

8. Putting a price on values. Structural changes towards an eco-social market economy

Shortly before Greta Thunberg's climate strike began in August 2018, many people from Germany or Austria flew to Rome, Paris or London at the weekend. Flying was simply outrageously cheap—many could not resist the temptation. And it was true: the much more environmentally friendly train journey to the next big city was usually more expensive than the flights in question. Since the climate strikes by Greta Thunberg and millions of other young people from Fridays for Future, a certain "flight shame" has indeed emerged, pushing back the most extreme excesses of this form of mobility. But the problem remains that prices do not tell the "ecological truth". In major consumption decisions, this often leads even very environmentally conscious people to choose the more environmentally damaging product for price reasons. They cannot or do not want to afford the better but more expensive one.

So, the question arises as to what framework conditions ecological conversion needs in order to really take place. "It's the economy, stupid" is the famous dictum of former US President Bill Clinton. If you want to ecologise a society, you have to start with the structures of the economy. In this chapter, I therefore first analyse the problem of the commons, which is the root of the problem in economic terms. Then I discuss the most important proposals for eco-social structural reform of the market economy. The questions of how such reform can position itself in the global market and what it is about economic growth, as the previous driver of innovation, that situates the reform models in larger contexts.

8.1 *Common good versus individual good. The problem of the commons*

In the midst of the progress optimism of the 1960s, the ecologist *Garrett Hardin* (1915–2003) sounded a shrill siren: in an essay entitled "The Tragedy of the Commons" for the journal *Science*, he claimed in 1968 that there were human problems for which there was no technical solution, but only a solution at the level of values and morals. He calls this category of social problems "no technical solution problems" (Garret Hardin 1968, 1243). Even the famous "invisible hand" of Adam Smith, i.e. the

immanent automatism of the free market, cannot solve such problems (Garret Hardin 1968, 1244). The sum of individual preferences ("the greatest happiness of the greatest number") is not automatically the good for altogether.

So, according to Hardin, there is a "*tragedy of the commons*", which he explains with recourse to the communal pasture, precisely the commons, which has been widespread since the Middle Ages: On a communal pasture, each herdsman sensibly seeks the maximum for his own advantage. If he puts one animal more on the pasture than the others, the total amount of fodder per animal will still be almost the same, so that the gain corresponds almost exactly to one additional animal. However, the loss caused by overgrazing is divided among all herders, so for him it is very small compared to the profit. Economically, it is therefore reasonable for the shepherd to put one more animal on the pasture and then one more and one more... But this is reasonable for all the shepherds involved, and they will all do it this way. The result is that in the end everyone is deprived of the food basis for their livestock—everyone makes a heavy loss because their animals starve to death.

Now, the medieval shepherds in a village have found solutions to this. However, according to Hardin, these have so far been too little reflected on and generalised to be applied to the major environmental problems of the present, for example, deep-sea fishing, the pollution of the environmental media with pollutants and the population explosion. In all these cases, rationalisation, i.e. increasing technical efficiency, is not effective; what is needed is rationing, i.e. the wise restriction of use, sufficiency. The key question then is: "How to legislate temperance?" (Garret Hardin 1968, 1245) Simply appealing to the conscience of those involved is not enough because then the conscientious person would be the stupid one. He would have to act against managerial reason. In the short term, conscience would drive the conscientious person into schizophrenia, and in the long term the conscience would eliminate itself because the business would go under in competition with the unconscientious (Garret Hardin 1968, 1246). What is needed, then, is a social arrangement that exerts coercion. The freedom to use the commons would have to be considerably curtailed and the state would have to rule with a hard hand (Garret Hardin 1968, 1247).

Garret Hardin's description of the problem is excellent. The commons problem can be solved neither by technology nor by the free market. But the solution he suggests of a strong state contradicts the ideas of liberal democracies. They do not want to establish an eco-dictatorship, either right-wing or left-wing authoritarian. Nevertheless, for many years

after Hardin's publication, precisely these two alternatives remained under consideration (cf. Elinor Ostrom 1990, 8–13):

- The "Leviathan" (William Ophuls 1973, 215), i.e. a strong state that has the central natural resources under its control.
- Private companies or individuals (Robert J. Smith 1981, 467) to whom the public resources are transferred as private property in order to give room to the invisible hand of the free market. Even if all users of the commons are granted an equal share of the resource as private property, this works at best for stationary resources such as land, although not optimally, because some land is more fertile in wet weather and some in dry weather. With non-stationary resources such as water use or fisheries, it is completely impossible.

To escape the alternative of Leviathan or privatisation, *Elinor Ostrom* (1933 Los Angeles–2012 Bloomington IN) sets out in search of a *theory of collective action*. She received the Nobel Prize in Economics in 2009 for her research. Ostrom pursues an institutional economics approach, i.e. she develops a contractarian theory for the commons problem: What agreements would the contracting parties make in the original state to solve this problem sustainably and fairly? Ostrom is aware that there is no one and single right answer to this question, but that one of several suitable solutions is agreed upon. In order to constantly deepen their analysis, the contracting parties have to keep mentally oscillating back and forth—one is reminded of John Rawls and his "reflective equilibrium" (John Rawls 1975, 68–71). Ostrom does not explicitly invoke Rawls but emphasises her proximity to contractarian theories (Elinor Ostrom 1990, 42–43 et al.).

Garrett Hardin had already referred to the centuries-old commons solutions in agriculture. Ostrom analyses such models in detail, for example the management of high-altitude alpine pastures in Switzerland and Japan and of irrigation systems in Spain and the Philippines. From the insights gained, she develops the so-called *design principles* that enable the successful management of common pool resources. They are as follows (Elinor Ostrom 1990, 91–102):

- (1) Clearly defined boundaries: Clear and recognised boundaries must be defined between authorised users and non-authorised users, and between community pool resources and the system surrounding them.
- (2) Congruent rules: The rules for the appropriation of resources correspond to the local conditions and the rules for the provision of resources. In other words, the distribution of inputs and the distribution of outputs must correspond to each other and be aligned with the potential of the resources.

- (3) Arrangement of collective decision-making: Most people affected by a resource system can participate in determining and changing the rules of use.
- (4) Monitoring: There must be effective control of the appropriation of resources in order to prevent violations of the rules. Those monitoring the appropriation behaviour of users must be users themselves or accountable to them.
- (5) Graduated sanctions: Users who violate the rules are likely to face graduated sanctions from other users or their representatives, depending on the severity and context of the violation.
- (6) Conflict resolution mechanisms: Conflict resolution mechanisms such as mediation or arbitration need to be quickly accessible to users and their managers, cost-effective and locally based.
- (7) Minimal recognition of organisational rights: The right of users to determine their own institutions is recognised in principle by the state authorities.
- (8) Nested institutions: The activities previously mentioned under numbers 3 to 7 are organised at different levels of nested institutions.

Ostrom's conclusion is obvious: the problems of commons resources can also be solved without privatising these resources and without central state control from above (Leviathan).

In her later research, Ostrom seeks to reconcile her considerations with game theory, which is influential in economics, and to prove that the design principles can be replicated in certain game settings (Elinor Ostrom 2008). The added value of these experiments is the discovery of factors conducive to a sustainable commons: communication, trust and reciprocity. These emerge especially when participants know that they will be together for a longer period of time, that their actions will become known to others, and that common good-oriented actions pay off. If we relate this to the major ecological challenges, the fact that humanity will live together for longer should be known to all. Therefore, the global community needs to establish two more facilitating factors above all: transparency and rules that reward common good action.

A final important insight has been presented more recently by economist Scott Barrett (2007). He distinguishes between *three categories of global public goods* (GPGs), each with its own challenges and solutions:

- "Single best effort GPGs" are global public goods that a single actor makes available to all others. It does so because it hopes to gain an economic advantage from sharing this good with everyone. During a pandemic, for example, one can think of vaccine development and

production: a few companies develop vaccines that all countries can subsequently buy or produce under licence. The ethical challenges are rather low for such goods.

- "*Weakest link GPGs*" are those global public goods where the weakest link in the chain of actors determines success. For example, the eradication of a pathogen is only possible if it is also eradicated in the poorest country in the world. The rich countries therefore have an interest in helping the poor country, because it depends on everyone without exception. Otherwise, the pathogen will eventually return to the rich countries as a mutation and outwit the vaccinations available there. Here, too, the ethical challenges are rather small.
- "*Aggregate effort GPGs*" are those global public goods whose achievement arises cumulatively from the sum of all individual efforts: Not all, but most must actively participate to achieve success. For example, the coronavirus vaccine requires a certain percentage of vaccinated people to achieve so-called "herd immunity". The major environmental problems we are negotiating here all belong in this category: protecting the ozone layer, establishing food security, limiting global warming and preserving biodiversity.

This last category is the most difficult from an ethical point of view because there are two fundamental problems: Firstly, the *free-rider problem* that, if the goal is achieved, those who have not contributed to it will also enjoy the benefit (some enjoy herd immunity without having had themselves vaccinated, or a good world climate without having reduced their greenhouse gas emissions themselves). Secondly, the *insurance problem* that those who pay into the "insurance" cannot be guaranteed that they will get the protection in an emergency (if too few get vaccinated, they will not enjoy herd immunity either, and if too few participate in climate protection, those who have committed themselves will not have a good climate either). With the big environmental problems, there is no individual benefit without collective goal achievement, so the free rider problem and the insurance problem require sanctions. There is a need for transparency and rules that reward common good behaviour and punish behaviour that is detrimental to the common good, as Elinor Ostrom has empirically demonstrated.

At this point, we have identified the key problem: First, there is no way to draw a line between members and non-members of the climate or biodiversity commons (Design Principle 1). All humans inhabit planet Earth, and you cannot "shoot any of them to the moon". And secondly, many of them have strong motivations not to agree to a sanction mechanism

for rule violations (Design Principle 5). Why would they do so if they know that they cannot be excluded from the commons of planet Earth, but profit most as free riders? This is exactly where the similarity between locally limited and globally scaled public goods ends. International politics can only promote the establishment of sanctions—but it has no means of achieving universally binding sanctions. The only "sanction" automatically affects everyone in common: the inexorably continuing global warming and the inexorable loss of biodiversity. But the moment when this "sanction" becomes a drastic "penalty" is still in the future. Many of those who are now politically responsible will not live to see it. But when it becomes the present, it will already be too late to act. This is exactly why the only ones who can exert effective pressure are the youth of today: Movements like Fridays for Future are the only realistic way to achieve a good result in the Ostrom tableau.

8.2 Structural change models for the eco-social market economy

Despite this tricky hurdle before the introduction of a global commons regulation, soon after Garrett Hardin's problem statement, there have been considerations for rules to reward commons-compliant behaviour and to sanction behaviour contrary to the commons. As a reminder, one of the most important goals must be to avoid the rebound effect, i.e. the effect that people use efficiency gains partly or entirely for a higher standard of living instead of dedicating them to the biosphere (chapter 6.3). And this is where an important consideration comes in: People consume more energy not because they have saved energy, but because they have saved money. They spend (often unreflectively and intuitively) a certain, relatively constant financial budget on energy. So, if energy prices remain the same, they will consider what they want to use the money freed up by energy efficiency for. And it is no wonder that, within the same budget range, they will continue to heat larger living spaces more warmly or travel further distances in a more economical car.

This implicitly addresses the solution: Greenhouse gases must be given a price—and this price must increase in proportion to the reduction of their emissions. This method, carbon pricing, is favoured by both the WBGU (2011, 190) and the IPCC (2018, 33). To put it pointedly, if the deeper problem is the economic system, the solution can only lie in reforming its *structure*. The conservation of biodiversity and carbon sinks must be profitable; their destruction and the emission of greenhouse gases must

cost money. Only if monetary mechanisms play the central role will effective climate and biodiversity protection succeed. For if the deeper cause of the threat to global biodiversity is the motive of human profit (LS 32–36), moral and spiritual appeals without economic underpinning will come to nothing. Garrett Hardin described this very aptly early on.

Ecologically appropriate monetary structures are also the aim of the fourth of the twelve "Malawi Principles", which were formulated in a workshop on Malawi and adopted by the Fourth Conference of the Parties (COP-4) to the UN Convention on Biological Diversity in Bratislava in 1998. Their main thrust is: "Given potential gains that can be made by influencing an ecosystem, it is usually necessary to consider and manage the ecosystem in an economic context. Any such programme for managing an ecosystem should: reduce any market distortions that have a detrimental effect on biodiversity; tailor incentive measures to promote the conservation and sustainable use of biodiversity; internalise costs and benefits from the ecosystem concerned as far as possible." In other words:

- subsidies and tax breaks for biodiversity-destroying measures must be reduced;
- financial incentives for the protection of biodiversity should be created;
- the passing on of the ecological or cultural costs of private-sector activities to the general public should be avoided.

What the Malawi Principle 4 formulates for biodiversity protection applies analogously to climate protection. However, establishing monetary mechanisms for climate protection is much easier than for biodiversity protection. Why is this so? Firstly, there is a universal "ecological currency" for greenhouse gases, namely the so-called greenhouse warming potential (GWP). This is the measure of the warming effect of a certain amount of the gas in question within a certain time, usually 100 years, compared to carbon dioxide. The various greenhouse gases can therefore all be converted into one and the same "ecological currency", which is why we speak simplistically of "CO₂ equivalents". Secondly, it is very easy to calculate how many CO₂ equivalents may still be emitted in order to achieve the 1.5 degree target set in Paris in 2015. So, there is a clearly defined supply quantity. According to economic theory, the price is determined from its ratio to demand in a market economy.

Both steps mentioned are much harder to implement for biodiversity. Firstly, what is the ecological value of elephant species compared to bat species? And what is the ecological value of a certain watercourse compared to rough grassland? As the old saying goes, it is difficult to compare apples with pears. Secondly, for biodiversity we know the famous tipping

points at which larger systems collapse much less precisely than for climate (cf. chapter 6.4). We are dealing with living systems whose development is infinitely more difficult to calculate than the purely physical dynamics of the climate. So, despite the TEEB project, we will have to estimate much more roughly and proceed much more tentatively in the area of biodiversity than in the area of climate protection.

However, structural measures must still be taken—at least if the worst is to be prevented. What approaches are there to this? First of all, one can choose a *regulatory solution*: A government or the European Commission can issue a legally binding *regulation* that bans activities that damage the climate or biodiversity entirely or above a certain (relative or absolute) threshold. In the European Union, this is the most common environmental policy instrument, because the other instruments hardly fall within EU competence. So, cars are only allowed to emit a certain amount of carbon dioxide per kilometre, and farmers are only allowed to spread a certain amount of manure per hectare of arable land. The advantages of regulations are their quick effect (for example, in the 1980s in response to "acid rain" and forest dieback) and their comparatively high targeting accuracy in local constellations (for example, with regard to the methane content in soil and water). The disadvantages are the lack of flexibility (the car buyer cannot compensate for the purchase of a car with higher consumption by driving fewer kilometres) and the comparatively high costs (the most expensive are always the last per cent that have to be saved—they could often be saved more cheaply elsewhere). A very fundamental disadvantage is that regulations, when used as the main tool, resemble Leviathan, the eco-dictatorship. This generates a lot of ill-will among those affected. Therefore, this tool should be used with great restraint in liberal societies.

Subsidies, financial support from the state, are an economic instrument, even if they are not market-based. For example, photovoltaic systems are subsidised, as are better heat insulation of houses, electric cars and charging stations. Electric cars are also exempt from tax (indirect subsidy). The advantage of subsidies is that they provide a positive incentive for ecological action. Their disadvantage is that they only cure the symptoms and do not rectify the underlying causes. Ultimately, they contradict the market economy and are at best temporary compensation, especially in speeding up the introduction of new technologies. Therefore, subsidies need an "expiry date"—namely when the new technology has become cheap enough to compete in the market without aid.

The mirror image of subsidies is the *dismantling of environmentally harmful subsidies*. A large number of subsidies were introduced for social, economic or location policy reasons, but were not checked for negative ecological effects when they were introduced or were even introduced despite negative effects being known. The sums involved are considerable. A study by the Austrian Institute of Economic Research (WIFO), for example, calculated direct and indirect environmentally harmful subsidies amounting to 3.8 to 4.7 billion euros per year on average from 2010 to 2013 in the areas of energy production, energy use (incl. housing) and transport at the federal level alone. That is about 500 euros per person. "Transport accounted for about half of them, energy for over a third and housing for just under 14%" (Daniela Kletzan-Slamanig/Angela Köppl 2016, 605). For Germany, the Federal Environment Agency puts the volume of environmentally harmful subsidies in all sectors for 2012 at 57 billion euros, or about 700 euros per person (Deutsches Umweltbundesamt 2016, 6). These figures do not even include the EU agricultural subsidies, a considerable part of which is harmful to the environment.

In fact, the environmental policy of most democracies is largely exhausted in regulations and subsidies. Even the reduction of subsidies is pursued only very hesitantly because the recipients have made themselves comfortable with them. Structural reforms, however, are only implemented in homeopathic doses at best. The two major Churches in Germany had already stated in 1997: "An ecological improvement of the social market economy model is not enough. What is needed is a structural reform towards an ecological-social market order as a whole." (Council of the Protestant Church in Germany/German Bishops' Conference 1997, para. 148) Since then, the Churches and Church organisations in German-speaking countries have repeated this demand countless times.

What does "structural reform towards an overall ecological-social market order" mean? In concrete terms, two *structural change models in particular* are being discussed in economics:

The first is a so-called "*quantity solution*": For emissions that are harmful to the climate or biodiversity, certificates are introduced that must be bought on the free market (*emissions trading*). The certificates are issued by state authorities and limited in quantity so that the desired environmental effect is achieved. From year to year, slightly fewer certificates are issued. The motto is therefore "cap and trade". The revenues from the sale of certificates can be used by the state or supra-state body for eco-social purposes or for general tax reduction. The principle was developed by the Canadian economist John Harkness Dales (1920–2007) in 1968 (John Harkness Dales

1968). Its advantages are absolute targeting (never more is emitted than there are certificates on the market) and high economic efficiency (emissions are avoided where they cost little and allowed where their avoidance would be expensive—in sum, emission reduction is therefore achieved at a very low price). The system is therefore perfectly compatible with the market economy. Its disadvantages are, on the one hand, the difficulty of introducing this solution and, on the other, the fact that emissions trading would be equivalent to a second currency above a certain total volume.

A review of Dales' book in 1969 stated: "Almost certainly it will have an important influence on public policy relating to pollution, for it presents a rational and practical approach to the problem, and it is written in terms that the layman can readily understand" (W.R. Derrick Sewell 1969, 386). Unfortunately, this prophecy did not come true to the desired extent.

The European Union introduced emissions trading for some energy-intensive sectors of large-scale industry in 2005. Switzerland started its own emissions trading in 2008 and merged with the European Union's in 2020. Under the Western Climate Initiative (WCI), the US state of California and the Canadian province of Quebec linked their emissions trading systems in 2014. In 2018, the Canadian province of Ontario joined the alliance. However, all these systems suffer from the fact that, on the one hand, they only cover a few sectors of (large) industry, and, on the other hand, they intervene too much. For a long time, for example, the EU gave away most of the certificates for free to companies—with the result that they ended up making a profit by selling certificates instead of paying for them. These systems will only become truly effective if, on the one hand, as many emissions as possible are recorded and, on the other hand, the scarcity of certificates is also adapted to ecological necessities and not just to economic possibilities. The quantity of certificates would also have to be reduced in times of crisis (financial crisis, pandemic) in order to maintain a minimum price. None of this has been the case so far. In 2020, for example, the EU still issued 79 per cent of the certificates it had in 2005. Although this quantity is to be cut by 2.2 per cent in each of the coming years—the targeted climate neutrality by 2040 cannot be achieved in this way. Moreover, 30 per cent of all certificates are still issued to companies free of charge. At least they are no longer assessed according to "grandfathering", i.e. based on a company's previous emissions, but according to the principle of "best available technology", i.e. measured against the most efficient technology the industry has to offer. After all, EU certificate trading currently covers only just under half of all greenhouse gas emissions. Transport, for example, as one of the largest emitters, is not included.

Overall, therefore, it can be acknowledged that the system has improved considerably over the years. However, it is still far from being ecologically resoundingly effective.

Some multinationals also use emissions trading internally. Departments that emit less can sell certificates to departments that emit more. Accordingly, corporate management sees which departments work more ecologically and which do not, and can reward or sanction this (for example through bonuses and maluses on salaries). Emissions trading thus becomes a management tool that, depending on its design, can be quite helpful.

It should be noted that the certificate trading model can be used predominantly for climate protection. After all, trading in certificates presupposes that it does not matter where the corresponding savings are made. The only thing that matters is that it happens. The model is therefore less suitable for the protection of biodiversity. Here, one would have to rely on the second proposed model, which is in principle also practicable for climate protection, but has more advantages for biodiversity protection.

In addition to the quantitative solution of emissions trading, a second instrument is the so-called *tax solution*, i.e. *ecological or eco-social tax reform*. Its inventor was Hans-Christoph Binswanger (1929 Zurich–2018 St. Gallen). His main interest since the 1960s was the connection between the economy and ecology (cf. Hans-Christoph Binswanger et al. 1979 and 1983). From his reflections, Binswanger develops a model that skilfully links aspects of social and labour market policy with environmental policy. For on the one hand, there are many workers—but due to their social security (employer's contributions to health, nursing care and unemployment insurance, etc.—the so-called non-wage labour costs), they are very expensive for an employer. On the other hand, there are few environmental resources—as public goods they cost nothing. From this imbalance, Binswanger develops a redistribution model: the state should levy slightly increasing eco-taxes every year and thus finance an ever larger part of the non-wage labour costs. The employer's share of labour costs would fall without reducing the level of social benefits, and the costs of previously free environmental resources would rise. This would motivate companies to create jobs and protect the environment. Compared to emissions trading, the eco-tax model has the disadvantage that revenues from the eco-tax will fluctuate, but expenditure to reduce non-wage labour costs will remain relatively constant. So, the state sometimes has to pay a lot more. Moreover, the eco-tax has only a medium degree of accuracy in terms of the quantities of greenhouse gases emitted. No one can say exactly how much greenhouse gas will be emitted if the tax is set at a certain

level. However, the eco-tax also has advantages over emissions trading: Its handling is quite simple. Moreover, it is the only strategy that takes social as well as ecological aspects into account, thus directly linking all three pillars of sustainability. And finally, it can also be used for fixed problems such as the preservation of biodiversity, where emissions trading fails.

No matter what a political body decides, some conditions remain equally important for emission allowance trading and the eco-tax:

- The measures should not generate additional revenue for the state but should be designed in a *revenue-neutral way*. What is collected through the sale of certificates or the eco-tax must flow back elsewhere. After all, the greening of the economy should not place an additional burden on it, but only guide it.
- Both models live from *long-term commitments*. This is the only way to create a predictability that engenders innovations. The lifespan of large machines and plants in both the private and economic sectors is in the realm of several decades. The actors must be able to rely on the fact that the structural reform will be continued without interruption within this time horizon and that the investment in a more ecological plant or machine will actually pay off in the end.
- The environmental impact should be recorded as far as possible "*at the beginning of the pipe*". Thus, emission certificates or eco-taxes should already be due when a barrel of crude oil is imported or domestically produced and not when it is burnt. The eco-tax on animal husbandry should be applied to the manure of the animals and not to the end product, meat. On the one hand, this makes the environmental impact of the resource visible to all (!) parties involved, and on the other hand, in view of the higher price, everyone involved will try to get the maximum output out of the resource input—in other words, to be efficient.
- To *avoid social hardship*, accompanying measures will be necessary in any case. However, these should not undermine the increase in environmental consumption, for example by exempting welfare recipients from the eco-tax on heating oil. They, too, should green their lifestyles as much as possible. Therefore, the social assistance rate should be increased for them—then they would have the same incentive as everyone else to live in an environmentally friendly way in order to be able to spend the money saved elsewhere.

Since the Ecumenical Assemblies of Stuttgart, Dresden and Basel in 1988/89, the Churches in German-speaking countries have spoken out countless times in favour of introducing the two models of structural

change. Only Pope Francis sends ambiguous signals in *Laudato si'*. On the one hand, he clearly names the limits of the free market and the "invisible hand": "The environment is one of those goods that cannot be adequately safeguarded or promoted by market forces." (LS 190, quoting Pontifical Council for Justice and Peace, *Compendium of the Social Doctrine of the Church*, 470) He therefore rightly calls for everyone to bear the costs of the environmental damage they cause themselves (LS 195) and for politicians to translate this principle into rules for the market (LS 196). But he rejects the only instrument he mentions, namely emissions trading, as a "quick and easy" sham solution that distracts from the real issue, namely overconsumption by rich countries (LS 171). At this point, one must unfortunately say: Francis has not understood the economic mechanisms here (cf. chapter 7.3.1). In the German-speaking world, the Churches and Church organisations therefore continued to advocate emissions trading and eco-taxes after 2015. However, it is only with the appearance of Fridays for Future that the issue has gained political momentum. For the first time, there is a chance that not only a small "climate parcel" but a comprehensive "climate package", perhaps even an ecological tax reform geared towards climate *and* biodiversity protection, will be realised.

From a theological and ethical point of view, the first thing is a value decision: The spiritual value of Creation as a gift on loan from the Creator to his creatures must be translated into monetary values in the economic system, for what costs nothing is worth nothing. And secondly, ethics' appeal to conscience must be supported rather than counteracted by the economic systems of reward and punishment. It would be hopelessly excessive to demand that people act for ethical reasons in ways that are economically punished.

Although the concepts presented have been known and scientifically recognised for decades, politicians have not yet tackled the necessary structural reforms. Positive incentives such as subsidies for ecological innovations or the expansion of public transport are gladly created. The "aggravating hurdles" for environmentally harmful behaviour, on the other hand, are not wanted because they are unpopular and cost votes in elections. But the consequences are easy to be demonstrated empirically: Switzerland, for example, has uniquely well-developed public transport, and this system is accepted by the population in an impressive manner. But road and air transport have hardly been reduced because they have always remained cheap. Instead of switching from the offer of environmentally harmful to that of environmentally friendly transport, people now

use both, the environmentally friendly and the environmentally harmful. The rebound effect sends its regards.

8.3 *Eco-social market economy in a global context*

One of the biggest concerns in the discussion about eco-social structural changes to the national or European market economy is how to avoid the domestic economy losing out in competition in global markets if it has to meet higher ecological and social standards. Often, this very serious argument is silently linked to the option of introducing emission certificates or eco-taxes only when the whole world joins in. This is obviously a killer argument.

But does it have to be this way? Can structural reforms really only be implemented globally? In fact, the rules of the World Trade Organisation (WTO) do provide instruments to protect national markets against ecological and social dumping. Article XX of the General Agreement on Tariffs and Trade (GATT) is decisive here: "Subject to the proviso that such measures shall not be applied in a manner which would constitute a means of arbitrary and unjustifiable discrimination between countries where the conditions are similar or a disguised restriction on international trade, nothing in this Agreement shall be construed as preventing any Contracting State from adopting or implementing the following measures: ... b) measures for the protection of human or animal life or health or for the protection of plants ; ..."

In Article XX, the GATT formulates ten (!) exceptions that make it possible to unilaterally impose import duties or bans, export tax refunds and implement other measures that restrict the international trade in goods. The condition is that the measures are not arbitrary or without reasonable cause. And one category of potentially appropriate reasons mentioned is the protection of human and animal life or health and plant protection. Climate and biodiversity protection clearly fall into this category. So, if steel is to be imported from a country without emissions trading to a country with emissions trading, the importing country would always be entitled to impose a duty equal to the current emissions price. If the steel goes the other way from a country with emissions trading to a country without emissions trading, the exporting country could refund the emissions certificate price. And if agricultural products are exported from a country with eco-taxes to a country without eco-taxes, or vice versa, the same applies. That would be transparent, fair and appropriate.

For years, this possibility was simply not an issue in environmental policy debates—not even on the part of the proponents of certificate trading and the eco-tax. In the meantime, leading politicians are seriously considering taking action in this direction. For the concern is well justified that environmentally harmful industries would emigrate from countries with environmental taxes and then perhaps produce in a much more environmentally harmful way. Then neither job preservation nor environmental protection would be served.

It is important that some leading economic nations implement an effective model of an eco-social market economy. As can be seen in North America or in Switzerland, the trend towards internationalisation then arises all by itself—especially in emissions trading. Like the stock exchanges, this model has an inherent dynamic towards globalisation. A tonne of carbon dioxide in Africa is no less harmful to the climate than a tonne of carbon dioxide in Europe. Globalised markets also need globalised environmental prices. There is only one planet Earth.

Ideally, sooner or later, an eco-social framework for world markets will be agreed on. On the revenue side, this would not be difficult. The pitfall would be located on the expenditure side: To whom is the money for the certificates allocated? Who decides what it is spent on? Ideally, it would have to be distributed per capita of the world's population—the equity principle and the demand for climate justice require this—which would amount to considerable financial transfer from rich to poor countries. Such per-capita distribution would by no means exclude tying the money to ecological or climate protection measures. The question, however, is what can be done to ensure that the money does not fall into the hands of corrupt "elites" in poor countries, but actually benefits such measures.

Another important aspect is added: to protect biodiversity, not only should harmful measures be taxed, but also beneficial ones should be paid for. The farmer who leaves a hedge between his fields, in which birds and small animals find shelter, cannot possibly do this for free. By maintaining the hedge, he is providing a service in the public interest. Now, there are already EU programmes that more or less adequately remunerate such services. But on the one hand, they do not cover everything that agriculture and forestry do to promote biodiversity. And they are also only related to the EU's internal market.

Moreover, if the international community expects very high ecosystem services from some states, e.g. through the protection of the rainforests, then it will have to ask itself, in terms of global justice, how it can financially compensate the landowners for this. The clearing of the rainforests

and the use of the land for livestock farming, palm oil plantations or the exploitation of mineral resources is financially more lucrative than their preservation—and as long as this remains the case, the clearing will continue. We should therefore think about an international fund into which all countries pay according to their economic strength, and which can then pay for globally relevant and above-average ecosystem services.

In 2006, Ecuador offered to leave its oil reserves in the ground in order to preserve the overlying rainforest in the Yasuní National Park. In return, President Rafael Correa wanted the rich countries of the world to pay around 3.6 billion dollars into a fund as compensation for the lost income. Although many countries thought this was a good idea, not even one per cent of the sum was collected. In autumn 2016, Ecuador started drilling for oil in Yasuní National Park.

8.4 (Post-)Growth?

As early as 2011, the WBGU found that the majority of Germans share opinions that are critical of growth. This majority wants a "new economic order" (WBGU 2011, 72). The WBGU assesses this as follows: "The currently reignited debate on alternatives to gross domestic product (GDP) as a welfare indicator can also be seen as an expression of the change in values described." (WBGU 2011, 79) At least in this the WBGU may see itself confirmed as the debates about economic growth remained a faithful and constant accompaniment in the decade following its 2011 report. A response to them must therefore be found.

As a moral theologian, I have very limited competence in answering the question of economic growth. Nevertheless, if ethics wants to be relevant, it must at least mark orientation points and boundary lines for a discourse that, as such, needs a high degree of interdisciplinarity. This is what I will do in the following section.

Historically, it is undoubtedly true that the World Council of Churches withdrew from the social sustainability discourses because of the growth orientation of the Rio Agenda 21 (Markus Vogt 2009, 162, citing John B. Cobb 2005, 1613). Apparently, the growth orientation of the UN programmes seemed to the WCC to imply the dominance of the economic pillar over the other two pillars of sustainability, which it did not want to support under any circumstances. And indeed, it is a "growth drug" (Markus Vogt 2009, 161), which has "typical characteristics of an addiction" (Markus Vogt 2009, 163, quoting Hubert Markl 1992). Supposedly,

economic growth provides meaning and orientation and becomes a value in itself.

In the current environmental debates, there are four proposals for dealing with the growth issue:

- Unconditional affirmation: Growth, no matter how high, is to be striven for because it makes (sustainable) development possible in the first place. Growth should therefore be sustainable above all (Brundtland Report, UNCED Agenda 21, etc.).
- Conditional affirmation: Growth must be narrowly limited but should remain greater than zero. The question is not whether, but how much growth we need (Hans-Christoph Binswanger et al. 1979 and 1983).
- Minus growth (degrowth): In industrialised countries, growth must be reversed to become minus growth because resource consumption must be curbed (degrowth movement; cf. Helmut Haberl et al. 2011, 11).
- Post-growth: Growth must be abandoned as the central indicator of progress and well-being as well as the central driver of the economy. A growth-oriented global economy should then be replaced by a subsistence-oriented economy with regional currencies (Niko Paech 2008).

First of all, there is a broad consensus that growth is unsuitable as an indicator of well-being. Differences only arise with regard to the second role of growth: While the first three proposals ascribe importance to growth as a driver of the economy in the future and only argue about how much and which growth makes sense, the last model attacks growth more fundamentally: Here, growth is also rejected as a driver of and control variable for the economy. In order to achieve some clarification from an ethical perspective, I will briefly discuss both aspects—growth as an indicator of prosperity and growth as an immanent driver of the subsystem economy.

Growth as an *indicator of prosperity* is definitely unsuitable and should be abolished. It is (described in psychological and medical terms) a drug and (described in theological ethical terms) an idol. Idols are supposed gods who put themselves in the position of power of God by inventing facts. Unlike the true God, they do not build up or protect, but destroy. They derive their power from the fact that they are not recognised as idols and are therefore "worshipped" as God by almost everyone. Growth is such an idol because it claims absolute dominance, although it "only" relates to a subsystem of society, namely the economy. Important as it may be, it is neither everything nor the most important thing.

The question is therefore: How can we measure well-being better? After all, a government must aim to shape society in such a way that as much well-being as possible is possible, and this must be measured. Of the many

proposals currently in circulation, I would like to briefly present four of the most prominent:

- Index of Sustainable Economic Welfare (ISEW): This index was developed in 1989 by the World Bank's chief economist Herman E. Daly, who has already been mentioned several times, and the theologian John B. Cobb. It takes into account factors such as income distribution, unpaid domestic work, public spending on healthcare, education, environmental pollution, resource consumption and the costs of global warming. In other words, the three "pillars of sustainability" were mapped out in it even before they were established. Put simply, the index, in economically very orthodox terms, creates an addition or subtraction of the various capitals (natural, physical, human and social capital). One result is that the ISEW of the USA has stagnated since the 1970s, even though the economy has grown considerably. In other words, the growth of the economy has come entirely at the expense of shrinking social and ecological capital. This cannot be called progress.
- Human Development Index (HDI) of the United Nations: This index, which has been compiled since 1990, combines three indicators in a relatively simple way: per capita income as an indicator of standard of living, life expectancy as an indicator of health and the average number of years of schooling as an indicator of education. As its name suggests, it is a development index, not a true well-being index as it is often considered. As such, it should not be over-interpreted.
- Better Life Index (BLI) of the OECD: Surprisingly, the economic organisation OECD developed an alternative indicator in 2011 to measure the well-being of people in member states. In its calculation, it includes objective factors such as income, health and the situation of the environment as well as relational (equality/ inequality) and subjective (life satisfaction) ones. The OECD is thus also aware that economic indicators alone are not meaningful, but that more comprehensive consideration must take place, which equally covers the three "pillars" of sustainability.
- Happy Planet Index (HPI): This index was developed in 2006 by the British think tank "New Economics Foundation" and the environmental organisation Friends of the Earth Great Britain. It is supported by many environmental and development cooperation organisations worldwide. The HPI divides the product of people's subjectively perceived well-being (according to the Gallup World Poll), objective life expectancy (according to UN data) and equality for all social groups by their ecological footprint (of the Global Footprint Network). Strictly

speaking, then, it is not an indicator of well-being, but of the efficiency of extracting as much personal well-being as possible from a limited use of nature. That is why the top ten in its annual rankings are consistently countries with moderate incomes. Costa Rica tops the list, but right behind it are Mexico and Colombia, two countries with high levels of corruption and crime that are hardly suitable as political model states. One has to ask whether measuring well-being with a subjective indicator alone is really meaningful. The ISEW and the BLI take a more solid, more broadly based approach here.

The four indicators mentioned above prove that an intensive debate has been launched in the decades since the Brundtland Report. It still lacks a convincing final result, but it shows promising intermediate results. Economic growth has definitely had its day as an indicator of comprehensive well-being.

But what about economic growth as an *immanent driver of the subsystem economy*? The models of eco-social structural change presented in chapter 8.2 adhere to growth as a fundamental driver immanent to the economy, albeit in a considerably modified form. Is this really "a utopia" (Niko Paech 2009b)? And, if so, what alternatively drives and steers the economy?

In classical economics, the need for economic growth is justified in this way: Through technical progress and human creativity, there are permanent increases in efficiency: a worker can produce more in the same time next year than this year. Productivity increases. At the same time, consumers can consume more next year for the same money than they can now. Their purchasing power has increased. So, there will be something left on the consumers' account next year if they consume exactly the same as this year. They can afford additional goods. At the same time, workers can produce more with the same working hours. The economy grows. But why do we need efficiency gains? Well, the competition never sleeps. Those who do not innovate and increase efficiency will sooner or later be squeezed out of the market.

In this model, negative growth can have two causes: Either there is a decline in intellectual capacity (because, for example, well-educated workers retire and less qualified ones move up), so that efficiency unintentionally declines or stagnates. Or, and this scenario is often overlooked, a society voluntarily decides to work less and consume less. In this second case, there would be a non-monetary efficiency driver that replaces economic growth in this role, namely the desire for more leisure time. Indeed, the interchangeability of time and money, expressed in the saying "time is money", only exists in the case of paid work time. The monetary value of

leisure time is not taken into account in gross domestic product, whose growth we measure. In this scenario, we would be dealing with an increase in efficiency that would not be monetarily motivated, but would achieve its economic goal of remaining competitive.

The growth model as an immanent driver of the subsystem economy has, of course, further weaknesses: Intrinsically, economic growth is designed to shrink towards zero. Even a constant absolute increase in productivity means an ever smaller relative percentage of economic growth. This can be well demonstrated empirically with a single glance at the growth rates in the major industrialised countries since World War II. The high growth rates of the “economic miracle years” will never be attainable again. Nevertheless, many countries have high employment rates and solid job creation. Growth does not seem to be as decisive for productivity as previously assumed.

From an ecological point of view, it must also be considered if environmental protection is (only) made with the profits of the economy, the environment is subordinate and environmental protection is post-cautionary, not precautionary (Markus Vogt 2009, 163). Conversely, in the current model of the market economy, only post-cautionary (technical, efficiency-oriented) environmental protection opens up opportunities for growth—precautionary (sufficiency-oriented) environmental protection reduces growth (Markus Vogt 2009, 162). Ecology and growth stand as mutual obstacles in each other's way—at least in advance of the structural changes proposed above. If economic growth is to have a future as a driver, it must therefore move away from a material orientation towards an orientation towards services and spiritual values—also in poorer countries (Markus Vogt 2009, 163). The structural change models presented in chapter 8.2 ultimately go precisely towards quantifying environmental goods in monetary terms. This allows the economy to grow if it maintains and promotes these goods and to shrink if it does not. GDP as a measure of growth would thus become environmentally sensitive. Reconceptualised in this way, it could retain some significance in the future.

In the previous chapter, we characterised ecological conversion as a turnaround in both individual behaviour and the “structures of sin” that govern it. Without fundamental structural changes in the field of the economy, the process of greening remains stuck in the first steps. But it does not have to be this way. The day may come when the “money value of creation” (Michael Schramm 1995) speaks the “ecological truth”. Until then, however, there are still many obstacles to be cleared out of the way.