be reduced as quickly as possible (by displacing fossil fuels with renewables and reducing consumption). At the same time, Germany's CO_2-backpack also imposes a moral obligation to bring renewable energies to the local population in countries with low CO_2 consumption. The acquired know-how with citizen energy plants in Germany should be used to support the energy turnaround in other regions. Probably the most difficult part is the project development in the necessary dimension.

3.3.2 Decentralized power generation with hydropower

What's the problem?

The problem is the stagnating expansion or moreover the dismantling of renewable energies in Germany. The percentage of renewable energies in the → Gross electricity consumption has been increasing for years, but with ever decreasing growth rates. The number of workers* in the sector RE sector decreases continuative since 2012, as well as the number of patent applications. The → investments in renewable energy plants and the net increase in installed capacity for electricity generation from renewable energy sources appear to level off to the period before 2009 after a slump in 2011 (BMWi).

If we look at the different energy sources in a 10-year comparison, it is striking that gross electricity generation from hydropower is the only type of generation that has developed negatively and has fallen by 2.5 percentage points. (BMWi) While in the 2000s there was still a kind of gold-rush atmosphere in the field of renewable energies, this feeling has apparently now disappeared. There are almost no more possibilities to build new facilities - but the saddest news is, that even already built facilities, which produce CO_2-free energy and contribute to the → energy turnaround, are supposed to be shut down and deconstructed.

These are small hydropower plants, mostly built on old existing mill weirs, which were able to supply local economies or communities → https://wiki.gerechte1komma5.de/tiki-index.php?page=Glossary&no_bl=y#DECENTRAL decentralized electricity]. The reason given for the required dismantling is the requirement for passability, as it is set out in the European Water Framework Directive. It is clear to many hydropower operators that the passability of watercourses is a must today in the course of various renaturation measures on rivers, and there are great efforts to implement passability from this direction. However, as this is associated with immensely high costs, the plant would no longer be profitable to operate. Still, it has to be possible to combine and enable both nature- and climate-protection: CO_2-free energy generation and the protection of aquatic→ ecosystems. ~~There are already many good examples of

truly ecological and continuous hydropower plants, but they are not sufficiently present in the public perception.

The current unthought-out (and very frightening) alternative is to build large centralized facilities and expand the networks → dezentral (decentralized) regions.~~

What's the measure?

The first step of the measure is to develop an awareness of the advantages of local small hydropower and thus make the issue visible to the population. At the same time, topics relating to continuity must be discussed openly in order to find the best solutions together. The call for consistency may not be sufficient to shut down thousands of plants that already today (and for many decades) contribute to CO_2-free energy production.

Shutting down decentralized power sources without a concept for alternatives is not in favor of the → energy turnaround. It should rather be worked on solutions,~~ how the energy can continue to exist! In a second step, it is necessary to think about possible alternative operator models for the plants in order to counteract the dying out of hydropower. The infrastructure and everything are already there! It takes user groups with foresight and strong municipal operators (see EWS Annual Report 2019: municipal hydropower operator from Norway (HelelandKraft) nominated as Best Green Brand at the Change Award).

Small hydroelectric power spares fossil fuels on various levels: on the one hand, it replaces conventionally produced electricity from coal, gas or uranium and, on the other hand, it is resource-friendly and largely climate-neutral even during construction and operation. For this reason, hydropower should not disappear, at least not until its above-mentioned advantages can actually be met by sustainable alternatives.

How can the implementation look like?

- Call to politics and administration not to destroy the small hydropower in the stock as long as there is no sustainable → decentralized alternative to electricity generation.

- Redirect →subsidies from climate-damaging energy production methods such as coal and nuclear power towards renewable energies. Why are we forced by our taxes to finance these old conventional energy sources even further, when we want the energy turnaround?
- Collect good examples where climate- and nature-protection go hand in hand and make these visible in public. There will only be a future if we protect both.

Some federal states are currently developing their climate protection laws. It is essential that these laws state that existing plants are protected and that we work together to ensure their consistency.

How does this work against climate change?

Renewable energy facilities that already exist, need to remain unchanged since they already work climate-neutral and thus take an important step towards the → energy turnaround.

Which other effects does the measure have?

The decentralisation of small hydroelectric power plants can avoid immensely high grid expansion costs (and thus partly avoid large construction sites such as Südlink), as the study by Prof. Dr. Zdrallek from the University of Wuppertal shows. (see also: other positive effects of the measure!)

The use (not consumption!) of the local raw material water in hydroelectric power plants fulfills, in addition to the decentralised CO_2-free electricity production, the grid services, the → baseload capacity. Moreover, ecosystem services such as the retention of water and thus the wetting of floodplains and moors (regulation) provide a habitat for aquatic animals and birds and provides cultural services such as natural and cultural heritage. Local jobs are secured in small and medium-sized enterprises in rural areas that are fed by hydropower electricity. Some of the hydroelectric power plants distributed throughout the country are currently being equipped with electric filling stations - i.e. green elec-

tricity actually comes out of the can and you can fill up with electricity in the countryside.

How quickly can this be implemented?

Immediately, there are already plants that have received a closure notice and are forced to stop their electricity production in favour of large centralised plants that do not fulfil the above-mentioned advantages and are often owned by groups of companies.

How long does it take the measure to become effective?

Immediately, since the stock is already there and does not have to be built first.

References to other measures

Wetting of bogs and floodplains, decentralised networks, equalizing urban-rural differences, mobility transition, global justice

Problems of social, global and intergenerational justice

Our global responsibility in implementing the → energy turnaround in Germany must be mentioned without fail. After all, implementing the → energy turnaround with rare soils and raw materials from resource-rich countries, which are, however, more strongly affected by poverty, cannot be the goal. Hydropower only uses local raw materials and local natural resources (water).

The problems of large-scale hydropower plants are discussed in detail in "Renewable energy production not at the expense of people and the environment".

3.3.3 Energy storage in the form of electricity-based gases

What's the challenge?

The transformation of the German energy system towards the use of exclusively renewable energy sources requires the comprehensive expansion of → volatile energy sources, as our potential of base-loadable renewable energy sources (hydropower, biomass, biogas) is not sufficient to cover the total energy demand. Due to the → volatility in electricity supply, security of supply within the framework of a completely renewable energy supply in Germany can only be ensured by the widespread use of storage technologies. Already today, transmission system operators (electricity) must have large amounts of renewable energy switched off as part of network and system security measures.

What's the measure?

Promotion and use of storage technologies - especially long-term storage forms, such as the use of surplus renewable electricity to produce gases (hydrogen or synthetic methane)

How can the implementation look like?

The technologies required for this are already ready for use. However, the current economic policy framework prevents the establishment of long-term storage facilities on the market. Legal regulations must, therefore, be introduced to promote the storage of surplus electricity. Possible measures include:

- Release from charges and levies for storage technologies
- Support of measures, which protect the feed-in management from interventions

How does this work against climate change?

The storage of energy in electricity-based gases enables a demand-oriented energy supply in a renewable energy system, which is largely based on → volatile energy sources. In addition, the substitution of

fossil hydrogen by renewable hydrogen is possible in the basic industry, in iron-ore-reduction, and in the chemical industry. In the mobility sector, electricity-based, CO_2-neutral fuel can replace fossil energy sources. This is particularly true in the heavy-duty transport sector, shipping, …

Which other effects does this measure have?

Additional benefits can be achieved in the context of sector coupling by storing renewable electrical energy in the form of gas. For the transport and storage of gases (hydrogen, methane) the existing gas infrastructure can be used to some extent. In addition, the gases can be used in a variety of ways (e.g. in the chemical industry, mobility, power and heat generation). Current studies (e.g. dena Leitstudie, agora → enegry turnaround) predict that the national generation capacity for renewable electricity will not be able to fully cover Germany's energy needs. According to these studies, the energy sector in Germany will continue to be dependent on imported energy sources in the future. As a result, it will become independent of trading partners for fossil fuels and dependent on countries with a surplus of renewable energy sources.

3.4 Democratization of the Energy Economy

3.4.1 Strengthen energy cooperatives

What's the problem?

Citizines* have greatly contributed to the expansion of renewable energies. Since 2007 many energy cooperatives were newly founded, in which collective renewably energy plants were planned, financed and implemented. The fact that the number of newly founded companies declined significantly from 2014 onwards due to the weakening conditions, questions a largely successful part of the German → energy turnaround. After all, a large part of the expansion of renewable energies is due to the commitment of these civic communities.

What's the measure?

Political reforms are necessary to improve the external conditions for energy cooperatives and other civic communities. Since cooperatives manage their members' money, they do not have risk capital and are therefore not in a position to participate on a large scale in tenders for remuneration (read more here). The reforms of the EEG in recent years have made projects more complicated and complex. In order to keep the commitment of citizens* alive or to further encourage it, the framework conditions must be (re)simplified.

How can the implementation look like?

For example, EU regulations allow wind farms below 18 MW to be exempted from the obligation to tender (Quelle (source)) – If the German Federal Government were to transpose this into national law, cooperatives would be able to implement more projects in this area even without risk capital. The rules also need to be simplified for tenant electricity projects (see Integrated neighborhood supply). At present, it gives the impression that politicians want to put the brakes on decentralized, citizen*-driven energy-turnaround projects instead of supporting them.

How does this work against climate change?

The expansion of renewable energies is a central step when fighting against climate change because they can replace fossil energy sources, which continuously emit greenhouse gases during their use.

Which other effects does the measure have?

Energy cooperatives not only drive the expansion of renewable energies in quantitative terms, but they also have social and economic advantages. Das Bündnis Bürgerenergie hat die Vorteile ausführlich recherchiert und in einer Broschüre zusammengestellt (The Bündnis Bürgerenergie has researched the advantages and complied them in a brochure). This is an overview:

- **Integration into sustainable economic processes**: Citizens are reclaiming the decision-making and action options that were previously held by large corporations. They are not guided by profit maximization but place their actions in the context of social motives.
- **Increasing social commitment in the energy sector**: The involvement of citizens* and its effects not only have a positive impact on the implementation of concrete renewable energy projects on-site, but also benefit society as a whole.
- **Strengthen the acceptance of renewable energy generation plants**: Right in the middle instead of not being there! For the long-term success of the → energy turnaround, a high identification and acceptance are necessary. The acceptance effect arises above all when citizens* are actively involved in decisions and planning at an early stage.
- **Co-determination and transparency**: Transparency and co-determination are core components of the cooperative idea: The principle of cooperatives is that every member has one vote - regardless of the amount of his or her contribution. In order to be able to decide on projects jointly, a transparent discussion among the cooperative members is indispensable.

- **Identity building**: My house, my community, my green power plant. Anyone who participates directly in → Energiewende (energy turnaround) projects in their community feels a stronger emotional and idealistic connection to the project and their community.
- **Increasing the diversity of participants**: The energy market is becoming more democratic and the dominant position of the large energy companies is declining.
- **Realization of certain plants only by citizen* energy**: The know-how of the citizens* locally saves costs, which large investors often shy away from.
- **Development and professionalisation of a new economic sector**: Citizens become inventors and midwives of the energy revolution.
- **Regional added value**: The money of the citizens* works locally and stays in the region.
- **Creation and preservation of jobs**: Citizen* energy projects secure and create new jobs. Although a large part of the planning work in the projects has been carried out on a voluntary basis up to now, in the implementation phase, however, "citizen* energy" becomes a job motor. In addition, the work within the energy cooperatives is also being slowly, but steadily, professionalised - the effect of citizen's energy is thus increased by full-time jobs.

How quickly can the measure be implemented and how quickly does it become effective?

The ball definitively is in the field of the politics here. Energy cooperatives have built structures for the last 15 years, with which they have pushed ahead the → energy turnaround despite adverse circumstances. Every improvement in the framework conditions has a direct positive effect, because citizens* can implement their projects more easily, efficiently and economically.

3.4.2 Integrated district-supply

What's the problem?

When solar systems are built, their electricity production is not always in line with consumption. Therefore, when electricity is used by the owner within the building or neighborhood, an unnecessarily large part of the electricity is often fed into the grid instead of being efficiently consumed locally. So far, innovative concepts that create sector coupling by integrating PV direct supply, storage and → electromobility have mainly been implemented in the form of pilot projects. The framework conditions for the supply of solar electricity to tenants* remain difficult and the billing is complex, the facilitations promised by the federal government through tenant*internal electricity laws are not yet sufficient to lead to a breakthrough of such projects.

What's the measure?

Photovoltaic systems on apartment buildings can be planned and implemented by third parties (e.g. energy cooperatives, public utilities or project developers) together with a tenant*internal electricity model, an electricity storage unit and charging points for electric cars. This maximises the use of electricity produced locally.

How can the implementation look like?

The example of the Heidelberg Energy Cooperative will be used to show what an integrated district supply can look like. HEG has installed photovoltaic systems with a total of 67 kWp (kilowatt peak output) on the roofs of two residential projects in Heidelberg's Südstadt. The solar power generated is primarily used directly by the people living there as tenants*. In addition, an electricity storage system ensures that surplus solar electricity is stored and its use can be postponed to times when demand exceeds generation. The charging station for electric cars also provides a buffer option and increases the proportion of solar power from the neighbourhood's own roof that is used within the neighbourhood. In addition to the electricity from the photovoltaic systems, the residents are offered

other services: For example, the use of electric vehicels, transparent presentation of energy consumption and the possibility of participating financially in the local facilities through the energy cooperative.

How does this work against climate change?

The district-concept helps the housing projects to achieve a sustainable and decentralized power supply. In combination with the electrical storage and the battery of the electric car, a partially self-sufficient power supply is made possible, which is based entirely on renewable energies. In this way, the proportion of electricity from the grid, which currently always includes a proportion of climate-damaging electricity from fossil-atomic energy sources, is minimised.

Which other effects does the measure have?

The holistic and collaborative approach and the integrated planning by the cooperative in cooperation with the housing projects can save costs in acquisition and operation, but also strengthen the community. Through a broader range of services (charging station, e-car sharing) and the activating community elements (common grid connection, load wheel, and efficient appliances), → energy-turnaround becomes a motor for social interaction.

How quickly can the measure be implemented?

There already are examples for integrated district-supply. The knowledge and experience gathered there is transmitted in training courses, so that many other groups throughout Germany, can implement and immediately start it

3.4.3 Centre of Energy-Turnaround

What's the problem?

Homeowners* are in particular confronted with many questions about energy-efficient renovations. However, energy consulting services are often focused one-sidedly on classic energy-saving measures. Renewable energies are considered, if at all, only in additional warm water supply by solar thermal energy. Combined systems such as photovoltaics/storage tanks and renewable heating systems including heat storage and control systems are not included in the consultations. Instead, insulation is wrongly propagated as the primary saving measure. As Stiftung Warentest has found in an energy consultary test, the energy consultants evaluated are mostly unqualified, only interested in selling a specific product (insulation, condensing boiler technology, etc.), are often unorganized and in any case too expensive. In the population, for example, renewable heating systems and their cost and CO_2 saving potential are hardly known. Likewise, numerous energy consultants*, municipal and commercial climate protection representatives and handicraft enterprises have knowledge deficits, although almost all are open-minded and have a positive attitude towards renewable energies and climate protection. Only a central and neutral meeting place is missing.

What's the measure?

Setting up neutral and non-profit Centres of Energy-Turnaround.

How can the implementation look like?

An CET (Centre of Energy-Turnaround) covers the high demand for renewable energies for private, municipal, public, social, religious and commercial energy users*. It operates in a non-profit legal form (association, gGmbH, cooperative). This avoids CET being profit-oriented instead of offering the best / most neutral solution. The CET focuses on the following:

a) Construction, operation, guided tours and lectures of renewable energies in the areas:

- Photovoltaics with concentrator/anti-blend technology with storage techniques - including control
- combined PV/storage heat hybrid systems
- Heat pump use - without gas burner for winter use
- High-vacuum solar thermal energy, among other things as an additive for the covering of process heat
- Replacement for night storage heaters
- Alternatives for heating systems based on non-fossil fuels
- Heat insulation plaster
- vertical wind turbines
- → Electromobility

b) Passing on information about the basics of the most important techniques/services

- Profitability considerations per energy system
- History of energy production and distribution
- Successful plant subsidies
- New financing possibilities, for example crowdfunding or contracting
- current societal, social and political developments
- broad and local information exchange
- Property managers, caretakers or real estate companies receive valuable information, especially in questions of cost and profitability

c) Restructuring of commercial and municipal energy consulting

d) Networking of support programs of municipal/non-profit foundations / energy saving campaigns such as "10,000 houses", programs of various municipalities or the campaign: "Renovate house - profit" of the Deutsche Bundesstiftung Umwelt (DBU)

e) Training, lectures and further education for energy consultants* / craftsmen*

f) Training, lectures and knowledge exchange for training, talks, and education for non-industrial employees* in local authorities, energy

cooperatives, environmental associations and property management companies.

The CET will thus become a mixture of a consumer* advice centre, financial advice, and training centre like for example the Berufliche Schule Butzbach (Hessen). The neutral and central meeting place for all areas of → energy turnaround passes the information on to energy users*. New technologies can also be viewed and handled at a local location.

How does this work against climate change?

Wrong and overpriced energy-consultation is avoided. No CO_2 saving potentials are wasted.

Which other effects does the measure have?

Through the training and further education of craftspeople*, the involvement of local companies (including the local energy supply company), the value chain remains in the region or the energy cell.

4

Just Mobility

4.1 Preamble

The term "mobility justice" has been around for a number of years and has already seen various uses during this time. For example, Deutsche Bahn introduced the "mobility fair toilet" in 2012. In the same year, the magazine "Focus" declared the term to be "fair to mobility". In this section of the grassroots climate plan, on the other hand, measures are put up for discussion that aim at **a just exercise of mobility within the framework of a global 1.5 degree target.** Instead of, for example, forbidding all people to fly or drive, we are looking for ways to be mobile in a responsible manner - towards nature and its limited resources, towards ourselves and towards other people. Instead of using the largest and fastest possible vehicle for our own mobility, the challenge for all of us is to learn how to move in an **energy-efficient** way that is appropriate for the purpose, **always with a view to the consequences for the entire globe**. This means that instead of thinking only of my advantages or convenience through mobility, we must think of the requirements and effects on a regional and supraregional, even global scale.

One example: While a person from a favela in a South American metropolis is often forced to use every available form of transport, often to cover long distances to work, many people in Germany have alternatives for shaping their individual mobility. **Here is another example**: Perhaps I am used to commuting to work with my car every day. While driving, I can make phone calls, listen to music and talk to my child. But my workplace can also be reached by using public transport. Although this option involves additional time and effort, it is feasible for me: I can also make phone calls, listen to music and talk to my accompanying child, whilst taking public transport. But I also have an e-cargobike in my garage, which allows me to get to work even faster than by car or public transport. By using this mode of transportation I can't make phone calls or at least I have to stop my bike for a short time. So why have I not yet made a consistent change, but leave it to sporadic bicycle use whenever my bad environmental conscience is weighing on me? Perhaps the measures listed below contain information to convince us of the necessity

to not only rethink and "test" our beloved mobility habits, but to change them soon into a sustainable - i.e. responsible - way.

Basically, the discussion of a pure conversion to e-mobility (with unchanged consumption) must be critically questioned. The entire socio-ecological costs of the production and use of electrically powered vehicles (extraction of necessary resources for batteries, production etc.), for example the 'ecological backpack' of a new car, must be taken into account, not just its energy consumption after it is put into operation. There needs to be an extensive switch to public transport instead of individual means of transport, just as in all other areas there needs to be a fundamental change in our lifestyle, which tends to be highly resource-intensive. A green → capitalism cannot effectively - i.e. socially justly - counter climate change, but may even lead to an increase in existing social problems on a global scale.

4.2 Mobility Turnaround

4.2.1 City of short distances

What's the problem? Contemporary urban infrastructures frequently force us to travel long distances within the cities we live in: the longer the distance, the more difficult it is to travel CO_2-neutrally.

What's the measure?

A transport turn-around that addresses not only technologies of mobility, but also the current imperative to travel miles and miles. For example, to make sure that basic needs and services (food, health services, cultural events, work, equipment hire and repair) are accessible within walking or cycling distance.

How can this be implemented?

- Establishing car-free zones
- Increasing population density and
- Establishment of local community spaces that provide basic goods and services (see above)
- Re-Municipalisation of land and real estate to disentangle them from the market

How does this counteract climate change (or how does it create economic conditions that support effective climate protection measures)?

Travelling on foot and by bicycle is almost climate-neutral.

4.2.2 Bringing public transport under democratic control

What's the problem?

A privatised or even partially privatised public transport system escapes democratic control and pursues profit interests. The results are additional costs, unreliability, and problems for an ecological → transition of transport. This also applies to the Deutsche Bahn AG, which is technically owned by the state, but as a public limited company is obliged to operate profit-oriented. Examples of this are high ticket prices, route dismantling if this maximises profits or delays due to missed repairs (see Sources).

What's the measure?

The Deutsche Bahn AG is restructured into a state-owned enterprise again. Municipal mobility companies are brought back into the full ownership of the municipalities by means of a nationwide support programme, unless they are part of a cooperative. Any profits must then be used to expand public transport, reduce ticket prices or for other ecological measures. Contracts will be awarded preferentially to Deutsche Bahn or municipal transport companies with the same offered timing.

How does this work against climate change?

An alternative for individual traffic is required for a traffic-turnaround. Local and long-distance public transport can be this alternative, but it is currently still too unreliable and expensive due to profit interests..

References to other measures

Publicly owned local and long-distance transport speeds up all other measures relating to it, since contracts and agreements can be made more quickly and democratically without any interest in profit.

4.2.3 Construction stop of climate-damaging mobility infrastructure

What's the problem?

Road traffic is responsible for around 13% of human greenhouse gases worldwide. In Germany it is 17%. Air traffic is responsible for around 7% of the greenhouse effect worldwide. CO_2 emissions from car traffic in Germany has even been increasing in the last twenty years. According to the current German government, car traffic will grow a further 10% and truck traffic 17% by 2030. Despite the Paris climate agreement and the UN species protection treaty of Rio de Janeiro, the infrastructure of mobility with cars and airplanes will continuously be expanded. In Berlin, the highway A 100 is still in construction, A 143 near Halle, A 14 near Magdeburg , the A 20 near Lübeck and many more. At the municipal level, traffic planning is still focused on car traffic as well. A major expansion of air traffic is also planned in Berlin and Vienna. Even though there are already too many cars and planes to reach the 1.5 degree climate goal. To achieve decarbonisation by the middle of the century, the transport sector, which is currently responsible for 18% of greenhouse gases in Germany, must also achieve 0% emissions. This climate-damaging growth can only be stopped with a very strong political decision.

What's the measure?

A halt to the expansion and further planning of climate-damaging transport infrastructure and thus no further growth of the road network and flight infrastructure.

What can the implementation look like?

By changing the focus of the transport politics, funds which are used for and designated to the expansion of climate-damaging mobility infrastructure are to be used for a comprehensive expansion of the railways instead.

How does this work against climate change?

This will put an end to the growth of the private motorised transport and air traffic, which can finance and promote a turnaround in mobility by investing the saved money in sustainable transport infrastructure (rail expansion, night trains, public transport).

What other effects does the measure have?

- Prevention/reduction of future land sealing through transport infrastructure
- Prevention of the fragmentation of landscape and habitats

How quickly can the measure be implemented?

It is primarily a political decision in transport politics which could be implemented immediately.

How long will it take for the measure to have an effect?

Stopping the construction and planning would be a strong political signal to the economy and society and would have an direct effect and would cause a necessary rethinking in the field of mobility. Every newly built road not only facilitates the growth of car traffic, but also harms the environment and the climate, through an enormous consumption of resources in construction and the associated land sealing and landscape fragmentation. This means that the construction and planning stop would already save resources in the near future. If the money saved is invested correctly, the measure can greatly accelerate the mobility turnaround in general, which could save greenhouse gas emissions in just a few years by reducing private motorised transport and aviation.

References to other measures

As already mentioned several times, the construction stop must be accompanied by the expansion of the railway, but could co-finance it and thus accelerate it.

4.3 Expansion of Public Transport

4.3.1 No charge for public transport

What's the problem?

The local public transport is not yet an alternative to individual transportation for many different reasons. Especcially in rural areas public transport often is more expansive and less reliable than the car. Therefore many people wouldn't shift to public transportation even if there would be appropriate timing and connections, because of financial reasons. But due to the individual transports high consumption of ressources this shift certainly is mandatory. The term "free of charge" was deliberatly avoided, since public transport is not for free and must of course be financed.

What's the measure?

As an incentive for the public transport system, journeys will be offered free of charge and at no ticket price. This would also be a social measure, as, percentage-wise, fixed prices place a higher burden on people with low incomes.

What can the implementation look like?

The first step would be to conclude appropriate contracts with the various transport companies. It is of advantage, if these do not pursue any profit interest, as they are in public ownership. In those areas of the transport companies with which a contract is successful, public transport could be free of charge from then on. If a transport company refuses to conclude such a contract at a fair price, expropriation should be sought. Although service, controls, vending machines and more expenses would be eliminated, additional costs of 12 billion €/year are to be expected (source: Die Anstalt, ZDF).

However, these could be counter-financed by other measures, such as the elimination of climate-damaging → subsidies or climate-

damaging weaponry politics. If counter-financing is not possible, a tax increase based on income and property is a socially acceptable option.

How does this work against climate change?

Moving away from individual transport brings many advantages with it. Fewer areas are sealed for roads and parking spaces and fewer resources are used to produce cars. Indirectly, small municipalities also become more capable of acting, also with regard to climate protection, since road renovation is one of the largest items in the current budgets of small municipalities.

Which other effects does the measure have?

Free public transport helps people to be mobile regardless of their financial situation. In this way, people with low incomes are more strongly integrated into society again.

How quickly can this be implemented?

Small-scale test projects are already running. Locally, it could be implemented immediately depending on the transport association.

References towards other measures

This measure conflicts with 365€ tickets. This measure works particularly well when transport companies are in public ownership. Expropriations and buy-backs therefore support this measure.

Problems of social, global and intergenerational justice

The measure counteracts social inequality

4.4 Railway Restructuring

4.4.1 Railway development

What´s the problem?

The rail network in Germany is currently running high capacity. On many routes, the capacity limits have been reached for years, e.g. the Rheintalbahn. At the same time, about 80% of the traffic in Germany takes place on the roads. This applies to both passenger traffic and freight transport. It is therefore clear that a transition from motorised individual transport to public transport or from lorries to freight trains must necessarily be accompanied by the expansion of the railway network in Germany.

What´s the measure?

A comprehensive expansion, modernisation and thus improvement of the railway infrastructure in Germany.

How will this counteract climate change?

In order to reduce CO_2 emissions in transport, there must be a development away from motorised individual transport and long-distance freight transport by truck and towards rail transport using green electricity. This development can only be made possible by a comprehensive expansion of the railways.

What other effects does the measure have?

In the long term, the measure could reduce the number of vehicles on the roads and in cities. The resource consumption of the automotive industry would decrease.

How quickly can the measure be implemented?

The implementation of the measure is associated with a considerable expenditure of time and money. It is therefore important that the expan-

sion is driven forward largely independently of business considerations and questions regarding profitability. If the political will is there, even such large projects can be implemented quickly. In other words, this requires a strong lobby in the political arena. Another factor that affects how quickly or slowly the railways are developed is the degree of involvement of the population in the planning process: should there be a grassroots democratic process regarding route planning? How much say should citizens' initiatives have? How do planners deal with the fact that citizens' initiatives position themselves according to the "St. Florian's principle", i.e. they do not really tackle challenges and problems constructively, but want to shift them to other areas or to other groups of people?

How long does it take for the measure to take effect?

Already during the gradual implementation of the measure, the described development from motorised individual transport (both passengers and goods) to collective transport by rail could take place.

4.4.2 1-Euro ticket for students and apprentices

What's the problem?

One general challenge is the amount of individual traffic. Among the contributors to this are trips undertaken by family members or acquaintances, driving students to school, leisure activities, and friends. One reason for this are unaffordable prices for public transport, including monthly subscriptions.

What's the measure?

Introducing a €1 student day pass for public transport in regional networks. This could be a key motivation to reduce individual traffic.

How can this be implemented?

It needs political will, especially in order to subsidise these tickets. Hessen is a good practice example of how to implement this measure: https://www.schuelerticket.hessen.de/

How does this counteract climate change (or how does it create economic conditions that support effective climate protection measures)?

Each individual trip not undertaken actively contributes to lowering CO_2 emissions.

What other effects does the measure have?

If the children more frequently rely on public transport, an imitation effect by other family members can be expected.

How quickly can the measure be implemented?

Within existing public transport infrastructure, implementation can be rolled out rapidly, provided that the €1 ticket is adequately subsidised.

How long does it take the measure to become effective?

The measure's impact on air quality would be immediate, because reducing the number of individual trips means reducing local CO_2 emissions.

References to other measures

All measures aimed at expanding public transport are important for the sustainable implementation and impact of this measure. This measure, in turn, strengthens the need for measures that expand public transport.

Problems with social, global and intergenerational justice

This measure will deliver on social justice only if it is indeed implemented as a €1 day pass, because only this way can the financial burden be lower than for so-called 365 EURO tickets. Furthermore, it is important to ensure that those not currently required to pay for public transport will be able to continue using public transport free of charge.

4.4.3 Improvement of cross-border rail transport

What's the problem?

Up until now, taking the train is not a good alternative, especcially in regard to cross-border traffic, since there are no attractive connections.

What's the measure?

The rail network is being expanded, especially in the cross-border area, and new connections with comfortable trains are being created, which are planned as a network with good transfer possibilities (integral interval timetable). These trains do not necessarily all have to be economically viable, but state or European support services are possibilities for non-lucrative connections.

In particular, a Europe-wide network of night trains including ferry connections (e.g. to Great Britain, Scandinavia or the Mediterranean islands) is required, since many routes are very long. Routes of 6 to 12 hours most people prefer to travel overnight, and in addition night trains - much better than air travel - allow a comortable, well-rested arrival at the destination in the morning.

What can the implementation look like?

European States and the EU sponsor the expansion of the railway network and the establishment of railway lines and in particular night trains and the associated services. This requires Europe-wide cooperation between the railways. A considerable amount of new, modern and comfortable night trains must be purchased.

How does this work against climate change?

Travelling by train only produces a fractional amount of climate-damaging emissions in comparison to air traffic, which could be transferred to railway traffic by large extent.

Which other positive effects does the measure have?

Travelling by train allows comfortable travel even to many places that have so far been difficult to reach by public transport. With different comfort classes on the night train (sleep carriages with different equipment, couchette carriages, seating carriages), everyone can travel. In addition, rail travel - especially overnight - enables many encounters and thus promotes international understanding.

References to other measures

With this measure air traffic can be transferred to railway traffic by large extent, which justifies a ban on short-haul flights [[reference].

Problems with social, global and intergenerational justice

Trains as well generate noise and emissions - but on a minor scale than other means of transport, especcially air traffic.

4.4.4 Dogs can be transported free of charge

What's the problem?

Five million dogs live in Germany; the current policy of the German Railway and many other public transport companies make it difficult for the caregivers to do without a car. Since a dog (which is larger than a house cat) has to pay half of the normal fare, it costs as much as the price for an adult person with a Bahncard 50. A dog traveling by train pays as much as n individually traveling child between 6-14 years, but without the exceptions that children traveling with humans, or people with disabilities, etc. have. These facts make rail travel unaffordable for many human-dog relations. And this, although it is not allowed to make reservations for dogs, which to the fullest extent becomes a problem for large dogs, for which the Deutsche Bahn does not declare itself responsible. In addition, there are massive handicaps in everyday travel; for example, tickets for dogs are not made available online or as mobile phone tickets, etc.

What's the measure?

Free transportation of dogs as well as a cancellation of the special treatment of dogs, as long as they do not serve the safety of fellow travelers.

4.5 Reduction of Individual Traffic

4.5.1 Adjustment of company car privilege

What's the problem?

The tax treatment of so-called company cars contradicts climate protection goals. Usually, a company car is taxed at a flat rate of one percent of the new price per month. Since this regulation is independent of the intensity of use, it is more attractive the more kilometers the car is driven. A second problem is the lack of sustainability: since the tax is constant over time, the arrangement encourages the replacement of company cars with new vehicles. Finally, the company providing the company car can deduct the vehicle and all associated costs as operating expenses - even if the vehicle is used privately by the employer.

What's the measure?

- Restriction of the tax-deductibility of purchase and operating costs depending on the (real) CO_2 emissions of the vehicle (degressive).
- Reduction of the limit values in each calendar year.
- Preference for the continued use of vehicles against new procurement by taking the residual value as a basis.
- Adjustment of the pecuniary advantage for the employee depending on the mileage and the (real) CO_2 emissions of the vehicle.
- No special preference for hybrid or electric vehicles but evaluation of their CO_2 emissions according to the local electricity mix or optionally proven purchased electricity mix of the employee.

How does the implementation look like?

Adaption of the tax law.

How does this work against climate change?

CO_2 savings through more CO_2-efficient company cars and reduced mileage.

Which other positive effects does the measure have?

Making the real costs more transparent.

Problems with social, global or intergenerational justice

The company car privilege can be used primarily by people who are financially better off. A reduction in financial privilege represents a small contribution to social justice.

4.5.2 Speed Limit

What´s the problem?

Throughout Europe and in all industrialised countries worldwide, there are speed limits on country roads and motorways. Germany is the only exception, with unlimited speed limits on around 70% of all motorway kilometres (Federal Highway Research Institute 2017). Only a few other countries, including Afghanistan, Haiti, Somalia and North Korea, do not have such speed limits. With a speed limit of 120 km/h on motorways and 80 km/h on country roads, up to 5 million tonnes could be saved, according to estimates by Deutsche Umwelthilfe CO_2. No other individual measure in the transport sector holds such a large and cost-effective CO_2 savings potential, even in the short term.

What´s the measure?

The legal implementation of a general speed limit on motorways of - for example - 120 km/h.

How can the implementation look like?

The implementation is very simple. With a corresponding resolution and the passing of a law, a general speed limit on the motorways in Germany could be introduced directly and almost without any effort in time and expense. The same applies to a possible reduction of the existing limit on country roads from 100 km/h to e.g. 80 km/h and in towns and cities from the current 50 km/h to e.g. 40 km/h.

How will this work against climate change?

The CO_2 emissions of passenger cars depend largely on the speed at which they are driven. Especially at higher speeds, such as those driven on motorways, the influence of speed on fuel consumption and thus CO_2 emissions is extensive. The reason for this are simple physical principles. The air resistance of a vehicle increases with the square of the driving speed, and accordingly, fuel consumption increases exponentially with an increase in speed. The following example illustrates this

fact: If the speed of an average passenger car increases from 100 km/h to 130 km/h, CO_2 emissions increase by about 10%. A further increase of only 10 km/h from 130 to 140 km/h increases the emissions by another 10%! (Figures: Federal Environment Agency Austria[2]) The laws of physics apply, of course, regardless of the type of drive of the car. In principle, the electricity consumption of an electric car is the same as the fuel consumption of a conventional car. The electricity consumption of an electric car increases enormously at higher speeds.

On the basis of the latest calculations published by the Federal Environment Agency and taking into account the 25 percent increase in traffic performance in the meantime, German Environmental Aid assumes 5 km/h higher average speeds and an improved compliance rate of savings of up to 5 million tonnes CO_2 per year. In addition to the savings of a speed limit on motorways, there are the CO_2 savings that can only be roughly estimated at present if a speed limit of 80 km/h is introduced on country roads.[1] In addition to these immediate savings, a general speed limit in Germany would have the potential in the medium and long term for vehicles to be designed and built differently in the future (independently of further political steering measures). Since Germany is a car country and German car manufacturers export a large proportion of their vehicles, such a trend reversal initiated by a speed limit could also have effects in other countries. The average motorisation of new cars in Germany is rising steadily. Whereas in 1997 the average engine output was still 100 hp, by 2017 it will already be 152 hp. A speed limit can counteract this trend, since the incentive to build and buy highly motorised vehicles decreases if the possibility of driving at high speeds is removed.[1] Why should someone buy a car with 200 hp if he or she can never try out the performance of the car? A speed limit could therefore help to ensure that lightweight construction and economy finally really become the focus of vehicle development. The efficiency of the drives could also be optimized for the limited cruising speed.

What other positive effects does the measure have?

A general speed limit on motorways would increase road safety. There is a fixed relationship between the speed driven and the frequency of accidents, but logically also between the speed and intensity of a possible accident. These are facts that are repeatedly confirmed in real investigations and are absolutely logical in terms of the basic principles of physics. A higher speed reduces the reaction time that remains for a car driver to initiate measures to avert an accident, which can be braking or taking evasive action, for example. The braking distance of a vehicle also increases enormously at higher speeds. At a speed of 120 km/h, it is 108 metres for emergency braking. At 160 km/h the distance increases to 176 m, and at 200 km/h even to 260 metres.[1] In addition, the intensity and thus the consequences of a possible accident increase considerably at higher speeds. The reason for this is the fact that the kinetic energy of a vehicle is always proportional to the square of the speed at which it is moving. This means that the energy released during a collision, for example at the end of a traffic jam, almost doubles when the speed is increased by 25% (e.g. from 120 to 160 km/h), because it does not increase linearly but quadratically. The number of serious accidents and road deaths could be reduced, not only traffic experts say so, but real investigations confirm it. A study by the Ministry of Infrastructure and State Planning of the State of Brandenburg, for example, showed that the introduction of a speed limit on a good 60 km section of the A 24 motorway could almost halve the number of accidents.[1] On motorways with a speed limit, 75 percent fewer fatal accidents occur per billion kilometres driven than on motorway sections without a speed limit. A speed limit could also reduce the number of seriously injured in accidents by 20%.[1] The International Transport Forum (ITF) also calculates that reducing the average speed on country roads and motorways by just 5 km/h could reduce the frequency of fatal accidents by 18 to 28 per cent.

A speed limit on motorways would lead to better traffic flow and fewer traffic jams. On a motorway without a speed limit, the average speed difference of vehicles is significantly higher than on a motorway with a speed limit. A speed limit would reduce the speed difference and

lead to more constant traffic with fewer traffic jams. An improved traffic flow not only increases the capacity of streets[4], but also reduces fuel consumption and CO_2 emissions in traffic.

Not only the CO_2 emissions, but also the emissions of various air pollutants would be reduced by a speed limit. This is related to the effect of better traffic flow.

A speed limit would also lead to a slight reduction in road noise.[5]

How quickly can the measure be implemented?

The measure can be implemented immediately.

How long does it take for the measure to show positive effects?

The effect on CO_2 emissions and road safety would be immediate. The steering effect in the development of new vehicles away from ever more powerful, heavier and faster cars and towards more efficiency and lightweight construction could also unfold very soon.

4.5.3 Abolition of the commuter allowance

What's the problem?

In the German tax law there is the distance lump-sum, which is also called "commuter's tax allowance". Thanks to this commuter lump-sum, employees in Germany who commute to work can be reimbursed a large part of their travel costs as part of a tax relief. Thereby it doesn't matter which means of transport is used for commuting. The flat rate is only calculated on the basis of the distance to the workplace and the number of working days per year. Currently, € 0.30 per kilometre can be deducted from income tax. This means that people accept long distances to their workplace, which is extremely questionable in terms of climate protection.

What's the measure?

Abolition of the commuter's tax allowance in German tax law.

How can the implementation look like?

First, all that is needed is a change in the tax law. This does not entail any significant costs. Instead of the commuting allowance, laws could be enacted to financially support climate-friendly modes of commuting to work. Rail tickets or monthly public transport passes for commuters, for example, could be subsidised. It would also be possible to cap or stagger the subsidy in order not to encourage very long commuting distances. Companies could also be obliged to support their employees financially if they use climate-friendly transportation to get to work.

How will this work against climate change?

This makes it unattractive for employees* to choose a job that is further away from their place of residence. Therefore the measure reduces general traffic in the long term. In addition, a strong steering effect can be achieved from climate-damaging (motorised) individual transport to climate-friendly local public transport and rail transport for commuting

to and from work. The consequences are less car traffic and lower CO_2 emissions.

How quickly can the measure be implemented?

As this is only a change in German tax law, the measure can be implemented immediately. A subsidy for climate-friendly means of transport for commuting to work, as described above, could also be implemented quickly.

How long does it take for the measure to have an effect?

The steering effect described for the choice of means of transport would have an immediate effect. In the longer term, people would tend to choose a shorter distance from home and work.

References to other measures

The steering effect from motorised private transport to public transport must be accompanied by a strong expansion of public transport. Otherwise, there will be an overload of the public transport system and the railways, which are already heavily used.

Problems of social, global and generational justice

Important questions at this point are: - What about employees who depend on taking the car, because commuting by public transport would take a ot of extra time and effort and therefore be impossible? For them, the measure would entail financial losses.

4.5.4 Car-free inner cities

What's the problem?

Many city centers in Germany tend to be congested by individual traffic. This problem is exacerbated by other factors such as a lack of parking spaces. Cars that are looking for parking spaces in the city center in turn increase the volume of traffic. The congestion of individual traffic, which is based on fossil combustion engines, leads to a dramatic deterioration of air quality in the inner cities. This and other factors such as noise pollution and increased risk of accidents make life in the inner cities increasingly unattractive. As a consequence, people are pushing into the surrounding areas as places to live, which in turn contributes to an increase in commuter traffic.

What's the measure?

Within a clearly defined area (inner city), individual transport based on fossil combustion engines is banned as a matter of principle. Individual mobility is ensured by free public transport within a nationwide route network. For the purpose of connection to public transport, individual transport based on alternative energy sources will continue to exist, but limited to vehicles with a size maximum speed that is yet to be determined (e.g. e-bikes).

How can this be implemented?

A first step towards implementation is the introduction of ticket-free use of public transport for all creatures, bicycles and objects. A nationwide levy, yet to be defined, will be introduced to finance this (see Bahncard 365). This requires the intensive expansion of rail and bus routes. This includes, among other things, the provision of electric caddies with drivers for people with limited mobility, either on call or by appointment. In addition, bicycle and pedestrian paths must be extended significantly and weather-protected, safe parking facilities must be provided. In addition, the uncomplicated lending of (cargo) bicycles and e-bikes is to be made possible throughout the area. For commuters from rural areas,

parking spaces are provided outside the city area with connections to public transport (Park and Ride).

Problematic Aspects of the measure

Individual transport based on fossil combustion engines is shifting to the surrounding area, creating new problem areas in terms of air quality. This phenomenon can only be prevented in the long term by a ban on the production of fossil combustion engines and the successive reduction in the use of such vehicles.

4.6 Support Bicycle Traffic

4.6.1 Express Roads for Bicylces

What's the problem?

People travel at different speeds with their bikes, which leads to an increased risk of accidents. This is especially true for bike routes that are particularly heavily used.

What's the measure?

With extra wide lanes, particularly heavily frequented cycle routes are able to accommodate more road users and allow different travel speeds without accidents.

How can this be implemented?

Municipalities must decide to identify such routes and finance their expansion. Grants from the federal government are certainly possible for this. A very simple and cost-effective immediate measure is to dedicate the right half of each lane of all inner-city and extra-urban multi-lane motorways (including highways?) completely to bicycles, scooters, skaters etc. To protect the cyclists/scooters/skaters, a physicl separation must be provided, e.g. as in Amsterdam by low concrete sleepers, which can only be crossed very slowly by motor vehicles (e.g. rescue vehicles)

How does this counteract climate change (or how does it create economic conditions that support effective climate protection measures)?

By significantly reducing the time needed to travel by bike, people are motivated to get out of car traffic. This results in a reduction in CO_2 emissions.

How quickly can the measure be implemented?

That will certainly vary from region to region and from place to place. As soon as a local authority has made the decision to build or extend a route, the time required to implement the measure is manageable. Certainly, the time needed to implement the measure depends on the extent of the necessary construction measures.

How can this be implemented?

A first step towards implementation is the introduction of ticket-free use of public transport for all creatures, bicycles and objects. A nationwide levy, yet to be defined, will be introduced to finance this (see Bahncard 365). This requires the intensive expansion of rail and bus routes. This includes, among other things, the provision of electric caddies with drivers for people with limited mobility, either on call or by appointment. In addition, bicycle and pedestrian paths must be extended significantly and weather-protected, safe parking facilities must be provided. In addition, the uncomplicated lending of (cargo) bicycles and e-bikes is to be made possible throughout the area. For commuters from rural areas, parking spaces are provided outside the city area with connections to public transport (Park and Ride).

Problematic Aspects of the measure

Individual transport based on fossil combustion engines is shifting to the surrounding area, creating new problem areas in terms of air quality. This phenomenon can only be prevented in the long term by a ban on the production of fossil combustion engines and the successive reduction in the use of such vehicles.

4.6.2 Promoting Cycle Traffic

What's the problem?

Bicycle traffic leads a marginal existence – literally at the margin of busy and space-consuming motorways, crammed into the remaining area between pavements with legal minimum width and roadways for motor traffic. The result is usually a general reluctance on the part of cyclists to use these dangerous, bumpy roads, which are not designed for fast forward travel. All traffic infrastructure (e.g. traffic lights at intersections) gives priority to motor traffic. In inner-city traffic, nothing hinders cycling as much as cars and lorries which are stopping, jamming, maneuvering into parking spaces or parked in the wrong place.

What's the measure?

City Life Mandatory parking facilities for bikes and load bikes at retail outlets, authorities, workplaces, etc. (ideally also set up as weather protection for the bikes) (Partial) Conversion of motorways into cycle and pedestrian zones .

Speed Adapt infrastructure to the speed and driving style of cyclists (e.g. traffic light phases). Give priority to cycling in urban traffic planning. Concretely: if a new connection or a new neighbourhood is planned, the cycle connection and/or the bike-rail-bike connection must always be faster than travel by car. Expansion of cycle paths, without intersections where possible.

Security Priority in road maintenance and winter road clearance for cycle paths over bus lanes and lanes for motor traffic. Providing safe intersections for cyclists, e.g. positioning areas at the traffic lights (4m long strip directly at the traffic light, where only cyclists are allowed to stand) or later green switching of car traffic lights (prevention of the "blind spot" for car and truck drivers) . No further permission of "hidden" cycle paths (e.g. trough parked cars between bicycle track and road)

Making it more difficult to block cycle paths by parking (e.g. through thresholds) and setting higher penalties for infringements.

Comfort

- Larger non-commercial, better still: free supply of rental bikes, including load bikes and multi-person bikes (e.g. for childcare).
- Public funding for bicycle repair cafés and tool self-service station.
- For commuters: strengthening bike-rail-bike connections by building and maintaining safe and comfortable parking for bikes at all stations.

Further Ideas:

- Building solar bike paths
- Reduce inner-city motorways with 3 lanes to 2 lanes as a matter of principle and extend the cycle path broadly, ideally with structural demarcation from the other two lanes
- Provide changing and showering facilities for cyclists at the workplaces.

How can this be implemented?

A refined concept for implementation is to be found under the measure Express Roads for Bicylces

4.7 Massive Reduction of Flight Traffic

4.7.1 Frequent flier* tax

What's the problem?

Bill Gates and Paris Hilton, being frequent fliers, generate 10.000 times more CO_2-emissions with flight traffic than the average person. At the same time 1% of Great Britain's population is responsible for almost 20% of the international flights; 10% of frequent fliers* utilize more than half of all international flights. Climate (in)justice can nowhere be seen clearer than in terms of flight traffic: A few single people are responsible for the damage on the broad majority. In Germany, there are not enough numbers - but following a study (2013), in Germany people from the highest-income-group fly an average of 6,6 times a year, whereas the lowest-income-group only flies 0,6 times - which already is a lot compared with the global average. Around 90 %of the global population hasn't been inside a plane yet.

What's the measure?

Why should a buisnesswoman who is taking her sixth flight this year to get to her Tuscanian mansion, pay the same tax amount than a person* taking a flight every two years to visit his*her family on another continent? A frequent flier* tax would make every flight or route of a certain period of time more expansive step-by-step, in order to give an incentive to fly less.

In Great Britain, they have been discussing a Frequent Flyer Levy, which proposes one tax-free flight per year, for years. In 2019, a similar model was also proposed through a report written for the UK's Committee on Climate Change: An Air Miles Levy which will make the distance flown increasingly expensive over 3-4 years.

How can this be implemented?

The model proposed here includes a duty-free first flight every three to four years. A second flight contains a levy of about 150€ and for each further flight, the levy is doubled. This takes into account the differences between economy, business, and first-class, as first-class seats cause up to seven times the emissions of an economy ticket (at least as long as this class system is still allowed).

There are several challenges in introducing a levy. The levy could in principle be introduced in any country, ideally as a globally uniform tax. However, as there is not yet a strong international tax institution that could impose such a tax, the tax could initially be introduced in individual countries or regions, for example at the EU level. In this case, the tax would be set by the EU and levied by the countries. The tax would apply to both national and international flights.

In order to track individual passenger characteristics, new systems for calculating the levy could be necessary. This could trigger a critical debate on data protection, as passenger data would have to be stored. One possible solution would be an alias-based system that could use identity codes to ensure comprehensive data security. It would have to be ensured that airlines exchange this data only for delivery purposes. This could be verified by the existing aviation authorities.

A levy could be more complex to administer than the current or alternative arrangements for air transport taxation. The Scottish Executive used this excuse to reject a VFA as an alternative to Air Passenger Duty. It is therefore essential that the levy is kept as simple as possible.

How quickly can this be implemented?

Preparatory measures must be started immediately: Flight behavior and feasibility studies are urgently required. Subsequently, interregional agreements must be made. In general, a frequent flier levy could be feasible within the next 1-2 years.

How long does it take the measure to have an effect?

It is very likely that the measure will have the immediate effect of making people think twice before using their duty-free flight for a weekend shopping trip to Barcelona or saving it for a possibly more urgent matter. The message is very clear that if the climate crisis is to be stopped, every person (who flies a lot) will be entitled to far fewer flights than before.

References to other measures

Taxes on kerosene and tickets are to put an end to the unjust tax liberation of the airline industry. This does not rule out an additional frequent flier tax but can have a complementary effect. Of course, a reduction in air traffic also requires the expansion of sustainable, climate-friendly means of transport.

Problems of social, global and intergenerational justice

Since studies show that frequent fliers belong to the highest-income class, while the worldwide majority of people cannot afford a flight in their lifetime (or are unable to take one due to repressive visa regulations), this measure is jus - it is above all a burden on the rich people responsible for the climate crisis. At the same time, it continues to allow people with a migration background to take a tax-free flight every few years to visit their family on another continent. Companies, too, would probably have to rethink their economic approach, which is based on the global commuting of employees. Finally, the measure would also be just if it were initially introduced only in Germany or Europe, taking into account Europe's historical climate debt.

4.7.2 Reduction in the number of airports

What's the problem?

Ten of the 16 international airports in Germany are in the red, and of the 19 regional airports, not one is permanently self-sustaining. These airports are dependent on public subsidies. The losses, which run into millions, are often passed on to private households and public transport users via public utility companies. At the same time, overcapacities are sold to the airlines via cheap tariffs, which then make profits at the expense of the general public.

What is the measure?

Since the large number of airports in Germany is not only a financial disaster but especially a climate disaster, regional airports must be closed and the number of airports in Germany must be reduced significantly. The journey to the approximately 3 remaining airports can be made by train. The selection of the airports to be used should not only be based on the current size of the airports but also take into account the interests of local residents - for example, many more people are affected by noise, (ultra) fine dust and health problems in Frankfurt than in Hahn. It is important that employees at the airports are not put out on the street, but that there is a fair transition to climate-friendly working areas - in the best case, coupled with a general reduction in working hours.

How quickly can the measure be implemented?

The measure can be implemented gradually over the next 5-10 years.

References to other measures

This measure is well complemented by the cancellation of short-haul or domestic flights, moratoria on airport expansion and by the expansion of rail transport.

Problems with social, global or generational justice

As with all measures, it is particularly important to ensure fair transitions for employees.

4.7.3 Abolish Miles and More programmes and reduce flight advertising

What's the problem?

Nowadays, frequent fliers*, who impose the costs of their lifestyle on society, are also rewarded with so-called "bonus miles". This logic has to be turned upside down! Some major airlines earn up to half of their profits through "Frequent Flyer Programs" (FFPs), which is mainly due to high profits on miles sold to credit card companies, car rental agencies, hotels, etc.

What's the measure?

Frequent Flier* Programmes such as "Miles & More" should be abolished - and so is the advertisement for flights, which have no business being in public spaces in times of climate crisis. Abolishments of this sort aren't new: In Dänemark (Denmark) there was a ban on frequent flier* programs in order to balance competition between airlines. A Bericht (report) (2019) of the British governmental committee for climate recommends to stop bonus mileage programs and to mark the → Emission (emissions) on flight advertisement.

How can this work against climate change?

Harmful behaviour is neither economically rewarded nor promoted through advertising. This can lead to a rapid change in mobility behaviour. Some airlines would have to look for new survival strategies if bonus programs no longer exist - for example as service providers in public transport.

4.7.4 Moratorium on airport infrastructure

What's the problem?

550 new airports and runways for starting and landing are planned or in construction worldwide combined with runway expansions, new terminals and 1200 Infrastrukturprojekte (1200 projects regarding infrastructure.) These projects need new areas, which lead to the destruction of →Ecosystems, displacement of people and an increase in local pollution and health problems due to increased noise, traffic and (ultra) fine dust. In times of climate change, it is short-sided and irresponsible to invest in the expansion of airport-infrastructure. To continue these practices means to cement a harmful form of traffic - whereas airports should actually be reduced.

What's the measure?

An immediate expansion stop is required. A moratorium is defined as an officially ordered delay or suspension of an activity or a law. In the past, there have been many successful moratoriums, such as the nuclear moratorium in Germany or the coal-moratorium in the United States. Thus, it is possible and very necessary, to impose an airport-expansion-moratorium throughout Germany.

How can the implementation look like?

The expansion-moratorium can be implemented by the German Federal Government, due to climate-emergency. If this takes too long, cities can take the initiative and impose a moratorium on the local airport. For example, in Munich, this already exists.

References to other measures

The measure would stop the problem from getting worse. However, this isn't sufficient - a reduction of air traffic and airports is necessary.

4.7.5 Abolish tax advantages for the airline industry

What's the problem?

Even though air traffic is the most climate-damaging form of transportation, the air-traffic-industry benefits from a series of tax advantages. For example, kerosene is excluded from the energy tax and the no value-added tax is levied on international air tickets. According to the Federal Environment Agency, these subsidies amount to more than twelve billion euros annually.

What's the measure?

Introduction of a tax on kerosene and other measures which abolish the existing tax privileges for air traffic.

How can the implementation look like?

The current privileges for air-traffic compared to other transport modes can be abolished throughout different measures. Since the majority of air-traffic takes place across borders, agreements on international level are required in the long run. But since then, actions on national level are possible. The following measures can be elements of an effective taxation:

- An increase in the air transport levy, the level of which is disproportionate to the current tax advantage for air transport
- Introduction of a kerosene tax on domestic flights
- Negotiation of bilateral agreements with European partner countries on kerosene taxation
- Introduction of a kerosene tax and value-added tax for air travel at EU level. It is important that the level of taxation also takes into account the climate-damaging effects of air travel which, in addition to CO_2, are produced by the combustion of aviation fuel (e.g. ozone formation, cirrus clouds and contrails).

How does this counteract climate change?

Significant reduction in air traffic due to more expansive tickets.

Which other effects does the measure have?

Besides the reduction of climate-damaging air traffic, the elimination of these environmentally harmful subsidies generates additional tax revenue. These can be used for the expansion of the train railway net and the public local transport, or flow into international cooperation in the field of climate protection.

How quickly can the measure be implemented?

The taxation on kerosene for national flights is already possible without any problems, the value-added tax is already levied here. A uniform solution at EU level has so far met with resistance from individual states, but is possible in principle. However, the Federal Government can already enter into bilateral agreements with partner countries on kerosene taxation for flights within the EU. In the meantime, the air traffic tax can be raised accordingly.

References to other measures

In addition to the abolishment of tax advantages for the air industry, a (frequent fliers* tax) can be introduced, in order to make frequent fliers* more responsible and mobility more accessible in a just way.

Problems of social, global and intergenerational justice

The implementation of taxes and levies in air-traffic abolishes a core problem of justice in the energy taxation. Studies show, that in Germany and worldwide, the majority of air travelers are frequent fliers* with a high income. However, this sector is widely excluded from taxation, wheres electricity and gasoline are fully taxed.

4.7.6 Limitation of Flights

What's the problem?

Air traffic is the most climate-damaging form of mobility. In order to achieve a reduction in air traffic, price mechanisms are often considered first. However, if we want to achieve real climate justice, we must also ensure that our measures are fair. Price mechanisms have the disadvantage that poor people are disproportionately affected by price increases, while rich people could still afford to fly. Price mechanisms are also subject to market conditions that are constantly changing, making it difficult to estimate the absolute reduction in flights caused by price mechanisms.

What is the measure?

The concrete limitation of flights is theoretically the simplest and most effective measure to reduce air traffic and to ensure the contribution of the aviation industry to climate goals. In contrast to price mechanisms, limitations do not decide between rich and poor - they apply equally to all. Thus, limitations of flights are to be preferred from a justice perspective. The aim is to limit the number of flights on certain routes from certain airports/at certain times, as well as to ban certain types of flights that do not appear socially useful or necessary. The concrete measure consists of different parts:

- Abolition of domestic and short-haul flights
- Ban on night flights
- Ban on private jets
- Abolition of business and first class tickets

How can this be implemented?

1. Ban on domestic and short-haul flights: In times of climate crisis, domestic and short-haul flights can hardly be justified. An immediate exit plan and a shift to rail is therefore needed.

- Immediate ban on flights within a distance of 4-5 hours by rail

- Expansion of the railway infrastructure and agreement with other European countries to abolish flights within a distance of 12 hours by rail by 2023.
- Transfer of all intra-European flights to rail by 2025
- Exceptions for particularly poorly connected regions, as well as for people with physical disabilities.

2. Ban on night flights: The possibility of night flights not only increases the capacity of airports, it also has a significant impact on the health of people living near airports who are affected by noise. There should therefore be an immediate ban on night flights at all airports between 10 pm and 7 am.

3. Ban on private jets: Flights in private jets generate many times more greenhouse gas emissions and are only accessible to a small elite. They should be banned with immediate effect.

4. Abolition of first class and business class tickets: Due to the increased space requirement, first class and business class flights have a 3-4 times higher climate effect than "normal" seats. The 1st class and business class areas can be converted to "normal" seats and thus allow a significantly better utilization of the flights.

How does this counteract climate change (or how does it create economic conditions that support effective climate protection measures)?

Limiting flights has a very direct effect on climate change. The airplane is by far the most climate-damaging means of transport - if it is replaced by train or bus, the climate impact will be reduced immediately.

What other effects does the measure have?

- Less noise pollution for residents* and the environment
- Fairer distribution of flights

How quickly can the measure be implemented?

Implementation can be started immediately. A ban on night flights, a ban on private jets and the abolition of 1 class ticketed aircraft can be implemented immediately. The abolition of domestic and short-haul flights can also be started immediately. Here, however, a gradual abolition and shift to rail should be planned in order to have enough time for investments in rail infrastructure.

How long does it take for the measure to take effect?

The flight restrictions will have an immediate effect. If short distances are shifted to rail, the effect will also be reflected in a change in mobility behaviour, which will probably be accompanied by a change in economic processes.

References to other measures

The limitation of flights should be accompanied by a halt to the expansion of airport infrastructure and the abolition of the tax exemption for the aviation industry, with the simultaneous introduction of a frequent flyer levy. A simultaneous change in institutional travel policies is also important.

Problems of social, global or generational justice

When abolishing short and medium-haul flights, it must be borne in mind that some regions are better and others worse connected to rail infrastructure. Especially when this measure is applied to the global context, it is important to realise that a shift to rail is much easier within Europe than on other continents. However, this is a particular argument in favour of promoting this shift in Europe.

4.7.7 Exit from CORSIA

What´s the problem?

The UN special organisation ICAO (International Civil Aviation Organisation) is responsible for the interests of international air traffic and is also supposed to ensure emission reductions in this area. After years of delay, it finally sets up a mechanism called CORSIA, which stands for "Carbon Offsetting and Reduction Scheme for International Aviation". This mechanism is mainly based on the compensation of emissions: Airlines are to buy credits for the CO_2 emissions that will be added from 2020. These come from projects claiming to reduce emissions, such as tree plantations or hydroelectric power plants.

The aim is to achieve "CO_2-neutral growth" in international air travel from 2020, but the problem is that CO_2 offsetting does not work! The compensation projects are either to avoid emissions elsewhere, which at best results in a zero-sum game, which brings us no closer to our climate goals. Or the projects are supposed to extract and store carbon dioxide from the atmosphere, whereby the long-term nature of this storage cannot be guaranteed under any circumstances. A reforested forest, for example, can be cut down or burned down at any time. In the past, most offset projects have not achieved the promised savings: In the case of the UN's Clean Development Mechanism, the most common offset mechanism, for example, according to a study by the Öko-Institut for the European Commission, this is very likely for only 2% of the projects. Apart from the fact that CO_2 compensation is of little relevance to the climate, the system behind it is also highly questionable for ethical reasons: It is an indulgence trade for mainly societies and industries in the Global North that do not want to question their way of life and production.

The processing of climate problems is being outsourced - to places where it is cheaper to store emissions: To the → Global South, where the majority of offset projects are located. Many of these projects lead to human rights violations, for example in connection with dam projects or the restriction of traditional forest use. Furthermore, CORSIA ignores

the scientific facts: Air traffic is not only problematic because of CO_2 emissions, but also produces other climate-heating substances.

Moreover, CORSIA is voluntary for countries for the first few years. Furthermore, CORSIA is pushing the use of agrofuels to replace kerosene with "alternatives" - including palm oil. These are the main reasons why CORSIA serves primarily the image of ICAO and the aviation industry. Meanwhile, it prevents other, more effective measures to limit flights and their harmful effects on the climate.

What´s the measure?

CORSIA must not be recognized as a legitimate, sufficient measure for emission reduction in international aviation. To demonstrate this, Germany and the EU must withdraw from the corresponding agreement. The emissions of international aviation (including non-CO_2 effects) should be included in the national reduction targets of all states and controlled by the UNFCCC. Effective measures such as the taxation of kerosene, the shifting of flights to rail and others must replace the sham CO_2 compensation.

How will this counteract climate change?

The recognition that CORSIA cannot bring about climate protection deprives the industry of its biggest greenwashing argument. On an individual level, this can lead to reduced use of flights, on a systemic level other, more effective reduction measures must be applied.

What other effects does the measure have?

Offsetting plays a role not only in aviation but also in many CO_2-intensive industries that do not want to forego growth. An exit from CORSIA could give an impetus to a public debate about the injustice and ineffectiveness of CO_2 compensation.

Problems of social, global and generational justice

The system of "flying" is incredibly unfair in many different dimensions: The aviation sector is heavily subsidized by governments, i.e. every one of

us pays for it. Only about 10% of the world's population has ever boarded a plane, and even fewer people fly a lot. Air travel is part of our imperial lifestyle, which is only possible because other people bear the consequences.

5

Just Dwelling and Area Planning

5.1 Preamble

We need a just turnaround in construction! Cement is a climate killer. So are uninsulated homes. At the same time, horrendous rents are driving people out of their homes and into poverty. How can we create affordable and at the same time climate-friendly housing for everyone? How can we design inclusive cities in which we can achieve good coexistence? Cities that allow short distances and also have enough green spaces so that we can survive future hot summers? These questions lie at a central interface between climate protection and social justice. Unfortunately, however, "Just Dwelling and Area Planning " is the area in the climate plan that requires the most care and expansion. At the moment there are no measure texts that are sufficiently complete for us to include them in the print version of the first edition. The wiki and the web version already contain a structure and many suggestions for measures that can be used as a starting point for participation.

We are convinced that the right to housing and ecological building need not be opposites. Are you too? Earth builders, urban planners, rental initiatives: join forces and take on this explosive area!

6

Just Agriculture, Alimentation Sovereignty and Forest Use

6.1 Preamble

According to the IPCC Special Report of August 2019, 23% of current human-made → greenhouse gas emissions are attributable to agriculture, forestry and other land use. However, if all elements, e.g. inputs, infrastructure, etc., and all activities, e.g. processing, distribution and transport, etc., of the global food system are included, emissions are as high as 37%. Globally, most of the emissions from the food system are caused by livestock production. In particular, changes in land use, such as deforestation for growing animal feed or for use as pasture land, are driving climate change. The degradation of the soil itself and the production and use of → chemical synthetic fertilizers also emit enormous amounts of → greenhouse gases into the air. The most important part of global methane and nitrous oxide emissions is also attributable to animal husbandry, for example through the spreading of animal excrement or the decomposition products from the digestion of ruminants[1]. The current model of industrial agriculture is also responsible for enormous social inequality and human suffering here and worldwide: expulsion of small farmers* and indigenous people from their land for the cultivation of large → monocultures (landgrabbing), pesticide poisoning, as well as malnutrition and hunger due to the unequal distribution of means of production, such as land and water.

Overcoming Industrial Agriculture

In order to significantly reduce emissions from agriculture and forestry, to make soil and forests the natural greenhouse gas sink (→ sink) again and to strengthen social justice, a radical reorientation of → agricultural policy is needed. But we are confronted with a process of power concentration in the agricultural and food sector. For example, six companies dominate the global production of pesticides and seeds. In addition, international trade agreements, → subsidy systems and genetic engineer-

[1] Schlatzer, M. (2011): Tierproduktion und Klimawandel, Wien

ing legislation are being passed largely without those directly affected having a say.[2]

Food Sovereignty & Agroecology: Our active shaping of the agricultural turnaround

We therefore consider it important to orient ourselves to the political concept of → food sovereignty. By food sovereignty we mean, following the 2007 declaration at the Nyéléni Forum in Mali[3], the right of people to shape their own food and agricultural systems democratically without harming other people or the environment. This requires the establishment of democratic systems and procedures that are free of violence and the influence of corporations and based on equal rights for all and gender equality.

Agroecology, in turn, is a scientifically sound concept based on ecological principles, the approach of food sovereignty and the right to adequate food. This is demanded by social movements such as the international smallholder movement La Via Campesina. Farmers, processors and consumers are the protagonists of a socially just and ecologically sustainable transformation of agricultural and food systems. Together we can fight for a favourable political framework[4].

Central Elements of Agroecology are:

- **Biodiverse agriculture:** A variety of techniques that contribute to increased biodiversity, humus formation in the soil and a closed

[2] Heinrich-Böll-Stiftung, Rosa-Luxemburg-Stiftung, Bund für Umwelt und Naturschutz Deutschland, Oxfam Deutschland, Germanwatch und Le Monde diplomatique : Konzernatlas - Daten und Fakten über die Agrar- und Lebensmittelindustrie (2017, abgerufen am 20.02.2020) https://www.boell.de/de/2017/01/10/konzernatlas?utm_campaign=ds_konzernatlas&dimension1=ds_konzernatlas

[3] Nyeleni Forum: ERKLÄRUNG VON NYÉLÉNI, Nyéléni, Gemeinde Sélingué, Mali (2007, abgerufen am 2.3.2020) https://nyeleni.org/spip.php?article331

[4] Brot für die Welt et al.: Positionspapier: Agrarökologie Stärken (2019, abgerufen 22.2.2020) https://www.misereor.de/fileadmin/publikationen/postionspapier-agraroekologie-staerken.pdf

nutrient cycle (e.g. crop rotation, legume cultivation) and ultimately also strengthen the self-regulating capacity and resilience of the system. As a result, the soil can become a → sink of → greenhouse gases and producers can become independent of pesticides and nitrogen fertilizers.

- **Regionalisation of the food system:** the establishment of municipal food councils and solidarity agriculture projects; promotion of non-commercial local distribution structures; state purchase programmes for public institutions
- **Deconstruction of industrial livestock farming:** immediate halt to construction of animal industry plants; structural change programme for regions previously dominated by animal industry; halt to all manure imports; ban on all animal feed imports; annually decreasing area quotas for animal feed cultivation; focus on legume cultivation
- **Nature & climate protection:** Reserving former forage areas for climate protection measures, in particular rewetting of former moors; comprehensive expansion of biodiversity corridors; area limitation for energy crop cultivation
- **Move the Focus of Education towards Agroecology**
- **Increase Control over livelihood:** control over land, water, biodiversity and knowledge: collective forms of ownership and cultivation must be accepted and protected; preserve and horizontally exchanage local seeds, demand agricultural reforms; squat land
- **Strengthen rights of migrant seasonal workers**

Political Processes

- Reorientation of the European Commeon Agricultural Policy
- Demand that German politics emhasizes an agricultural turnaround towards ecology in the climate negotiations of the united nations (UN) and in it's international development cooperations. That means, espacially, financially supporting the "Scaling up Agroecology"-Initative of the fooad and agricultural organisation of the united nations (FAO).

- Demand the German Federal Government to sign the UN Smallholder Declaration
- Climate-Smart Agriculture solutions should be seen skeptical, because methods such as the use of genetically modified seeds or precision farming are often equated with agroecology

6.2 Agriculture and Alimentation Sovereignty

6.2.1 Carbon storage by perennial crops

What's the measure?

Instead of mainly annual crops, perennial crops are grown. These can be perennial vegetables, such as artichokes and rhubarb, or perennial cabbages. There are also newly cultivated perennial cereals (as soon as they are ready for the market), as well as trees with carbohydrate-rich fruits such as nut trees.

How can the implementation look like?

- As soon as the real costs of fossil fuels are taken into account, the real work of the various cultivation systems will become visible again. From that moment on, perennial crops become interesting for farmers*, as the real workload is lower.
- In addition, the usual regulatory tools can of course be used, such as → subsidies.
- Of course, the products of perennial crops must also be accepted by the→ consumers*. However, in Central Europe, the situation is that the consumption of e.g. nut fruits is far above the domestic production.
- Furthermore, many products that are currently made from soy, can also be produced from hazelnuts, while the sweet chestnut can replace corn, both in food production and in industrial products.
- With the merging of production and consumption, consumption can be adapted to a reasonable production.

How will this counteract climate change?

- The mechanical processing steps are less frequent, so there is no need for annual soil preparation and sowing. Also the support against competing vegetation loses importance, as the perennial crop has already established itself after the first year.

- Due to the omission of ploughing, no carbon is released into the atmosphere. Instead, carbon can accumulate as humus in the soil.
- In the plant parts themselves, bound carbon accumulates. This effect is particularly relevant for tree crops.
- The biomass of perennial crops can still be used for energy production after the cultivation period. Above alle, this applies to trees as well. Then the saving occurs, because fewer trees have to be cleared elsewhere or less fossil energy is required.

What other effects does the measure have?

With perennial crops, → biodiversity increases because year-round habitats are created. Biodiversity increases enormously, especially when mixed cultures of perennial crops are planted.

How long does it take for the measure to take an effect?

The effect lasts as long as the measure. Or even beyond the establishment of stable permanent humus.

6.2.2 Optimize nutrient recycling on agricultural businesses

What's the problem?

Since the recycling rate of nutrients in agricultural businesses is currently very low, huge amounts of nutrients have to be added and this amount gets imported. Here, by the production of the imported input, as well as by transporting it, greenhouse gas emissions are generated.

An example: Nitrogen (N) is a limiting nutrient for the growth of plants. Therefore, fertilizers must often be used to ensure sufficient plant growth and thus sufficient crop yields. In → conventional agriculture, mainly synthetically produced fertilizers are used. Their production is energy-intensive and causes large amounts of GHG emissions (roughly two tons of crude oil are used to produce one ton of nitrogen fertilizer).

What's the measure?

In agricultural businesses, nutrients should be recycled better and to a higher amount.

How can this be implemented?

In order to recycle the nutrients of the own farm, organic fertilizers (e.g. manure, compost and biogas digestion), as well as plant residues (e.g. mulches or N-fixing legumes) can be used in the crop rotation. These are materials that usually already exist on the farm.

Composting: Farmers composted various materials, such as farmyard manure, grass clover and/or other materials, such as residues from wine and olive processing. Regular turning, either with a special turning device of a contractor (rental machines) or with own agricultural machinery (e.g. tractor with forklift truck), as well as covering the compost rental with fleece blankets and the use of a solid underground help to optimize the process.

Biogas production and utilisation from liquid waste: Ferment the farmyard manure in our own biogas plant.

Mobile animal husbandry: The cattle can be kept in mobile stables on the arable land and so the straw bedding and excrements of cattle, pigs, sheep and chickens can be used directly as fertiliser for the arable land.

How does this work against climate change?

- The production and transport of fertilisers emits fewer GHG emissions than synthetic fertilisers.
- Composting can efficiently reduce GHG emissions, especially methane, compared to storing manure in an open manure heap or pit.
- Methane emissions can be reduced by fermenting farmyard manure for biogas production. In addition, the produced biogas can be used for heating and thus emissions from fossil fuels can be avoided. In addition, farmyard manure can be used on one's own fields, which reduces the need for imported fertilizers.
- By using the straw deposits and excrements of the cattle as fertiliser, the need for imported fertilisers is reduced.

Which other effects does the measure have?

- Organic fertilisers also have an impact on global warming through direct and indirect N_2O emissions during storage and use, as well as on air pollution through leaching/emissions of NH3) and on groundwater contamination through nutrient leaching. In addition, farmyard manure causes CH_4 and N_2O emissions.
- Compared to the spreading of mineral fertilisers, the spreading of compost in the field improves the soil structure and therefore the resistance of the farm to extreme weather conditions (droughts, heavy rainfall). At the same time, compost carries fewer hygienic risks than fresh manure - which can be important in vegetable gardening or on grassland.
- Mobile animal husbandry produces far less animal suffering than industrial mass livestock farming. Furthermore, it limits the total number of animals, as they are directly bound to the arable land.

6.2.3 Reform of the immission protection law

What's the problem?

In the Federal Immission Protection Law (FIPL, German: BImSchG) the impact of immission on climate change only plays a subordinated role.

What's the measure?

Climate protection is given high priority in the examination of immission control permits, which is carried out by the trade supervisory authorities. The Federal Immission Protection Law will be modified in such a way that all agricultural and food-processing operations that have a high degree of negative impact on the climate and are not essential for supplying the population may no longer be licensed. The applicants* are obligated to provide evidence. Nature- and environmental protection associations, local residents and those affected by climate change will be granted a comprehensive right of complaint, the use of which does not represent a financial risk for them.

How can the implementation look like?

The Federal Ministry decides on a reform of the Federal Immission Protection Law and submits it to the german Bundestag.

6.2.4 Climate and nature protection as part of the job description for farmers*

What's the problem?

Many social conflicts in local agriculture arise from a global overproduction crisis, with the consequence of prices below production costs, a high proportion of unused ("thrown away") food, the need to concentrate capital and expand land, a focus on luxury products and "refinement", especially animal production or organic products, which are preferably commercialized as a social status symbol, farm deaths and extreme exploitation of nature.

In order to reconcile affordable food, climate and environmental protection and the preservation of rural agriculture, the agricultural sector needs a fundamental structural and cultural change which, among other things, allows food production to be at least partially decoupled from market activities.

What's the measure?

Farmers are assigned climate and environmental protection as an additionally paid task. This gives them a livelihood beyond food production and independent of the food markets.

This takes into account the insight that climate and environmental protection on the one hand, and agriculture on the other, are ideally not carried out alongside each other, but "within each other".

This can only work, however, if climate and environmental protection become not only an obligatory framework but also a core objective of agricultural activity and make a significant contribution to the livelihood of the rural population.

How can the implementation look like?

On the one hand the measure consists in a fundamental reorganisation of the teaching content in agricultural training and on the other hand in the awarding of part-time jobs or long-term work contracts for climate and environmental protection. Farmers* should not only be the executive

bodies of state environmental protection authorities, but should act as experts in local conditions.

They will manage rewetting and reforestation on their own or state-owned land, and in some areas they will carry out food production and nature and climate protection in parallel, for example by implementing measures to promote biodiversity or to bind carbon in the soil.

Ideally, this structural change will result in a farming method in which, in the sense of permaculture, all elements fulfill several functions chosen from a spectrum of environmental conservation and food production.

How will this work against climate change?

The measure sustainably supports different climate protection measures in agriculture by creating the possibility of climate protection measures in rural areas and above all by enabling a socially just transformation of rural social areas, without which climate protection measures will hardly be politically enforceable.

It is therefore also a contribution to greater climate justice.

How quickly can the measure be implemented?

Implementation can begin immediately. A successful structural change takes time.

6.2.5 Healthy landscapes through species-rich meadows

What's the problem?

The climate and → biodiversity discussions are mainly focused on forests and farmlands. Forests are usually considered to be positive, farmland is usually seen as negative. What is often overlooked is the fact that there is also permanent grassland, i.e. the agricultural meadows and pastures as well as the nutrient-poor grassland, which used to be part of agriculture. The Grassland - and this article will focus exclusively on Central European grassland - is of very high and previously completely underestimated importance in terms of climate protection and biodiversity.

This is partly due to the fact that, at least in Germany, trees and forests have a fundamentally positive emotional connotation and people believe that planting trees is always good for everything. If a tree is felled, there is a great outcry in the population, but if a meadow rich in flowers and herbs is turned into a field, nobody cares, although the greatest diversity of plant, insect and bird species in Central Europe is not tied to the forest at all, but to the open cultural landscape with its flower-rich (!) meadows and pastures, neglected grassland and wet meadows, fields, and field margins, roadsides, ponds, ditches, borders, etc..

The species-rich grassland stores a great deal of carbon due to the humus build-up in the soil. Moreover, as wintergreen vegetation, it even has the advantage over the forest, because it binds CO_2 also during winter months when the forest is completely inactive. The evergreen species-rich grassland - meadows, pastures, nutrient-poor grassland - has a very high and hitherto completely underestimated importance with regard to climate protection and biodiversity. The focused needs to be shifted towards these factors.

What's the measure?

The most important measure is an educational work that raises the importance of species-rich meadows and pastures in Central Europe to at least the same level as that of forests. A practical measure is to optimise or newly establish species-rich meadows and pastures in as many places

as possible, with the aims of (1) obtaining healthy basic feed for agricultural animals, (2) increasing the diversity of animal and plant species in a region and (3) making a very significant contribution to the carbon sink.

What can the implementation look like?

The implementation can only be done together with agriculture or, on a smaller scale, with horticulture. Farmers and gardeners must learn to appreciate the species-rich meadows and pastures in a new way (see educational work!), primarily for agricultural reasons such as animal health, humus formation, biological pest control, pollinator performance of wild bees etc. etc. They must then be advised, for example by trained "agricultural plant sociologists".

How does this help to counteract climate change?

Forest development and tree planting are highly regarded in times of climate change and one could give top priority to the forest for reasons of climate protection. However, this is questionable, as Idel & Beste (2018) show: Globally, grassland soils store much more carbon than forest soils. This can happen because the root mass in permanent grasslands (meadows and pastures) is up to 20 times greater than the shoot mass; the reverse is true for forests, where the root mass is on average only half as large as the above-ground part.

In addition, in Central Europe, the → vegetation period of evergreen grasslands is significantly longer than that of forests, because grasses begin to grow at very low temperatures - thus a longer period is available for the formation of organic matter. It is therefore very likely that, at least by Central European standards, the focus of climate protection will have to be directed much more towards grasslands and not forests (Temperton et al. 2019).

What other effects does the measure have?

Besides climate protection, the development of species-rich meadows and pastures is of the greatest importance for Central European biodiversity. This is because most of the flora of Germany, for example, is

linked to extensive meadows, pastures, and nutrient-poor grassland. The same applies to the world of insects and birds (Kunz 2017). Meadows and pastures and even the lean grasslands have a higher dietary effect on livestock due to their healthy growth of grasses and herbs and thus have a positive effect on agricultural product quality.

The meadows, which are particularly rich in species, were once even considered to be the "stable pharmacy".species-rich grasslands have a particularly high aesthetic attractiveness due to the enormous abundance of flowers; in addition, the buzzing and humming of insects and the chirping of crickets. Also, the songbirds, which in turn live from the insects, enrich the experience quality of the extensive mowing meadows with their singing. These are the "meadows of childhood", which convey a particularly intense feeling of home and security. Rural mixed farms with species-rich grassland and arable land also have positive social effects, as people from the farm environment, the clientele or other groups (schools, kindergartens) like to connect with such a flowering farm and want to help here. Thus the idea of solidarity-based agriculture can be extended to biotope management, for example.

How quickly can the measure be implemented?

The educational work and the establishment of species-rich grassland can start immediately. The accompanying training of "agricultural plant sociologists" as project consultants will take a few years.

How long will it take for the measure to take effect?

The biodiversity-enhancing, aesthetic and agricultural effects start immediately - in the year after the measure. The climate-relevant effects are more long-term.

6.2.6 Green permaculture in the smallest spaces

What's the problem?

Large quantities of greenhouse gases are produced by food production due to inefficient land use as well as imports of food and animal feed from abroad.

What's the measure?

Set up permaculture even in the smallest spaces.

How can this be implemented?

In permaculture, different elements are combined intentionally. To create a (tiny) permacultural garden, one can choose to work on a piece of soil, a high bed, tubs, boxes or anything similar. Nevertheless, the smaller the container, the more awareness has to be put on the ground moisture. Later on, there'll be more explanation on the meaning of permaculture, references on literature and recommendations for further education.

1. Low maintenance on 1m^2 area: In autumn, plant a fruit bush and cover the remaining area 20 cm high loosely with hay as mulch material (or other existing organic material), leaving the trunk free.

Harvest: once a year

Maintenance work: Apply hay mulch 20 cm high once every autumn and cut back if necessary. For potted plants, regular watering must be ensured.

2. Little more maintenance on 1m^2 area: In spring plant herbs. Here it is important to factor in the location conditions of the desired herbs.

Harvest: from spring to autumn.

Maintenances: mulch flat several times a season (always keep the ground covered) and cut back if necessary. Remains of herbaceous plants from cutting back or from the kitchen can be used as mulch material.

3. More maintenance on 1m² area: Plant and seed vegetables in spring. Here it is important to pay attention to the location conditions, space requirements and possible crop rotation of the desired vegetables. With e.g. three times 1m² the crop rotation and the use of green manure can be easily implemented.

Harvest: from early summer, depending on the varieties, until winter.

Maintenance work: mulch flat several times during the season (always keep the ground covered), reseed as desired. Remains of the vegetable plants or from the kitchen can be used as mulch material (leave seeded strips free) or, e.g. for zucchini in autumn before, hay mulch 80 cm high on the whole area. Hay mulch: if a small green area is available, it can be produced by yourself. Alternatively, you can ask a trusted farmer*. Otherwise straw mixed with compost or dung or leaves or wood chips can be used. The point is to use existing resources.

How does this counteract climate change?

- No transportation and no packaging for the home-grown food
- Storage of CO_2 by root mass and prevention of soil erosion

Which other effects does the measure have?

Due to hay mulch:

- Habitat and food for soil creatures and insects
- CO_2 Storage
- Moist soil climate even in dry seasons

Due to the orchard:

- Root mass, that prevents soil erosion
- Habitat and food for insects
- Food for you and other people, you want to give it to and for birds and insects

Due to different herbs:

- Diversity and Freshness on your meal menu
- Diversity and therefore food and habitat for insects

Due to different vegetables:

- Diversity and Freshness on your meal menu
- Diversity and therefore food and habitat for insects

Problems of social, global and intergenerational justice

It is necessary to have access to land, even if it is very small, which tends to be granted only to the better-off sections of society.

6.2.7 Supporting biovegan cultivation

What's the problem?

As explained in detail in the measure 'Voluntary commitment to reduce animal production', livestock production generates large amounts of greenhouse gas emissions, mainly due to its high land consumption. Because of its dominant role in agriculture, animal production and plant production, that depends on animal products, is very important in the education of prospective gardeners* and farmers*, in research and product development, and in the promotion of farms. This measure facilitates and accelerates the dismantling of animal production, which is necessary for climate protection.

What's the measure?

In biovegan cultivation, no animals are kept for the production of food and at the same time no substances of animal origin are used, including liquid manure, blood - and fish meal. As in conventional organic farming, no synthetic chemical fertilizers or "pesticides" are used. By promoting biovegan cultivation (as well as agroecology), climate-friendly alternatives to animal production are thus strengthened and expanded in practice. In concrete terms, farms are to be supported in converting to biovegan cultivation. In addition, the further development of biovegan cultivation is to be scientifically accompanied. And biovegan cultivation is to play a central role in the curriculum of training, courses of study and further education for gardeners* and farmers*.

How quickly can the measure be implemented?

With immediate measures the support of biovegan agriculture can start directly. In the medium term, existing support mechanisms, in particular those of the European Union's Common Agricultural Policy, must be modified accordingly.

How long does it take the measure to become effective?

The measure is based on different mechanisms, therefore the saving effect will begin at different times. For example it is possible to convert single farms within a few years, whereas a longer period of time is to be assumed until gardeners* and farmers* have acquired appropriate knowledge, area-wide.

Which other effects does the measure have?

Apart of the dismantling of livestock production, biovegan argiculture benefits environmental protection by not using synthetic-chemical fertilizers and "pesticides"-combating agents.

References to other measures

This measure relates to the measure 'Voluntary commitment to reduce animal production'. Due to the support of biovegan agriculture, existing companies which operate animal production or depend on it, can be disengaged from it.

6.2.8 Reform of the Common European Agricultural Policy: rewarding public services

All in all, it can be said that the current state of the Common European Agricultural Policy (CAP) promotes industrial production methods and thus contributes to climate change. A reform of the CAP therefore appears to be overdue. (→ Agricultural policy).

What's the problem?

The Common Agricultural Policy (CAP) accounts for more than a third of the EU budget. Germany receives 6.2 billion euros annually from the European agricultural budget. The Federal Environment Agency, the Working Group on Rural Agriculture and other stakeholders describe the current form of the CAP as inefficient in terms of environmental protection and criticise the fact that the flat-rate area-based payments primarily benefit large farms. Since 2003, European farms have been receiving a flat-rate area payment: the more area, the higher the direct payments. This is intended to support farmers' income. But in the EU as a whole, 80% of the money goes to 20% of farms. In contrast to other countries, there is also no upper limit for → subsidies in Germany. There is also a sub-programme in the promotion of the so-called second pillar, "rural development", which is intended to serve environmental protection. However, these programmes would have a little effect considering the fact that their sum is much lower than that of the first pillar and that they have to be co-financed by the states.

What's the measure?

1. Abolition of the CAP funds in the first and second pillar. Instead, a consistent orientation of the entire CAP subsidies (--> Subvention) towards social services that are positively rewarded in terms of income: Management of areas with a low average plot size (diverse plot structure):

- Use of agro-ecological cultivation methods (→ Agroecology)
- Preservation and maintenance of landscape elements

- Compliance with high animal husbandry criteria
- Preservation, continuation and new establishment of sustainable farming operations
- Cultivation of food crops instead of energy crops (except where the latter is more ecologically sound, e.g. --> paludiculture on organic soils)

2. To review the setting of binding and ambitious climate, environmental, animal welfare and social objectives for all EU Member States with binding minimum budgets, impact indicators and, if necessary, to enforce them by means of sanctions 3. Prioritisation of agricultural research funds for the promotion of → agroecology and participatory research with producers

What can the implementation look like?

In the forthcoming 2020 CAP reform, Germany should work within the EU to ensure that the money is only paid for environmental, climate or water protection, animal welfare and sensible structural investments in rural value creation

How will this counteract climate change?

- Income-effective remuneration for the integration of legumes in extended crop rotations, agroforestry systems, optimised nutrient recycling and reduced tillage without the use of pesticides can reduce GHGs or create natural → sinks for GHGs (Greenhouse Gas Emissions)
- Reducing nitrogen emissions by setting mandatory, ambitious quantifiable targets for reducing the use of agrochemicals, in particular mineral fertilizers, to avoid nitrogen surpluses.
- Reduction of GHG from livestock farming by obligatory land commitment in livestock farming, promotion of extensive grazing, and linking investment support for livestock buildings to climate protection requirements such as reduced livestock numbers and straw bedding or separation of solid and liquid excrement.

- Saving GHG from transport and storage by promoting regional processing and marketing.
- Reduction of GHG by promoting permanent pasture protection and withholding or refunding the total CAP payments in case of unauthorised permanent pasture conversion
- Creation of natural GHG sinks by promoting bog restoration and withholding or repaying all CAP subsidies in the event of breaches of bog protection.

What other effects does the measure have?

- General strengthening of organic farming in Europe and thus improving biodiversity and water quality
- The current CAP contributes to a decreasing number of small and medium-sized enterprises in the food processing sector and thus to fewer people making a living in the field of agriculture. A reform could reverse this trend.

6.3 Reduction of Industrial Livestock Farming

6.3.1 Structural change programmes for regions previously strongly dominated by the animal industry

What's the problem?

There are several regions in Germany, that are strongly dominated by the animal industry, e.g. the Emsland (Niedersachsen), Münsterland (NRW), the county of Ludwigslust-Parchim (Mecklenburg-Vorpommern), Königswusterhausen (Brandenburg), Cloppenburg (Niedersachsen) and Vechta (Niedersachsen). A democratic and solidary programme of structural change is necessary for a climate-just transformation of these regions.

What's the measure?

The programme will include ecological, socially responsible and plant-based food production and the enhancement of rural life. Secondly, special attention will be paid to the development of public transport, accessible medical care, local shopping facilities and the promotion of cultural and educational institutions such as theatres, cinemas, concert halls, community centres, sports halls and adult education centres.

How can this be implemented? The structural change programme is developed and decided upon together with representatives of those affected by climate change, nature and environmental protection associations, young people, workers*, farmers*, animal rights and animal protection associations and the community. The money required for this is taken from the accounts of the animal industry companies located there.

How does this counteract climate change?

See Selbstverpflichtung zum Rückbau von Tierproduktion (Voluntary commitment to dismantle animal production)

6.3.2 Import ban for animal feed

What's the problem?

About one third of the agricultural products fed to animals in Germany are imported (BMEL). Legume imports play a major role: according to GLEAM, the destruction of the rainforest due to imported soy alone leads to emissions of almost 16 million tonnes of CO_2/Eq, which is almost 20% of German emissions from animal production.

In addition, German imports of feed of edible fruits (such as barley, maize, palm kernels, rapeseed) and fishery products drive up the global market prices, at the expense of the poorer part of the world population and with the consequence of hunger and malnutrition.

What's the measure?

The termination of feed imports must be the first step in the process of reducing livestock production (see the measure: Voluntary commitment to reduce livestock production) and must take place as soon as possible within a period of a few years.

How can this be implemented?

Any free trade agreements affected must be terminated, renegotiated by consensus or temporarily ignored. The import ban can be decreed by law. Small farms affected by the measure should receive the necessary funds for conversion, see also: Climate and nature protection as part of the job description for farmers*.

How does this work against climate change?

Even if animal feed were replaced by domestic products, the 16 million tonnes of CO_2/Eq mentioned above could be saved directly. If, as is to be expected, the import ban is accompanied by a decline in animal production, the savings are derived from the key data for animal production (see: Voluntary commitment to reduce animal production).

Which other positive effects does the measure have?

Reduction of the expansion of areas for soy monocultures, thus protecting the tropical rainforests and preserving the habitats of the indigenous population, saving fossil raw materials for the transport of animal feed across continental borders.

6.3.3 Gradual reduction of forage fields

What's the problem?

The dominance of climate-damaging animal production in agriculture (cf. voluntary commitment to reduce animal production) is reflected in its immense land consumption: More than 50% of Germany's agricultural land is used as forage fields, of which more than 60% is used for the cultivation of fodder, the rest as grazing land (all figures for 2013 according to BMEL0).

This proportion of land includes former moorland areas, especially in Lower Saxony, Schleswig-Holstein and Mecklenburg-Vorpommern, which cause particularly high →greenhouse gas emissions and need to be drained (cf. Protection and rewetting of moorland soils).

But other climate protection measures in agriculture also require land: for conversion to more land-intensive organic farming, for the cultivation of renewable raw materials, and for the use of soil and vegetation as a Co2 sink.

These areas can be gained by reducing the number of forage fields without reducing the amount of locally produced food. This is because 2-30 times more land is required to produce 1 calorie of animal food than to produce the same amount of plant food (cereals: 1 sqm/1Mkal, beef: 31.2 sqm/1Mkal (according to Peters et al., 2007, quoted by Schlatzer, 20110).

What's the measure?

The measure consists of a combination of closure and conversion from feed to food production.

How can this be implemented?

- Closures should be carried out in accordance with climate- and nature protective considerations (especially moors and former moors) and preferably affect larger farms.
- Smaller farms receive compensatory land if a closure is necessary. Otherwise, they are only affected by measures for conversion.

- The set-aside areas remain in the possession of the farms and are managed by them in accordance with local planning authorities in return for payment or compensation.
- If the measure starts in 2025, approximately 200,000 ha are to be set aside or converted annually in order to reduce the forage fields in 2050 to 15% of the cultivated farmland in 2013.
- The measure is planned for the long term so that farms can adapt to it.

How does this counteract climate change?

On one hand, the greenhouse gas emissions from livestock production (88 million tonnes CO_2/Eq in 2010, with a strong upward trend) will be reduced, and on the other hand, further climate protection measures, such as the rewetting of moors (see Protection and rewetting of moor soils), will then become possible in the first place.

Which other effects does the measure have?

Livestock production is changing to a predominantly extensive and therefore more environmentally friendly method of husbandry and is also being greatly reduced, with extremely positive consequences for →Biodiversity and water management. Nitrogen emissions and the resulting forest damages are reduced.

How quickly can the measure be implemented?

The measure should start after the import of feed has stopped (cf. stop of feed imports).

References to other measures

There are references to other measures:

- Protection and Rewetting of moor and soils
- Voluntary commitment to dismantling of animal production
- Einfuhrstopp für Futtermittel (Import stop for forage)

- Renaturierung und Ausweitung der Schutzgebiete (Renaturation and expansion of protected areas)
- Structural change programmes for regions previously strongly dominated by the animal industry

6.3.4 Commitment to reduce animal production

What's the problem?

70% of German agricultural production (in grain units) is accounted for by the animal production sector, which uses more than 50% of the agricultural land for forage and additionally imports 1/3 of the used forage proteins (all data of 2013 according to BMEL).

Emissions from animal production, which contributed 88 million tonnes of CO_2/Eq or 9% of the German greenhouse gas emissions in 2010 (GLEAM/FAO), are correspondingly high and rising.

The main cause of these emissions is the great land consumption of animal products: For the production of 1 calorie of animal food 2-30 times more land is needed than for the same amount of plant food (cereals: 1qm/1Mkal, beef: 31.2 qm/1Mkal according to Peters et. al. 2007, cited according to Schlatzer 2011).

Further problems of animal production are water ecology, miserable working conditions in the fattening- and processing-business and incomprehensible cruelty against the farm animals degraded to commodities. The increasing import of feed protein to Germany is directly responsible for the loss of rainforests in South America and Asia as well as landgrabbing and the resulting expulsion of the local population.

What's the measure?

The aim is a gradual reduction of the German livestock with the aim of wide renunciation.

On a regional basis, certain forms of animal husbandry can have a climate-protecting effect or be indispensable for other reasons (landscape protection). This should be taken into account. In terms of quantity, these cases should hardly carry any weight.

In order for the reduction of animal production to be socially equitable, investments by small and medium-sized farms must be protected or losses compensated, all in agreement with the farmers. This includes long-term planning security and subsidies for the conversion of farms to

plant production and environment/climate protection as new income-generating farm tasks.

The climate effectiveness of this measure depends on two decisive framework conditions:

An important part of the climate impact of this measure is that agricultural land (pastures, meadows, arable land for forage) can be shut down. It is important to ensure that these areas are used for climate protection and that, in particular, rewetting or reforestation takes place. Conventional energy and raw material plant cultivation should therefore be limited in terms of land.

It must be prevented that the deconstruction of the domestic animal industry is compensated by imports of animal products from abroad.

What could the implementation look like?

The dismantling of animal production incorporates a large number of different measures, some of which build on each other and some of which depend on each other.

The following measures belong to this implementation:

- An immediate halt to the construction of animal industry facilities
- Complete import stop for liquid manure
- Stopping all forage imports
- Decrease of land quotas for forage cultivation every year.
- Reformation of the Immission Protection Law
- Structural change programmes for regions previously dominated by the animal industry
- Fair basic income in food production
- Facilitation of biovegan cultivation
- Climate and nature conservation as part of the job description for farmers
- Food supply by the government
- Workers' Self-administration

How does this work against climate change?

By completely dismantling animal production in Germany, direct emissions of almost 90 million tonnes of CO_2 equivalent would be avoided. However, more vegetable food must be produced in correspondance. Based on the assumption that vegetable protein causes 1/4 of the emissions in comparison to animal protein (this is a rough estimate due to the very wide spread of emissions - cf. in particular Nijdam et al. 2012, p. 764, Fig. 1), the production of additional plant food would generate 22 million tonnes of CO_2-Eq, so that the net savings effect would amount to 67 million tonnes of CO_2-Eq.

What other positive effects does the measure have?

The dismantling of animal production will tackle enormous torments to which animals are exposed in research facilities, breeding facilities, hatcheries, fattening farms, dairy farms, transports and slaughterhouses, whose acceptance in the population is increasingly dwindling. In a society in which a good and healthy supply of food does not depend on animal components, keeping and killing animals is not necessary. A society that is committed to following values such as solidarity, non-violence and compassion will become more credible to these values through the deconstruction of animal production, which will also have an impact on human coexistence.

A dismantling of animal production also benefits the workers* in the fattening and slaughterhouses, who suffer from massive exploitation. Even if the workers would receive reasonable working hours and a fair wage - from which they are miles away despite repeated promises - the capture, driving, killing and cutting of animals is an unreasonable and psychologically enormously stressful work.

The dismantling of animal production also has positive effects on regions with a high animal density. Currently these exceed the nitrate limits for drinking water frequently, which can cause cancer.

There are also positive effects on species diversity, since the current system of destructing diverse habitats and the enormous use of persti-

cides for animal feed cultivation highly benefits the worldwide extinction of species.

Last but not least, antibiotic abuse is of central importance in animal production and can be effectively prevented by reducing animal production. In order for the animals to survive their short existence in far too little space with bad and one-sided feed, they are systematically treated with antibiotics. In the case of chickens and turkeys, individual treatment would usually be too expensive, which is why they are routinely treated with antibiotics through their drinking water. The high and systematic use of antibiotics leads to the formation of antibiotic-resistant germs, which can be transmitted to people who work in fattening facilities or animal transport or close by, during the manufactural process or through the air. This in turn can lead to a prospect where people can no longer be treated with antibiotics and the germs can be transmitted to other people with weak immune systems. According to the Robert Koch Institute, in Germany 10,000 to 20,000 people die of nosocomial infections every year. One of the reasons for this is the use of antibiotics for farm animals.

How quickly can the measure be implemented?

The deconstruction of animal production can begin immediately, but it would be reasonable to work out a phase-out plan that first dismantles the most damaging sectors and which takes the interests of workers* in the animal industry as well as small farms into account. A quick stop of the forage imports should be a priority.

Effective implementation requires fundamental changes in the political framework. These include the deprivatisation of agriculture and the introduction of grassroots democratic councils of farmers*, food workers* and consumers* to plan and control a comprehensive turnaround in agriculture.

Possible immediate measures within the current political framework include construction stops, intensification of import quotas for animal feed and slurry as well as export quotas for animal products and reorganization of subsidies. A ban on all manure imports by 2021 seems feasible,

with regard to animal feed a ban on imports by 2025 and an annually decreasing land quota for animal feed cultivation in Germany with a maximum limit of 15% of arable land by 2050 seem viable. These measures would have to be accompanied by structural change programmes for regions previously dominated by the animal industry.

How long will it take the measure to have an impact?

The measure will have an immediate effect.

An immediate end to the expansion of animal production and the ban on feed imports will directly reduce the clearing of rainforests for the cultivation of forage.

A reduction in animal production, especially cattle farming, will directly reduce methane emissions from ruminants and manure.

The reforestation of areas and the rewetting of moors on the other hand, is a long-term process, that will only bind a relevant amount of greenhouse gases in the next decades.

References to other measures

Animal production is a central component of today's agriculture, both in Germany and globally. This means that there are links to most measures in the context of agriculture.

For example, large parts of drained bog soils are used for forage cultivation and grazing, so that the measure "Protection and rewetting of bog soils" is based on the measure described here.

Problems of social, global or intergenerational justice

The consumption of animal products has a high value in the culture of some human societies, the reduction and the renunciation can be seen as an restraint of the individual freedom. Therefore the transformation has to be accompanied by educational measures and programmes. It is indispensable to provide affordable alternatives.

Animal husbandry is part of a farmers traditional job profile. Many farmers identifiy with it. Therefore it is important to prepare a high sensibility and a willingness for dialogue. Attractive alternatives which

include participation, facilitation for rural areas and the protection of livelihoods, are necessary.

Some regions and communes depend on the jobs and earnings in the animal production area. They should not be left alone with the exit, there should rather be a solidary structural change programme, which needs to be planned and implementated considering basic democracy and the perspectives of the affected people.

Many people with migration background work in the slaughter and cutting factories. Obviously they shouldn't be left alone either. They will be paid compensation for the hard work they had to do under bad conditions for many years. They will get an unconditional right of residence and surely have the opportunity to take part in the planning and implementation of the structural change programes.

6.4 Forest and Land Use

6.4.1 Leaving dead and damaged wood in the forest

What's the problem?

In current practice, "dead and damaged wood" is usually removed from the forest for economic reasons. However, it is of great importance for forest ecosystems and their resilience, and purely economic considerations must no longer be of importance in times of climate change.

What is the measure?

The measure therefore is to leave dead and damaged wood in the forest to a far greater extent. In protected areas anyway, but also in forests used for economic purposes. Trees which are settled in "untidied" areas by wind flight and by the transport of seeds by birds and other animals are more stable, less risky and more resilient than those planted by humans, since they are species adapted to the location and their roots have not been damaged by replanting. "Damaged wood" offers good conditions to young trees for natural regeneration due to a better moisture balance, nutrient storage and protection against extreme weather or strong sunlight. All functions of "damaged wood" for natural regeneration are of exceptional value, especially in times of climate change.

How can the implementation look like?

If less wood is felled and the trees are allowed to grow older and thicker, there should quickly be more deadwood. And then simply leave it lying around. So it is a matter of simply omiting action and turning aways from economic productivity and profit thinking.

How will this work against climate change?

Carbon is stored in the deadwood itself, which is only gradually released through slow decomposition and is usually directly re-metabolized by the deadwood organisms. Deadwood thus contributes to further carbon

sequestration. Together with regenerating forest soils, deadwood could bind an average of 8 million tons of CO_2 per year in Germany.

What other positive effects does the measure have?

Other very relevant effects are erosion protection of the soils. Furthermore, the wood serves as an additional water reservoir and as a habitat for countless animal and plant species until it has decomposed completely. Dead trees are inhabited by fungi, beetles, birds and bats and used as nesting and breeding places. Many beetles, which are on the Red List of Threatened Species, depend on such wood as their habitat. Especially dead wood from beech and oak trees is a valuable habitat. The diversity of species is maintained and promoted. This is of enormous importance for stable ecosystems, especially in times of rapid species extinction.

How long does it take the measure to become effective?

Since Germany's forests are relatively young, it takes some time until really old trees and thus also large dead trees are existent. However, for example, dead wood accumulates very quickly, especially in oak forests, which also provides a particularly valuable habitat.

References to other measures

References to protected areas, ecological near-natural forest management and more efficient wood use.

Problems of social, global or generational justice

An often articulated concern is the affection by e.g. bark beetles in conifer monocultures and the affection of similarly structured areas by leaving the damaged wood lying around. Overall however, (see also other measures) the conversion to site-adapted, stable and near-natural mixed cultures is aimed at. This forest conversion is thus advanced faster than the much slower conversion from a culture of the same age to a structurally rich mixed forest. There could be compensation payments for this.

6.4.2 Reduced, long-lasting and efficient use of wood

What's the problem?

When wood is used as a material, the carbon bound by the construction remains stored in the wood product for the time being. Therefore it becomes relevant how long the wood product is used. At the moment a lot of wood is exported and imported (as raw material or in processed form). The associated transport routes and trade flows cause emissions. The aspired regional wood processing is becoming increasingly difficult, as traditional sawmills are no longer profitable or have been driven out of the market by large companies.

What's the measure?

In long-lasting products (used for a long time) such as furniture or wood as a building material, carbon bonding is still present. Products made out of primary wood must therefore be designed for a long-life use. If fewer products are used over a longer period of time, the wood consumption will not increase even with the increasing use of wood for example as a building material, but rather decreases instead. Wood as a substantial substitution material is particularly relevant as it can replace other non-renewable materials such as cement, which are very energy-intensive in their production and have numerous ecological and social consequences (especially in mining areas). In addition to the efficient and long-lasting use of wood, cascade use is also relevant. There wood is used several times and at different levels for different areas of use. In contrast to material substitution, energy use (as a substitution for fossil fuels) must be viewed critically. When wood, in the form of pellets or wood chips, is used to generate heat and electricity, the carbon previously stored in the wood is released again. On a very small scale the energetic use of wood is a possibility, if it only concernes wood waste that cannot be used in any other way, but this should not be developed as a large-scale business model. Especially the import of non-sustainably harvested wood such as wood chips or pellets from international forests is highly problematic.

How can the implementation look like?

More local and regional value added chains are needed to process wood as a building material. Small, local and regional sawmills that process the raw material for construction/material should be supported by appropriate assistance measures. In addition, architects and planners who give priority to wood as a building material, timbermen who construct durable buildings with wood as a building material, and carpenters and joiners who can build durable furniture and floors from wood, are needed. A focus on this in the respective training of the professions is therefore necessary. Furthermore administrations and politicians who, for example, give priority to wood as a building material via building regulations, are important. Such as generally corresponding laws, which consider e.g. the ecological balance of products in particular building materials. For products made out of wood, regulations regarding a minimal utilization time and an obligation to guarantee the usability of the objects over correspondingly long periods of time, can be associated. Many construction projects are commissioned by governmental decision-makers. In addition, the use of wood products (paper!) in public spaces is of large proportion. Here the priority has to be shifted away from the cheapest procurement towards the selection on the basis of ecological and social standards. In some areas (e.g. hygiene articles, which necessarily represent the end of the usage cascade, but also paper/cardboard/many packaging products) the use of primary fibres could simply be banned and an obligation to use recycled materials could be introduced.

How would this work against climate change?

Forests and wood products are in themselves carbon sinks. This storage and lowering function must be taken into account and maintained in the use of wood. Long-lasting woodproducts would therefore be carbon sinks too. In addition, more efficient use of wood and cascading can reduce the wood consumption in general and wood can replace GHG-intensive and problematic substances elsewhere (e.g. in construction), thus saving significant amounts of GHG. Regionalisation also helps to combat climate change by avoiding emissions from transport.

What other positive effects does the measure have?

Further positive effects are the strengthening of rural areas by local processing industries. Because of the fact that the total number of building materials does not increase, and may even decrease (depending on the extent to which other building materials are substituted and the extent to which overall consumption is reduced) the overall share of forest, that is not used economically, can be increased, which would have a positiv effect on the biodiversitiy and the resilience of the forest-systems. The proportion of hardwoods, especially beech and oak, which also occur naturally in Germany, could also be increased in the course of focusing on long-lived wood products.

How quickly can the measure be implemented?

Some restructuring of the processing chains (cascade use or restructuring in occupations) take some time. However, this restructuring can begin immediately. Corresponding laws, regulations and guidelines, e.g. with regard to state construction projects, can be implemented immediately and thus initiate change in the required direction.

How long does it take the measure to have an effect?

Effects through more long-lasting use of wood products or cascade use show immediate effects through the reduction of logging or wood imports or the dismantling of the use of, for example, cement. The reorganisation of occupations and production chains associated with the measure takes some time, but the measure itself is effective from the very first implementation.

References to social, global or generational justice

In particular, the two aspects of regionalisation of wood use and material substitution by local wood have very positive effects on global equity. Imports of wood or wooden products are currently outsourcing the clearing and destruction of forests to other countries, often indirectly supporting unsustainable forest use. Here, the destruction of primary forests, that

are especially deserving protection, and the associated impact on the local population living off forests and dependent on intact forests, is particularily relevant. The extractivism of cement, for example, is associated with massive impairments of ecosystems (often very sensitive ecosystems such as karst areas), resettlement and human rights violations of the indigenous local population. In addition, mining is generally carried out by transnationally operating large corporations (example: cement mining in Indonesia). Strengthening local and regional value chains and skilled manual work also contributes to social justice and the strengthening of rural areas.

6.4.3 Withdrawal of the basic legal right to clearing for forest owners*

What's the problem?

In Germany, forest owners* have a fundamental legal right to the granting of a clearing permit. On one hand, this means that the decision to clear the forest is removed from democratic control and co-determination - forest owners* alone are authorised to decide on clearing or conservation of the forest without the population affected being involved in the decision - on the other hand, the basic legal entitlement obliges the processing authority to guarantee this legal entitlement. - The judgement of the situation can therefore not be neutral, as the will of the forest owners* is weighted more heavily than existing reasons related to species-, environmental - and climate protection.

What's the measure?

Dispossession of the basic legal right of forest owners* to clear the forests:

In Germany, forest owners have a basic legal right to clearing, i.e. the forest owner alone decides on the conservation or destruction of the forest, and the processing authorities (town or district office) are obliged to guarantee this legal right. The protection of forests is thus removed from democratic control and an appropriate balance between economic and ecological interests cannot take place.

How can this be implemented?

Deletion of the certain paragraph in the corresponding forest laws of the particular country.

How does this work against climate change?

Fewer clearing permits are issued, which means that intact forest areas are preserved and can continue to store CO_2.

Which other positive effects does the measure have?

The democratisation of the decision to grant a forest clearance permit is made possible.

6.4.4 Shifting from monocultural use of land and forest to mixed crops, agroforestry systems and mixed forests

What's the measure?

Shifting from monocultural agriculture & forestry to mixed crops, agroforestry systems and mixed forests.

How can it be implemented?

The knowledge about positive effects of restructured cultivation systems is available, the main point is to implement it. Helpful measures are the shifting of subsidies to mixed crops or subsidies for the conversion. Farmers* must be taught how to use mixed crops and agroforestry systems and thus also how to avoid synthetic fertilizers and pesticides. This must take place with as few barriers as possible. The farmers must be equipped with new tools

How does the measure save CO_2 (how much)?

In monocultural agriculture, large amounts of fertilizers and pesticides are necessary to compensate for poor crop rotation and susceptibility to pests. The production of fertilisers and pesticides generates large quantities of greenhouse gases (GHG). The very energy-intensive production of one tonne of nitrogen fertiliser requires about two tonnes of crude oil. This could be saved if pests are counteracted by mixed crops and leaching out the soil through adequate crop rotation and crop protection years. Monocultures are also used because their uniform appearance makes the work with machines easier. However, these machines are also operated with fossil fuels, which could be saved with mixed crops that require more human labour.

Monocultural forests are also more affected by pests. Wood is often short-living and stores only little CO_2. In addition, forest fires, which are likely and frequent in monocultural forests, release a lot of CO_2. Mixed forests store more water, promote undergrowth, which also stores CO_2, and promote the humus growth, which also binds CO_2. In addition, a higher proportion of hardwood (since coniferous trees only occur nat-

urally in marginal locations in our latitudes anyway) should be aimed for. Mixed deciduous forests are more resilient, better adapted to the prevailing climate and also create a microclimate within the forest that is several degrees cooler. Furthermore, attention should be paid to an increased proportion of old trees (these store particularly large amounts of CO_2) and a mix of both tree species and age of the trees.

Agroforestry systems, as perennial crops, can even store CO_2 in the long term. Because the trees in agroforestry systems remain standing for several years and do not die completely like annual vegetable plants, the CO_2 that they remove from the air by photosynthesis can be removed from the atmosphere in the long term. In addition, there are positive effects for the soils and especially protection against erosion and an improvement of the ocular water balance.

How long does it take the measure to become effective?

In mixed forests, it takes the time until the trees have reached the appropriate size and have incorporated CO_2. With regard to trees, Co2 is bound from the time of planting, but the positive effects (as well as the amount of CO_2 bound per year) increase with the growing period of the new crops. In the case of mixed crops, which do not need pesticides or fertilizers, from the first time they are renounced.

Other positive effects

It can be planted closer if no/less/other machines are used. The yield per hectare increases, which means that less area is needed overall. This would require the support of farmers through more labour. Biodiversity increases in the areas under cultivation, both through more different crops and through more animals that can live on them (e.g. insects and amphibians). Renunciating from pesticides also prevents the collateral damage it causes, such as species extinction and health risks. Since the uniform appearance of the plants is no longer important, no genetic clones need to be used, which in turn reduces susceptibility to pests. Less soil compaction by heavy machinery. Very effective protection against soil erosion and soil degradation.

6.4.5 Protection and rewetting of moor soils

What's the measure?

Deconstruction of the drainage of moor soils. The agricultural use of drained moor soils must be stopped or converted to paludiculture.

Introduction

Moors are landscapes in which dead, only partially decomposed plant rests have accumulated as "peat" due to permanent water saturation of the soil. Because the plant rests consist of 50-60% carbon, moors contain the highest concentration of carbon of all terrestrial ecosystems. The vast majority of Germany's moors are now drained - with increasingly obvious negative consequences. Drainage causes oxygen to enter the soil, the peat is microbially decomposed, large amounts of greenhouse gases (GHG; CO_2 and N_2O) and nutrients are released and the moor loses 1-2 cm of height every year, leading to increasing drainage costs, flood risks and ultimately land loss.

How does this save Co2eq (/How much)?

There are three main ways in which climate-friendly bog management can save greenhouse gas (GHG) emissions or even fix carbon in the soil:

1. **Avoiding carbon losses (avoidance):** By rewetting, i.e. closing existing drainage systems, GHG emissions from drained moors are greatly reduced.
2. **Binding & using carbon (biofuels/bioresources):** If, after rewetting, the growing biomass is used to replace fossil raw materials and energy sources, an additional reduction in emissions is achieved compared to abandonment of use. This reduction can amount to 4-10 t CO 2 eq. per ha and year (Dahms et al. 2017).
3. **Carbon capture & storage (carbon capture & storage):** Through rewetting, moorlands can grow again and permanently fix part of the produced biomass as peat. The annual sink capacity is not

high (about one t CO 2 eq. per ha and year), but certainly - in the absence of alternative, long-term effective sinks - significant

The 17,800 km² of drained, mainly agriculturally used peatlands in Germany produce 51 million tonnes of CO_2 eq., or 5.7 % of total German greenhouse gas emissions. Meadows and pastures on drained moors emit 29 tons per hectare per year, arable land even 37 tons.[3] This could be saved if the moor soil drainage was reduced. In this way, 20-30 tons of CO_2-eq. per hectare could be saved annually.[12] Re-wetted moor areas emit hardly any CO_2 and nitrous oxide. Although methane emissions can occur, methane is much more short-lived in the atmosphere than other gases and contributes much less to long-term warming.

Rapid rewetting (between 2020 and 2040; rewet all, start now) leads to faster netto-emission-reductions and a significantly lower warming effect triggered by peatlands than rewetting that only takes place between 2050 and 2070 (rewet all, start later).

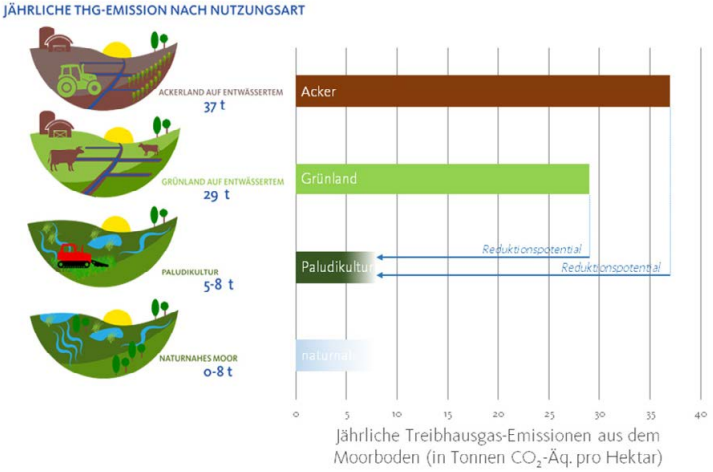

Fig. 2.1 Default values for annual greenhouse gas emissions from peat soils in Germany (in tonnes of CO 2 equivalents per hectare) for various forms of use (according to Joosten et al. 2016, based on values of the Intergovernmental Panel on Climate Change IPCC)

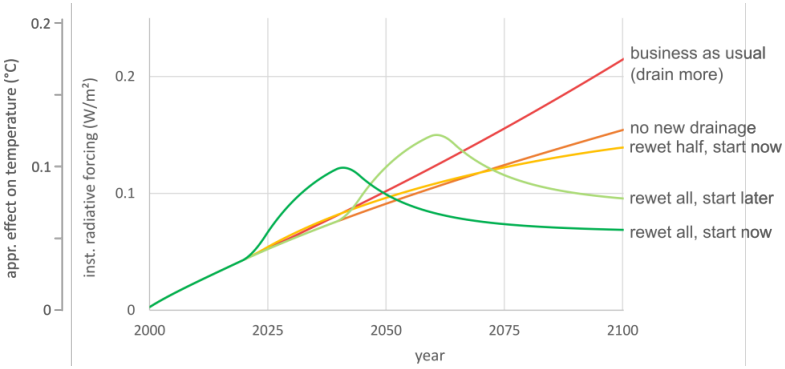

Fig. 3: Projected radiative forcing (mW/m 2) and temperature effect of greenhouse gas emissions from peatlands worldwide in the period 2000-2100[11]. The total human-made radiative forcing in the period 1750 to 2011 was 2.3 W/m2 net (i.e. after deduction of cooling effects) (IPCC AR5).

Tab. 3.1 Richtwerte der THG-Emissionsminderung durch Wiedervernässung von entwässerten Moorböden für temperate Klimate in Abhängigkeit von der vorherigen Landnutzung (nach Wilson et al. 2016).

Landnutzung	Emissionsminderung nach Wiedervernässung (t CO_2-Äq. pro ha und Jahr)
Acker	26
Forst (nährstoffarm)	8
Grünland (tief entwässert)	17
Torfabbau	9

How long does it take the measure to become effective?

While CO_2 emissions are immediately reduced sharply as the water level rises to the surface, emissions of CH-4 (methane) increase. In the first few years after rewetting, it is often even higher than in natural moors, especially when they are flooded. Since CH_4 has 34 times the global warming potential of CO_2, the climate impact of a rewetted moor is often slightly negative. However, the negative climate impact is considerably reduced compared to the previous drained state (Joosten et al. 2016). As soon as after 5-10 years a closed, at best peat-forming vegetation cover

has formed, the emissions of a rewetted moor are similar to those of a natural moor (Fig. 2.1).

The following measures reduce the CH_4 emissions caused by rewetting:

- Removal of above-ground biomass before rewetting;
- Removal of 5-10 cm of topsoil before rewetting to remove the underground biomass and reduce the nutrient availability in the soil;
- Avoidance of overflow and open water areas (also in ditches);
- Use of water that is as low in nutrients as possible;
- Gradual, stepwise raising of the water level;
- Facilitation of plant species typical of the bog.

Other positive effects

Moor climate protection[12] as nature-based solution is:

- Tried and tested (federal states such as Mecklenburg-Western Pomerania can quantify the savings achieved)
- Cost-efficient (with one-off planning and construction costs of around 4000 euros per hectare, 20-30 tonnes of CO_2 eq. per hectare could be saved annually)
- Synergetic (through water and nutrient retention, flood protection, landscape cooling and promotion of biodiversity
- Area-neutral (in the case of paludiculture) or area-favourable (in the case of abandonment of use)

How can this be implemented?

A transformation path[12] for the future climate-friendly management of peatlands should be developed today, with clear goals (net zero emissions, which can only be achieved by additional C-regulation) and milestones, which will give all actors long-term planning security. We propose the following transformation path:

- Forest: 50% of drained forest should be rewetted by 2030, an additional 25% by 2040 and the remaining 25% by 2050;

- Arable land: phasing out arable land use on peaty soils by 2030, conversion of arable land into grassland with substantially raised water levels (see grassland) or paludiculture;
- Grassland: water level increase on all grassland up to $\leq$ 30 cm below ground and on at least 200,000 ha (15 %) in pasture by 2030. Stop support for increased drainage
- Raising water levels in arable land to 60% of total grassland by 2040 and to 100% of the area by 2050
- peat extraction: phasing out peat extraction and consumption and replacing all peat with renewable alternatives by 2030;
- other wetlands (unused areas): achieving net zero emissions (CO_2) by 2030;
- settlements: Re-wetting of two thirds of the settlement area on drained peatlands by 2050.

The following instruments and measures can be used to achieve the objectives:

- Stopping agricultural subsidies for arable land on drained moor soils from 2021, phasing out arable land use on moor
- Recognition of paludiculture as agriculture and inclusion in agricultural subsidies, investment programmes and climate protection area premium
- Stop the drainage of all federally owned bog areas by 2030 and establish paludiculture demonstration farms

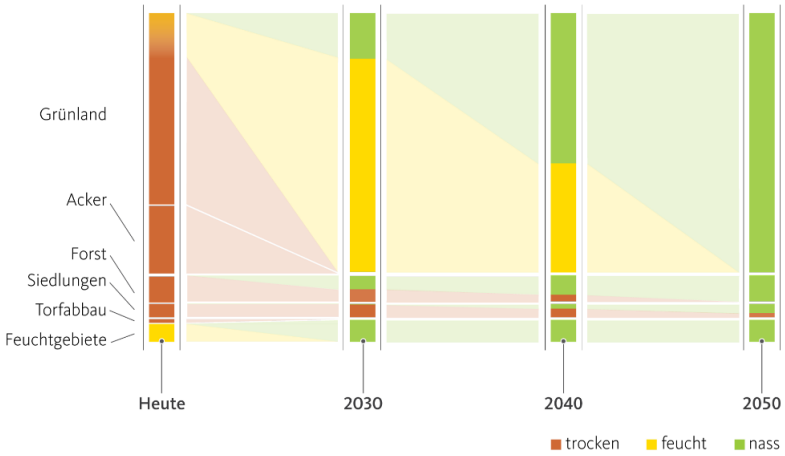

Figure 4: Development trajectories and intermediate targets for the area shares of the individual land use categories on peat soils in the LULUCF sector according to the transformation path 2050. Dry = deeply drained (peat-consuming); Moist = slightly drained (water pond ~30 cm below ground level, peat-consuming); Wet = water pond in ground level (peat-conserving).

7

Global Justice and Intersectionality

7.1 Preamble

The *grassroots climate action plan* aims to consider the aspects of global justice and intersectionality in all its areas and measures. However, since these aspects are particularly important to us and we also want to include them if they have no directly measurable → greenhouse gas saving effects, there is this area.

A few introductory words on global justice: Our way of living and doing business is currently based on competition and thus the pressure to grow and produce more cheaply. To ensure this, natural resources and people are exploited and excluded from the created wealth. This process is constantly widening the gap between rich and poor, both within societies and especially on a global level. States in the global north mostly benefit from this, as they maintain their historically grown position of power, often enforced with mere force, through (neo) colonial structures of oppression and dependency. In the context of the climate crisis, the aspect of justice is particularly essential, since the countries that have historically contributed most to the climate crisis and still do (Germany is one of the ten industrialized countries worldwide, which together generate 66 percent of global CO_2 emissions) who are least affected by the consequences and, thanks to their wealth gained through exploitation, are best able to adjust to the consequences. Since the *grassroots climate plan* is not only tailored to Germany, but is also drawn up here, what can be considered "from below" often still has to be recognized as privileged from a global perspective. We therefore try to be in contact with emancipatory movements from particularly affected areas, which are often in the → global south, and to incorporate their perspectives into the plan.

A few words on intersectionality: As the example of global justice shows, climate justice has a lot to do with different concerns of different identity categories, since these conditions are also maintained because people who are regarded as white are not aware of their privileges. But also the younger generations - and even more so the next ones - are more

affected than the older and current generations. Not in every individual case, but generally speaking, women are more affected than men, poor people more than rich, etc. Thinking together all these aspects is expressed with the term intersectionality. These are not natural inequalities, but there is always a "keep it up!" through the little (er) affected identity categories, and thus to maintain unjust conditions. It goes without saying that we consider intersectional aspects in the measures. Therefore, there is a separate section in each measure for potentially questionable aspects and why this measure could be particularly helpful from an intersectional perspective - in other words: why it seems important to achieve an emancipatory society. However, we are aware that this is not obvious in the vast majority of measures. This may be because they don't touch intersectional injustices. It may also be due to the fact that the diversity among the co-authors has so far not been sufficient to identify critical points here. We therefore invite you to comment critically on the entire plan based on your own concerns; We are particularly happy about corresponding extensions.

7.2 Global climate justice

7.3 Living up to postcolonial responsibility

7.3.1 National CO2e budget

What's the problem?

The global budget for meeting the 1.5 degree target is (with a probability of 67% [1]) 420 Giga tons CO_2e (IPCC). Countries of the Global North are the main responsible parties for the climate crisis. A just assumption of responsibility is currently not apparent. The consequences are often carried out on the shoulders of other countries and people. The German Federal Government has so far remained silent "on the most important figure in climate politics", the CO_2e-budget [2], the Paris Agreement also contains no CO_2e-budgets and so far there seems to be no country that has set itself a CO_2e budget.

What's the measure?

Countries give themselves a just CO_2e-budget. There are different bases for calculating what a "just" budget can be. Its exact calculation still needs to be discussed. The question arises whether a CO_2 per capita calculation is just - or whether the Global North should get less than the Global South because more was emitted in the past (former industrialisation process)?

How can the implementation look like?

The CO_2e-budget could be implemented as a law, which would have to be passed by the Bundestag. Germany setting itself a goal that is compatible with climate justice, would have a signal effect.

[1] M. Sargl u.a.: Das verbleibende CO_2-Budget und der Nachbesserungsprozess von Paris (abgerufen am 11.2.2020) `http://www.klima-retten.info/Review.html`

[2] `https://www.spiegel.de/wissenschaft/mensch/emissionsbudget-zur-wichtigsten-zahl-beim-klimaschutz-schweigt-die-regierung-a-12html` (abgerufen am 11.2.2020)

In the case of a "per capita calculation": Assuming that all people have the right to an equal CO_2e-budget from the beginning of 2019, Germany would have a remaining budget of 3.1 gigatonnes of CO_2e, in order to still achieve the 1.5° target.

Appropriate international sanctions would have to be decided upon to make it legally binding.

How will this counteract climate change?

The measure has no direct effect on reducing CO_2e-emissions. The primary aim is to state a signal to the global community about the frameworks, within Germany intends to act and take responsibility. It is also about making transparent, whether measures that have been adopted are sufficient to meet the CO_2e-budget and thus the 1.5° target.

What other effects does the measure have?

The measure creates transparency and greater verifiability of climate politics.

How quickly can the measure be implemented?

Apart from the regular parliamentary procedure, there are no obstacles to setting the national CO_2e budget immediately. To achieve this, the current CO_2e budget, compatible with the 1.5° target, should be calculated as soon as possible.

How long does it take for the measure to take an effect?

The signal effect is instantaneous. The verifiability of real climate politics based on a precise target figure also has an immediate effect.

References to other measures

Further measures are needed to secure and implement this measure. For example, it requieres Laws, to prevent German companies from using up their CO_2 budget by relocating to countries in the global south.

Problems of social, global and intergenerational justice

For reasons of global justice and due to the responsibility of the mainly responsible countries, the calculation of the national CO_2budgets should also take into account the greenhouse gases, that were emitted up until today. However, if Germany had to take responsibility for the greenhouse gases emitted since 1990, its CO_2e budget would have been exhausted long ago. For this reason, Germany must take on more global responsibility through further measures.

7.3.2 Dealing with the genocide of the OvaHerero and Nama

What's the problem?

To this day, central demands of the Herero and Nama are still not met, on which the German colonial power committed the first genocide of the 20th century[1,2,3,4,5,6,7,8], in the years 1904-1908 atrocities.

During the German colonial period, there were several uprisings of the Herero and Nama against their oppressors in the then colony of German Southwest Africa. In 1904, 15,000 German soldiers under the command of Lothar von Trotha drove tens of thousands of Herero into the almost waterless Omaheke Desert, which was then sealed off, just like the water holes in it. Lothar von Throtha's warfare aimed at the complete annihilation of the Herero, in which he was confirmed and supported by

[1]George Steinmetz: Von der „Eingeborenenpolitik" zur Vernichtungsstrategie: Deutsch-Südwestafrika, 1904. (2005, abgerufen am 2.3.2020) https://www.budrich-journals.de/index.php/peripherie/article/view/28586/24941|PDF

[2]Jörg Wassink (2004): Auf den Spuren des deutschen Völkermordes in Südwestafrika. Der Herero-/Namaufstand in der deutschen Kolonialliteratur. Eine literarhistorische Analyse., München: Meidenbauer

[3]Jürgen Zimmerer (2003): Völkermord in Deutsch-Südwestafrika. Der Kolonialkrieg (1904–1908) in Namibia und seine Folgen. , Berlin: Joachim Zeller (Hrsg.):

[4]Kößler, R. & H. Melberg (2004): Völkermord und Gedenken. Der Genozid an den Herero und Nama in Deutsch-Südwestafrika 1904–1908., Frankfurt am Main: Irmtrud Wojak, Susanne Meinl (Hrsg.):, S. 37–76.

[5]Medardus Brehl (2004): »Diese Schwarzen haben vor Gott und Menschen den Tod verdient« Der Völkermord an den Herero 1904 und seine zeitgenössische Legitimation. . In: Irmtrud Wojak, Susanne Meinl (Hrsg.): Jahrbuch zur Geschichte und Wirkung des Holocaust, Bd. 8, S. 77–97

[6]Mihran Dabag, Horst Gründer, Uwe-Karsten Ketelsen (2004): Kolonialismus, Kolonialdiskurs und Genozid., Paderborn/München: Fink

[7]Rachel J. Anderson: Redressing Colonial Genocide Under International Law: The Hereros' Cause of Action Against Germany." In: "California Law Review." Band 93, Nr. 1155 (2005, abgerufen am 2.3.2020) https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1117731

[8]Tilman Dedering (1993): The German-Herero War of 1904: Revisionism of Genocide or Imaginary Historiography?, : , In: Journal of Southern African Studies. Band 19, Nr. 1, S. 80.

Alfred Count von Schlieffen and Kaiser Wilhelm II[9,10,11].

In 1904, the Nama ter rose up against the German colonial power, avoiding an open battle, and started a guerrilla war. In the course of the war, many Nama-. groups submitted to the German subjugation treaties. The war was declared over on 31 March 1907. However, the colonial extermination politics were continued.13 Following the fighting, the Herero and Nama were interned in concentration camps, where almost every second inmate died. The atrocities in German Southwest Africa cost at least 40,000 to 60,000 Herero and about 10,000 Nama their lives.[10511 12,13,14]

What's the "measure"?

The Federal Government, the Bundestag and the Federal President must comply with the demands of the descendants of the genocide victims. Some of these are in the document "Genocide is not time-barred." which was sent to the Federal President in 2015 via an official of his house. These are:

- to officially acknowledge the genocide of the OvaHerero and Nama;
- to formally apologize to the descendants of the genocide victims;

[9] Michael Behnen (1977): Brief an Generalstabschef Graf von Schlieffen, 5. Oktober 1904., Darmstadt: Quellen zur deutschen Außenpolitik im Zeitalter des Imperialismus 1890–1911,

[10] Schaller, D.J. (2004): «Ich glaube, dass die Nation als solche vernichtet werden muss»: Kolonialkrieg und Völkermord in «Deutsch-Südwestafrika» 1904–1907., : In: Journal of genocide research. Band 6, 2004, Ausg. 3, , S. 395–430, hier: S. 398.

[11] Torben Jorgensen, Eric Markusen (1999): The Genocide of the Hereros.. In: Israel W. Charny (Hrsg.): "Encyclopedia of Genocide." Band 1, 1999, S. 288.

[12] Samuel Totten, Paul Robert Bartrop, Steven L. Jacobs (2008): Genocide of Herero People.. In: Dictionary of Genocide: A–L

[13] Jon Bridgman, Leslie J. Worley (2008): Genocide of the Hereros.. In: Samuel Totten, William S. Parsons: A Century of Genocide: Critical Essays and Eyewitness Accounts. S. 25.

[14] Walter Nuhn (1989): Sturm über Südwest. Der Hereroaufstand von 1904 – Ein düsteres Kapitel der deutschen kolonialen Vergangenheit Namibias., Bonn: Bernard & Graefe

- to work on the identification and return of all bones of people from Namibia and other former colonies who were abducted to Germany;
- to declare its willingness to engage in an unconditional and open dialogue on reconciliation measures with the descendants of the genocide victims and with the Namibian Government(1)

It is important to stress that the German government, in addition to the Namibian government, must also negotiate with representatives of victims' organisations, and must do so directly, without detours.

8

Epilogue - Reflection of the creation process

Originally the development of the *grassroots climate action plan* was structured into five succesive phases:

1. Publicizing the idea and looking for co-writers
2. write down measures
3. obtain feedback
4. Fine-tuning
5. Publication

In the course of time it became apparent that it was not practicable to work through the steps one after the other. This was because later steps (like getting feedback) influence earlier phases (like writing down measures). For example, the barrier to participation is also lower if content is already available that gives people ideas about the direction in which the project could develop.

Furthermore, we soon found out that after the intended six months of writing, no finished document would be available. Also, the ambition of the climate plan had to be adapted. For it was questionable whether a

document could be produced at all, which would then only have to be put into practice and which would at the same time show, with an overwhelming burden of proof, that in the current system (publication should also be addressed to the Federal Government) no significant steps towards climate justice are possible. Instead, it became clear that the negotiation of what climate justice (in and for Germany) means must be conducted in the first place - at least in a circle that includes not only the more radical climate justice groups. The Climate Plan wants to be a platform for this very purpose and therefore wants to remain a living, changeable document. In the following we would like to critically examine the individual phases of its development and share our experiences:

1. - Looking for Co-Writers and 2. - Write down measures While we were looking for Co-Writers we gained a lot of positive feedback on the idea. It was often shared, that a certain plan would be an import step for the climate justice movement. But at the same time, we rarely met people, who were willing to actively join in to write the plan. Partially this may be because of full schedules, but it couldn't have been the only reason.

One method of animating co-writers were so-called write-ins. This format was based on the idea of working on the climate plan with interested people in a physical meeting and discussing existing content. The results of these Write-Ins suggest that the format was too academic for some participants and therefore was too high-threshold and also had a deterrent effect on other people. Nevertheless, the Write-Ins were often described by participants as an experience of self-empowerment as well.

3. - Feedback The grassroots climate plan has the claim to be socially and globally just and to incorporate as many different and divers perspectives as possible. This includes in particular the views of people, who are particularly affected by the effects of global warming, as well as minorities and groups that are marginalised and discriminated against in various ways. Now, after almost one year, we have to realise that we have not been sufficiently successful in involving a diverse group of people

in the process of writing the grassroots climate plan. We have not yet received enough concrete feedback to really talk about global and intersectional justice. In order to achieve the discussion we want to have, we are still trying to establish and maintain contacts. The conclusion we draw from this is that we need to critically reflect on our approach. As is so often the case in the German climate justice movement, which is primarily shaped by a white middle class, our approach was not inclusive enough to be appealing to all people. With the first edition, we want to point out this reoccurring phenomenon and reflect on it together. We would like to receive critical feedback and would be happy to receive hints on how we can be more inclusive in our writing, thinking and acting. In addition, we would like to extend a warm invitation to all people who do not yet see their perspective represented in this first edition of the grassroots climate plan to get involved with their certain topics. We as a campaign want to learn, how we can make struggles that have often been marginalized visible and support the people involved.

4. Fine-tuning – simple, accessible language Next to optical editing and the correction of mistakes, the goal of the finishing touches/fine-tuning should especcially be a simple language, that creates as little obstacles for understanding as possible. With an increasing number of text contribution, we understood, that many measures need a scientific language, in order to describe them adequately and that we presuppose an extensive knowledge of basic concepts. At the same time 'text' itself already is a big obstacle. We want to face these problems in different ways:

- With translating the climate plan in a simple language. Doing so, the original text can be kept whilst at the same time we can offer a version, that is reduced in content and easier to understand. Since we do not have the capacities for such a bigger project, this has to be postponed to the second edition.
- With compiling a glossary, which describes the most important keywords very briefly. This avoids having to look it up elsewhere and reduces the additional reading effort to a minimum.

- By communicating the contents of the climate plan in other formats, especially with the help of infographics and explanatory videos. This has also just begun and we hope to be able to add more and more material after the publication.

A further task of fine-tuning should be the incorporation of feedback and the clearance of duplications and contradictions in content. This, too, was only partially successful, since many contributions, as political texts, wanted to express generalizing classifications and fundamental criticism. Some questions of content could only be clarified with well-founded expert knowledge (which the fine-tuners do not have). And finally, in case of contradictions, a small group can not decide what is "right". This must be done through the larger discourse. Therefore, contradictory ideas are presented in this edition and then hopefully discussed lively.

5. - Publication The Publication takes place as a website and as print media in a very small edition, or respectively as PDF. The website provides access to all content created so far and also to comments that have been made (but not incorporated) so far. In addition, the site will be expanded step by step with illustrations and explanatory videos. Only the editorially revised ("fine-tuned") texts are included in the print edition. Since we hope that this edition will be outdated relatively quickly, only a very small number will be printed and will hardly find public distribution.

Glossary

AGRICULTURAL ECOLOGY

refers to a social movement, scientific discipline, and agricultural practice. It represents agriculture that is adapted to natural conditions and cycles as well as to local needs. Traditional and local knowledge is combined with modern scientific methods. →Agricultural Policy →Biodervisity→ conventional agriculture

AGRICULTURAL POLICY

is the totality of State measures to regulate and support agriculture. The Common Agricultural Policy (CAP) of the European Union is one of the oldest and financially most important policy areas of the EU. →Agricultural Ecology→ Conventional agriculture

ANOMIC

is the state of missing or weak social norms, rules, and order.

AQUATIC ECOSYSTEMS

generally refer to all ecosystems with water. These are usually rivers and lakes on the mainland, but also seas. → Ecosystem

AUTOSEPSIS

as a process of self-creation and maintenance of a system. → Ecosystem

BASE LOAD CAPACITY

refers to the ability of a power plant or types of power plants to provide electrical energy on a permanent and reliable basis.

BASIS OF ONE'S LIVELIHOOD

describes the basic (material) goods that are needed to live. → Unconditional Basic Income

BIODIVERSITY

is also called biological diversity. It consists of three areas that are closely linked: The diversity of species, genetic diversity within species and the diversity of →Ecological Systems, which include biotic communities, habitats such as forests and seas, and landscapes. → Ecosystem

BUEN VIVIR

means "good life" in spanish and is a South American concept. It is characterized by a balance between nature, reduction of social inequality, an economy based on solidarity and a pluralistic democracy with new areas of civil society participation. It is a critical response to Western development thinking of recent decades. → Commons → Unconditional Basic Income

CAPACITY MARKET

is a tool within the electricity market. It is based on the idea, that not the consumption of electricity but the amount of power provided is traded within the market. As a result, producers receive money regardless of whether there is less or no electricity being fed into the grid.

CAPITALISM

is an economic and social order. Typical characteristics are: private ownership of the means of production (factory buildings, machines, plants), the principle of profit maximisation and the control of the economy via the market. Economic and social coexistence is largely determined by

the interests of the capital owners. In capitalism, capital ownership is the prerequisite for the control of the means of production, which includes the right to give instructions about the labour force of dependent employees. The mass of workers is predominantly without possessions and economically dependent on the relatively few owners of capital. → Liberalism

CARE WORK

is a generic term for activities of caring for other people. This includes household tasks such as cooking and washing clothes, looking after children, caring for the elderly, etc. In our current society, care work is primarily carried out by women. → Commons → Unconditional Basic Income → Feminism

CASCADE USE

or multiple-use refers to the use of raw material over several stages. In this way, particularly sustainable and efficient use, as well as a saving in the use of raw materials, is to be achieved; raw materials or products made from them are used in the economic system as long as possible. The term has been used in strategy and position papers of German and European politics since about 2010 and mostly with explicit reference to biomass use.

CHEMICAL SYNTHETIC FERTILIZERS

are generated using a high amount of energy. In → conventional agriculture, the largest part of the energy consumption is accounted for by the production of these fertilizers. About two litres of crude oil are needed to produce one kilo of nitrogen.

CO_2

is the chemical formula for the molecule consisting of carbon and oxygen, carbon dioxide, also known as carbon dioxide. Along with nitrogen, oxygen and so-called noble gases, it is a natural component of the air and is one of the most significant → greenhouse gas emissions. With

only 0.038 percent, CO_2 accounts for only a small proportion of the air. However, in its function as a greenhouse gas, it plays an important role for our climate: CO_2 absorbs part of the heat emitted from the earth into space and radiates it back to earth. → Emissions → Greenhouse gas emissions → CO_2 equivalent

CO_2 EQUIVALENT

or CO_2e is a unit of measurement used to standardize the climate impact of the various → greenhouse gases. In order to make the effect of the various greenhouse gases comparable, the warming effect of a certain quantity of a greenhouse gas over a fixed period of time (usually 100 years) is expressed in terms of CO_2.o For example, methane has a climate effect 28 times greater than CO_2, but remains in the atmosphere for less time → CO_2 → Greenhouse gas emissions

COLONIALISM

is the policy of seizure and exploitation of foreign, mostly overseas territories, mainly by European countries between the 16th and 20th centuries Colonialism is characterised by the territorial expansion of a state's power by means of long-term military, political and/or economic control over the subjugated colony. → Imperialism → Global South → Racism

COMMONS

are one of the basic principles of the solidary way of life. Commons are material and social goods, services and resources which people need to live and which are produced, maintained and used collectively. This process is called „commoning" (communities). Commons do not belong to one person as private property, but are equally available to all people.

COMMUNISM

describes the political doctrines and movements amining to create a classless and hierarchy-free society. They are based on the theories established by Karl Marx and Friedrich Engels. Above all, Karl Marx sees the collective ownership of the means of production under socialism as the

economic basis of the higher phase of a domination-free, communist society that gradually emerges from socialist society through the development of all human abilities. In the end, everything should belong to everyone. → Capitalism →Commons

CONSENSUS

means the unanimous opinion of persons on a particular question without any hidden or overt contradiction. Consensus means that the needs of all participants are met equally and work towards a common goal. Therefore, consensus may require a significantly higher expenditure of time, but if it is successful, all participants are significantly more satisfied. → Grassroot Democracy

CONSUMER

designates a person who uses goods. The verb is to consume and can be equated with passive consumption since the consumer does not participate in the production of the goods. → Producer

CONVENTIONAL AGRICULTURE

is the most common form of agriculture in Germany. It produces most of our food. At the same time, it has far-reaching consequences for our environment. Its aim is to produce as much food as possible at the lowest possible price- hence, agriculture must be profitable. The consequences of this agriculture are, for example, intensive livestock farming, → soil degradation or → monocultures.

CONVENTIONAL ENERGY SOURCES

are fossil fuels and nuclear fuel. In contrast to renewable sources, their reserves on earth are limited. Around 80 percent of global primary energy consumption is covered by fossil fuels. These include coal, oil and natural gas. The energy contained in fossil fuels can be converted into thermal energy by combustion. This process emits sulfur dioxide, nitrogen oxides, and hydrocarbons, but also dust. In a second step, this can, in turn, be converted into electrical energy.

DECENTRAL

originates in the Latin words „de" = from, away and „center" = to be in the middle. In economics and politics, the term is used to describe a system in which the distribution of goods/people/etc. does not start from one place or location, but is divided up into several points.

DEPENDENCY THEORY

is an umbrella term for a group of development theories, originally established in Latin America in the mid-1960s, which are closely related in their basic assumptions. These theories emphasise the existence of hierarchical dependencies between industrialised (metropolises) and developing countries (peripheries). They consider the development opportunities of the Third World as limited by this hierarchical relationship. → Global South

DIASPORA

refers to the existence of religious, national, cultural or ethnic communities in a foreign country after having left their traditional homeland. Sometimes the groups are scattered over large parts of the world.

ECOSYSTEM

or ecological system is a technical term of the ecological sciences. An ecosystem consists of inanimate (abiotic) parts such as rock, climate and air and animate (biotic) components such as animals, insects and plants. Depending on the resulting living conditions, different ecosystems develop, such as a forest, a meadow, a body of water or a swamp. → Aquatic ecosystems

EFFICIENCY

describes the optimal ratio of input and output. In → capitalism efficiency often means that as little time, money, and resources as possible are used to produce a good. Social and ecological costs are usually left out. This often leads to pressure to be efficient, which means that time,

money or resources are to be reduced to such an extent that social and ecological damage is caused.

EGALITARISM

are ideological attempts to create an equal society. Such ethical, political, economic or socio-political positions demand, for example, equality of personal property or equal opportunities for every individual in society.

ELECTROMOBILITY

or e-mobility refers to the benefits of electrically powered vehicles, such as e-scooters, electric cars or electric trains. Electromobility is regarded as a central component of a sustainable and climate-friendly transport system based on renewable energies. This is the aim of the → traffic turnaround. → Emissions → Efficiency

EMANCIPATION

occurs when people or communities increase their self-determination, participation and autonomy over their own lives and are able to represent their interests autonomously and self-determinedly. Accordingly, emancipation often also means liberation from dependence. → Basic democracy → Egalitarianism → Feminism

EMISSION

comes from the Latin ("send out, send out"), in English 'discharge' or 'emission'. In general, it refers to the emission of particles, substances, (sound) waves or radiation into the environment. Emission-free means that no pollutants are emitted into the environment. → CO_2 → Greenhouse gas emissions → Electric mobility

ENERGY TURNAROUND

describes the political strategy of switching from non-sustainable fossil fuels and nuclear energy to sustainable energies. → Gross electricity consumption

EXCHANGE VALUE

refers to the ratio in which goods are traded on the market.

EXCLUSION

literally means rejection or marginalization. In the field of education the termdescribes the fact that someone is excluded from a project or an assembly, from belonging to a group or from social contexts.

EXTENSIVE

generally means "comprehensive, spreading out".Extensive livestock farming is animal production where a large area is used for a relatively small number of livestock with little use of other → means of production. It is the opposite of intensive animal husbandry. → Agricultural ecology → Agricultural policy

FEMINISM

is diverse and varies in the meaning. The basic concern of all feminist movements is self-determination, freedom, and equality for all people, which is to be realized in public as well as personal life. The diverse concepts offer approaches and has the potential for shaping the current society through profound social change.

FOOD SOVEREIGNTY

is the self-determined production of food. Hence, the people involved are first the → producers and afterwards also the → consumers of the goods. → agricultural policy → agroecology → sovereignty

FORDISM

is a form of industrial mass production established after the First World War. → Capitalism

GENETIC ENGINEERING

refers to processes by which the genetic material of organisms can be artificially altered. For example, the genetic material of the organism can be recombined or parts of the genetic material of another organism can be transferred.

GENOCIDE

is also referred to as mass extermination. It is defined in the UN Convention on the Prevention and Punishment of the Crime of Genocide as the deliberate killing of members of a national, ethnic or religious group.

GDP

is the abbreviation for gross domestic product. It is a measure of the economic performance of an economy in a given period. It measures the total value of all goods, i.e. goods and services produced within the national borders of an economy in a given year and used for final consumption.

GLOBAL SOUTH

describes countries and places in a globally disadvantaged social, political and economic situation. The Global North, on the other hand, owns a privileged position with advantages (e.g. Europe or USA; → Privilege). The classification refers to the different experiences with → colonialism and exploitation, one as exploited and one as profiting part. The division of South and North is also meant geographically, but not exclusively. The pair of terms is an attempt to name different positions in a global context without using judgmental descriptions such as "developing", "developing countries" or "third world". → privilege → imperialism → colonialism

GRASSROOT DEMOCRACY

is a form of democracy (Greek "rule of the people") and pursues the goal of giving the base of a society the power to make decisions. In grassroots democracy, decisions are made directly by a group of individuals with

equal rights. An important principle in many grassroots democratic associations is the → consensus.

GREENHOUSE GAS EMISSIONS

Greenhouse gases are gases that contribute to the greenhouse effect and can be of both natural and anthropogenic origin. They absorb part of the long-wave heat radiation emitted by the ground, which would otherwise escape into space. → CO_2 → Emissions

GREEN NEW DEAL

generally refers to concepts aiming to initiate the ecological turnaround of the→ industrial society. On 11 December 2019 the new Commission President Ursula von der Leyen presented the EU Green Deal. One of the goals is to be the first continent to become CO_2 neutral by 2050. → Energy Tournaround

GROSS ELECTRICITY CONSUMPTION

is the sum of total domestic electricity production (wind, hydro, solar, coal, oil, natural gas and others) plus electricity flows from abroad and minus electricity flows to abroad.

IDENTIFICATION

literally means "to equate" and describes the process of a person or a group of people feeling connected to certain characteristics, nationalities, religions etc. to such an extent that it becomes part of their personality.

IMMISSION

measures the influence of the emitted substances/sounds/waves on the environment. The focus is therefore mainly on living beings, buildings, soils and water bodies. The word "immission" comes from the Latin mountain peak "immittere", which means "to send in" or "send out". When it comes to how pollutants in the air affect us, humans, it is not the absolute quantity of the substances that is decisive. Instead, what is important

is their concentration, i.e. their mass per unit volume of air. For this reason, immissions are measured in concentrations or intensities.

IMPERIALISM

refers to the efforts of states to extend their power far beyond their own national borders. This can be done by deliberately influencing weaker countries politically, economically, culturally or by other methods of making them dependent on the stronger country. → Global South → Dependence Theory

INDUSTRIAL SOCIETY

is characterized by a high degree of automation of production methods and social structures. This means that most of the tasks in production are taken over by machines, robots or similar. The respective economic order is not taken into account in this definition.

INVESTMENTS

is an economic term describing the use of capital (e.g. money or securities) for a specific purpose, such as the establishment of a company or a project.

LAND MORATORIUM

or construction moratoria is a contractually agreed or legally ordered delay of the use of the land or the construction project. The word moratorium comes from the Latin "morari", which means "to delay, postpone". A moratorium is simply the agreement to refrain from doing something that was decided before.

LAND SEALING

or soil sealing refers to the covering of the natural soil by human structures. We speak of land sealing because precipitation can no longer penetrate the soil from above and so many of the processes that normally take place there are stopped.

LIBERALISM

is a basic position of political philosophy as well as a historical and current movement striving for a free political, economic and social order. Liberalism emerged from the English revolutions of the 17th century. In many countries, nation states and democratic systems rose from liberal citizens' movements for the first time. The guiding principle of liberalism is the freedom of the individual, primarily against state power of government. It is directed against belief in the state, collectivism, arbitrariness and the abuse of power or domination. → Capitalism

LOGIC OF GROWTH

is a fundamental assumption of → liberalism and → capitalism. It is currently regarded as one of the most important economic policy goals, associated with increasing profits and prosperity. This logic of growth results in a compulsion to grow for many state and corporate actors. The principle is criticised from many sides, since continuous economic growth leads to an increasing consumption of resources and the pressure to innovate.

MEANS OF PRODUCTION

designate, in general terms, the material requirements and conditions of the manufacturing of goods. This ranges from buildings and traffic and usable areas to technical equipment and working methods.

MONOCULTURES

are defined as agricultural, horticultural or forestry land on which only one type of crop is grown in succession over several years. → Conventional Agriculture

NEOLIBERALISM

refers to a free, market-based economic order with the corresponding design features such as private ownership of the means of production, free price formation, freedom of competition and freedom of trade. Ne-

oliberalist theories doenot completely reject state intervention in the economy, but aim to keep it to a minimum. → Liberalism → Capitalism

NET- ZERO EMISSIONS

is an idea that suggests that the world can continue to produce emissions as long as there is a way to "offset" them. Thus, instead of immediately starting to radically reduce emissions, we can continue to emit enormous amounts of CO_2 - and even build new coal-fired power plants - and meanwhile claim to be protecting the climate by "supporting" the development of CSS (carbon dioxide capture and storage) technology. All in all, the idea of net-zero emissions simplifies the problem of climate change immensely and reduces it to the need to save CO_2, but disregards social issues and topics like biodiversity.

OPEC

stands for the Organization of Petroleum Exporting Countries and is an international organization founded in 1960 and based in Vienna.

PALUDICULTURES

comes from "palus" - lat. "swamp, morass" and is the agricultural and forestry use of wet raised and lowland swamps. → Agricultural Ecology

PERMACULTURE consists of the terms permanent (sustainable) and (agri)culture. It is viable concept for agriculture and horticulture based on closely observing and imitating natural ecosystems and cycles in nature. In Europe, permaculture is practiced in private home gardens as well as on medium-sized farms.

PESTICIDES

are substances that eliminate unwanted organisms in agriculture. Depending on whether they are used against weeds, insects or fungi, they are also called herbicides, insecticides or fungicides. Using pesticides means to kill living organisms.

POSTCOLONIALISM

is an intellectual current that has been developing since the middle of the 20th century in confrontation with the history of → colonialism and → imperialism. The central theme is the continued influence of colonial structures on a formally decolonized present. The idea is to make it clear that colonial power relations have not been overcome yet. → Privilege

PRIVILEGE

is an advantage granted to an individual person or a group of persons. It can be based on gender, ancestry, political opinion, class, home, origin, appearance… Privileges can be seen as the antithesis of discrimination, where people are at a disadvantage in society because of the points listed.

PRODUCER

is a manufacturer of goods. → Consumer

RACISM

is a term used in different ways. It is an attitude, ideology, way of thinking or acting by which people are categorized and judged as "race" on the basis of a few external characteristics - which suggest a certain origin. The "races" thus understood are classified hierarchically. The classical concept was predominant in the epoch of European → colonialism and → imperialism until after the Second World War. This pseudo-biological ideology served to justify colonialism, slavery, the crimes of the Nazis or apartheid regimes. → Postcolonialism

RESILIENCE

describes the ability to deal with stress. In the business world, the term is used to characterize the resistance of a system to crises.

SECTOR COOPERATION

is generally understood as the energy-technical and energy-economic combination of electricity, heat, gas and energy sources for mobility

and industrial processes. This includes technologies and processes such as heat pumps (power-to-heat), electric vehicles (power-to-mobility) and power-to-x technologies such as power-to-gas, power-to-liquid and power-to-chemicals.

SINK

are parts of →Ecosystems that people use for disposal, for example, the atmosphere, the oceans or the soil under landfills.

SOIL DEGRADATION

refers to the deterioration of soil quality up to the total loss of ecosystem services (e.g. the humus cycle through micro-organisms, worms, fungi, and insects) of the soil. In other words, the quality of the soil decreases radically until it is finally "dead" and the area can no longer be used for agriculture, nothing grows on this earth anymore. → ecosystem → conventional agriculture

SOVEREIGNTY

comes from the French and means something like "independence", "superiority". The sovereignty of a state consists of the fact that it can decide for itself what should happen in the state internally as well as in relation to other states. The sovereign state has the power to determine its own laws and form of government

SUFFICIENCY

describes a principle according to which tasks are performed at the smallest, local level if possible. They should only be delegated to a higher organizational level if the measures of the local units are not sufficient or if certain political objectives can be better realized at a higher level.

SUBSIDY

is a benefit from public funds to businesses or companies. Subsidies are economic policy interventions in the market, which are intended to

promote certain behaviour by market participants. Examples are the production of milk, which is subsidised by the German state, as well as coal, oil and gas production → Agricultural policy

SUFFICIENCY

is one of the basic principles of the solidary way of life. Instead of focusing on consumption and → logic of growth, it supports a state where all people can have enough for a → Buen Vivir (Good Life) without having to or even wanting to improve it. This is done by taking a different view of ownership and using fewer resources, by sharing, recycling or renouncing

TRANSITION OF TRANSPORT

describes the process of converting transport and mobility to sustainable energy sources, gentle mobility use and networking of different forms of individual transport and local public transport. → Electric mobility

TRANSFORMATION

denotes a fundamental and lasting change. It is the process of change from the present state to the desired target state in the future.

TRICKLE-DOWN PRINCIPLE

refers to the belief that economic growth (→ logic of growth) and general prosperity of the rich would gradually seep through their consumption and → investment into the lower strata of society (trickle-down effect). The term trickle-down comes from a joke by US comedian Will Rogers.

UNCONDITIONAL BASIC INCOME

is a concept in which every person receives an income on an equal footing, from which a good life (→Buen Vivir) can be led and basic needs can be met. This makes it possible for people to carry out activities regardless of their remuneration.

UTILITY VALUE

is the social or individual utility of a good, may differ from individual to individual, as goods can satisfy needs to varying degrees. → Sufficiency

VALUE CHAIN

represents the stages of production as an ordered sequence of activities. These activities create value, consume resources and are linked together in processes. The concept was first introduced in 1985 by Michael E. Porter, an American business economist, in his book Competitive Advantage. According to Porter, it is a "collection of activities by which a product is designed, manufactured, distributed, delivered and supported".

VEGAN

refers to a diet based exclusively on plants, in which no animal products are consumed.

VEGETATION PERIOD

describes the period of the general growth of the plants within one year.

VOLATILITY

is a measure of risk and shows the strength of the fluctuation of the price of an underlying asset within a certain period of time. The higher the volatility, the more the price moves up and down and the riskier but also the more promising → investment in the underlying asset is. A distinction is made between historical and implied volatility. → Volatile energy sources

VOLATILE ENERGY SOURCES

do not generate energy evenly, but fluctuate. This is the case with solar or wind energy, for example, because the sun does not shine continuously and the wind does not always blow.

VULNERABLE

means as much as prone to failure.